OBSIDIAN AVAILABILITY THROUGH TIME: LITHIC ANALYSIS AT LA TIZA AND PATARAYA, NASCA DRAINGE, PERU

THESIS

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Chapter 1

Introduction

The South Coast of Peru, home to the Nasca people, is best known in popular culture for the large geogylphs the Nasca peoples drew in the desert. The sensational lines draw the bulk of the public's attention, and less consideration is given to the people who created them or the material remains of their lives. A great deal of archaeological research has been conducted on the ancient Nasca but one critical area that has been largely ignored by the archaeologists is the stone, or lithic, tool assemblages, recovered in archaeological sites. Archaeologists have carried out extensive work to locate the sources of the obsidian used throughout the Peruvian Andes, but this is where most lithic investigations stop.

The aim of this study is to examine the lithic materials at the sites of La Tiza and Pataraya, and to determine whether there is a significant change in lithic reduction strategies over time. Specifically, I examine the availability of obsidian, an imported material, through time by examining the reduction choices made by the ancient inhabitants. I also examine local sites within the Wari empire and Imperial Wari sites for any differences in raw material access. Lastly, I undertake a simple examination of the intra-site distributions to determine whether specialized obsidian reduction or disposal areas were being utilized.

This study presents the results of analysis of previously excavated materials from the sites of La Tiza and Pataraya in the Nasca Drainage. An overview of the regional environment along the South Coast of Peru is presented in Chapter 2, followed in Chapter 3 by a review of the cultural development in the Andes and the South Coast of Peru. The previous research in lithic studies in the Andes, primarily obsidian sourcing, but supplemented with lithic research from North America, is presented in Chapter 4, with brief overviews of La Tiza and Pataraya in Chapter 5. In Chapter 6 I discuss the methodology employed in this study, followed by the results in Chapter 7. Chapter 8 presents my interpretation of the data and discusses implications of this study, with final conclusions in Chapter 9.

Chapter 2

Regional Environment

Figure 1: Map of the South Coast showing location of the Nasca Valley (Schreiber and Rojas 2003:2

The South Coast of Peru is a land of marked contrast between one of the most bountiful seas in the world and one of the world's driest deserts (Figure 1). Upwelling cold ocean waters bring nutrients to the surface, supporting rich sea life. At the same time, this creates conditions that, due to the mountains, cause little rain to fall on the coast (Moseley 1975). Climatic and geological conditions only magnify the effects of little to no rain in the region. The area around Nasca, specifically the Rio Grande drainage, is particularly affected by the lack of rain. This makes permanent habitation of the area a challenge, and rivers vital to life in the region. The nature of the rivers in the southern Rio Grande drainage present a particular challenge because of characteristically low volumes and intermittent flow. This combination of offshore currents and hydrological conditions has created a unique environment that greatly impacted the cultures that inhabited the region.

Today the Pacific along the coast of Peru remains an important source of fish for the modern inhabitants. The rich marine environment is a result of the convergence of four ocean currents (Moseley 1975). The rich Humboldt Current hugs the coast and skims off the surface waters, prompting an upwelling of cooler water from the deeper counter-current. These rising waters bring with them large amounts of nutrients creating an environment rich in marine resources.

This cold-water upwelling limits evaporation, keeping atmospheric moisture to a minimum. This air moves over the coastal plain causing it to warm, increasing its ability to retain moisture. This results in frequent fog-shrouded days, though rain rarely falls at elevations below 2500 m (Moseley 1975:8). The coastal breeze also limits temperature variations, creating essentially two seasons: for about four months, beginning in January, the coast experiences a sunny season, though there is rain in the highlands of the Andes. Conversely, between June and October the coast has a season of fog, and the highlands are dry (Moseley 1975:8). These patterns result in variable amounts of surface water availability on the desert coast. The sharp rise of the Andes plays a critical role in water distribution. Climbing suddenly less than 60 km from the coast, the Andes cause the air moving across the coastal plain to rise and cool, releasing its moisture. Although the majority of rain drains into the Amazon basin, a portion flows west through the desert. The runoff from the Andes represents the only measurable surface water in the desert.

The Nasca river system is as critical to modern inhabitants as it was to prehistoric peoples. The major river system is the Rio Grande de Nasca, which is composed of several rivers that all flow to the Pacific through a single channel outlet (Schreiber and Rojas 2003:24). The major rivers present in this system are, from north to south, the Santa Cruz, Grande, Palpa, Viscas, Ingenio, Nasca, Taruga, and Las Trancas. A series of coast hills forces these rivers to join together to form the Rio Grande de Nasca before flowing into the Pacific.

The Andes and the coastal hills evidence the region's tectonic history. The raising of the Andean banolith formed the base of the structure of the Andean range (Schreiber and Rojas 2003:21-4). This activity was coupled with intense volcanic activity, creating a rich layer of metamorphic rocks and a broad flat basalt cap. This basalt cap is the base of the *puna* lands, ideal for grazing camelid herds. The river valleys and associated slopes are overlaid by a layer of windblown and fluvial sediment.

These sediments have high ash content as a result of volcanic activity that formed the Andes (Eitel and Mächtle 2009). The pampa is a broad flat plain home to the famous Nasca lines, and was created by the uplifting of an ancient shallow bay. This plain now lies 400-500 meters above sea level, situated between the smaller, older coastal hills and the towering Andes. This uplift exposed large fields of sand which, in conjunction with the high winds known locally as *Paracas,* cause the formation of shifting sand dunes in the area. One of the most remarkable features in the Nasca area, Cerro Blanco, is the largest of these dunes (Figure 2). Cerro Blanco is one of the many sacred peaks in the area. Mythologically, such sacred mountains are homes to mountain deities called *apu* or *huamani*. Cerro Blanco is believed to be the source of water found in *puquios*, which are horizontal wells that tap underground water.

Figure 2: Cerro Blanco viewed from the site of La Tiza (Photo by author).

The drainage pattern of the Rio Grande de Nasca is divided into a northern group of rivers and a southern group (Schreiber and Rojas 2003:21). The northern group includes the Santa Cruz, Grande, Palpa, Viscas, and Ingenio. The Grande River has the greatest volume of water of all rivers in Nasca, while the Santa Cruz has the least of the northern rivers and flows only intermittently. The southern drainage is comprised of the Aja, Tierras Blancas, Taruga, and Las Trancas rivers, with the Aja and Tierras Blancas joining to form the Nasca River. This study focuses on the site of La Tiza, which is located at the juncture of these two tributaries. The unusual arrangement of foothills found in the Nasca valley forces the river to take a roundabout path to the sea. This coupled with the desert pampa, means that inhabitable, arable land tends to lie far from the coast (Schreiber and Rojas 2003:24). This is in stark contrast to most other Peruvian valleys, which have large expanses of arable land in the alluvial fans found near the sea. In the Nasca region, however, the best arable land is distant from the coast, and this is complicated by the narrowing of the valleys closer to the Andes. Land capable of sustaining human populations is therefore very limited in this area.

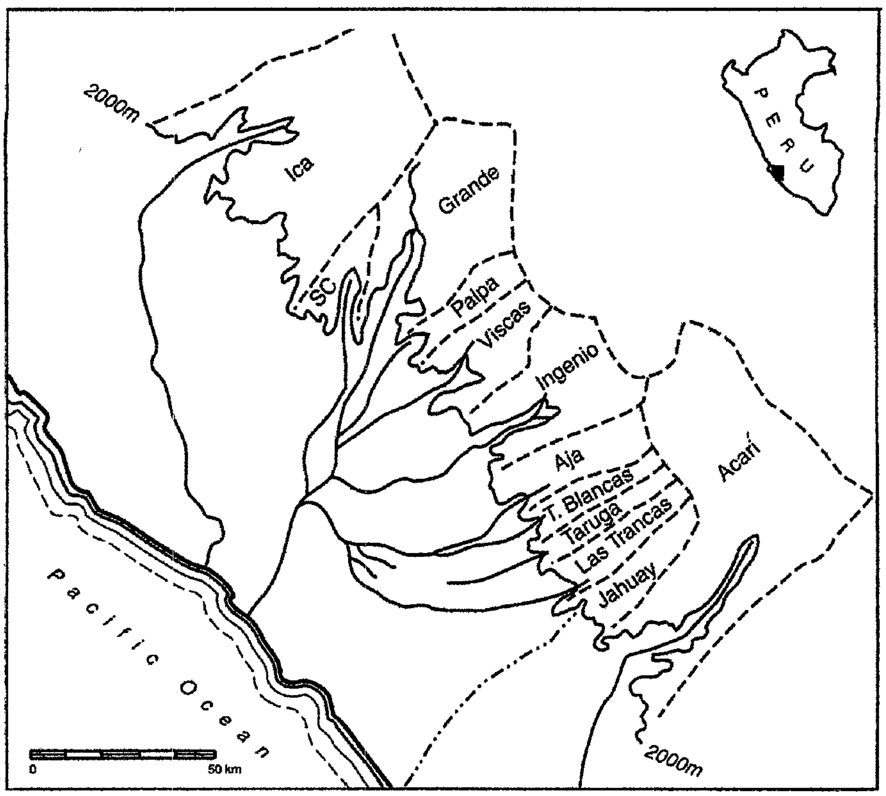

Figure 3: Map showing the rivers of the Nasca drainage and their approximate catchment areas (Schreiber and Rojas 2003).

The amount of water in a given valley is dependent upon which river flows through it (Schreiber and Rojas 2003:28). The Northern drainage, especially the Grande River, has much higher water volume throughout the year. The exception to this rule is the Santa Cruz River, which has water volumes comparable to those of the Southern drainage. The flow of water through the Southern drainage does not approach that of the north, even during peak flow. It is not unusual for the southern rivers to stop flowing completely during the drier portion of the year (Eitel and Mächtle 2009). The reasons for this are twofold: the smaller catchment area of the southern drainage, and the high rate of infiltration in the south (Figure 3). The catchments of the southern drainages are relatively small, flowing in a nearly-straight path down the western slope of the Andes with few tributaries (Schreiber and Rojas 2003:28). The catchment of the Acarí River to the south of the Nasca drainage extends around and behind the southern drainage, further diminishing the runoff channeled down into the southern valleys. Soil infiltration is another problem in the area due to the soil's sizeable ash component, which allows much of the collected water to make its way through the soil. Water loss due to infiltration is more pronounced closer to the valley floor, particularly around 1200 meters above sea level (Schreiber and Rojas 2003:28). This creates influent streams flowing on the surface for some distance before dropping completely below the surface. This subsurface flow of water is known as the phreatic layer.

The phreatic layer represents the only usable water in the southern drainages during most years. In years of good rain the rivers may flow continuously for their entire lengths, though this has only been observed to occur in about two out of every seven years (Schreiber and Rojas 2003:25). The point at which the rivers begin to flow completely underground varies based on the annual rainfall in the Andes. Natural subterranean faults channel additional water into the flow of the phreatic layer. The rivers continue to flow towards the sea underground and reappear aboveground around

400 meters above sea level. Unlike the point of complete infiltration, the location of reemergence does not vary. The places of the rivers reemergence is so consistent that it seems to have dictated the routes of ancient roads, which wound from one water source to the next. The phreatic layer can be tapped in other areas of the valley through wells and other types of human constructions that reach down through the layer of heavy infiltration (Silverman and Proulx 2002:45-49). This is particularly important since the areas with the greatest arable expanses lay in those places where surface water is only available during years of flood (Schreiber and Rojas 2003:32, Silverman and Proulx 2002:48).

The environmental factors of small tracts of arable land, little or no rainfall, and primarily-underground rivers created a unique set of challenges for the inhabitants of the southern Nasca valleys. The lack of available water limited agricultural settlements to the interior valleys (Schreiber and Rojas 2003:5; Silverman and Proulx 2002:44), though settlements along the coast existed much earlier. Before the influx of peoples during the Early Horizon (800-1 BC), small groups dependent on the areas where water is consistently available for crops may have existed in Nasca Drainage (Silverman 1996). There is evidence of their occupation along the Acarí River and in the Pisco valley during this era. With the establishment of permanent agricultural settlements in the Rio Grande de Nasca, the need for greater quantities of water resulted in the residents tapping into the underground water systems through a series of wells called *puquios* (Schreiber and Rojas 2003:1).

The unique environment along the South Coast of Peru offers great bounty in the sea and harsh aridness on land. These factors are a result of the ocean currents and the land forms present in the area. Human occupation of the Nasca drainage has been greatly influenced by these environmental factors forcing people to adapt to the environment in unique ways to survive in this harsh environment.

Chapter 3

Cultural Development

The Nasca region is best known for the large geoglyphs drawn in the desert by its Nasca inhabitants. Less well-known are the peoples who occupied the valley before the Nasca culture. The cultural development of Peru is generally divided into alternating Horizons and periods (Rowe 1967). A Horizon is a period where a wide spread cultural tradition dominates the Andes, while periods are dominated by localized cultures.

The earliest inhabitants of the Nasca region were likely the Paleoindians of South America, though their presence in the Rio Grande region has not been confirmed by archaeological evidence (Table 1; Schreiber and Rojas 2003:10). The Paleoindian subsistence depended on the hunting of large mammals, as suggested by the presence of large fishtail projectile points during this period in other areas of the Andes (Moseley 2001). The Early Archaic period (8000-6000 B.C.) saw a shift from the hunting of large mammals to a greater dependence on plants and small game animals (Moseley 2001; Schreiber and Rojas 2003). Like the Paleoindian period there is no definative archaeological evidence to point to Early Archaic occupation of the Rio Grande de Nasca valley itself (Schreiber and Rojas 2003).

Table 1: Peruvian Chronology

Horizon and Periods	**Culture**	**Approximate Dates**
Late Horizon	Inca	A.D. 1476-1533
Late Intermediate period	Ica, Tiza	A.D. 1000-1476
Middle Horizon	Loro, Wari	A.D 750-1000
Early Intermediate period	Late Nasca	A.D 500-750
	Middle Nasca	A D. 400-500
	Early Nasca	A D. 1-400
	Proto-Nasca	200 B.C.-A D 1
Early Horizon	Paracas	800-200 B C.
Initial period		1800-800 B C
Archaic periods	Late Archaic	2500-1800 B C
	Middle Archaic	6000-2500 B.C
	Early Archaic	9000-6000 B.C
Paleo-Indian period		13,000-9000 B C.

Middle Archaic period (6000-2500 B.C.) represents the first period with archeological evidence of settlement in the valleys of the Rio Grande de Nasca is found (Schreiber and Rojas 2003:11). The subsistence of Andean peoples during the Middle Archaic was based on marine resources along the coast and hunting and gathering in the sierras. There is strong evidence of occupation of the Nasca region during this time period, including a permanent structure near the site of Cahuachi (Isla 1990). The presence of mollusk shells at this site implied that marine resources contributed to the diet to some degree. There is also funerary evidence of occupation at the site of Pernil

Alto with a small number of burials dating to the Middle Archaic having been recovered (Cuadrado 2009). The site of La Tiza has produced a small number of obsidian flakes and organic materials that have been dated to the Middle Archaic period (Conlee 2010; Conlee et al. 2009).

The Late Archaic period (2500-1800 B.C.), or the Cotton Pre-ceramic, saw the beginnings of cultivation by indigenous populations along the North and Central coast (Moseley 2001; Schreiber and Rojas 2003:11). The subsistence of coastal inhabitants centered on the lucrative marine resources. The valley's inhabitants cultivated cotton and other industrial crops primarily for domestic use, such as fishing nets. Major settlements from this time period are located in areas that had easy access to the sea and river valley bottoms for the agricultural fields. The majority of Late Archaic settlements were located along the north and central coasts with relatively few sites along the south coast (Schreiber and Rojas 200311-12). The site of Upanca (Figure 4) represents one of the few Late Archaic occupations in the southern Nasca region (Vaughn and Grados 2006). The archaeological materials recovered from Upanca were limited to faunal remains and lithic debris containing obsidian from the Quispisisa source in the central highlands of Peru. This demonstrates a connection to the highlands, and the value of this source of obsidian early in the occupation of Nasca.

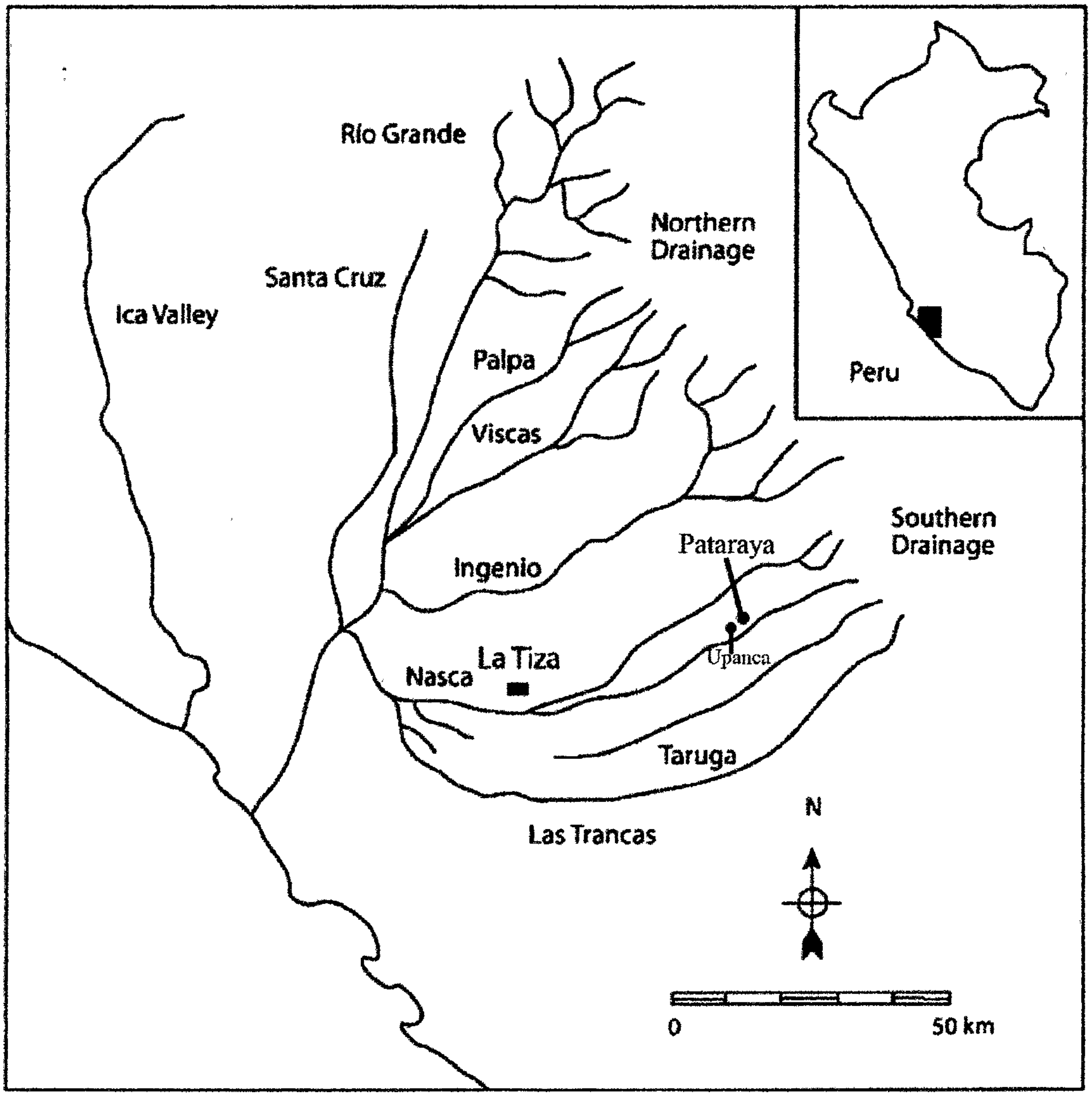

Figure 4: Map of the Nasca region showing important sites mentioned in the text (from Conlee 2007).

The Initial period (1800-800 B.C.) represents a major change in the lifestyles of ancient Andean peoples (Moseley 2001; Schreiber and Rojas 2003). Along with an increasing dependence on agriculture, there is a shift to the construction of large ceremonial and pilgrimage centers in some areas of the Andes. These centers are frequently found on the northern and central coast of Peru. In the south, however, these major ceremonial sites were absent, though there is much evidence of farming community sites. The Rio Grande de Nasca is sparse in evidence for occupation, with only a few sites having been located, such as Upanca in the southern drainage (Vaughn and Grados 2006) and Pernil Alto in the northern drainage (Cuadrado 2008; Unkel and Kromer 2008). The Initial period occupation at Upanca is extensive with terracing, some of which most likely dates to the Initial period and would indicate that domesticated plants were playing a role in the inhabitants' subsistence strategies.

During the Early Horizon (800 B.C. - A.D 1) the development of the Chavín cult had a major impact on the inhabitants of Peru. The influence of the Chavín cult was most profound in the northern and central valleys of Peru (Moseley 2001). The culture on the south coast with the most Chavín-like characteristics is the Paracas culture (Paul 1991). Though it post-dates the period of Chavín influence, the Paracas culture still falls into the period known as the Early Horizon. The Paracas culture best known from excavations of cemeteries on the Paracas Peninsula (Moseley 2001; Paul 1991). These excavations revealed two distinct burial traditions: the Paracas Necropolis and the Paracas Cavernas traditions. Though they existed roughly contemporaneously, they had different cultural and spatial characteristics. In the Nasca region, the La Puntilla phase (400-200 B.C.) saw the colonization of the southern tributaries of the Rio Grande de Nasca, with the establishment of the first villages in the area (Schreiber and Rojas 2003; Van Gijsegham 2006). Village size suggests planned colonization, as they are larger than would be expected if only small groups were settling the area. The northern tributaries also saw a considerable amount of settlement during this period.

The demise of the Chavín culture and the reduced importance of its cult marked a period of transition for many areas of Peru (Moseley 2001). The northern highlands and the central coastland show the emergence of new ceramic traditions, as well as evidence of increased violence during this period. Based on archaeological evidence, the South Coast appears to have been much more stable (Schreiber and Rojas 2003). The period known as the Montana period (200 B.C. – A.D. 1) was a time of growth in which settlements become more numerous and spread out through the valleys of the Rio Grande de Nasca drainage. This period is also marked by the development of exquisite textile traditions, which may indicate the emergence of craft specialization in the area. Use and construction of the large ceremonial site at Cahuachi likely began during this period as indicated by the ceramics found in the extensive cemeteries there. At the end of the Montana period the majority of sites were abandoned, only to be reestablished in new locations. This later period of the Early Horizon sees the first major occupation of La Tiza with analyzable quantities of lithic materials (Conlee 2010).

The Proto-Nasca culture (200 B.C. - A.D. 1) emerged out of the Late Ocucaje Paracas peoples who moved into the Nasca drainage from the Ica Valley to the north. This culture existed in the area from the end of the Montana period into the Early Nasca (A.D. 1-400) period (Van Gijsegham 2006). These Paracas peoples lived in a frontier zone, not pushing out until the later periods of the Early Horizon. They sparsely settled in the small areas where agriculture was possible within the Southern Nasca drainage. The size of the migration indicates that the population movement was likely planned as it does not fit the pattern of single family migration. This period represents the first period from which a large number of lithics were recovered at La Tiza, allowing more detailed analysis. Of particular note here is the Silverman's belief (1996) that the Paracas people of the Ica valley were participating in the Quispisisa obsidian network as part of their trade with highland areas, as well as other areas of Southern Peru. This elite controlled trade network was focused primarily on the trade of exotic goods, such as obsidian, evidencing direct communication between the Central Highlands and the South Coast, particularly the Paracas area and its rich coast.

The end of the Proto-Nasca period is followed by the rise of the Nasca culture (A.D. 1 - 750) during the Early Intermediate period (Moseley 2001). The development of the Nasca culture can be divided into three distinct patterns the Early Nasca, Middle Nasca, and Late Nasca.

Early Nasca (A.D. 1-400) represents the most widely known of the Nasca time periods (Schreiber and Rojas 2003:17), known for its finely-made painted ceramics, with designs encompassing the natural and supernatural worlds. These designs evolved out of the earlier Paracas textile patterns, and fine textile manufacturing continued into the early part of this period (Sawyer 1961). These ceramics are found in many parts of the Andes, indicating that by this period trade networks had become well-established (Moseley 2001; Silverman and Proulx 2002). The large ceremonial center of Cahuachi appears to have been a central location in the religious life of the inhabitants of Nasca (Silverman and Proulx 2002). The construction of large pyramids and platform mounds mark Cahuachi as a probable pilgrimage site, much like the northern and central coast sites during the Late Archaic and Chavín de Huantar in the Early Horizon (Moseley 2001).

Cahuachi is also surrounded by extensive cemeteries, which in some cases extend as much as 10 kilometers around the site (Schreiber and Rojas 2003:15). This shows that Cahuachi was central to the region's mortuary practices, even though habitation in the lower valley is relatively rare. Habitation refuse has, however, been found at Cahuachi, indicating that at least a small population was in permanent residence (Silverman and Proulx 2002:99). It is probable that religious, and possibly political, elites were the permanent residents, with others visiting the site as a pilgrimage center. Cahuachi was not the only ceremonial center in Nasca, though it is by far the largest. Other sites likely acted as subsidiary religious centers for local inhabitants in the area (Schreiber and Rojas 2003:15).

The social organization of the Early Nasca people was both politically and religiously complex. Early Nasca society was composed of a series of self-sufficient villages that participated in group feasting and ceremonies (Vaughn 2004; Vaughn et al 2006). Large labor projects at sites like Cahuachi and its smaller satellite sites required the coordination of large numbers of people, speaking to the ability of elites to organize the inhabitants for monumental construction projects. The settlements located throughout the Nasca region and surrounding areas follow a pattern of scattered small settlements with no evidence for larger towns or cities (Schreiber and Rojas 2003:16). These small villages were economically independent and were controlled by local elites as evidenced by the presence of elite households. The local elites likely maintained their power through their knowledge of ritual.

The Nasca culture underwent a significant change during the Middle Nasca period (A.D. 400 -A.D. 500; Schreiber and Rojas 2003:16-17; Silverman and Proulx 2002). The ceramic style employed by the Nasca people went from the "monumental" style of the Early Nasca to the "proliferous" style of the Late Nasca period in response to these social changes (Proulx 2006). Construction at Cahuachi had ceased by this time although the site maintained its mortuary role in Nasca culture (Schreiber and Rojas 2003). Evidence also points to a shift in settlement patterns, with people abandoning older villages and creating larger settlements in new locations. The Late Nasca period (A.D. 500-750) continued the patterns of change that began in the Middle Nasca phase (Silverman and Proulx 2002). Settlements continued to grow, though there were fewer settlements in total, possibly to facilitate defense (Schreiber and Rojas 2003:17). The ceramic styles also continued to change, becoming more abstract and using the "proliferous" designs. Warrior depictions on ceramics become much more frequent during this period (Proulx 2006:44). Cahuachi remained important in the mortuary rituals of the Nasca people, though no new construction was undertaken. This period represents the least understood in Nasca culture, though it is one of the most important with clear evidence for a change in settlement patterns and likely a shift in social and political organization (Schreiber and Rojas 2003:17). Lithics from all three phases of Nasca culture were included in this study and included together as one sample.

Following the end of the Nasca culture a major cultural change occurred with the arrival of the Wari Empire, which conquered the Nasca region and most likely imposed its political agenda upon the area (Schreiber and Rojas 2003:17-18). The period of Wari

Empire governance is known as the Middle Horizon (A.D. 750-1000) in Peru. The empire's capital city of Wari was located in the Peruvian highlands, in the Ayacucho Basin. The Wari came to conquer and administrate a large portion of the Andes, with the Cuzco area being the southern limit and Cajamarca being the northern limit. Consequently, much of the coastal region fell under Wari control. The Wari maintained their empire through the establishment of administrative centers throughout the empire. These centers acted to maintain control and to facilitate the economic interests of the Wari, including collection and distribution of goods. The capital, located near the Quispisisa obsidian source, and many of the imperial sites are characterized by a core of planned constructions with rooms and walled enclosed areas (Figure 5). The size and complexity of these structures indicates the investment of large amounts of labor (Schrieber 2006). These imperial constructions likely would have influnced the lives of inhabitants of newly-conquered areas.

The reaction of local peoples to the imposition of Wari control is not completely clear though it varied but region (Schreiber 2001). This period of Wari administration is referred to as the Loro period in the Nasca region, with Loro representing the local Middle Horizon culture. There is an indication of a complex relationship between the Nasca and Wari people with some groups moving away from Wari sites and establishing new ones in the southernmost part of the drainage, and others who appeared to have interacted closely with the Wari state (Conlee 2010; Conlee and Schreiber 2006; Schreiber 2001).

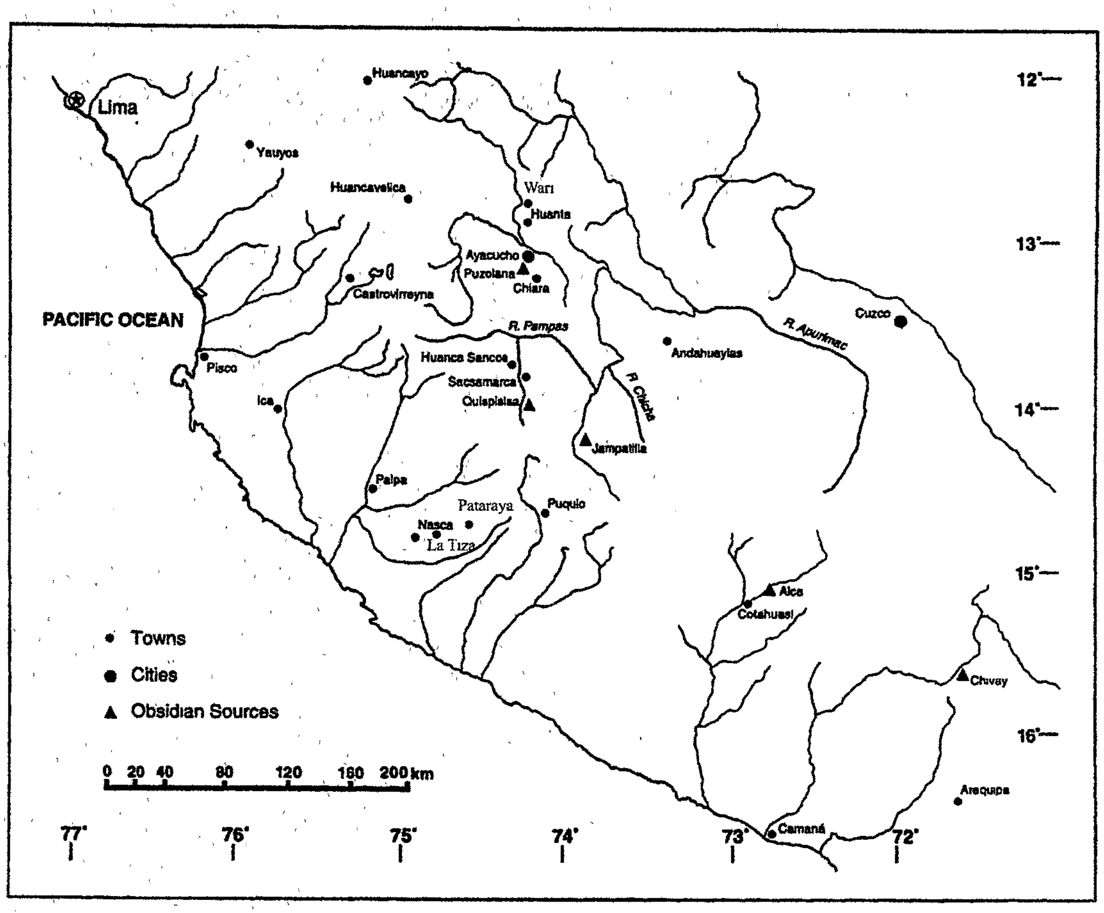

Figure 5: Map showing the locatin of key obsidian sources and sites mentioned in the text (from Burger and Glascock 2000:259).

The Wari established administrative centers in the Nasca region, such as the sites of Pacheco in the middle Nasca Valley, and the smaller center of Pataraya in the upper Tierras Blancas Valley (Schreiber 2001). The imposition of Wari control over the Nasca region also brought new peoples to the region and a shift in settlement patterns. Along with these migrations came new cultural practices, evidenced by the construction of a new style of tomb for elites (Conlee 2010) and the presence of Wari imperial ceramics at La Tiza. Both of these factors indicate a strong tie between La Tiza and the Wari State. Conlee (2010) suggests that these new style of tombs may have been the result of foreign peoples moving into the area, as local burial styles from earlier times continued alongside these new tombs. Strontium analysis of human remains in one of the tombs at La Tiza indicates that the individual was an immigrant (Conlee et al. 2009). This suggests that the elites buried in the new tomb type founds at La Tiza were foreigners (Conlee 2010). A large number of lithics recovered from both La Tiza and Pataraya dating to the Middle Horizon were analyzed in this study.

Yet another settlement pattern shift took place after the Wari demise. The population of the Nasca region dropped and there was a move to more hidden and defensive locations. The exception to this tendency seems to have been the Southern Drainage (Schreiber and Rojas 2003:18). The site of Pataraya was abandoned as the Wari left the area (Schreiber 2005).

The end of the Wari Empire ushered in a period which once again saw the proliferation of localized cultures. This included the Chimu state on the north coast of Peru as well as many other regional cultures (Moseley 2001; Schreiber and Rojas 2003:18). This period is known as the Late Intermediate period (A.D. 1000-1476) in the Andes of Peru (Moseley 2001; Schreiber and Rojas 2003; Vaughn et al. 2006). The Nasca region followed its own developmental course during this period, with a greater population and greater social complexity creating a culture unique from that of the Early Intermediate period (Conlee 2003, 2005, 2006). This local culture is known as the Tiza culture. This period was characterized by several localized ceremonial structures and was centered on local elites and their ability to integrate the inhabitants of the region. The Tiza period represents a time of population expansion when many new settlements were established, including many large towns. There is also evidence for increasingly complex economic interaction in the valley. Excavations at La Tiza produced lithics from this period which are included in this study.

Beginning in Cuzco around the middle of the fifteenth century, the Inca Empire expanded its territory into surrounding areas (Moseley 2001; Schreiber and Rojas 2003:18-19). From their capital city of Cuzco, the Inca would eventually conquer all of the Andes and much of the coast from Ecuador to Chile, creating the largest indigenous empire of the New World. The Inca conquered the south coast around AD 1476 and met with little resistance in the Nasca region. The Inca established the site of Caxamarca (Paredones today) in the Nasca Valley and La Legua in the Ingenio valley, though these sites may have been established as personal retreats for the emperor as opposed to administrative sites (Schreiber and Rojas 2003:18-19). Archaeological evidence suggests that little was changed under Inca rule and that the Inca likely left local control in the hand of Nasca's existing elites.

In 1533 the conquistador Francisco Pizzaro killed the Inca emperor Atahualpa, leaving the Spanish to take control of the Inca Empire (Moseley 2001). The Nasca region was owned by Don Francisco Nanasca, whose name became attached to the area (Schreiber and Rojas 2003:19). The Jesuits went on to acquire large amounts of land in the region from Nanasca especially in the Ingenio valley.

Chapter 4

Lithic Studies

Lithic studies of the complex societies of the Andean Coast are rare, and lacking completely for many geographical areas. Obsidian sourcing techniques has recently experienced an upsurge in interest in Peru, resulting in the identification of several major and minor sources throughout Peru (Burger et al. 1998a, 1998b, 1998C; Burger and Glascock 2000; Glascock et al. 2007). The study of the lithic materials from a site can be used to elicit information pertaining to the nature of reduction undertaken and the availability of raw materials. The examination of formal and informal tool ratios and the occurrence of bipolar reduction in an assemblage were utilized to determine the availability of obsidian at La Tiza and Pataraya.

Obsidian Sourcing: The extensive investigation into the source of obsidian found at archaeological sites throughout Peru has led to the identification of three primary obsidian sources and eight minor sources across the region. Obsidian from the major sources was traded over wide areas, while obsidian from minor sources is usually utilized in areas near to the source. The Quispisisa, Alca, and Chivay sources are the major obsidian types found at various sites in Peru (Figure 5). Trade networks distributed Alca obsidian through the southern highlands, and Chivay obsidian was primarily traded in southern Peru and Bolivia (Burger et al. 1998a; 1998b). Obsidian from the recently located Quispisisa source was transported throughout most of Pre-Hispanic Peru (Burger and Glascock 2000). Burger and Glascock (2002) also note that during the Middle Horizon the areas where Quispisisa obsidian was utilized expanded greatly encompassing the majority of the Wari Empire, indicating it was an important source for the Wari.

Investigations at Marcaya, an Early Nasca site in the upper elevations of the Nasca drainage, revealed that the only major source of obsidian present at the site is Quispisisa (Vaughn and Glascock 2005). The distance between Marcaya and Quispisisa represents a few days walk up the valley and across the Pampa. The transport of obsidian could have been organized around highland herders descending to trade with the coastal peoples on a household level, an elite-controlled distribution network, or some hybrid incorporating both systems of trade (Vaughn and Glascock 2005). There is also the possibility of direct expeditions to recover raw materials from the highlands by coastal peoples.

An interesting question associated with this distribution pattern is the presence of only Quispisisa obsidian at the site of Marcaya. This is particularly interesting because a road used by the Wari runs directly past the minor Jampatilla source of obsidian and into the Nasca drainage (Vaughn and Glascock 2005). Burger et al. (2000) explain the dominance of Quispisisa obsidian in areas around Jampatilla by citing the later source as having inferior flaking qualities. This made it less desirable for tool production. The smaller size of Jampatilla obsidian nodules may have also have contributed to the dominance of Quispisisa obsidian.

Reduction Strategy Studies: The paucity of studies on the lithics of ancient societies in the Nasca region forces one to utilize lithic studies from other regions of the world. Heavy emphasis on lithic studies in North America has created a great deal of information on lithic reduction strategies and will be borrowed from heavily here. Bipolar reduction has been documented in several areas of the world as a response to different characteristics of the raw materials utilized (Andrefsky 2005:241-2; Hayden 1980; Shott 1989). The analysis of formal and informal tools as well as the ratio between them has also been studied, particularly by Andrefsky (1994, 2005:159) who related these ratios to the availability of lithic raw materials. These studies are used as a basis for this study of the lithic raw materials found at La Tiza and Pataraya.

Bipolar reduction is a technique that utilizes an anvil, on which the core is placed and struck with a percussion instrument to produce flakes (Crabtree 1972). Bipolar reduction is generally undertaken in response to specific conditions related to the raw material from which lithics are produced. The reasons for undertaking bipolar production are: a shortage of raw materials (Goodyear 1993), small cobble size, "soft" cortex, or the desire for small sharp slivers of material (Hayden 1980). Small cobble size and a shortage of raw material are the two motivations which apply most readily to this study. Reaction to small cobble size is a distinct possibility, as a preliminary study has indicated that obsidian was not locally available and had little cortex present. This would suggest it had been reduced before it was brought to the site.

Hayden (1980:3) points out that replication studies have shown that several different features are found on bipolar cores and flakes. These features include: crushing, battering, fracturing and shearing at both ends, lack of a true striking platform, square to sub-rectangular shape, a single axis for all flake scars, shearing fractures, as well as lenticular cross-section and side views. These features are ubiquitous to bipolar cores, consequently the identification of bipolar reduction in an assemblage is best done through the identification of several of the features listed above. The presence of large amounts of chunky debris is also a feature of bipolar reduction, and is related to the uncontrollable nature of this reduction process.

The formal-to-informal tool ratios found at sites has been studied by archaeologists in North America and, according to Andrefsky (1994), can be used as an indirect measure of the availability of raw material at a site. The analysis is based on the principle that expedient tools are quick and easy to make (Andrefsky 2005). Formal tools, on the other hand, have a much longer use life and allow the user to re-sharpen them many times. This would mean that in situations where there was a limited amount of raw material the impetus would be to produce formal tools in an effort to conserve the material. It must be remembered, however, that the material being used must be of sufficient quality to manufacture formal tools.

There are four possible conditions, in regard to raw material availability and quality that influence the ratio of formal to informal tools in an assemblage (Figure 6). A situation where the available materials are abundant and high quality results in about equal numbers of formal and informal tools in the assemblage. High availability of low quality materials results in more informal tool production (Andrefsky 1994). A situation with high quality materials in short supply results in primarily formal tool manufacture, while low availability of low quality materials results in the production of predominately informal tools.

Analysis of platform type offers a great deal of information about the activities undertaken at a site (Andrefsky 2005). Striking platform type can be used to illuminate the processes undertaken in a lithic reduction sequence. The striking platform is the point at which the hammer strikes the raw material to produce flakes. Lipped platforms, among many other attributes, are primarily associated with the reduction of bifacial tools. These flakes, however, do not differentiate between the initial tool reduction and the rejuvenation of tools after use (Andrefsky 2005).

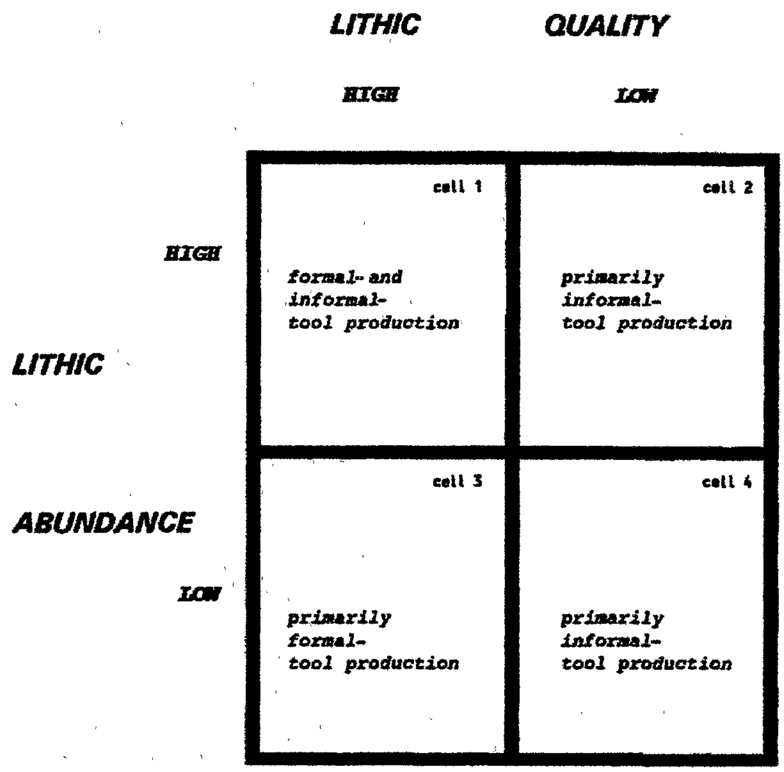

Figure 6: Chart depicting the possible combinations of lithic abundance and quality and the tools that result from those conditions (Andrefsky 2005:159).

Tool ratios, bipolar reduction and platform types are all important measures of the reduction strategies undertaken at a site. The obsidian sourcing studies carried out in the Andes have illuminated the most probable sources of obsidian within the Nasca drainage. Analysis of bipolar reduction at a site, and the ratio of formal to informal tools, can be used to gauge the level of obsidian availability at the site during different cultural periods. The coupling of obsidian availability with the obsidian sourcing can be utilized to drawn a more complete picture of the exchange patterns of the ancient inhabitants of La Tiza and Pataraya.

Chapter 5

La Tiza and Pataraya

The lithic materials presented in this study come from two sites in the Nasca Drainage, Peru: La Tiza and Pataraya. La Tiza is a site with a long occupation history, spanning the Middle Archaic period through the Late Horizon. Pataraya on the other hand is a single occupation site established during the Middle Horizon. Below is a brief discussion of each of the sites and their location in the Nasca area.

La Tiza: The site of La Tiza is located in the Nasca drainage along the Rio Aja, where the Tierras Blancas and Aja valleys merge (see Figure 4). Fieldwork began in 2002 when the site was mapped. This is a large settlement that extends over 28 hectares and includes several habitation and cemetery areas. Excavations were conducted in 2004, 2005, 2006 and 2009 (Conlee 2010; Conlee et al. 2009; Figure 7). The lithics analyzed for this study were obtained during the 2004-2006 excavation field seasons. The earliest occupation at La Tiza has been dated to the Middle Archaic (ca. 3600 B.C.). The first significant permanent occupation, however, was probably established at the close of the Early Horizon (ca. 100 B.C.). Occupation continued through the Late Horizon until the Spanish conquest in 1532. Habitation at the site began in the east and shifted to the west. In all of these periods, with the exception of the Middle Archaic, La Tiza's inhabitants were intensive agriculturalists and incorporated into large complex societies.

Figure 7: Map showing the excavation units at La Tiza from the 2004 to 2006 seasons.

The 2004 excavations were focused on establishing the chronology at the settlement and defining sectors. In 2005 the excavations were concentrated on further exploring the domestic spaces across the site. The 2006 season sought to further establish the chronology in areas of the site that had not been previously investigated, particularly the upper elevations. The 2006 excavations also targeted looted tombs and cemetery areas (Christina Conlee, personal communication 2008). The lithic raw materials locally available around La Tiza include cherts, basalts, quartzite, and other coarse grained materials, though there are no known sources in the area useable quality obsidian (Alvarado 2007).

Pataraya: Pataraya is located at the mid-elevation ranges of the Tierras Blancas valley in the Nasca drainage (Figure 8). Pataraya is comprised of two primary areas: Pataraya Chico, and the much larger terraced agricultural area called Pataraya Grande. The archaeological site is located on the smaller area of Pataraya Chico (Edwards et al. 2009:89). This site is situated at an elevation well-suited to the growing of coca. It is also ideally located in the valley to control the flow of goods into the Southern Nasca Drainage, including goods headed to La Tiza, and those continuing onto the coast. Pataraya contains some Early Horizon house rings, some small Middle Horizon structures, and a rectilinear compound with a surrounding perimeter wall (Schrieber 2005). The remains at the site indicate that Pataraya was occupied by highlanders associated with the Wari state, as no local Nasca people lived in this area of the valley during the Middle Horizon. The compound covers 765 sq. meters and is composed of four conjoined patio groups connected by a series of hallways and corridors. The arrangement of doorways, corridors and hallways creates a hierarchy of access throughout this small compound (Edwards et al. 2009).

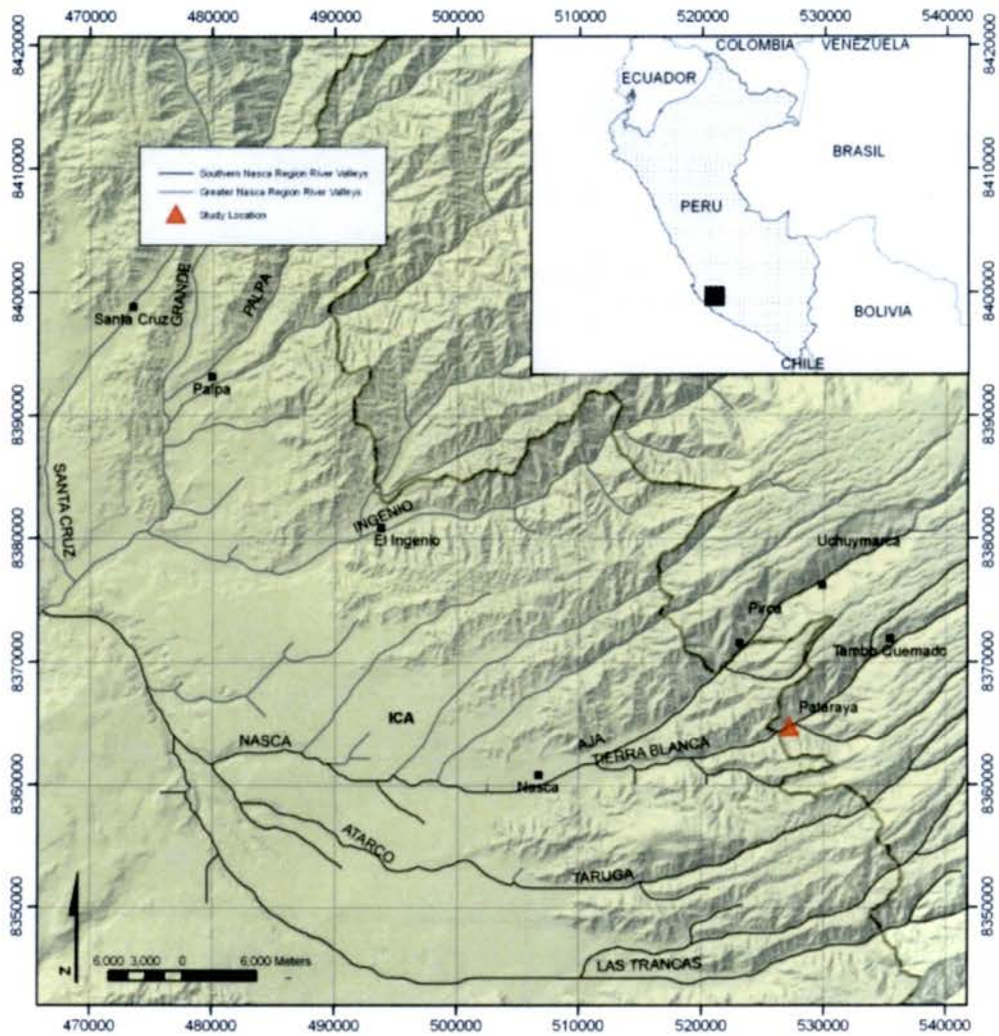

Figure 8: A map of the Nasca drainage with the site of Pataraya marked (Edwards et al. 2009).

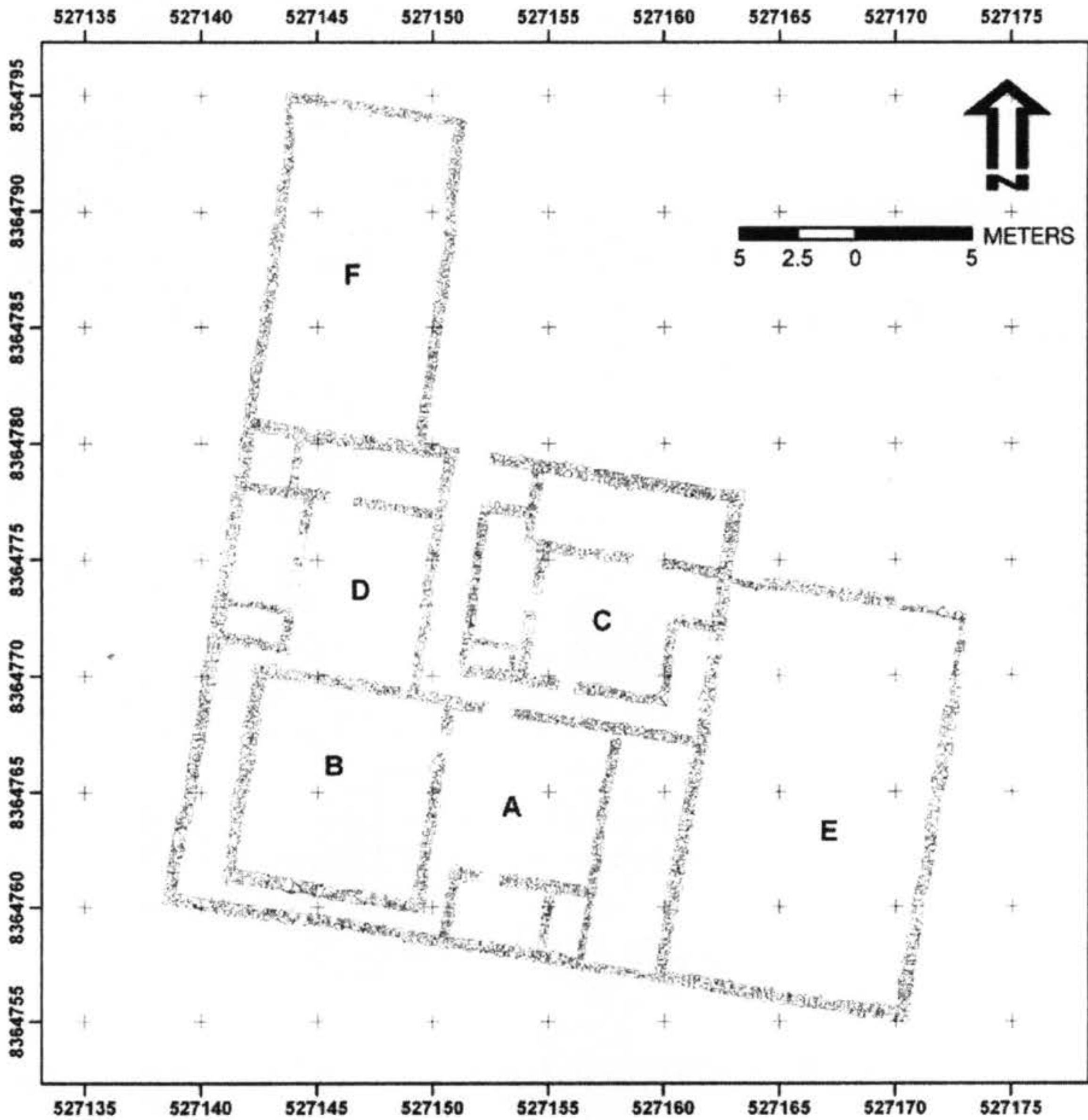

Figure 9: Map of the Middle Horizon compound at Pataraya (Edwards et al. 2009).

Archaeological investigations indicate that the different patio groups had varied uses, two of which were for domestic activities, one for private activities, and one which may have been devoted to ceremonial activities (Figure 9). The exterior of the patio groups had two un-subdivided structures attached: one with a covered roof (E) and one with walls a few courses high creating a small outdoor enclosure (F). Enclosure E appears to have been for secondary refuse, while structure F appears to have been used as an outdoor work yard (Edwards et al. 2009). All of the Pataraya lithics in this study were recovered from this Middle Horizon structure.

The lithics under consideration in this study were recovered from the above mentioned sites. The location of these sites, and the lithics recovered, may begin to illustrate the availability of obsidian at both sites and how that availability changes through time.

Chapter 6

Methods

The lithics analyzed in this study are from assemblages from two sites in different tributaries of the Nasca Valley, La Tiza and Pataraya. The assemblages were analyzed at the Ica Regional Museum in Ica, Peru, during June and July of 2008. The attributes of each lithic in the assemblages were examined and recorded separately. Measurements were taken in millimeters using a set of Mitatoyo calipers, utilizing an input tool to directly import the measurements to Excel. The attributes recorded for each of the lithics were: the provenience information (unit, level, feature, etc.), period, flake type, length, width, thickness, percentage of cortex present, platform type, raw material type, the number of dorsal scars and any additional comments. For formal tools, the flake scars per millimeter along the worked edges were counted as well. The chronological time periods were established by Dr. Christina Conlee for each context through ceramic associations and radiocarbon dates. Below is an example of the data collection sheet created and utilized in this study.

Specimens_______ Unit _____ Sector_______ Capa/Nivel________

Other provenience ________________________ Flake Type ____

Length ________ Width ________ Thickness ________ Cortex %___________

Platform Type _______ Material ________ Dorsal Scars__________

Comments

____

Definitions:

Flake Types:

Flake: has a platform present and the termination point intact.

Proximal fragment: has the platform present with the termination point missing.

Distal fragment: lacking a platform but has the termination point present.

Lateral fragment: has portions of the platform and the termination point present.

Angular debris: No discernable proximal and distal ends.

Medial fragment: lacks platform and the termination ends of the flake.

Length: was measured from the platform down to the point of termination if present or to the break farthest from the platform.

Width: measured at the widest point at the platform.

Thickness: measured at the thickest portion of the platform.

Cortex: the percentage of cortex present on the lithic was visually estimated over the dorsal surface of the lithic.

Platform types:

Corticate: platform was struck on the cortextual surface.

Single facet: platform had a single flat surface making up the platform.

Multi-faceted: platform had multiple surfaces on the platform with flakes scars present on the platform.

Lipped platform: had a small lip below the platform on the ventral side of the flake.

Crushed platform: crushed area where the platform would have been located.

The raw materials present at La Tiza and Pataraya were obsidian, pink chalcedony,white chert, quartzite, brown chert, basalt, green andecite, jasper, and unidentified materials. The chalcedony and the white chert were grouped as a single raw material due to difficulty in differentiating these materials from each other. The dorsal scars present on the lithic were counted and recorded. The data were processed using SPSS 16.0. The statistical tests run were Chi-square and adjusted residual on the chi-square results to determine where the significance lies in the results. Chi-Square creates an expected count from the data presented. It then compares the actual results to the expect counts to determine if the distribution of counts is due to chance or if the factors being tested are influencing the distribution of counts.

The data sheet used in this study was created after reading through a preliminary study done by Luis Alverado (2007) on a small subsection of the lithic materials from La Tiza recovered in the 2006 field season. The definitions for this study were modified from Crabtree (1972) and Andrefsky (2005). The lithics were analyzed individually by season, unit, and level. This data was recorded into an Excel spreadsheet. This information was then processed from the database to produce the results that follow in Chapter 7. This study utilizes material type, platform type, unit and time period information, as well as the comments section of the data, to produce the analysis and discussion that follows.

Chapter 7

Results

In this chapter the results of the lithic analysis are presented. Tables 2 and 3 contain a summary of the materials from each site and the units involved. Below, the results were utilized to form the interpretations found in chapter 8.

Table 2: Lithic materials recovered from La Tiza excavation units

Unit	Debitage	Bifaces	Informal	Cores	Unit	Debitage	Bifaces	Informal	Cores
1	4	1	3	0	30	1	1	0	0
1-1R	1	0	0	0	31	1	0	0	0
3	1	0	0	0	32	11	2	3	0
4	1	0	0	0	33	29	0	1	2
5	3	3	1	0	34	1	0	0	0
6	27	2	5	0	35	7	0	1	1
7	36	1	3	1	37	2	0	0	0
8	17	3	0	0	38	1	0	0	0
8-1RW	7	0	0	0	41	1	1	1	0
9	1	0	0	0	42	4	0	3	0
10	1	0	1	0	44	1	0	0	2
11	1	0	0	1	45	166	5	17	0
12	6	0	1	0	46	168	2	61	7
13	9	0	2	0	47	51	1	18	2
14	2	0	0	0	49	4	0	0	0
15	13	0	2	0	50	8	0	3	1
17	68	3	3	2	51	17	2	1	0
20	6	2	0	0	Entry 7	9	0	2	0
21	1	0	0	0	Tomb 1	130	4	11	4
22	12	2	1	0	Tomb 2	2	0	0	2
25	4	0	0	1	Tomb 3	3	0	0	0
26	0	1	0	0	Tomb 4	0	0	1	0
27	1	1	0	0	Tomb 5	4	0	0	0
28	37	2	3	1	Tomb 6	0	2	2	0
29	1	2	0	0	Total	881	41	147	27

Table 3: Lithic materials recovered from Pataraya

Architectural unit	Debitage	Formal	Informal	Cores
A	367	0	67	9
B	80	0	9	1
C	167	1	17	11
D	43	0	7	0
E	101	0	15	8
Eco1	1	1	3	0
eco2	15	0	6	0
ecoz	2	1	0	0
F	71	0	9	4
H	13	0	2	0
I	19	0	2	0
Field Trench 4	1	1	1	0
Total	880	4	138	33

Debitage Material: This study included a total of 881 pieces of debitage from La Tiza (Table 2). Obsidian represents the majority of the debitage, composing 73.2% (n=645) of the total. The remaining 236 pieces of debitage are distributed among the other materials recovered with chalcedony and white chert representing 10.9% (n = 96) of the sample, quartzite representing 4.9% (n = 43) of the sample, brown chert comprising approximately 0.5% (n=4) of the sample, basalt debitage represents 3.3% (n=29) of the sample, green andecite comprising 7% (n=69), with jasper and unidentified materials each representing .1% (n=1) of the sample.

Table 4: Material types recovered from La Tiza

Time Period	Obsidian	Chalcedony/ White Chert	Quartzite	Brown Chert	Basalt	Andecite	Jasper	Unidentified	Total
Middle Archaic	8	0	0	0	0	0	0	0	8
Early Horizon	3	3	1	0	3	5	0	0	15
Proto-Nasca	61	28	8	0	13	19	0	0	129
Early Nasca	215	12	6	2	3	5	1	0	244
Nasca	10	5	2	0	0	4	0	0	21
Middle Horizon	317	38	2	0	4	15	0	0	376
Middle Horizon/LIP	2	0	0	0	0	0	0	0	2
Late Intermediate Period	27	10	24	1	5	9	0	1	77
Late Horizon	2	0	0	1	1	5	0	0	9
Total	645	96	43	4	29	62	1	1	881

The Pataraya excavations produced a total of 880 pieces of debitage (Table 3). Pink Chalcedony was the most common material present representing 88.8% (n=781) of the debitage totals. Obsidian was the next most common material representing 7.3% (n=64) of the debitage. Quartzite comprised 2.8% (n=25) of the debitage assemblage. Brown chert was uncommon in this assemblage representing .3% (n=3) of the total debitage. Basalt and andecite both represent .2% (n=2) each. Three pieces of unidentifiable materials make up the remaining .3% (n=3) of the debitage.

Platform: Below are tables (5 and 6) displaying the platform counts for both sites. The data for La Tiza (Table 5) is divided by time period. Of the 881 total debitage at La Tiza 699 retained their platform, and the platform types and counts for each time period are displayed below. The totals for Pataraya are displayed in Table 6 and are all from the Middle Horizon.

Table 5: Platform types recovered from La Tiza

Period	Corticate	Single Facet	Multi-Facet	Lipped	Crushed	Total
Middle Archaic	1	1	4	0	0	6
Early Horizon	1	6	0	0	4	11
Proto-Nasca	18	28	10	14	18	88
Early Nasca	24	110	23	5	47	209
Nasca	4	5	4	2	5	20
Middle Horizon	31	125	60	6	69	291
Middle Horizon/LIP	0	1	0	0	0	1
Late Intermediate Period	34	18	4	0	8	64
Late Horizon	1	5	1	1	1	9
Total	114	299	106	28	152	699

Table 6: Platform types recovered from Pataraya

Platform	Count
Corticate	48
Single Facet	472
Multi-Facet	98
Lipped	48
Crushed	79
Total	745

Flake types: The 881 debitage flakes at La Tiza were distributed among the six flake categories as follows. Complete flakes dominated the lithic assemblage representing 77.1% (n=679) of the total assemblage. Proximal flakes represented 2.3% (n=20) of the assemblage. Distal fragments represented 10.4% (n=92) of the assemblage. Lateral fragments recovered represented .6% (5). Angular debris accounted for 6.9% (n=61) and medial fragments were 2.7% (n=24) of the assemblage.

Pataraya debitage was dominated by complete flakes with 687 complete flakes out of the 880 flakes total. There were 45 proximal fragments, 43 distal fragments, three lateral fragments, 93 pieces of angular debris, and nine medial fragments present across all raw materials. If obsidian is examined separately there were a total of 64 flakes present and they were divided as such; 43 complete flakes, three proximal fragments, six distal fragments, one lateral fragment, nine pieces of angular debris, and two medial fragments.

Bipolar reduction: The flakes from both sites were analyzed for evidence of bipolar reduction though only a small number of flakes had signs of bipolar reduction. La Tiza produced 41 piece of debitage with evidence for bipolar reduction. The vast majority of these, 39, were from obsidian though two examples of bipolar reduction being applied to chalcedony were observed. Pataraya produced only two examples of bipolar reduction in the debitage with a single example in both obsidian and chalcedony. Utilizing Chi-square tests to compare the expected counts and the actual counts of bipolar flakes in the debitage from La Tiza reveals that there is a significant difference ($p=.000$, $\alpha = .05$) between the Proto-Nasca transitional period and the Early Nasca period which followed, with the Proto-Nasca producing many more bipolar flakes than expected An adjusted residual was utilized to determine if the actual counts were higher or lower than expected. Although not statistically significant, there was a measurable increase in the number of lithics showing evidence of bipolar reduction during the Middle Horizon at La Tiza. When compared to Pataraya where bipolar reduction is present on only .2% of the assemblage, 4.5% of Middle Horizon lithics at La Tiza show evidence of bipolar reduction. The adjusted residual indicates that more bipolar reduction was present at La Tiza than expected during the Middle Horizon.

Tools: The inhabitants of La Tiza primarily utilized obsidian to produce their tools. They produced both formal tools showing signs of retouch and informal tools with visible use wear but no retouch. Obsidian tools comprise 88.1% of the total tools with 170 examples present. Chalcedony and white chert represent the next most common material for tools with 11 tools present, representing 5.7% of the tool assemblage. Quartzite tools were uncommon representing 1.6% (n=3) of tools. Basalt was utilized to produced 1% (n=2) of the tool assemblage. Andecite tools represented 3.6% (n=7) of the assemblage. Informal tools were more common at La Tiza representing 73.1% (n=141) of the tools with formal tools represented the remaining 26.9% (n = 51), all of which were manufactured from obsidian.

Examination of the formal versus informal tool categories presents an interesting pattern when the tools are analyzed by cultural periods. The Proto-Nasca period is of particular interest as it is the only period in which formal tools outnumber informal tools, with 11 informal tools and 14 formal (Appendix A). This can be compared to the Early Nasca period sample, which produced 74 informal and 14 formal tools. Chi-square results indicate that there is a significant difference ($p = .000$, $\alpha = .05$) between the Proto-Nasca and the Early Nasca periods. The Middle Horizon sample produced 34 informal tools and 16 formal tools. The Late Intermediate period sample produced 10 informal and 3 formal tools. There was only one informal tool from the Late Horizon sample at La Tiza, following a general trend of fewer formal tools over time.

The analysis of the change over time in the ratio of formal to informal tools is quite clear during the Proto-Nasca period. This is the only period in which there are more formal tools than there are informal tools. Eleven informal tools were produced while 14 formal tools were made during this period. There is a significant relationship between formal tool production and time period when the Proto-Nasca period and the Early Nasca period are compared ($p = .000$ $\alpha = .05$) (Appendix A).

Pataraya produced a considerably different pattern of tool production. The preferred material at Pataraya was not obsidian, but instead pink chalcedony, which was utilized for 71.1% (n=101) of the 142 total tools. Obsidian tools were the next most common material representing 24.6% (n = 35) of the tool assemblage. Quartzite was the raw material for five tools or 3.5% (n=5) of the tool total. One tool of unidentified material was discovered representing .7% of the assemblage. Formal tools comprised a very small portion of the tool assemblage representing 6.3% (n=9) of the tools. Informal tools were more plentiful at the site with 133 recovered, representing 93.6% of the tools. Obsidian was the preferred material for the production of formal tools at Pataraya with seven of the nine formal tools made of this material. Chalcedony was also utilized for formal tool production though less frequently as only two chalcedony formal tools were present.

Figure 10: Middle Horizon biface from Pataraya (Photo by author).

Figure 11: Late Intermediate period biface showing the typical flat base morphology (Photo by author).

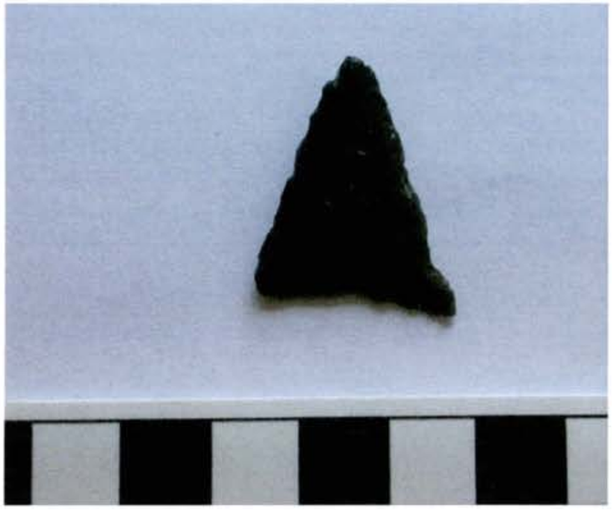

Figure 12 Image A. (Left) Proto-Nasca Biface with concave base and one barb present. (Right) Middle Horizon Biface showing stemmed base (Photo by author).

The bifacial tools at La Tiza show considerable change over time. Generally the bifaces produced at La Tiza have a straight-to-slightly-convex base with side notches for hafting. The Proto-Nasca and the Middle Horizon formal tools possess diagnostic characteristics unique to each time period at La Tiza. The Proto-Nasca bifacial tools, likely projectile points, are easily identified by the concave basal section. This base is unique to this period, as are the barbs present on the base (Figure 12). Although in most cases one or both of the barbs have been broken off, evidence of the barbs may still be present at the point of fracture. The Middle Horizon has two types of bifaces, one of which is unique to this period. The larger bifaces are similar to early bifaces and are not diagnostic. The smaller bifaces, however, which appear to be projectile points, have a stemmed base which is not found associated with any other cultural period (Figure 12). These types of bifaces were consistent for the Middle Horizon at both La Tiza and Pataraya.

Cores: A total of 26 cores were recovered from the site of La Tiza. Obsidian was the most common material for cores with 15 recovered. Andecite cores were also common at La Tiza with seven andecite cores recovered. Ten of the 26 cores had evidence of bipolar reduction, and all of these were obsidian. The Early Nasca period produced six bipolar cores, which represents all of the obsidian cores from this period. A significant relationship is present when this period is compared with the number of bipolar cores in the Proto-Nasca period (p=.026, $\alpha = .05$). No other statistically significant relationships between time period and bipolar cores were discovered.

Pataraya produced a total of 33 cores and the predominant material utilized by its inhabitants was chalcedony (n=29). Four obsidian cores were also recovered, only one of which was utilized in bipolar reduction and exhausted. Three of the obsidian cores retained some portion of cortex and had very few flakes removed, possibly representing initial reduction at the quarry for transport.

Spatial distribution: The excavation units at La Tiza were examined to detect groupings of lithics, particularly obsidian. Results are most evident when the data is examined by time period. Most periods had no heavy concentrations; however, the Early Nasca period and the Middle Horizon both had unusual clusters. The Early Nasca saw a particularly large number of debitage pieces in unit 46, which had 72.6% (N=156) of the obsidian debitage from that period. Unit 47 had 19.1% (N=41) of the obsidian debitage recovered. The cores have the greatest degree of clustering with Unit 46 contains all of the obsidian cores (N=6) from the Early Nasca period and Unit 47 containing the only other cores found, two of andecite. The tools from this period are slightly more scattered, though

Unit 46 still retained the highest cluster of tools with 71.6% (n = 63). The Middle Horizon obsidian debitage is clustered among unit 17, Unit 45, and Tomb 1 with 20.5% (n = 65), 39.7% (n = 126), and 37.9% (n = 120) respectively. Tool distribution in the Middle Horizon follows a similar pattern to the debitage with unit 17 containing 12% (n=6), unit 45 containing 44% (n = 22), and Tomb 1 containing 30% (n = 15). The obsidian cores during the Middle Horizon are found only in Unit 17 (n = 1), Unit 45 (n = 1), and Tomb 1 (n = 4).

Pataraya produced similar spatial distribution patterns to La Tiza during the Middle Horizon. Enclosure F of the Pataraya compound which it has been suggested was a work yard area (Edwards et al. 2009), contained 71.9% (n = 46) of the obsidian debitage and all (n = 4) of the obsidian cores recovered. Three of the four obsidian cores recovered showed only a few flake scars and would have represented viable sources for lithic production, with the fourth core being exhausted. The distribution of chalcedony debitage did not show strong clustering though a large amount was related to patio group A.

Chapter 8

Discussion

Lithic assemblages in the Nasca drainage show considerable change in regards to the reduction strategies of the inhabitants through time and between sites. At La Tiza, lithic materials were dominated by a preference for non-local obsidian and there is evidence for changing levels of conservation of material in the reduction strategies of different periods. There is also considerable differences between La Tiza and Pataraya during the Middle Horizon. Through the analysis of bipolar reduction strategies and informal to formal tool ratios, the perception of the availability of obsidian is measureable. The strategies undertaken by the inhabitants of Nasca were influenced by many factors, particularly sociopolitical change and the disruptions to cultural patterns that accompanied these changes.

Middle Archaic: Very little Middle Archaic material was recovered from Lat Tiza. This limits the analysis of this period, as the sample is comprised of three expedient tools and a small amount of debitage. The predominance of multi-faceted platforms reflects the re-sharpening of formal bifacial tools. There is little more that can be said about this period due to the small number of lithics.

Early Horizon: The Early Horizon produced more lithic material than the Middle Archaic period, likely related to the initial movement of Paracas people into the area, an increase in population and the sedentary nature of this society. Despite these changes, however, the quantity still remains small compared to periods that followed. The assemblage points to a degree of conservation in the reduction of obsidian in particular. The small amount of material from this period however prevents in-depth analysis and warrants further study.

The debitage was dominated by coarse-grained materials, particularly andecite, basalt, chalcedony, with little obsidian present. Tools were primarily expedient tools and the bifacial fragments present were manufactured largely out of obsidian. The only core form this period was an exhausted obsidian core, showing that there was at least some access to obsidian. The debitage assemblage is dominated by coarse-grained materials locally available. The tool assemblage clearly shows that obsidian was preferred as a tool medium even for expedient tools. The obsidian debitage has two pieces of angular debris, one of which was reduced through bipolar reduction, and only one other flake that was not utilized. This would suggest that there was a concern to conserve the obsidian materials, at least to a small degree, or that they were unable to get needed quantities of obsidian. The high number of flakes from coarse-grained material, particularly andecite, which is a material of particularly poor quality at La Tiza, also suggests that the inhabitants of the site were looking to utilize alternatives to obsidian. The fragmentation of the formal tools maybe related to this conservative approach, with the destruction of tools carried out in an attempt to maximize the number of usable flakes from a small amount of material.

The reduction strategies of the Early Horizon inhabitants of La Tiza show great concern with the maximization of obsidian materials. The initial occupation of the area during this period, combined with the distant location of obsidian supplies, would have made the transport of the raw material difficult without intact trade relations, or if hostile peoples occupied the areas between the Nasca valley and the obsidian deposits. The Ica valley (Van Gijseghem 2006), the area from which the Early Horizon inhabitants of La Tiza people emigrated, was participating in the Quispisisa obsidian network (Silverman 1996). The obsidian may have been filtering into the Nasca Drainage through this valley, making it in short supply. There is also the possibility that all of the obsidian tools found at the site were transported in with the inhabitants and additional supplies of raw material were not available. The small number of lithics from this period make the determination of the exact nature of trade and the ability of the inhabitants to access more obsidian hard to understand, and further study of this period and the obsidian trade patterns is sorely needed. If the transitional Proto-Nasca period is any indication, however, access to obsidian did not improve much after the initial colonization of the valley.

Proto-Nasca: The Proto-Nasca period represents transformation of the Paracas traditions established in the Rio Grande de Nasca drainage during the Early Horizon into the culture that will become the Nasca. Considerably more lithic material was recovered from this period. Hence, a more complete analysis of the material can be achieved. The debitage and tool assemblages both point to a conservative approach to obsidian reduction.

The debitage assemblage produced during the Proto-Nasca period speaks to a conservative reduction strategy when working with obsidian. Obsidian dominates the assemblage during this period, though coarse-grained materials were also exploited. There is considerable use of the low-quality andecite during this time compared to other periods. The exploitation of this low-quality material appears to be more common in periods with other evidence of conservative approaches to reduction, and is likely related to the shortage of obsidian. The rate of bipolar reduction present in the debitage suggests that obsidian was being conserved through this technique. The Chi-square results imply that bipolar reduction was being undertaken more often than in the Early Nasca period, indicating that the inhabitants of La Tiza during the Proto-Nasca period had greater concern over the availability of obsidian. Using bipolar reduction the inhabitants were trying to extend the useful life of the obsidian through the reduction of all but the smallest of obsidian nodules. The increased quantities of angular debris during this period are most likely the result of this reduction strategy.

The tool assemblage follows a similar pattern of conservative obsidian use. The greater number of formal tools than informal tools, according to Andrefsky's (1994, 2005) model, would indicate a high quality material in short supply. If tools manufactured out of coarse-grained materials are removed, the balance of formal to informal tools (14:4) for obsidian strongly favors formal tool production. This style of production coupled with the evidence from the debitage, would indicate that the inhabitants of La Tiza were experiencing, or were worried about experiencing, a shortage of obsidian for the production of tools. The increased number of lipped platforms in the debitage assemblage is likely related to the increased number of formal tools, and could have resulted from the re-sharpening of bifacial tools, which extended the use life of these obsidian tools.

There were only three cores recovered from the Proto-Nasca period at La Tiza. Only one of the cores recovered was of obsidian, which was small and exhausted. The others consisted of one well-utilized andecite core and one basalt core. The andecite was extensively utilized, although the majority of the flakes removed from the core resulted in hinge fracture termination; the core was continually used even though it was not producing quality flakes. The small amount of cortex found on the debitage and the lack of cores may indicate that much of the tool production was done off site. The remaining core materials may have been used up through bipolar reduction as well, or may have been reused in later periods.

The overall reduction strategy of the inhabitants of La Tiza during the Proto-Nasca period is characterized by conservative use of materials, particularly obsidian. This pattern indicates that the trade networks for obsidian had not been well established. This may have been due to the resent establishment of the settlements. Conversely, there may have been obstacles in the way such of trade routes, such as hostile neighbors. These patterns of conservative use continue into the Early Nasca period to a small degree. It is important to note here that the separation of the Proto-Nasca from the Early Nasca period is made by archaeologists, as the cultural patterns continue through from one period to the next without a clear separation.

Early Nasca: The Early Nasca period was a continuation of the cultural traditions begun in the Proto-Nasca period. This period shows a much less conservative set of reduction strategies. Considerably more lithic material was recovered from this period, with obsidian continuing to be the dominant material.

The debitage from the Early Nasca period was considerably different from that of the Proto-Nasca period. Obsidian was the dominant material, and considerably less coarse-grained material was utilized during this period. The reduction in the use of coarse-grained material was coupled with an overall increase in the production of lithics, and speaks to a better supply of obsidian. The considerable decline in the occurrence of bipolar reduction during this period would indicate the inhabitants of La Tiza were not as concerned about maximizing the useful life of the obsidian at the site. A reduction in the amount of angular debris correlates well with the decrease in bipolar reduction taking place. There was an increase in the number of multi-faceted platforms, which is likely related to the re-sharpening of formal tools despite the fact that fewer formal tools were produced during this period.

The tool assemblage during this period is dominated by informal tool production. If one considers the informal to formal tool ratios it becomes clear that the inhabitants of La Tiza likely had a good supply of high quality material. Very few of the tools are manufactured from coarse-grained materials, indicating that not only was obsidian preferred for most tools, but that there was ample supply and thus little need to utilize other, less desirable materials.

The cores from this period are the best indication of conservative reduction practices. Six obsidian cores were recovered, all of which were exhausted and showed signs of bipolar reduction. This is significantly more than what was recovered from the Proto-Nasca period, which had only one obsidian core recovered. This indicates that bipolar reduction was carried out on the obsidian cores as an attempt to gain as many sharp edges as possible. These cores might have been reused from the Proto-Nasca period, which would explain the lack of obsidian cores in the earlier period, as well as the lack of evidence for bipolar reduction during Early Nasca.

The distribution of the obsidian at La Tiza during this period points to the possibility that there may have been more control over the reduction of obsidian. The tight clustering of the obsidian debitage among two units (46 & 47), along with the fact that all of the obsidian cores were recovered from a single unit, could indicate that these units were special obsidian work areas. It could also indicate restricted access to raw obsidian. A special disposal area is also a possible explanation for the clustering of obsidian debris. The only other cores recovered during this period were andecite and came from unit 47, which also contained a considerable quantity of the obsidian from the site. Again this indicates that the production of stone tools may have been done in special areas or by a select group of people during Early Nasca. Although the tools are more scattered than the obsidian debitage and cores, this would likely be the result of tools being used in different areas of the site for various activities.

The reduced emphasis on the conservation of obsidian stands in stark contrast to the preceding Proto-Nasca period. This would indicate that the inhabitants of La Tiza were able to establish a better supply network of obsidian during the Early Nasca period. This new supply network may have created a much tighter control of the obsidian and its reduction at La Tiza. The shift away from predominately formal tools is likely the result of this more reliable supply of obsidian. The analysis of this obsidian network and reduction will benefit greatly from obsidian sourcing studies. This new availability of obsidian was likely the result of a shift in the center of political power during the Early Nasca period with the center of political and religious power being within the Nasca drainage and the wide spread dissemination of Nasca religious ideas throughout the region.

The Nasca Assemblage: The remaining lithics that could be assigned to the Nasca culture, but could not be assigned to a more specific period within the Nasca culture, were grouped together. This assemblage is small but still retains some of the characteristics of the Early Nasca period. There is little evidence of conservative reduction practices and obsidian still dominates this assemblage.

The debitage assigned to this period is almost all obsidian, and there is no indication of bipolar reduction during this period. This indicates that there was an ample supply of obsidian. The three tools assigned to this period are dominated by the coarse-grained material with only one obsidian tool present. The obsidian tool was the only formal tool from this period. Only a single core was assigned to the Nasca period, which was an andecite core which was modified and showed evidence of wear from use as a core tool.

This period's tools fit well with the general pattern of reduction from the Early Nasca period. The reduction is not focused on conservative strategies nor is there a focus on formal tools. This analysis would also indicate that the lithic supply was minimally impacted by the social and political upheaval of the Middle and Late Nasca periods. This implies that the supply network was likely unrelated to the political structure.

Middle Horizon: The Middle Horizon represents one of the most interesting periods in this analysis. This period saw the emergence and expansion of the Wari Empire, which exercised its control over a vast region of the Andes and associated coastal areas, including Nasca. The fact that Pataraya has an area built exclusively for the Middle Horizon occupants associated with the Wari Empire makes the site ideal for analysis of the lithic traditions within the empire. In contrast, La Tiza is a multi-component site that was occupied over 3,000 years. The Middle Horizon component of the site appears to have been occupied by local people who were interacting with the Wari, though recent evidence from La Tiza indicates foreigners were present among the inhabitants (Conlee et al. 2009). Examination of the reduction strategies at both sites reveals some distinct differences between the sites. The differences between the level of conservative reduction and the preferred material at each site are of particular interest.

The debitage from La Tiza during this period is dominated by obsidian, though there is a considerable increase in the amount of andecite and other coarse-grained materials when compared to earlier periods. There was also an increase in the amount of angular debris. This is coupled with an augmentation in the bipolar reduction evidence on obsidian debris during the Middle Horizon at La Tiza. This bipolar reduction likely was done on obsidian in an attempt to extend its useful life and is the probable cause of the increase in the angular debris. The increase in the conservation of obsidian and the increased utilization of coarse-grained materials speaks to a less reliable or more restricted obsidian supply at La Tiza.

The debitage assemblage at Pataraya is dominated by chalcedony and white chert. A few other coarse-grained materials were utilized, but the supply of chalcedony was ample and was the primary raw material. There was very little bipolar reduction carried out at Pataraya, but there is a significantly higher rate of bipolar reduction at La Tiza. This would indicate that there was a more conservative approach to the reduction of obsidian at La Tiza. The differences in bipolar reduction are likely related to a difference in the availability of obsidian at the two sites.

The tool assemblage at La Tiza during the Middle Horizon is composed primarily of informal tools, although there were more formal tools produced there than at Pataraya. The tools were generally of obsidian with only a few utilized flakes of other materials, particularly andecite. Pataraya's tool assemblage was almost all informal tools produced out of chalcedony though the most interesting relationship is found when the rates of formal and informal tool production are compared between the two sites. There are significantly more formal tools at La Tiza than Pataraya, which would indicate that there was a greater concern for the conservation of raw materials at La Tiza. This, coupled with the bipolar data from the debitage, argues for a greater need to maximize the useful life of the obsidian obtained by the inhabitants.

The cores recovered from La Tiza speak to a conservative approach to reduction with regard to obsidian as well. All of the obsidian cores recovered were exhausted, and most of them showed signs of bipolar reduction. A few cores of coarse-grained material were recovered: a chalcedony core was completely exhausted, and an andecite core that bore many flake scars, though most appear to have resulted in hinge fractures like the core from the Early Nasca period. These characteristics show that conservation of lithic materials, particularly obsidian, was an important aspect of the reduction strategy at La Tiza. Pataraya's cores, on the other hand, are dominated by chalcedony cores much like the debitage. Four obsidian cores were also recovered. One of these represents the only bipolar core recovered from the site. The other three cores were larger than any of the cores present at La Tiza and had only a few flakes removed, retaining a large portion of the cortex. The flakes removed likely represent initial reduction carried out at the quarry site, and these three cores should be thought of as raw material.

Clearly, the inhabitants of Pataraya had much better access to obsidian raw materials. Also of note here is the size of these obsidian cores, which precludes the vast majority of obsidian sources throughout Peru. Only the Quispisisa, Alca, and Chivay sources are capable of producing cobbles large enough to be the sources of these cores. Burger et al. (1998) have found little Chivay obsidian in the Wari areas, making the Quispisisa and Alca sources the two most probable origins of obsidian. Both of these sources would have fallen within Wari Territory. The presence of large unused cobbles indicate that the inhabitants had an excess of obsidian, and that it was not of great concern when the site was abandoned. This suggests the obsidian cores likely had little value to them.

The spatial distribution of lithics at both sites indicates that specialized obsidian work areas had been created. It may also indicate that a greater degree of control over obsidian was implemented during the Middle Horizon. La Tiza only had a single excavation unit (45) with obsidian debitage that was not associated with a burial. This same pattern pertains to both the core and tool distributions for La Tiza during the Middle Horizon. Tomb 1 contains a large proportion of the obsidian from the site, and is the only tomb with a large amount of obsidian. Tomb 1 is located in close proximity to unit 45. The coarse-grained materials from this period do not have this tight concentration in any of the units, suggesting they were reduced in a less controlled fashion. The site of Pataraya has a similar distribution: a heavy concentration of obsidian debitage and all of the obsidian cores were found within structure F (Figure 9). The distribution of chalcedony at Pataraya did not have this tightly controlled pattern. This would also indicate that the obsidian was not being reduced in the same way that coarse-grained materials were.

The distribution of obsidian and the reduction strategies at the two sites show a considerable difference in terms of access to obsidian. The conservative reduction strategy at La Tiza, when compared with the large amount of obsidian raw material at Pataraya, makes it clear that the imperial Wari site had better access. The location of the two closest obsidian sources, Quispississa and Jampatilla, both would have been within the empire's borders making Wari control of obsidian the probable cause of the inequity in obsidian access.

At La Tiza the restriction of the debitage to a single unit and burial context, particularly Tomb 1's large concentration of obsidian, suggest that the control of obsidian by the Wari Empire created a situation where a small group could control obsidian raw materials. Controlled access, both within and between sites, is the probable driving force behind strategies to maximize obsidian life at La Tiza during the Middle Horizon. The tight distribution of obsidian at La Tiza and its relative abundance in only one tomb would indicate that the elites controlled access to the raw material. The fact that elite tombs at La Tiza likely contained those who had ties to the Wari (Conlee 2010) strengthens the case for Wari control of obsidian supplies in the region. The local availability of coarse-grained materials prevented any effective control of other lithic materials at La Tiza.

The overall difference between the two sites' reduction strategies becomes clear when the assemblages are compared. The control of obsidian sources within the borders of the Wari Empire had a considerable influence over the availability of obsidian at the two sites. That the style of formal tools was the same at both sites indicates that the cultural changes which influenced the tool design were related to the changes brought by the Wari culture.

Late Intermediate period: The Late Intermediate period's lithics did not indicate a strongly conservative reduction strategy. Obsidian was still the most common material utilized in this period, though coarse-grained materials were used more often than in the Middle Horizon. There is little evidence of bipolar reduction and the tool assemblage is not characteristic of a conservative approach. The evidence suggests that with the dissolution of the Wari Empire the supply networks in the Nasca drainage improved.

The debitage assemblage from the Late Intermediate period continues the trend of obsidian being the most common material utilized. The amount of quartzite during this period was also fairly high, though almost all of it was recovered from a burial. The quartzite in the burial was deposited on top of the burial as large flakes, which had been knocked off the core with no evidence of utilization. This would indicate that the quartzite deposit had ideological significance and does not represent functional tool production. There is also an appreciable amount of andecite being flaked, possibly as an alternative to obsidian, though there are no tools of andecite from this period. There is little angular debris and this, coupled with the fact that there is little evidence of bipolar reduction, indicates that there was not as great a concern with conserving obsidian raw materials as in the Middle Horizon.

The tool assemblage is dominated by informal tools with few formal tools produced during this period. The vast majority of tools are produced from obsidian. The remainder of the tools were manufactured out of chalcedony and white chert. The dominance of informal tools indicates, according to Anderfsky (1994, 2005), that there was ample supply of high quality raw materials; it follows that the need to conserve the materials was not a major concern. The cores also indicate that there was little impetus to conserve lithic raw material. The cores are split evenly between obsidian and andecite, with two cores of each recovered from this period. The andecite was likely used as an alternative to obsidian, though the obsidian cores do not show evidence of bipolar reduction.

The reduction patterns during the Late Intermediate period at La Tiza did not have a conservative aspect in respect to the use of obsidian. The changes brought about by the collapse of the Wari Empire appear to have changed the way in which obsidian was obtained and reduced. The lack of concern with conservation of the obsidian that was recovered from this period indicates the inhabitants were not concerned with obtaining more raw materials. Quartzite appears to have taken on an ideological significance in burial practices, which is something of interest, though it is present over only one burial and may indicate special status.

Late Horizon: The Late Horizon saw the expansion of the Inca Empire and its eventual conquest of the Andes and associated coastal areas including the Nasca drainage. There was little lithic material recovered from the Late Horizon, though it appears that there was a significant reduction in population at La Tiza during this period (Dr. Christina Conlee, personal communication 2008). The Late Horizon did not have much obsidian recovered, and the lithic assemblage was instead dominated by andecite. Only a single tool, and no cores, was recovered from this period. The use of so much andecite may indicate that there was a shortage of obsidian, though the small number of lithics from this period makes conclusions questionable at best. The small number of recovered lithics may be related to the rapid decline in site occupation, though it could easily have resulted from excavation bias as well.

As a final note on the lithics analyzed from La Tiza, there were a pair of lithic flakes that could not be reliably assigned to the Middle Horizon or Late Intermediate Period. These flakes were excluded from the above analysis

Reduction strategies at these two sites in the Nasca drainage resulted from the cultural patterns under which they were produced. The rate of bipolar reduction, as well as the ratio of formal to informal tools, reflects these reduction strategies and the conservative nature of obsidian reduction during different periods. Through analysis of the nature of reduction, the availability of obsidian as well as the nature of trade in obsidian, including the control of the resource, can be indirectly inferred.

Chapter 9

Conclusions

This study was an initial look into the lithic reduction strategies utilized by the prehistoric inhabitants of La Tiza and Pataraya in the Nasca drainage. The lithic materials from these sites show variation through time especially in regard to the use of obsidian. The general patterns show a greater reliance on coarse-grained materials from the local area during periods of restricted obsidian supply. These periods are made evident by the reduction choices the inhabitants made.

The earliest lithic materials from La Tiza date to the Middle Archaic period. Few flakes were recovered from this time period, which limits the conclusions that can be drawn. The flakes indicate that the manufacture or re-sharpening of formal tools was undertaken at the site during its occupation. The presence of obsidian is the most remarkable aspect of the tools, and indicates that Middle Archaic groups were either highly mobile or were part of a trade network capable of moving obsidian long distances.

The Early Horizon saw the initial immigration of Paracas peoples into the drainage. The lithic assemblage of this period is small. I have shown that through the analysis of bipolar reduction, and formal to informal tool ratios, that the Early Horizon inhabitants at La Tiza reduced their obsidian with the intention of conserving it. There is ample evidence in the debitage that the people also exploited locally available, low-quality coarse-grained material. The obsidian assemblage shows a preference for obsidian tools, particularly formal tools, and a small amount of evidence indicates attempts to maximize the useful life of obsidian materials through bipolar reduction. Assuming that this sample from La Tiza is representative of a wider cultural pattern, it indicates that trade routes were not supplying adequate amounts of obsidian during this period.

The Proto-Nasca period continues many of the traditions established during the Early Horizon. I have shown that the attempts to maximize the usable quantities of obsidian continue into this period. Considerable evidence of bipolar flaking in the debitage, and the manufacturing of predominately formal tools, indicate a need to conserve obsidian. The supply of obsidian was insufficient for the needs of the inhabitants at La Tiza during this period, suggesting that trade networks supplying obsidian were unstable or not yet well established. A partial solution to this situation was the increased use of coarse-grained materials, though these materials were not preferred.

The Early Nasca period is a continuation of the Proto-Nasca traditions, though there are detectable shifts in the lithic reduction strategies. There is a decrease in the rate of bipolar reduction being carried out during this period. The tools also speak to better supplies, with an increase in the manufacture of informal tools. These two points show that the inhabitants of La Tiza were not concerned with conserving their obsidian supplies during the Early Nasca period.

The lithics which could not be securely associated with a particular period in the Nasca period follow the general trend started in the Early Nasca period. The predominance of obsidian found through time continues as do the reduction strategies of the Early Nasca. Little evidence of bipolar reduction, coupled with the predominance of informal tools, leads to the conclusion there was little concern over the supply of obsidian during this period. This implies that the general pattern of reduction seen during Early Nasca continues into the later Nasca periods with little interruption.

The emergence and expansion of the Wari Empire during the Middle Horizon had a profound impact on the reduction strategies. Two sites were examined from this period, La Tiza a local site, and Pataraya, an imperial Wari site. These sites show that there was a shortage of obsidian at La Tiza while Pataraya had ample access. The spatial distribution of obsidian around both sites indicates intra-site control of the reduction or disposal of obsidian. This results in a situation in which the lithic assemblage from La Tiza shows evidence of bipolar reduction and more formal tool production undertaken to extend the life of obsidian. Conversely, the assemblage from Pataraya does not have a conservationist approach to obsidian use. Cleary the Wari had a profound impact on the trade and use of obsidian at the site of La Tiza.

The collapse of the Wari Empire resulted in yet another shift in the reduction strategies undertaken at La Tiza. The Late Intermediate Period saw a shift away from conservative methods of reduction. There was little evidence for bipolar reduction, and the tool assemblage was indicative of ample supplies of raw materials. There was an increase in coarse-grained material use, though tools of these materials are not found. There is also a deposit of quartzite in a burial, which is unique to this period and this particular grave, possibly indicating an ideological meaning to this material and deposit.

The Late Horizon saw the emergence and conquests of the Inca Empire throughout vast areas of the Andes and coastal areas. The lithic information from the Late Horizon is limited and does not provide for much analysis. This is likely associated with the depopulation of the La Tiza during this period. Andecite was the predominant material recovered from La Tiza, though the small number of lithics makes any conclusions about this period rough conjecture at best.

The pattern of reduction at La Tiza shows some general trends through time. The supply of obsidian appears to oscillate with changes in the political power structure. When the center of power in the region is within the drainage obsidian supplies are adequate at La Tiza. When power shifted to centers outside the drainage, such as occurred during the Early and Middle Horizons, the obsidian becomes much harder to obtain. This results in conservation techniques to increase the useful life of the material. Local materials are of low quality and are utilized most frequently in those periods with shortages of obsidian. The implementations of powerful empires in the highlands where the obsidian sources are located proved especially constrictive to the obsidian supply at La Tiza. This indicates that the trade routes supplying obsidian to La Tiza were greatly influenced by the power and prestige of the Nasca drainage and the influence of external powers through time.

This study has illustrated the changes in the availability of obsidian through time and the reduction strategies undertaken in response to obsidian supplies at La Tiza. Obsidian sourcing information will be critical to further investigations of the obsidian trade networks and their effect on obsidian supplies in the drainage. This study only examined two sites, making regional generalizations difficult. Some intriguing patterns have been revealed, however, warranting further study. Future research should aim to elicit information on cultural patterns and distribution networks on a much larger scale including many more sites. The coupling of obsidian sourcing information with the data discussed will allow even more in-depth assessments of the shifts in obsidian transport into the Nasca drainage. The shifting reduction patterns though time would also benefit from a much larger sample with more sites included. The study of lithics in the Nasca drainage should also aim to develop more concrete diagnostic features for formal tools from as many sites as possible.

APPENDIX A: STATISTICAL TABLES

Table Displaying the Chi-Square and adjusted residule results for formal and informal tools between the Proto-Nasca and Early Nasca periods.

Period		Formal	Informal	Total
Proto-Nasca	Count	11	14	25
	Adjusted Residule	-4.1	4.1	
Early Nasca	Count	74	14	88
	Adjusted Residule	4.1	-4.1	
Total		85	28	113

	Chi-Square Test		
	Value	df	Asymp. Sig
Pearsons Chi-Square	16.789	1	.000
Continuity Correction	14.707	1	.000

APPENDIX B: LITHIC DATA

Lithic code sheet.

Flake Type	
1	flake
2	proximal fragment
3	distal fragment
4	lateral fragment
5	angular debris
6	medial
7	other

Platform Type	
1	corticate
2	single facet
3	multi facet
4	lipped
5	crushed

Material	
1	obsidian
2	chalcedony/White chert
3	quartzite
4	brown chert
5	basalt
6	andecite
7	jasper
8	other

Tiza Debitage

Unit	Scector	Capa/Nive	Period	Other Provenience	Flake Type	Length(mr	Width(mr	Thickness(	Cortex %	Platform	Material	# Dorsal Sı	flake scar/mm	Comments
1	IC	B1	Early Horizon		3	53 29	53 19	20 72	0		6	1		
1	IC	B1	Early Horizon		1	38.38	22.18	7 26	0	2	6	3		
1	IC	B1	Early Horizon		1	35 52	36 78	5 35	0	5	6	3		
1	IC	B1	Early Horizon		1	53 28	17 15	15.31	0	2	6	10		
1-1R	IC	B1	Early Horizon		1	34 07	29.57	7 39	0	2	6	7		
4	IC	C	Early Horizon		1	20.77	16.94	3.21	100	1	3	0		
5	IC	B	Early Horizon		1	30 45	50.69	12 05	0	5	5	3		
15	IC	C	Early Hori: ass.	FEATURE 3&4	6	18 21	18 95	10 39	0		2	4		
15	IC	C	Early Hori, ass	FEATURE 3&4	5	13 53	17 12	6.16	0		5	0		
15	IC	C	Early Hori: ass	FEATURE 3&4	1	15 96	22 24	5.14	0	2	2	2		
15	IC	C	Early Hori: ass.	FEATURE 3&4	6	16.9	21 17	7 73	0		2	2		
15	IC	C-1	Early Horizon		2	46 05	46 81	15 06	10	2	5	1		
7	IIB	A	EH/EN		3	30 61	17 59	7 14	0		5	4		
7	IIB	A	EH/EN		1	16.98	16 37	4.79	0	4	2	4		Thinning flake
7	IIB	C-1	EH/EN		1	24 1	37 14	11.74	15	3	2	5		
7	IIB	C-1	EH/EN		1	31 86	13.6	7 72	0	2	2	3		
7	IIB	C-1	EH/EN		1	23 99	15 84	6 13	0	2	2	2		
7	IIB	C-1	EH/EN		1	17.53	23 24	9 04	0	4	2	2		
7	IIB	D	EH/EN		1	9 41	16 26	2 89	0	4	2	3		Biface thinning flake
7	IIB	D	EH/EN		4	10 6	17 48	1 99	0		2	4		
7	IIB	D	EH/EN		1	43.26	52 72	20 17	0	3	5	5		
7	IIB	D	EH/EN		1	47 43	21 6	7 79	0	4	2	5		
7	IIB	D	EH/EN		5	88 1	34.38	26 93	0		2	0		small biface w/impact fracture on end stemmed
7	IIB	D	EH/EN		3	17 07	18.55	7.26	0		2	2		
7	IIB	B	EH/EN		6	13.16	19.87	6 16	0		2	2		
7	IIB	B	EH/EN		1	9 01	30.01	6 82	0	4	2	2		
7	IIB	C	EH/EN		1	18.27	17 17	4 34	80	1	3	0		
17	VB	B1	(Early Nasca-mixed?)		1	16 31	17.12	3 16	5	1	1	3		
8-1RW	IIB	B	EH/EN		5	18 83	13 3	8.96	30		3	0		
8-1RW	IIB	B1	EH/EN		5	11 18	14 96	5 78	0		2	0		
8	IIB	C	EH/EN		1	26 07	30.09	7 83	15	1	2	0		
8	IIB	C	EH/EN		1	18 43	23 53	7 38	0	4	6	0		
8	IIB	C	EH/EN		1	5 7	13 81	5 24	0	4	6	0		Biface thinning
8	IIB	C	EH/EN		3	10 46	10 63	4 72	0		6	1		
8	IIB	C	EH/EN		1	16.65	17 79	6.02	0	2	3	0		
8-1RW	IIB	C	EH/EN		3	15 58	17 3	8 37	0		2	3		
8-1RW	IIB	C	EH/EN		1	23 57	53 06	6 98	0	5	2	2		
8-1RW	IIB	C	EH/EN		1	55 42	31 31	10 71	0	2	3	2		
8-1RW	IIB	C	EH/EN		3	8 77	22 48	5 63	0		6	0		
8-1RW	IIB	C	EH/EN		3	9 44	8 24	4 13	0		6	0		
8	IIB	D	EH/EN		1	79 64	69 39	21 93	0	5	6	4		
8	IIB	D	EH/EN		1	30 19	30 48	14.85	0	5	6	2		
8	IIB	D	EH/EN		2	25 16	32 25	6 82	0	5	6	2		
8	IIB	D	EH/EN		1	26.59	26 1	12.94	0	2	2	7		
8	IIB	D	EH/EN		1	14 83	12 33	7 23	0	2	2	3		
8	IIB	D	EH/EN		1	30.8	15 35	10 2	0	3	5	3		
9	IIC	C	Early Nasca		2	10.58	12 1	1 7	0	5	2	0		
10	IIC	B	Early Nasca		1	15 31	19.54	5 51	50	1	3	0		
5	IC	C	Early Horizon		1	14 66	5 72	8 38	0	2	1	0		
5	IC	C	Early Horizon		1	12.83	7 07	2 84	0	5	1	2		
3	IE	A	Early Horizon		1	11 09	10 35	4 72	0	5	1	5		Bipolarly flaked angular debris with evidence of heavy previous flaking
6	IIA	B1	EH/EN		1	18 27	10 55	4 27	0	2	2	2		
6	IIA	B1	EH/EN		1	15 53	19 08	3 41	20	1	1	0		Bipolarly flaked
6	IIA	B1	EH/EN		1	17 05	13 7	3 03	0	2	1	5		
6	IIA	B1	EH/EN		1	14 68	8 81	3 7	0	5	1	5		Bipolar flaking
6	IIA	B2	EH/EN		3	9 96	10 42	3 37	0		1	4		

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6	IIA	B2	EH/EN	1	14.87	16 34	3 08	5	2	1	7	
6	IIA	B2	EH/EN	3	12 43	15 84	4 16	0		1	3	Bipolar flaked
6	IIA	B2	EH/EN	1	9 17	14 13	2 42	0	3	1	1	Bipolar flaked
6	IIA	B2	EH/EN	1	11 89	8 35	2 34	25	4	1	3	
6	IIA	B2	EH/EN	5	13 27	8 58	2 95	0		1	3	Bipolar flaked
6	IIA	B2	EH/EN	5	8.22	9.87	2.08	0		1	3	Bipolar flaked
6	IIA	B2	EH/EN	5	4 52	10 55	4.63	0		1	1	Bipolar
6	IIA	B2	EH/EN	3	16 52	12 77	2 73	0		1	7	
6	IIA	B3	EH/EN	5	13 68	10.21	7 88	0		1	0	
6	IIA	B3	EH/EN	1	7 66	11.53	2.2	0	4	1	1	
6	IIA	B3	EH/EN	1	17 67	12 84	4.78	5	1	1	3	
6	IIA	C1	EH/EN	1	15.43	11 1	3.04	0	3	1	5	
6	IIA	C1	EH/EN	5	7 1	11 81	4 77	0		1	2	
6	IIA	C1	EH/EN	1	9 97	8.67	2.22	0	5	1	3	
6	IIA	C1	EH/EN	1	7 01	16 11	4 07	40	3	1	0	
6	IIA	C2	EH/EN	1	20 93	21 1	4 3	0	5	1	4	
6	IIA	C2	EH/EN	1	9 07	6	1.93	0	5	1	1	
6	IIA	C2	EH/EN	1	17.43	10 81	2.76	15	4	1	3	
6	IIA	C3	EH/EN	1	4.75	6 3	0 88	0	1	1	2	
6	IIA	C3	EH/EN	5	4 19	16.55	4 65	0		1	4	Bipolar
6	IIA	C4	EH/EN	5	6	8 54	6 76	0		1	0	Bipolar
6	IIA	D	EH/EN	1	11 93	22 96	3 7	0	3	1	5	Bipolar
7	IIB	A	EH/EN (mixed surface)	5	13.53	10 64	7.36	0		1	0	
7	IIB	A	EH/EN (mixed surface)	5	14 6	18 17	9 79	0		1	0	Bipolar
7	IIB	A	EH/EN (mixed surface)	1	17 84	9 25	3 45	0	5	1	3	
7	IIB	A	EH/EN (mixed surface)	3	12 84	10 52	2 92	0		1	6	
7	IIB	B	EH/EN	2	11 55	15 8	4 48	50	4	1	0	
7	IIB	C	EH/EN	5	10 08	13.81	5 13	0		1	0	Bipolar
7	IIB	C	EH/EN	1	12 26	15 7	5 27	0	5	1	2	
7	IIB	C	EH/EN	3	8.36	7.57	2 37	0		1	0	
7	IIB	C	EH/EN	1	10 42	9 6	4.5	0		1	0	Bipolar
7	IIB	C1	EH/EN	1	21 72	15.57	5 86	60	5	1	2	Bipolar
7	IIB	C1	EH/EN	1	8 7	16 7	5 32	20	1	1	2	
7	IIB	C1	EH/EN	5	6 21	7 88	5 53	5		1	2	
7	IIB	C1	EH/EN	3	12 09	12.42	5 12	0		1	0	
7	IIB	C1	EH/EN	1	11 4	8 31	1.46	0	5	1	4	
7	IIB	D	EH/EN	1	19 29	17 69	5.32	0	2	1	5	
7	IIB	D	EH/EN	1	14 61	11 81	3 13	0	2	1	4	
7	IIB	D	EH/EN	1	17 22	26.49	4 31	5	1	1	3	Bipolar
7	IIB	D	EH/EN	1	19 13	18.43	4 5	0	5	1	3	
7	IIB	D	EH/EN	1	8.46	9.28	2 63	0	4	1	4	
7	IIB	D	EH/EN	1	10 1	10 92	2.37	0	3	1	1	
7	IIB	D	EH/EN	1	15 71	10.06	3 88	0	1	1	2	
8	IIB	B	EH/EN	1	8.26	16 37	1 76	10	4	1	3	
8	IIB	B	EH/EN	5	13 55	10 38	4 03	0		1	4	
8	IIB	D	EH/EN	1	6 02	11 25	1 37	0	2	1	0	
8	IIB	D	EH/EN	5	11.57	13.79	6 21	0		1	0	Bipolar
8	IIB	D	EH/EN	3	8 08	9 17	2 63	0		1	2	
8	IIB	D	EH/EN	1	7 51	15 87	2 73	5	4	1	3	Bipolar
22	IIIA	A	Early Nasc Mixed surface	1	13.52	16 64	4 62	0	2	1	3	
22	IIIA	A	Early Nasc Mixed surface	5	10 02	10 63	7 22	0		1	3	
22	IIIA	A	Early Nasc Mixed surface	1	20.48	13 38	3 33	0	5	1	8	
22	IIIA	A	Early Nasc Mixed surface	5	7 49	11 48	3 63	0		1	4	
22	IIIA	A	Early Nasc Mixed surface	1	9 43	12 59	3 12	0	5	1	3	
22	IIIA	B	Early Nasca	6	9 73	15 59	5 53	0		1	6	
22	IIIA	B	Early Nasca	1	8.53	13 2	4 39	0	2	1	3	2 Bulbs present bipolar
22	IIIA	B	Early Nasca	1	9 09	8.78	1 34	0	5	1	2	

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22	IIIA	B	Early Nasca		1	8 87	9 48	3 59	0	3	1	3	
22	IIIA	C	Early Nasca		3	17 62	25 98	11 61	0		1	13	
22	IIIA	C	Early Nasca		5	6 03	8 74	4 56	0		1	4	
22	IIIA	B	Early Nasca		1	30 99	41 47	10 63	5	2	6	3	Utilization along one margin
20	IVA	B	Middle Horizon		2	10.57	11	4.34	0	2	2	2	
20	IVA	B	Middle Horizon		1	10.74	16 24	6 62	0	5	2	4	
20	IVA	B	Middle Horizon		1	14 11	14 19	3 58	0	2	6	1	
20	IVA	C	Middle Horizon		5	16 54	12 3	8 77	0		6	0	
20	IVA	C	Middle Horizon		1	14 42	15 44	4 57	0	2	2	3	
20	IVA	C	Middle Horizon		1	12.14	16 42	1 87	0	3	2	0	
11	VC	B	LIP		1	21.02	10 27	4 54	5	5	1	4	Bipolar
12	VC	B	LIP		1	18 22	10.38	2 44	0	5	1	3	
13	VD	C	Late Horizon		1	21 74	17.13	4.15	0	4	1	0	
13	VD	C	Late Horizon		1	7.62	12.66	4 58	0	3	1	3	
15	VC	A	LIP	Mixed surface	1	18 84	27.51	3 92	10	3	1	1	
15	VC	B	LIP		1	24.71	13 32	4 16	15	1	1	2	
15	VC	B	LIP		1	18.31	9.5	6.14	5	1	1	5	
15	VC	B	LIP		5	11.73	13.97	5 89	0		1		
15	VC	D	LIP		1	17 82	7 52	2 09	0	3	1	5	
17	VB	A	middle Horizon/LIP		1	15.83	10 12	2.28	0	2	1	4	
17	VB	A	middle Horizon/LIP		5	14 59	12 76	3 8	4		1		Bipolar
17	VB	B	Middle Horizon		1	14 18	24 47	5 28	0	3	1	0	
17	VB	B	Middle Horizon		3	12.93	21 84	3 6	0		1	0	
17	VB	B	Middle Horizon		1	22 64	11 18	5 86	20	5	1	2	
17	VB	B	Middle Horizon		5	9 74	15.05	6 98	0		1	2	
17	VB	B	Middle Horizon		4	21 18	10 3	3 58	0		1	3	
17	VB	B	Middle Horizon		5	19 48	12 66	7 76	0		1		
17	VB	B	Middle Horizon		1	15 38	12 54	3.68	0	3	1	3	
17	VB	B	Middle Horizon		1	11	7 08	1 88	0	5	1	6	
17	VB	B	Middle Horizon		1	12 34	19 92	4 99	0	2	1	2	
17	VB	B	Middle Horizon		6	12 76	13 39	5.79	0		1	6	
17	VB	B	Middle Horizon		5	14.35	11 08	5 54	0		1	3	
17	VB	B	Middle Horizon		1	13 46	10 41	3 8	0	5	1	3	
17	VB	B	Middle Horizon		5	8.81	7 52	4 32	0		1	6	
17	VB	B	Middle Horizon		3	8 76	9 59	1.91	0		1	3	
17	VB	B	Middle Horizon		1	7 98	11 72	3 34	0	5	1	2	
17	VB	B	Middle Horizon		1	8.28	13 41	1 82	0	5	1	1	
17	VB	B	Middle Horizon		1	14 96	8.62	2.83	0	3	1	6	
17	VB	B	Middle Horizon		1	12 66	18.12	4.71	0	2	1	3	
17	VB	B	Middle Horizon		5	10 32	22 53	6 4	0		1		
17	VB	B	Middle Horizon		6	11 65	14 35	3 43	0		1	3	
17	VB	B	Middle Horizon		1	10 66	13.36	4.24	0	5	1	4	
17	VB	B	Middle Horizon		3	9.52	12 28	3 51	0		1	2	
17	VB	B	Middle Horizon		1	14 43	10 74	3 45	5	1	1	3	
17	VB	B	Middle Horizon		1	10 62	6 09	1 02	0	5	1	5	
17	VB	B	Middle Horizon		5	9 63	10 17	5 6	0		1		
17	VB	B	Middle Horizon		5	12 14	11 59	8.23	0		1		Extenisvely flaked debris
17	VB	B	Middle Horizon		1	9 01	10 69	2 07	0	5	1	1	
17	VB	B	Middle Horizon		1	10 86	15	3 64	0	5	1	4	
17	VB	B	Middle Horizon		1	10 54	8 33	3 87	0	2	1	2	
17	VB	B	Middle Horizon		1	8 83	11 29	2 69	0	3	1	2	
17	VB	B	Middle Horizon		1	7 1	10 69	1.73	0	3	1	5	
17	VB	B	Middle Horizon		5	21 65	7 19	6 3	0		1		
17	VB	B	Middle Horizon		5	10 31	7 37	6.21	0		1		
17	VB	B	Middle Horizon		1	11 34	9 51	2 27	0	5	1	3	Bipolar
17	VB	B	Middle Horizon		1	8 61	11.16	2 07	15	3	1	4	
17	VB	B	Middle Horizon		1	7 02	12 51	1 33	0	4	1	1	

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17	VB	B1	Middle Horizion		1	13 78	16 39	2.66	10	1	1	3		
17	VB	B1	Middle Horizion		3	12 65	9 07	2 9	0		1	2		
17	VB	B1	Middle Horizion		5	7	12 47	5 75	0		1			
17	VB	B1	Middle Horizion		1	11 39	14 69	3 73	0	1	1	3		
17	VB	B1	Middle Horizion		1	8.65	15 16	2 63	0	2	1	2		
17	VB	B1	Middle Horizion		1	17 1	13 16	3 61	0	5	1	3		
17	VB	B1	Middle Horizion		1	14 54	10 97	2 08	5	3	1	2		
17	VB	B1	Middle Horizion		1	12 1	14 89	4 35	10	1	1	4		
17	VB	B1	Middle Horizion		1	14 9	10 94	4 04	0	2	1	4	Bipolar	
17	VB	B1	Middle Horizion		6	6.61	18.95	3 92	0		1	2		
17	VB	B1	Middle Horizion		1	9 63	6	1 21	0	5	1	3		
17	VB	B1	Middle Horizion		1	9 11	2.98	1 86	0	5	1	2		
17	VB	B1	Middle Horizion		3	15 87	10.57	4 99	0		1	4		
17	VB	B1	Middle Horizion		5	8.61	11 68	3 66	0		1			
17	VB	B1	Middle Horizion		1	7 04	14.59	3 36	0	2	1	3		
17	VB	B1	Middle Horizion		1	9.66	15.8	1 81	0	3	1	7	Extensive flaking on ventral side	
17	VB	B1	Middle Horizion		3	12 48	9.39	2 16	0		1	3	Bipolar?	
17	VB	B1	Middle Horizion		1	8 73	11 49	5 42	15	1	1	2		
17	VB	B1	Middle Horizion		1	9 04	13 44	3 71	0	3	1	4		
17	VB	B1	Middle Horizion		1	14.88	10 49	2 16	0	5	1	2		
17	VB	B1	Middle Horizion		3	9 33	9 33	2 62	5		1	3		
17	VB	B1	Middle Horizion		1	9 06	12 25	2 5	0	5	1	4		
17	VB	B1	Middle Horizion		1	11 77	11 94	2 76	0	3	1	2		
17	VB	B1	Middle Horizion		5	15 79	9 46	6	0		1	12		
17	VB	B1	Middle Horizion		1	11 14	7 05	1.31	0	2	1	4		
17	VB	B1	Middle Horizion		1	16 94	9 93	2 31	0	5	1	2		
17	VB	B1	Middle Horizion		1	9 77	9 49	2 6	10	1	1	2		
17	VB	B1	Middle Horizion		1	5 3	13 61	1.38	0	2	1	1		
17	VB	B1	Middle Horizion		1	8 48	8 3	1 44	5	3	1	2		
21	IIIA	C	Early Nasca		1	18.42	21 56	4.22	0	2	1	5	End of 2004	
27	IA	A	EH/EN		1	32.74	78 03	14 11	0	2	6	6	Start of 2005	
29	IB	C	EH/EN		3	13 49	18 92	5 17	0		1	6		
30	IB	B	EH/EN		1	12 8	13 8	6 43	0	2	6	2		
31	IC	C	EH/EN		1	66.33	46 94	27 38	15	1	3	3		
12	VC	A	LIP	Mixed surface	1	41 45	17 36	6 37	5	1	6	2		2004
12	VC	A	LIP	Mixed surface	1	29 77	22 46	6.94	5	1	6	1		
12	VC	A	LIP	Mixed surface	1	10 97	9 21	2 22	0	5	6	3		
12	VC	B1	LIP		1	12 02	16 75	3 8	40	1	3	0		
12	VC	B1	LIP		1	16.83	13 22	3 45	0	2	6	2		
13	VD	B	Late Horizon		1	24 31	54 95	10 23	0	2	5	6		
13	VD	C	Late Horizon		1	58 64	30.15	18 21	65	1	4	0		
13	VD	C	Late Horizon		1	59 36	30 93	13 09	20	2	6	0		
13	VD	C	Late Horizon		1	38.05	29 01	11 85	0	2	6	0		
13	VD	C	Late Horizon		1	46 43	29 11	4 3	0	2	6	4		
13	VD	C	Late Horizon		1	13 33	30 44	7 98	35	2	6	0		
13	VD	C	Late Horizon		1	18 68	32 3	4 6	0	5	6	0		
14	VC	B	LIP		1	36.92	69 06	14 88	15	1	6	6		
14	VC	B	LIP		1	15 11	11.7	4 03	0	2	2	2		
15	VC	B	LIP		1	53.24	26.68	12.75	5	1	6	4		
15	VC	B	LIP		1	14 63	17 96	5 93	0	5	6	3		
15	VC	B	LIP		1	20 37	43 94	4 95	40	5	5	0		2004
35	VA	A	LIP		1	14 5	12 65	3 74	0	5	1	2		
35	VA	A	LIP		1	14.93	21 16	7 75	0	1	1	5		
35	VA	A	LIP		1	25 63	55 44	2.54	0	2	6	1		
35	VA	B	LIP	exterior	1	25 87	30 03	4 38	10	1	1	1		
35	VA	B	LIP	exterior	1	12 49	21 75	10 46	10	3	1	6		

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35 VA	B	LIP		3	8 24	14 05	3 11	0		1	1	
35 VA	C	LIP		1	23 17	33.31	8 56	0	2	2	3	
25 IIC	A	EH/EN	exterior	2	18.6	27 96	5 99	0	1	1	3	
25 IIC	A	LIP		1	22 79	23 88	5 49	0	2	2	3	
25 IIC	B	LIP		1	13 41	30 39	8 73	0	2	1	2	
25 IIC	A	LIP		1	9 97	6.63	1 35	0	2	2	2	
28 IIF	A	EH/EN		1	21 77	15 07	4 68	5	1	6	2	
28 IIF	A	EH/EN		3	33 65	33 41	13 62	0		6	2	
28 IIF	A	EH/EN		1	20 62	29.56	9 59	0	1	2	2	
28 IIF	A	EH/EN		1	16 46	16.79	6 77	0	2	3	2	
28 IIF	A	EH/EN		5	11 64	20	9 3	15		3		
28 IIF	A	EH/EN		1	18 33	20.69	10 46	15	1	6	3	
28 IIF	B	EH/EN		3	15 08	27 26	5 6	0		5	3	
28 IIF	B	EH/EN		1	63.7	38 8	25 28	10	1	6	4	chunky
28 IIF	B	EH/EN		2	42 87	31.49	10 32	0	2	5	2	
28 IIF	B	EH/EN		2	18.7	16 89	3 09	0	2	5	2	
28 IIF	B	EH/EN		1	30.99	21 49	4.41	0	2	5	0	
28 IIF	B	EH/EN		3	20.61	5 03	20 91	0		6	4	
28 IIF	B	EH/EN		3	18 6	20 85	4 61	0		5	2	
28 IIF	B	EH/EN		5	15 11	17 12	8.73	0		5		
28 IIF	B	EH/EN		1	15 28	23 61	3 08	25	5	1	2	
28 IIF	B	EH/EN		1	12.52	14.38	3 53	10	1	1	2	
28 IIF	B	EH/EN	FEAT 1	1	14 5	24 84	8.84	0	2	1	6	
28 IIF	B	EH/EN		1	14.4	11 14	4 89	5	1	2	2	
28 IIF	B	EH/EN		5	17 18	7 32	9 76	0		2		
28 IIF	C	EH/EN		1	5 88	10.97	2 97	0	5	1	2	
28 IIF	C	EH/EN		3	7 49	8 76	4.04	0		1	2	
28 IIF	C	EH/EN		1	9 36	19 46	2.95	0	1	1	2	
28 IIF	C	EH/EN		1	52 22	36 78	12 07	0	5	5	3	
28 IIF	C	EH/EN		1	47 81	36 65	20 91	20	5	6	0	
28 IIF	C	EH/EN		1	25 76	23 95	22 91	15	2	2	8	many flakes removed from orginal flake
28 IIF	C	EH/EN		1	27 1	26 58	6.94	15	1	6	3	
28 IIF	C	EH/EN		1	28 49	23 29	3 68	0	2	5	2	
28 IIF	C	EH/EN		1	37.52	14 92	15 18	0	3	2	2	
28 IIF	C	EH/EN		1	15 08	27.3	7 78	0	2	5	2	
28 IIF	C	EH/EN		1	24 5	20 46	14 58	0	5	2	3	many flakes remoced from orginal flake
28 IIF	C	EH/EN		1	20 64	10 22	3 26	10	3	5	2	
28 IIF	C	EH/EN		1	17 92	22.99	7 35	0	2	2	1	potlidding present
28 IIF	C	EH/EN		1	13 38	16 17	14.42	0	2	2	3	
28 IIF	C	EH/EN		1	28.22	8 61	6 45	0	2	6	2	
28 IIF	C	EH/EN		1	17 2	28	7 26	0	2	6	2	
28 IIF	C	EH/EN		1	9 59	9 35	3 28	0	2	3	2	
28 IIF	C	EH/EN		1	8.37	14 08	4 97	0	2	2	2	
32 IV	A	LIP		1	9 3	12 38	6.42	5	2	2	3	
32 IVA	A	LIP		5	14 1	10.53	2 98	0		1	3	
32 IVA	A	LIP		3	10 69	13.3	5 49	0		2	3	
32 IVA	C	LIP		1	10 66	15.61	3 45	0	5	1	5	
32 IVA	C	LIP		5	10 32	7 02	6 07	0		1		
32 IVA	C	LIP		3	11 25	14 35	3 49	0		1		
32 IVA	C	LIP		1	18 94	17 48	7	0	2	2	3	
32 IVA	C	LIP		1	58 3	39 65	11 36	0	2	6	2	
32 IVA	C	LIP		3	12 84	29 95	9 12	0		2	1	
32 IVA	C	LIP		1	37 36	37 31	4 4	5	1	2	2	
32 IVB	A	LIP		1	14.86	22 47	2 55	0	2	1		
33 IVB	B	LIP		3	18 6	20 33	3 8	0		1	3	
33 IVB	B	LIP		1	14.02	10 79	4 68	10	1	1	3	
33 IVB	B	LIP		1	45 06	61 67	7 69	0	2	5	0	

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33	IVB	B	LIP	FEAT 1	1	17 76	36 26	3 93	0	3	4	3	
33	IVB	B	LIP	FEAT 1	3	10 24	20 54	11 81	0		2	2	
34	IVC	B	LIP		1	14 07	14 55	2 73	0	5	1	4	BIPOLAR
Tumba 1	exterior	A (LIMPIE:	MH-Mixed		3	22 42	14 22	7 6	0		2	1	
Tumba 1	exterior	A (LIMPIE:	MH-Mixed		1	18 29	8 6	4.33	0	5	2	2	
Tumba 1	exterior	A (LIMPIE:	MH-Mixed		1	22 23	12 53	3 49	0	2	2	1	
Tumba 1	exterior	A (LIMPIE:	MH-Mixed		1	9 49	19 8	4 35	5	1	1	3	
Tumba 1	interior	A (LIMPIE:	MH-Mixed		1	6 72	6.59	1.47	0	2	1	3	
Tumba 1	interior	A (LIMPIE:	MH-Mixed		1	13 58	3 73	2 95	0	2	1	2	
Tumba 1	interior	A (LIMPIE:	MH-Mixed		1	9 44	11 13	3.11	0	3	1	1	
Tumba 1	interior	A (LIMPIE:	MH-Mixed		1	9 56	5.3	3 66	0	2	1	3	
Tumba 1	interior	A (LIMPIE:	MH-Mixed		6	4.71	10 38	1.32	0		1	4	
Tumba 1	interior	A (LIMPIE:	MH-Mixed		1	9 5	20 99	4 55	0	2	1	2	
Tumba 1	interior	B	MH-Mixed		3	17 82	29 39	9 09	0		6	2	
Tumba 1	interior	B	MH-Mixed		1	10.2	8	1.99	0	2	1	3	
Tumba 1	interior	B	MH-Mixed		1	16 43	10 21	1 9	0	5	1	3	bipolar
Tumba 1	interior	B	MH-Mixed		1	14 63	6 21	2 23	0	5	1	4	bipolar
Tumba 1	interior	B	MH-Mixed		1	7 22	11.37	2 94	0	2	1	3	
Tumba 1	interior	B	MH-Mixed		1	8 46	8 94	1 91	0	2	1	4	
Tumba 1	interior	B	MH-Mixed		1	5 52	11 07	0 8	0	2	1	3	
Tumba 1	interior	D	MH-Mixed		6	5 22	19 22	5 03	0		2	2	
Tumba 1	interior	D	MH-Mixed		1	34.73	11 55	3 57	0	2	6	3	
Tumba 1	interior	D	MH-Mixed		1	25 56	10 51	3 26	0	2	1	3	
Tumba 1	interior	D	MH-Mixed		1	5 93	14 4	2 11	0	5	1	4	
Tumba 1	interior	D	MH-Mixed		3	11 92	19 09	6.17	0		1	4	
Tumba 1	interior	D	MH-Mixed		2	5 88	8 84	3 22	0	3	1	3	
Tumba 1	interior	D	MH-Mixed		3	11 37	15 53	3.21	40		1		
Tumba 1	interior	E	MH-Mixed		3	30 84	53 19	16 03	0		6	2	
Tumba 1	interior	E	MH-Mixed		1	16 72	16 61	5.21	0	2	6	2	
Tumba 1	interior	E	MH-Mixed		2	23 77	20 48	6.9	0	2	2	4	
IV	tumba 2	C	MH-Mixed		1	14 11	11 85	3 16	0	2	1	2	
IV	tumba 2	C	MH-Mixed		1	18 75	17 37	4 44	30	1	1	2	
Tumba 1	interior	E	MH-Mixed		1	23 24	9.65	3 6	0	5	1	2	
Tumba 1	interior	E	MH-Mixed		1	27 44	13 51	4 54	0	4	1	3	
Tumba 1	interior	E	MH-Mixed		1	16 2	23 09	6 78	5	2	1	5	
Tumba 1	interior	E	MH-Mixed		3	12 89	20 33	4 41	0		1	3	
Tumba 1	interior	E	MH-Mixed		1	8 93	15 15	2 24	0	3	1	2	
Tumba 1	interior	E	MH-Mixed		1	27 11	12 45	7 01	5	3	1	3	
Tumba 1	interior	E	MH-Mixed		3	12 88	10.99	5 08	0		1	2	
Tumba 1	interior	E	MH-Mixed		5	8 16	17 8	6 01	0		1		
Tumba 1	interior	E	MH-Mixed		3	10 18	19 65	3 71	0		2	4	
Tumba 1	interior	E	MH-Mixed		1	7 82	5 65	1 66	0	5	1	2	BIPOLAR
Tumba 1	interior	E	MH-Mixed		1	17 7	11 9	5 57	5	1	1	2	
Tumba 1	interior	E	MH-Mixed		1	17 18	9	9 7	0	2	1	3	
Tumba 1	interior	E	MH-Mixed		5	14 67	8 96	6.09	10		1	2	
Tumba 1	interior	E	MH-Mixed		1	24 41	11 41	3 78	0	5	1	3	
Tumba 1	interior	E	MH-Mixed		1	12 09	11 58	4 26	0	2	1	3	
Tumba 1	interior	E	MH-Mixed		1	8 01	5 05	1.31	0	2	1	1	
Tumba 1	interior	E	MH-Mixed		6	3 5	9 72	1 4	0		1	2	
Tumba 1	interior	E	MH-Mixed		1	14 65	8.71	1 88	0	2	1	3	
Tumba 1	interior	E	MH-Mixed		5	13 75	4 1	3 18	0		1	3	
Tumba 1	interior	E	MH-Mixed		3	15 08	13 66	3 17	0		1	4	
Tumba 1	interior	E	MH-Mixed		1	7 29	9 84	0 85	0	4	1	0	
Tumba 1	interior	E	MH-Mixed		1	18 62	9 78	2 96	0	1	1	2	
Tumba 1	interior	E	MH-Mixed		1	17 13	16 23	5 69	10	1	1	2	
Tumba 1	interior	E	MH-Mixed		1	13 01	19 06	2 56	0	5	1	2	
Tumba 1	interior	E	MH-Mixed		1	11 99	11 86	2 2	0	2	1	3	

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Tumba 1	interior	E	MH-Mixed	1	13 81	8 69	2 32	0	3	1	3	
Tumba 1	interior	E	MH-Mixed	5	8 52	10.23	5 23	0		1		
Tumba 1	interior	E	MH-Mixed	3	9 79	21 31	4 73	0		1	3	
Tumba 1	interior	E	MH-Mixed	1	7 78	8.62	1 62	0	2	1	1	
Tumba 1	interior	E	MH-Mixed	1	10.86	9 23	2 29	30	2	1	1	
Tumba 1	interior	E	MH-Mixed	6	6 34	8 92	3 69	0		1	5	
Tumba 1	interior	E	MH-Mixed	4	12 1	9 88	4 05	0		1	5	
Tumba 1	interior	E	MH-Mixed	6	4 94	14 16	3 91	0		1	3	possibly broken piece of biface
Tumba 1	interior	E	MH-Mixed	1	8 42	11 48	1 71	0	5	1	0	
Tumba 1	interior	E	MH-Mixed	4	10 31	2 27	2.8	0		1	2	
Tumba 1	interior	E	MH-Mixed	1	6.83	7 35	2 08	0	1	1	1	
Tumba 1	interior	E	MH-Mixed	1	17 39	10 57	3 05	0	5	1	2	bipolar
Tumba 1	interior	E	MH-Mixed	1	7 07	4.86	1 89	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	10 68	6 72	2 07	0	5	1	2	
Tumba 1	interior	E	MH-Mixed	1	9 65	7 29	4 6	0	5	1	4	
Tumba 1	interior	E	MH-Mixed	3	8 6	11 21	2 71	0		1	3	
Tumba 1	interior	E	MH-Mixed	1	12.72	9 86	2.5	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	12 3	6 3	2 87	0	3	1	3	
Tumba 1	interior	E	MH-Mixed	1	10 51	7 68	2.41	0	3	1	4	
Tumba 1	interior	E	MH-Mixed	6	3 02	8.8	3 2	20		1	2	
Tumba 1	interior	E	MH-Mixed	1	24 26	6 75	5 03	15	5	1	2	
Tumba 1	interior	E	MH-Mixed	1	14.93	16 64	2 69	0	5	1	3	
Tumba 1	interior	E	MH-Mixed	3	7 24	10 04	3 22	5	1	1	4	
Tumba 1	interior	E	MH-Mixed	1	11 13	7 16	2 6	0	5	1	2	
Tumba 1	interior	E	MH-Mixed	1	9 96	6.3	3 54	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	12 68	6 05	1 76	0	3	1	0	
Tumba 1	interior	E	MH-Mixed	1	15 79	7 4	3 66	0	3	1	4	
Tumba 1	interior	E	MH-Mixed	1	14 47	4 4	4.11	0	3	1	2	
Tumba 1	interior	E	MH-Mixed	1	6.95	5 78	1 8	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	13 68	10 62	4 71	0	2	1	3	
Tumba 1	interior	E	MH-Mixed	1	14.49	6 36	4 82	10	1	1	5	
Tumba 1	interior	E	MH-Mixed	1	12 07	14 53	1 84	0	5	1	2	
Tumba 1	interior	E	MH-Mixed	1	8 88	7 32	2 72	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	20 47	8.28	2 68	0	5	1	3	bipolar two platforms
Tumba 1	interior	E	MH-Mixed	1	6.71	4 54	1	5	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	10 5	11 03	4 02	0	2	1	3	
Tumba 1	interior	E	MH-Mixed	1	5 12	8.64	3 54	0	2	1	1	
Tumba 1	interior	E	MH-Mixed	1	14.79	4 54	1 37	5	1	1	2	
Tumba 1	interior	E	MH-Mixed	1	11 36	10.16	1 67	0	3	1	2	
Tumba 1	interior	E	MH-Mixed	1	12 05	8 15	3 33	0	2	1	1	
Tumba 1	interior	E	MH-Mixed	1	12 49	5 63	3 01	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	12 11	6 6	2 41	0	5	1	2	
Tumba 1	interior	E	MH-Mixed	1	11 37	3 95	4 05	0	2	1	2	
Tumba 1	interior	E	MH-Mixed	1	8.43	3 43	3 34	0	5	1	7	
Tumba 1	interior	E	MH-Mixed	1	10.82	4.27	1.88	15	1	1	1	
Tumba 1	interior	E	MH-Mixed	1	14 64	8.34	4 6	0	3	1	4	
Tumba 1	interior	E	MH-Mixed	3	4.99	2 47	2 19	0		1	2	
Tumba 1	interior	E	MH-Mixed	1	8 34	5 94	0 82	0	3	1	0	
Tumba 1	interior	E	MH-Mixed	3	3 92	8 17	0 36	0		1	3	
Tumba 1	interior	E	MH-Mixed	1	8 28	11 92	3 02	0	5	1	3	
Tumba 1	interior	E	MH-Mixed	1	7 09	8 97	2 55	0	2	1	3	
Tumba 1	interior	E	MH-Mixed	1	8.95	12.08	3.66	0	3	1	4	
Tumba 1	interior	E	MH-Mixed	1	11 32	11 18	2 66	0	2	1	1	
Tumba 1	interior	E	MH-Mixed	3	6 7	13 8	5 26	0		1	2	
Tumba 1	interior	E	MH-Mixed	1	11 85	7 42	4 24	0	5	1	3	
Tumba 1	interior	E	MH-Mixed	1	11 18	11 01	1 27	0	2	1	0	
Tumba 1	interior	E	MH-Mixed	1	8 98	9 24	0 65	0	2	1	3	

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Tumba 1	interior	E	MH-Mixed		1	6 39	9 24	1 42	0	2	1	1
Tumba 1	interior	E	MH-Mixed		1	6 01	13 06	1 79	0	2	1	2
Tumba 1	interior	E	MH-Mixed		1	7 02	6 68	1 34	0	2	1	0
Tumba 1	interior	E	MH-Mixed		1	5.49	8 34	1 84	0	3	1	2
Tumba 1	interior	E	MH-Mixed		1	7 95	9 42	1 03	0	3	1	1
Tumba 1	interior	E	MH-Mixed		3	5 46	8 16	0 85	0		1	3
Tumba 1	interior	E	MH-Mixed		1	6 27	8.14	0 76	0	5	1	1
Tumba 1	interior	E	MH-Mixed		1	9 31	5 65	1.01	0	3	1	2
Tumba 1	interior	E	MH-Mixed		3	4 25	10 17	2 5	0		1	2
Tumba 1	interior	E	MH-Mixed		3	3 73	8 15	2.37	0		1	0
Tumba 1	interior	E	MH-Mixed		1	8 33	5 17	2.21	0	2	1	2
Tumba 1	interior	E	MH-Mixed		1	6 07	10 44	1 27	10	1	1	1
Tumba 1	interior	E	MH-Mixed		1	7.5	5.71	1 76	0	3	1	4
Tumba 1	interior	E	MH-Mixed		5	9 41	3 65	0 6	0		1	2
Tumba 1	interior	E	MH-Mixed		1	9 9	5 44	0.8	0	2	1	3
Tumba 1	interior	E	MH-Mixed		1	5 68	3 3	1 05	0	2	1	
Tumba 1	interior	E	MH-Mixed		1	2.99	4.66	0 97	0	3	1	2
Tumba 1	interior	E	MH-Mixed		1	3 75	3.21	0 52	0	3	1	2
Tumba 1	interior	E	MH-Mixed		6	4 57	5 8	0 93	0		1	3
Tumba 1	interior	E	MH-Mixed		1	3 18	3.29	0 56	0	5	1	2
Tumba 1	interior	E	MH-Mixed		1	5.24	3 95	0 53	0	2	1	0
IVB	33	B	LIP	entierro 4	1	113 67	81 81	35.85	60	1	5	0
IVB	33	B	LIP	entierro 4	1	93.53	74 56	23 31	15	1	3	3
IVB	33	B	LIP	entierro 4	1	32 29	96 28	34.14	20	1	3	0
IVB	33	B	LIP	entierro 4	1	69 21	114 78	28 13	35	1	3	1
IVB	33	B	LIP	entierro 4	1	65 93	60 5	22.83	55	1	3	0
IVB	33	B	LIP	entierro 4	1	78 77	123 36	32 03	15	1	3	3
IVB	33	B	LIP	entierro 4	1	80 99	53 71	21 85	20	1	3	2
IVB	33	B	LIP	entierro 4	1	96 75	55 39	23 65	30	1	3	1
IVB	33	B	LIP	entierro 4	1	91 18	55 54	26 43	10	1	3	3
IVB	33	B	LIP	entierro 4	1	101 02	56 48	33 21	20	1	3	2
IVB	33	B	LIP	entierro 4	1	52 86	95 19	33 19	10	1	3	3
IVB	33	B	LIP	entierro 4	1	90 15	66 5	26 58	10	1	3	2
IVB	33	B	LIP	entierro 4	1	78 17	45 2	23 07	10	2	3	2
IVB	33	B	LIP	entierro 4	1	125 64	139.86	41 04	45	1	3	0
IVB	33	B	LIP	entierro 4	1	85 26	63 78	23 25	25	1	3	1
IVB	33	B	LIP	entierro 4	1	101.82	101 71	31 61	40	1	3	0
IVB	33	B	LIP	entierro 4	1	76 76	57 55	20 98	10	2	3	1
IVB	33	B	LIP	entierro 4	1	90 85	115 26	28 77	10	1	3	3
IVB	33	B	LIP	entierro 4	1	78 92	58.49	21.42	15	1	3	2
IVB	33	B	LIP	entierro 4	1	66 15	37 89	22 01	5	1	3	2
IVB	33	B	LIP	entierro 4	1	67 23	38.47	16 14	20	1	3	0
IVB	33	B	LIP	entierro 4	1	57 4	62 95	21 09	30	1	3	2
IVB	33	B	LIP	entierro 4	1	35 11	60 17	17 27	30	1	3	1
IVB	33	B	LIP	entierro 4	1	25 57	25 05	20 42	50	1	3	1
II	41	B	LIP		1	23 26	17 81	7.96	15	1	1	2
II	42	A	LIP		1	4 29	10 22	2 51	0	2	1	2
II	42	A	LIP		1	3 73	8 79	1 05	0	2	1	3
II	42	A	LIP		3	4.37	5 54	0 79	0		1	2
II	49	A	Nasca (mixed surface)		1	11.27	6 58	2 21	5	2	1	2
II	49	A	Nasca		1	6 84	13 2	2 53	0	3	1	3
II	49	C	Nasca		1	12 1	9 19	1.38	0	5	1	2
II	49	A	Nasca		1	21 78	22 11	4 81	0	2	2	2
II	50	B	Middle Archaic		1	9 45	15.84	2 2	0	3	1	4
II	50	B	Middle Archaic		1	9 73	14 49	2 94	0	3	1	3
II	50	B	Middle Archaic		1	10 32	17 63	2 56	0	3	1	3

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II	50 B	Middle Archaic	1	9 23	9 51	3 14	0	2	1	1	
II	50 B	Middle Archaic	1	6.2	11.16	1 73	0	3	1	1	
II	50 B	Middle Archaic	1	12 01	8 6	1 67	0	1	1	4	
II	50 B	Middle Archaic	3	8 73	8 92	0 95	0		1	3	
II	50 B	Middle Archaic	5	10 05	6 08	4 3	0		1		
II	42 A	LIP	1	8.99	6 42	4.04	5	2	8	2	
II	51 A	Nasca (mixed surface)	1	9 72	14 19	5 15	10	1	1	2	
II	51 A	Nasca (mixed surface)	1	10 84	18.05	6 15	0	3	2	2	
II	51 A	Nasca (mixed surface)	1	15.62	9 05	5	0	3	1	4	
II	51 B	Nasca	1	13 48	11 07	3.99	0	5	1	4	extremely battered with many flake scars
II	51 B	Nasca	1	24 09	26 78	7.38	0	3	6	4	
II	51 B	Nasca	3	20.72	14.96	2 76	0		6	2	
II	51 B	Nasca	1	21 81	16 12	4 06	5	1	6	4	
II	51 B	Nasca	1	21.1	12 62	5 03	0	5	6	3	
II	51 B	Nasca	1	28.25	20.16	11 29	0	2	3	2	
II	51 B	Nasca	1	20 1	22 37	10.87	0	2	3	2	
II	51 B	Nasca	1	16 8	12 56	4 13	0	2	2	2	
II	51 C	Nasca	1	11.19	9 67	4.75	0	4	2	0	
II	51 C	Nasca	1	13 36	6 24	5	0	5	1	3	
II	51 E	Nasca	1	14 94	6 24	4 59	0	5	1	4	
II	51 E	Nasca	1	8 52	7 12	3 1	0	1	1	4	
II	51 E	Nasca	1	8.51	8 76	3 84	0	1	1	2	
II	51 E	Nasca	1	39 46	24 38	7 96	0	4	2	3	
V	37 A	LIP	1	50 7	31	9.69	10	2	5	1	
V	37 B	LIP	3	21 77	31 06	5 24	15		5	1	
V	38 B	LIP	5	19 62	11 81	12 01	0		1		
V	44 B	LIP	5	5 41	7 32	5 32	0		1		
V	45 A	MH-Mixed	1	23 9	23 18	8 97	0	2	6	4	
V	45 A	MH-Mixed	1	22 56	6 41	3 45	0	3	1	4	
V	45 A	MH-Mixed	1	14 46	22 08	4 65	0	2	1	2	
V	45 A	MH-Mixed	1	20 09	10 49	5.67	0	2	1	3	
V	45 A	MH-Mixed	1	9 2	14 78	2 68	0	3	1	2	
V	45 A	MH-Mixed	1	5 02	18 3	2 56	0	2	1	0	
V	45 A	MH-Mixed	1	13 13	5.32	3 87	0	5	1	2	
V	45 A	MH-Mixed	5	14 89	8 59	6 13	0		1		
V	45 A	MH-Mixed	1	14 78	13 63	2 7	0	1	1	2	
V	45 A	MH-Mixed	1	9.34	13 21	2 9	0	3	1	5	
V	45 A	MH-Mixed	1	12.79	10.44	5.35	0	3	1	2	
V	45 A	MH-Mixed	1	9 84	7 48	3 4	0	3	1	4	
V	45 A	MH-Mixed	1	16 18	11 11	4 54	10	1	1	2	
V	45 A	MH-Mixed	1	17 21	5 51	2 69	0	2	1	4	
V	45 A	MH-Mixed	1	13 54	11.71	3 11	5	1	1	4	
V	45 A	MH-Mixed	1	12 79	6.16	1 29	0	5	1	3	
V	45 A	MH-Mixed	1	12 84	9 38	1 3	0	3	1	4	
V	45 A	MH-Mixed	1	8.48	9 34	1 22	0	2	1	0	
V	45 A	MH-Mixed	1	6 94	5 37	0 29	0	2	1	0	
V	45 A	MH-Mixed	3	6 28	12 52	6 35	0		1	4	
V	45 A	MH-Mixed	1	28 91	22 73	9 72	0	2	1	3	flake possibly used as a core
V	45 A	MH-Mixed	5	11 63	17 54	8 37	0		1		
V	45 A	MH-Mixed	1	11 75	11 07	5 15	5	1	6	3	
V	45 A	MH-Mixed	1	22 29	23 98	7 18	10	1	2	2	
V	45 A	MH-Mixed	1	9 53	14.68	13 21	20	1	2	2	
V	45 A	MH-Mixed	1	6 06	19 56	4 83	35	1	2	3	
V	45 A	MH-Mixed	1	15 3	22 74	4 19	15	1	2	4	
V	45 A	MH-Mixed	1	13 52	19 89	3 53	10	2	2	1	
V	45 A	MH-Mixed	1	13 93	13 96	6	10	2	2	2	
V	45 A	MH-Mixed	6	7 35	14.01	1 99	0		2	1	

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V	45 A	MH-Mixed	3	9 78	15 59	3 59	10		2	3	
V	45 A	MH-Mixed	1	9 53	8 41	1 9	0	2	2	2	
V	45 A	MH-Mixed	3	12 1	9 72	4 64	0		2	2	
V	45 A	MH-Mixed	5	16 5	11.57	16.87	10		2		
V	45 A	MH-Mixed	1	6.98	10 13	1.19	0	5	1	0	
V	45 B	MH	1	6.51	10 78	4 58	0	2	1	2	BIPOLAR?
V	45 B	MH	6	8.46	15 61	3 52	0		1	3	BIPOLAR
V	45 B	MH	3	10 91	13 35	2 83	0		1	2	BIPOLAR
V	45 B	MH	1	17 82	28 27	3 25	0	2	1	3	BIPOLAR
V	45 B	MH	1	9 25	8.22	2 95	0	5	1	3	BIPOLAR
V	45 B	MH	1	7 31	7 56	2 64	0		1	0	BIPOLAR
V	45 B	MH	1	13 66	13.41	4	0	2	1	3	BIPOLAR
V	45 B	MH	1	8 21	8.53	1 1	0	2	1	2	
V	45 B	MH	1	11 39	11 43	2 05	0	5	1	3	
V	45 B	MH	1	13 76	13.66	3 4	0	1	1	2	
V	45 B	MH	6	6 61	11 34	1 83	0		1	1	
V	45 B	MH	1	14 98	4 13	1 82	0	2	1	2	
V	45 B	MH	1	8.75	10.22	2 5	0	2	1	3	
V	45 B	MH	1	9 45	4 56	2 3	0	4	1	0	
V	45 B	MH	5	4 07	8 43	3 29	0		1		
V	45 B	MH	1	11.32	10.02	4 2	0	5	1	4	
V	45 B	MH	6	9 83	16 05	5.23	0		1	2	
V	45 B	MH	1	12 75	14.67	5 27	0	3	1	2	
V	45 B	MH	3	12 96	5 76	4.09	0		1	3	
V	45 B	MH	1	12 68	7 17	2 62	0	5	1	2	
V	45 B	MH	1	10 33	8 72	4 11	0	2	1	3	
V	45 B	MH	1	7 47	7 63	1 72	0	2	1	2	
V	45 B	MH	1	18.07	21.35	1 42	0	5	1	4	
V	45 B	MH	1	14 15	6 86	2 76	0	5	1	0	
V	45 B	MH	1	10 02	12 59	3 64	0	2	1	3	
V	45 B	MH	1	25 83	6.39	4 72	0	5	1	2	
V	45 B	MH	1	16.18	10 43	3 73	0	3	1	4	BIPOLAR
V	45 B	MH	1	13 94	10 16	3 34	15	2	1	2	
V	45 B	MH	1	13 76	6.7	3 69	0	3	1	1	
V	45 B	MH	1	7 28	20 58	5 39	0	2	1	2	
V	45 B	MH	1	10.75	22 69	5.77	0	3	1	2	
V	45 B	MH	1	12.8	9.48	3.19	0	2	1	3	
V	45 B	MH	1	18.02	9 52	4 9	15	2	1	1	
V	45 B	MH	1	21 1	13 12	4.87	0	2	1	4	
V	45 B	MH	1	14 62	8 39	2 17	0	2	1	2	
V	45 B	MH	1	7 19	8 65	1 04	0	3	1	4	
V	45 B	MH	3	9 01	12 06	2 1	0		1	3	
V	45 B	MH	1	15 6	11 82	5 19	0	2	1	2	
V	45 B	MH	1	16.73	12.57	5 51	10	5	1	2	
V	45 B	MH	1	13.21	22 57	3 14	0	3	1	3	
V	45 B	MH	1	12.03	15 3	6 11	0	3	1	2	
V	45 B	MH	1	11 13	13 11	2 27	0	2	1	3	
V	45 B	MH	3	9 91	10 07	1 68	0		1	3	
V	45 B	MH	1	9 72	19 9	3.29	0	3	1	4	
V	45 B	MH	1	8 3	16 86	3 48	5	5	1	3	
V	45 B	MH	1	11 5	9 92	3 02	0	2	1	2	
V	45 B	MH	1	15.1	8 56	3.9	0	2	1	2	
V	45 B	MH	1	13.24	15 17	5 95	0	5	1	3	
V	45 B	MH	1	12 06	9 1	3 27	0	3	1	4	
V	45 B	MH	1	9 82	11 36	2 16	0	2	1	4	
V	45 B	MH	1	10 17	13 18	1 17	0	5	1	2	
V	45 B	MH	1	10 19	7 93	1 83	0	3	1	3	

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V	45 B	MH	1	12 54	13 42	1 53	0	5	1	2	
V	45 B	MH	1	8 59	10 62	1 19	0	3	1	2	
V	45 B	MH	1	8 21	13 49	1 43	0	3	1	4	
V	45 B	MH	1	14 85	7 55	1 39	0	5	1	3	
V	45 B	MH	1	11 49	7 78	3 94	0	5	1	3	bipolar, 2 crushed platforms
V	45 B	MH	1	6 8	12 92	2 35	0	2	1	0	
V	45 B	MH	1	9 51	10 51	1 97	0	5	1	4	
V	45 B	MH	1	7 2	3 98	1 36	0	2	1	4	
V	45 B	MH	1	10 12	8 85	2 42	0	2	1	3	
V	45 B	MH	3	9 9	6.62	0 81	0		1	0	
V	45 B	MH	1	4 25	5 84	1 51	0	2	1	2	
V	45 B	MH	1	21 48	9 39	3 86	0	2	5	3	
V	45 B	MH	2	28.89	32 23	9 43	5	2	5	2	
V	45 B	MH	1	23 24	24 41	7.05	15	2	5	0	
V	45 B	MH	1	13.69	10.22	1 99	0	3	6	2	
V	45 B	MH	3	9.95	7.1	3 49	0		2	6	
V	45 B	MH	3	8 61	16 07	5.37	0		2	1	
V	45 B	MH	3	13 16	12 08	2 83	0		2	3	
V	45 B	MH	1	10 44	12 87	3 91	0	2	2	1	
V	45 B	MH	3	19 21	23.75	11.17	40		2	1	
V	45 B	MH	5	5 93	11.51	6 61	0		2		
V	45 B	MH	5	13 29	13 01	6.23	0		2		bipolar?
V	45 B	MH	5	15	7 95	7 06	0		2		
V	45 B	MH	1	13 96	17 24	5.62	0	2	2	2	
V	45 B	MH	1	11 01	10 93	4 34	0	2	2	2	
V	45 B	MH	4	11 05	12 9	3 33	0		2	0	
V	45 B	MH	1	13 45	12 64	5 3	20	2	2	3	
V	45 B	MH	2	25 66	14 38	6.59	0	2	3	2	
V	45 B	MH	1	19 94	14 77	5	0	2	2	4	
V	45 B	MH	1	19 32	30 36	6 28	30	3	6	0	
V	45 B	MH	1	12 56	8.83	1 35	0	2	2	4	potlid scar present
V	45 C	MH	1	12 12	13 71	3 97	0	2	1	3	
V	45 C	MH	1	8 44	12.01	1 92	0	5	1	3	
V	45 C	MH	1	7	6 11	1 61	0	2	1	3	
V	45 C	MH	1	8 7	9 49	1 02	0	2	1	2	
V	45 C	MH	1	21 16	9 9	5 16	0	5	1	4	
V	45 C	MH	1	8 8	10.19	3 32	0	5	1	1	
V	45 C	MH	3	13 54	11 81	3 79	0		1	2	
V	45 C	MH	1	11 25	14 71	5 87	0	2	1	2	
V	45 C	MH	1	15 23	10 66	5 42	0	5	1	2	
V	45 C	MH	1	13 55	7 75	3 13	0	3	1	4	
V	45 C	MH	1	10.57	11 81	5 32	0	2	1	1	
V	45 C	MH	1	13 2	10 32	3.22	0	3	1	2	
V	45 C	MH	1	17 39	9 04	2 25	0	2	1	2	
V	45 C	MH	1	36 93	30 82	7 48	10	1	3	2	
V	45 C	MH	1	20 63	23.2	7 3	5	1	6	3	
V	45 C	MH	1	20 4	20.1	3 9	0	3	6	3	
V	45 C	MH	1	11 41	17 24	7 27	0	4	5	4	
V	45 C	MH	1	15.63	13 33	5 57	0	2	6	1	
V	46 A	Early Nasca (mixed surface)	1	10 07	20 14	4 18	0	2	1	2	
V	46 A	Early Nasca (mixed surface)	1	12 46	12	5 61	0	2	1	2	
V	46 A	Early Nasca (mixed surface)	1	16 97	7 39	2 55	0	5	1	5	
V	46 A	Early Nasca (mixed surface)	1	9 55	9 97	1 67	0	3	1	5	
V	46 A	Early Nasca (mixed surface)	1	8.62	8.61	1 59	0	2	1	5	
V	46 A	Early Nasca (mixed surface)	1	8.54	10 83	3 23	0	5	1	2	
V	46 A	Early Nasca (mixed surface)	1	7 57	7 51	2 07	0	2	1	3	
V	46 A	Early Nasca (mixed surface)	1	66 56	29 46	9 85	35	3	3	1	

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V	46 A	Early Nasca (mixed surface)	1	28 52	14 17	4 47	40	2	3	0
V	46 A	Early Nasca (mixed surface)	1	21 3	19 91	6 63	25	2	3	1
V	46 A	Early Nasca (mixed surface)	1	14 75	21 41	11 36	0	2	2	3
V	46 A	Early Nasca (mixed surface)	1	24 86	33 35	11 71	0	2	6	3
V	46 B	Early Nasca	1	15 08	7 82	3 54	10	1	1	2
V	46 B	Early Nasca	1	25 76	10 42	3 33	0	2	1	2
V	46 B	Early Nasca	1	11 3	21 37	1 67	0	2	1	1
V	46 B	Early Nasca	3	10 64	15 98	2 38	0		1	
V	46 B	Early Nasca	2	11 03	17 36	2 91	0	2	1	2
V	46 B	Early Nasca	1	19 73	19 29	4.61	0	5	1	3
V	46 B	Early Nasca	1	15 53	13 89	4.28	10	5	1	1
V	46 B	Early Nasca	1	14 44	8 78	3.13	0	5	1	3
V	46 B	Early Nasca	1	17 83	18 96	2 38	0	5	1	4
V	46 B	Early Nasca	1	9 33	15.97	3 04	0	5	1	0
V	46 B	Early Nasca	1	15 85	13 43	3 96	10	2	1	3
V	46 B	Early Nasca	1	13 73	7 29	3 59	0	2	1	2
V	46 B	Early Nasca	2	14 83	7.66	2 66	0	2	1	3
V	46 B	Early Nasca	1	12 29	13.59	3 25	0	5	1	3
V	46 B	Early Nasca	1	9 15	7 52	1.61	0	2	1	1
V	46 B	Early Nasca	1	13 07	10.74	3 68	10	1	1	1
V	46 B	Early Nasca	1	8 99	12.55	1 75	0	2	1	2
V	46 B	Early Nasca	1	12 07	9.88	2 17	0	2	1	4
V	46 B	Early Nasca	1	11 67	15.81	1 75	0	2	1	0
V	46 B	Early Nasca	1	20 68	13 76	3 54	5	2	1	4
V	46 B	Early Nasca	1	15 33	27 85	8 39	5	2	1	4
V	46 B	Early Nasca	1	13 14	19.71	5.9	5	1	1	4
V	46 B	Early Nasca	2	12 35	13 97	2 46	5	1	1	7
V	46 B	Early Nasca	1	14 69	10.1	4 11	0	2	1	4
V	46 B	Early Nasca	1	14 88	11 04	5 73	0	2	1	3
V	46 B	Early Nasca	1	14 86	15 45	4 87	0	2	1	4
V	46 B	Early Nasca	3	9 18	9 74	1 54	0		1	3
V	46 B	Early Nasca	3	8 76	12 85	2 75	0		1	0
V	46 B	Early Nasca	1	19 36	13 71	2 01	0	2	1	5
V	46 B	Early Nasca	1	12 11	15 22	2 59	0	2	1	3
V	46 B	Early Nasca	1	16.75	11.43	6 17	0	3	1	2
V	46 B	Early Nasca	3	12.82	25 01	3 75	0		1	3
V	46 B	Early Nasca	1	16 84	11 8	3 24	0	2	1	3
V	46 B	Early Nasca	1	16 9	9 93	4 02	10	1	1	3
V	46 B	Early Nasca	3	10 71	8 38	2 33	0		1	3
V	46 B	Early Nasca	3	14 46	10 72	3 27	0		1	3
V	46 B	Early Nasca	1	8 18	11.44	3 02	0	2	1	2
V	46 B	Early Nasca	1	10 51	9 07	3 66	0	2	1	2
V	46 B	Early Nasca	1	16 79	11.49	8.45	0	2	1	2
V	46 B	Early Nasca	1	24 62	9 53	13 96	0	5	1	9
V	46 B	Early Nasca	1	20 94	13 44	7 32	10	5	1	4
V	46 B	Early Nasca	1	14 64	22 33	6 63	0	3	1	5
V	46 B	Early Nasca	1	13 53	12 46	4 73	0	2	1	3
V	46 B	Early Nasca	5	25 83	6 08	3 12	0		1	3
V	46 B	Early Nasca	1	17 89	21 04	7 78	0	2	1	4
V	46 B	Early Nasca	1	18 62	8 39	6 43	0	2	1	5
V	46 B	Early Nasca	1	13 25	11 73	3 37	10	1	1	4
V	46 B	Early Nasca	3	6 47	24.84	5 48	15		1	1
V	46 B	Early Nasca	3	8 11	11 72	5 1	0		1	3
V	46 B	Early Nasca	1	18 52	8 09	5 87	0	5	1	2
V	46 B	Early Nasca	1	9 01	12 1	4 25	0	3	1	2
V	46 B	Early Nasca	1	11 87	11 37	4 07	0	3	1	5
V	46 B	Early Nasca	1	14.21	8.58	6 33	0	5	1	2

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V	46	B	Early Nasca	3	15 95	8.53	3 93	0	2	1	1
V	46	B	Early Nasca	1	20 7	16.34	5.82	25	1	1	1
V	46	B	Early Nasca	1	19 05	11.03	4 27	0	3	1	5
V	46	B	Early Nasca	1	12 88	12 94	4 16	0	2	1	2
V	46	B	Early Nasca	1	15 49	12 47	5 29	0	4	1	3
V	46	B	Early Nasca	5	10 79	14 71	5 48	0		1	
V	46	B	Early Nasca	1	14.83	20.19	4 93	0	5	1	2
V	46	B	Early Nasca	1	10 29	7 14	2 05	40	1	1	0
V	46	B	Early Nasca	1	14 94	10.27	4,12	0	2	1	1
V	46	B	Early Nasca	1	17 77	9 74	3 89	0	5	1	3
V	46	B	Early Nasca	6	8 2	17 16	7 15	0		1	4
V	46	B	Early Nasca	3	15 49	16 62	5 51	0		1	4
V	46	B	Early Nasca	6	6.98	13 11	3 59	0		1	
V	46	B	Early Nasca	5	6 39	6.51	3.66	0		1	
V	46	B	Early Nasca	5	16 6	13 01	4 2	0		1	
V	46	B	Early Nasca	1	12.8	10 08	3 47	0	2	1	3
V	46	B	Early Nasca	1	15.83	6.14	5 65	0	2	1	4
V	46	B	Early Nasca	1	8 36	11 46	5 76	0	2	1	3
V	46	B	Early Nasca	1	14 61	8 77	2 59	0	5	1	3
V	46	B	Early Nasca	1	17 87	9 18	3 69	0	2	1	3
V	46	B	Early Nasca	1	9 3	5 57	2 58	0	2	1	2
V	46	B	Early Nasca	1	14 1	8 19	3 25	0	5	1	2
V	46	B	Early Nasca	1	10	10 69	5 45	0	2	1	3
V	46	B	Early Nasca	1	10.63	8 85	6 11	0	3	1	3
V	46	B	Early Nasca	2	5 97	14 29	2 9	0	1	1	2
V	46	B	Early Nasca	3	10 76	12 34	5.03	0		1	3
V	46	B	Early Nasca	1	11 01	9 14	2 3	5	2	1	2
V	46	B	Early Nasca	1	21.65	24 87	2 08	5	2	1	8
V	46	B	Early Nasca	1	26 2	16 35	7 27	0	5	1	5
V	46	B	Early Nasca	1	18 71	17 32	5 99	10	1	1	4
V	46	B	Early Nasca	1	20 39	22 04	3 54	0	2	1	3
V	46	B	Early Nasca	1	32 11	20 96	5 63	5	5	1	4
V	46	B	Early Nasca	1	24 55	13 6	10 03	5	1	1	2
V	46	B	Early Nasca	1	14 22	24 39	4 69	5	1	1	2
V	46	B	Early Nasca	1	21 93	16 01	2 61	10	3	1	2
V	46	B	Early Nasca	1	17 81	14 62	4 54	0	5	1	3
V	46	B	Early Nasca	1	13 74	18 17	3 07	10	1	1	1
V	46	B	Early Nasca	1	12 59	15 08	4 03	0	2	1	2
V	46	B	Early Nasca	1	17 13	12 2	4 34	0	5	1	4
V	46	B	Early Nasca	1	20 38	18.96	1 89	0	5	1	7
V	46	B	Early Nasca	1	11 41	21.93	1.06	0	3	1	3
V	46	B	Early Nasca	1	16.76	8.49	2 84	0	2	1	3
V	46	B	Early Nasca	1	10 25	13 46	3.36	0	2	1	0
V	46	B	Early Nasca	1	16 1	8.92	3 57	0	5	1	2
V	46	B	Early Nasca	1	13 62	15 01	4.87	15	1	1	1
V	46	B	Early Nasca	1	15.58	11 91	4 16	10	1	1	6
V	46	B	Early Nasca	1	11 22	16.11	2 14	5	2	1	4
V	46	B	Early Nasca	1	19 26	14 03	3.91	0	2	1	3
V	46	B	Early Nasca	1	16.76	7 8	2 41	5	1	1	3
V	46	B	Early Nasca	1	16 83	13.5	2 55	0	2	1	3
V	46	B	Early Nasca	1	12 86	15 46	2 3	0	5	1	2
V	46	B	Early Nasca	1	11 91	13 55	2 4	0	2	1	3
V	46	B	Early Nasca	1	10 88	12 89	3 23	0	2	1	3
V	46	B	Early Nasca	1	14 87	4 62	7 23	0	2	1	3
V	46	B	Early Nasca	1	9 95	14 21	1 97	0	5	1	5
V	46	B	Early Nasca	1	13 27	11.89	3 16	0	5	1	4
V	46	B	Early Nasca	1	7 49	15.63	3 23	10	1	1	1

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V	46	B	Early Nasca		1	12 11	9 89	3 22	0	2	1	3
V	46	B	Early Nasca		1	7 98	12 69	2.36	0	2	1	2
V	46	B	Early Nasca		1	25 22	12 12	3.1	35	1	1	2
V	46	B	Early Nasca		1	10 06	16 25	2 93	0	2	1	1
V	46	B	Early Nasca		1	10 79	10 09	1 4	5	2	1	2
V	46	B	Early Nasca		1	11 37	5 27	3 14	0	2	1	2
V	46	B	Early Nasca		1	8.81	12 33	0 92	0	4	1	1
V	46	B	Early Nasca		1	20.51	13.76	6 19	0	2	2	2
V	46	B	Early Nasca		1	24 96	26 54	9 16	0	2	2	3
V	46	B	Early Nasca		1	9 64	11.55	7	15	2	2	0
V	46	B	Early Nasca		1	16 38	12.99	6.18	45	2	7	0
V	46	B	Early Nasca		1	15 01	8.91	3 93	0	3	2	2
V	46	B	Early Nasca		1	18 29	13 17	10.67	0	3	4	2
V	46	B	Early Nasca		1	6 09	9 78	4.02	0	2	1	4
V	46	B	Early Nasca		1	8 64	11 26	1 58	5	2	1	2
V	46	B	Early Nasc	rasgo 2	3	8 96	10 65	1 82	0		1	3
V	46	B	Early Nasc	rasgo 2	1	7 04	9.78	4.09	0	2	1	3
V	46	B	Early Nasc	rasgo 2	1	10 48	10.92	4 04	10	1	1	3
V	46	B	Early Nasc	rasgo 2	2	9 35	10 66	3 68	15	5	1	2
V	46	B	Early Nasc	rasgo 2	1	10 5	9 56	4 24	0	2	1	3
V	46	B	Early Nasc	rasgo 2	3	15 71	9.83	3 41	0		1	2
V	46	B	Early Nasc	rasgo 2	1	14 91	8 1	4.73	0	5	1	4
V	46	B	Early Nasc	rasgo 2	1	11 48	10.01	3.92	0	2	1	1
V	46	B	Early Nasc	rasgo 2	1	17 74	29 61	5.11	0	2	1	2
V	46	B	Early Nasc	rasgo 2	1	25 11	28 63	6 07	0	2	1	4
V	46	B	Early Nasc	rasgo 2	1	23.42	15 67	7.34	0	2	1	6
V	46	B	Early Nasc	rasgo 2	1	10.82	16.31	2 89	0	3	1	1
V	46	B	Early Nasc	rasgo 2	1	15 71	12.03	2 08	0	5	1	3
V	46	B	Early Nasc	rasgo 2	1	14 88	13.89	3 64	0	5	1	4
V	47	A	Early Nasca (mixed surface)		1	10 38	21.89	9 53	5	2	1	3
V	47	A	Early Nasca (mixed surface)		1	22 44	16 04	6 08	20	2	1	2
V	47	A	Early Nasca (mixed surface)		1	31 07	39 06	9 93	0	2	1	2
V	47	A	Early Nasca (mixed surface)		1	7 23	9 57	2 61	0	2	1	4
V	47	A	Early Nasca (mixed surface)		1	19 97	6.83	4.07	0	5	1	3
V	47	B	Early Nasca		1	13 77	24 25	2 59	0	3	1	3
V	47	B	Early Nasca		1	13.02	17 9	5.86	0	2	1	3
V	47	B	Early Nasca		1	10 66	14.69	1.89	0	3	1	3
V	47	B	Early Nasca		1	11 13	9 22	2 51	0	2	1	3
V	47	B	Early Nasca		1	9 58	12 29	1 37	0	2	1	5
V	47	B	Early Nasca		1	6.63	8 81	1 56	0	2	1	3
V	47	B	Early Nasca		1	8.57	8.94	2 63	0	3	1	3
V	47	B	Early Nasca		1	12 54	6 71	4 27	0	5	1	4
V	47	B	Early Nasca		3	9.95	8.16	1.47	0		1	5
V	47	B	Early Nasca		1	26 8	23 25	7 72	0	2	4	3
V	47	B	Early Nasca		6	7.93	15 93	2 66	0		2	0
V	47	B	Early Nasca		3	19.88	21.19	6 49	0		3	2
V	47	B	Early Nasca		6	9 66	13 54	2 82	0		6	4
V	45	D	MH	hallazgo 2	1	9 29	3 79	0 83	0	2	1	3
V	45	D	MH	hallazgo 2	1	18 37	12 53	4 22	0	3	1	3
V	47	C	Early Nasca		1	7 85	12 91	3 59	0	4	1	2
V	46	B	Early Nasc	rasgo 2	1	18 69	12 51	3 99	10	1	1	3
III	Tumba 5	B	MH -Mixe	rasgo 1	1	15.66	15	6 4	0	5	1	6
V	45	C	MH	hallazgo 2	1	3 88	3 02	1 95	0	3	1	3
V	46	B	Early Nasc	hallazgo 2	1	5 33	7 94	1 98	5	2	1	2
V	46	B	Early Nasc	rasgo 2	1	7 41	12 75	6 88	0	2	1	2
V	47	B	Early Nasca		1	8.28	11.1	2 41	0	5	1	2
V	47	C	Early Nasca		1	18 91	9 13	5 32	0	5	1	4

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V	47	C	Early Nasca		1	6 99	3.15	1 41	0	2	1	2
V	47	C	Early Nasca		1	17 43	8 24	2 99	0	5	1	3
V	Tumba 3	superfice r	MH -Mixed		1	12 84	11 71	2 35	0	2	1	3
V	47	C(E7)	Early Nasca		1	15 56	13 28	7 95	35	3	1	2
V	45	B	MH	rasgo 1	1	15 88	12 33	4 37	15	1	1	3
V	45	C	MH	hallazgo 2	1	15 81	10 75	3 51	0	5	1	3
V	46	B	Early Nasc	rasgo 2	1	17 75	7 82	1 79	0	3	1	4
V	47	C	Early Nasc	entierro 7	1	8 03	7 45	2 09	0	2	1	1
V	46	B	Early Nasc	entierro 8	3	5 91	12 03	0 66	0		1	0
V	47	C	Early Nasca		1	10.08	8.29	2 62	0	2	1	2
V	47	C	Early Nasca		1	14 12	11 84	2 17	0	2	1	2
V	47	C	Early Nasca		2	11 92	13 85	5 02	0	5	1	5
V	47	C	Early Nasca		3	7 47	10 7	3 75	0		1	2
V	47	C	Early Nasca		5	7 74	4.14	4	0		1	
V	47	C	Early Nasca		3	10.65	7.27	2 95	0		1	2
V	47	C	Early Nasca		1	17 99	8.1	5 88	0	5	1	3
V	47	C	Early Nasca		1	5 26	4.97	2 23	0	2	1	1
V	47	C	Early Nasca		1	12 11	17 81	7 64	0	5	1	3
V	47	C	Early Nasca		1	15.7	12 67	2 69	0	3	1	3
V	47	C	Early Nasca		1	15 97	16 11	1 61	0	2	1	3
V	47	C	Early Nasca		1	10 52	13 24	4 62	0	5	1	3
V	47	C	Early Nasca		1	11 08	10 19	1 82	0	3	1	2
V	47	C	Early Nasca		1	9 72	8 24	1 49	0	5	1	2
V	47	C	Early Nasca		1	10 06	8 11	3 09	0	2	1	2
V	47	C	Early Nasca		1	10 04	5 95	7 84	0	2	1	2
V	47	C	Early Nasca		1	4 22	5 1	1 95	0	2	1	2
V	47	C	Early Nasca		1	22 8	20 44	7 88	15	2	2	2
V	47	C	Early Nasca		5	6 87	11 17	2 15	0		2	
V	47	C	Early Nasca		1	7 9	7 22	2 71	0	2	2	2
V	47	C	Early Nasca		1	24.94	39 03	7 92	0	2	6	2
V	47	C	Early Nasca		1	8 04	2.69	1 91	0	2	1	2
V	47	C	Early Nasc	rasgo 1	1	49 27	61 67	25 56	0	2	6	
V	47	C	Early Nasc	rasgo 3	1	7 61	11 14	1 54	0	2	1	1
V	47	C	Early Nasc	rasgo 3	3	5 73	11 35	2 74	0		1	2
V	47	C	Early Nasc	rasgo 3	1	13 8	14 83	6 23	15	1	5	2
III	tumba 3	A	MH -Mixe	externo	1	12.72	10 62	4 69	35	1	1	1
III	tumba 3	A	MH -Mixe	externo	1	12 12	8 66	0 84	0	5	1	3
V	entierro 7	C	Early Nasca		1	6 91	13 56	1 83	0	4	5	0
V	entierro 7	C	Early Nasca		1	16 23	17 18	0 97	0	2	5	3
V	entierro 7	C	Early Nasca		1	9.52	12 86	1 74	0	2	3	0
V	entierro 7	C	Early Nasca		1	5 84	7 59	2 4	0	2	2	3
V	entierro 7	C	Early Nasca		1	14 87	10 27	6 02	0	2	1	2
V	entierro 7	C	Early Nasca		1	11	7 79	2 41	0	5	1	2
V	entierro 7	C	Early Nasca		1	11 66	6 9	2 9	0	5	1	2
V	entierro 7	C	Early Nasca		1	8 65	9 98	1 48	0	2	1	1
V	entierro 7	C	Early Nasca		3	7 77	6 19	1 02	0		1	2
V	46	B	Early Nasc	entierro 8	1	8 45	6 02	1 41	0	3	1	0
V	46	B	Early Nasc	entierro 8	1	9.9	13 76	5 53	0	2	1	4
V	46	B	Early Nasc	entierro 8	1	16 79	12 87	2	10	1	1	3
V	46	B	Early Nasc	entierro 8	1	14 73	9 5	3 4	0	4	1	2
V	46	B	Early Nasc	entierro 8	1	9 94	9 98	1 29	0	5	1	3
V	46	B	Early Nasc	entierro 8	1	8 92	8.05	0 76	0	3	1	2
V	46	B	Early Nasc	entierro 8	1	10	4 33	3 53	0	2	1	2
V	46	B	Early Nasc	entierro 8	1	9 16	7 31	2 69	45	2	1	0
V	46	B	Early Nasc	entierro 8	1	19 21	14 51	2 93	0	5	1	2
V	45	C	MH	hallazgo 2	1	11 08	7 25	1 59	0	2	1	4
V	45	C	MH	hallazgo 2	2	14 21	14 78	2 47	0	3	1	4

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V	45	C	MH	hallazgo 2	1	11 33	5 66	1 77	0	5	1	1
V	45	C	MH	hallazgo 2	1	7 39	7 42	4 15	0	2	1	2
V	45	C	MH	hallazgo 2	1	17 34	11 19	1 47	0	5	1	3
V	45	C	MH	hallazgo 2	1	6 62	9.58	1 16	0	3	1	2
V	45	C	MH	hallazgo 2	3	3 92	8.37	1 45	0		1	3
V	45	C	MH	hallazgo 2	6	7 61	16 02	1 81	0		1	2
V	45	C	MH	hallazgo 2	2	7 69	5 69	2.22	0	2	1	2
V	45	C	MH	hallazgo 2	1	3.06	5 21	0.38	0	2	1	0
V	45	C	MH	hallazgo 2	1	3 38	4 39	0 43	0	2	1	0
V	45	C	MH	hallazgo 2	1	31 62	15 01	9.05	10	3	6	3
V	45	D	MH	hallazgo 2	1	12 74	8 92	4.87	0	2	1	3
V	45	D	MH	hallazgo 2	3	7 34	9 85	1.76	0		1	3
V	45	D	MH	hallazgo 2	1	6 65	10.67	2 26	0	2	1	2
V	45	D	MH	hallazgo 2	1	12.76	4 13	1 97	0	2	1	2
V	45	D	MH	hallazgo 2	1	6 3	10	1 72	0	2	1	0
V	45	D	MH	hallazgo 2	1	4 92	5 09	0 46	0	5	1	0
V	45	D	MH	hallazgo 2	1	12 33	8.34	10 77	35	2	2	0
V	45	B	MH	hallazgo 1	1	18.82	11 34	2 98	0	4	1	3
V	45	B	MH	hallazgo 1	1	12 92	5 97	1 84	0	5	1	3
V	45	B	MH	hallazgo 1	1	8.9	9.56	3 03	0	2	1	1
V	45	B	MH	hallazgo 1	1	6 43	8.46	1 09	0	2	1	0
V	45	B	MH	hallazgo 1	6	2 94	8 24	1 2	0		1	0
V	45	B	MH	hallazgo 1	1	8.13	2 8	0 46	0	2	1	3
III	tumba 5	B	MH -Mixed		1	60.62	57.34	21 82	60	1	6	2
III	tumba 5	B	MH -Mixed		1	23.39	26.52	11 99	0	2	2	3
III	tumba 5	B	MH -Mixed		1	15 82	17.1	2 24	0	2	2	1
V	46	B	Early Nasc	hallazgo 1	1	13.41	17 16	4 82	20	2	2	1
V	46	B	Early Nasc	hallazgo 4	1	12 05	10.23	5 28	0	2	1	3
V	46	B	Early Nasc	hallazgo 4	3	5.8	8 33	5 93	0		1	4

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Unit	Scector	Capa/Nive	Period	Period#	Other Prov	Flake Type	Length(mn	Width(mr	Thickness(	Cortex %	Platform	Material	# Dorsal Sc	flake scar/	Comments
II	50	B	Middle Arc	1		1	16 64	12 44	2 3	0	3	1			utilization along some margins, minor retouch
II	50	B	Middle Arc	1		1	13.15	16 14	2.08	0	2	1			utilization along lateral margin
II	50	B	Middle Arc	1		1	10 29	7 25	2 79	0	5	1			utilized along proximal margin
1	IC	B1	Early Horiz	2		1	61 03	40 73	16.39	0	5	6	13		Utized along lateral margin
15	IC	C	Early Horiz	2		1	43 08	29 65	9 57	0	4	2	2		Utilized along lateral margin and distal end
15	IC	C	Early Horiz	2	ass FEATL	2	52 4	22.64	7.41	0	3	5	5		Utilized along lateral margin
1	IC	B3	Early Horiz	2		1	44 81	27.42	5 52	0		1		16/46	Impact fracture on tip, resharpend margins
1	IC	B2	Early Horiz	2		1	7 79	11 13	3 02	0	3	1	6		Notching flake? With retouch along small section of margin
1	IC	B	Early Horiz	2		1	10 77	12.89	2.67	0	2	1	5		Preasure flake with utilization along margin
5	IC	B1	Early Horiz	2	Feat 3	1	10 9	16.17	2.93	0	5	1	9		Resharpening flake, significant flaking on dorsal side
5	IC	B1	Early Horiz	2	Feat 3	4	20.78	12 71	5.84	0		1		6/17 8	Lateral frag of biface, 100-0047 TO 49
5	IC	C	Early Horiz	2		6	11 2	10 21	4 59	0		1		8/10.4	Biface medial fragment
5	IC	C	Early Horiz	2		6	13 03	7 76	3 15	0		1	2	8/8 87	Resharpend multiple times
6	IIA	B2	EH/EN	3		2	24 71	33 61	8 14	10	2	2	4		Utilized along lateral margin
7	IIB	C-1	EH/EN	3		2	43 73	27 41	12 13	0	2	3	3		Utilized along lateral margin
7	IIB	D	EH/EN	3		1	12.63	22 84	6 23	25	3	3	0		Denticulate along one margin
7	IIB	C	EH/EN	3		1	40.02	35 94	11 93	5	4	2	3		Utilized along lateral margin
13	IIB	C	EH/EN	3		2	36 92	36 12	12.64	0	2	2	3		Utilized on both lateral margins
6	IIA	B2	EH/EN	3		1	11 89	8 35	2 34	25	4	1	3		Margin retouched
6	IIA	C2	EH/EN	3		1	7.22	5 55	1.27	0	5	1	0		Bipolar, Retouched along one edge
7	IIB	D	EH/EN	3		1	13 83	14 84	4.41	0	3	1	3	8/13 4	Retouched along edge and flaked on both face
8	IIB	D	EH/EN	3		3	8.03	16.87	3 64	0		1	5	8/6.26	Broken bifacial tool,snap fracture near base
6	IIA	A	EH/EN	3		1	28.21	21 38	5 5	0	4	6	6		Retouch/utilization damage along one margin
6	IIA	B1	EH/EN	3		1	25 99	15 46	7 04	10	5	1	7		Retouch on end "end scraper"
6	IIA	B2	EH/EN	3		1	21.64	12 37	4.33	0		1		8/16.27	small biface w/impact fracture on end stemmed
6	IIA	B2	EH/EN	3		1	37 54	16.17	6.9	0		1		19/38	Broken biface, snap fracture on tip, resharped, beveled
8	IIB	D	EH/EN	3		1	20.42	17 9	5 46	0		1		10/18.68	Broken biface, 100-051
8	IIB	D	EH/EN	3		1	9.38	9 51	2 88	0		1		8/9 33	Biface broken tip, snap fracture
27	VB	B	EH/EN	3		1	31 42	24.31	7 33	0		1		23/25 65	Point with barbs broken off, resharpened multiple times 0066-67
29	IB	C	EH/EN	3		1	23 78	26 36	5 63	0		1		7/22.69	Unfinished/failed? Formal tool, retouched along one margin 0068-71
29	IB	C	EH/EN	3		1	27 09	22 64	4.71	0		1		9/24 22	Point with one barb intact,
30	IB	C	EH/EN	3		1	42 73	23.88	4 9	0		1		17/35 74	Point with barbs partially broken off, 0074-75
28	IIF	A	EH/EN	3		1	19 79	17 24	4 7	0		1		16/17 61	extensively resharpened "scraper",
28	IIF	A	EH/EN	3		1	36 97	21 91	9 29	10	1	6	1		paralell lateral retouch along edge
28	IIF	B	EH/EN	3		1	21.51	17.01	5.77	0	3	1	3		utilization wear along margin
28	IIF	C	EH/EN	3		1	13 3	26 5	5.12	0		1		9/18.99	odd shaped "point" with tip and one barb broken off, 0081-82
26	IIF	C	EH/EN	3		4	14.9	11.9	5 04	0		1		9/12 42	Biface frag w/little resharpening
28	IIF	C	EH/EN	3		1	11 41	23 15	7 37	0	3	1	5		utilization along edge
10	IIB	A	Early Nasc	4		6	21.94	33 47	9 31	0		2	3		Utilized lateral margins
22	IIIA	B	Early Nasc	4		1	30 99	41 47	10 63	5	2	6	3		Utilization along one margin
22	IIIA	A	Early Nasc	4		3	16 12	18 34	4.97	0		1		9/14 60	Biface Basal frag , straight base
22	IIIA	C	Early Nasc	4		6	17 59	14 91	5 52	0		1		7/14 49	Biface with snap fracture on proximal and distal ends 0059
V	46	A	Early Nasc	4		3	13 86	16 47	2 06	0		1	3		utilized flake, 75% of margins used
V	46	A	Early Nasc	4		1	22 65	10 36	4 06	20	2	1	1		utilized cortical flake,
V	46	A	Early Nasc	4		1	22 55	16 97	8 03	25	3	1	4		utilized cortical flake,
V	46	A	Early Nasc	4		1	12 24	11 06	2 75	0	5	1	3		utilized flake
V	46	A	Early Nasc	4		1	22.09	30 6	9 09	0	3	1	3		utilized flake
V	46	A	Early Nasc	4		6	6 67	12 53	7 36	0		1			utilized flake frag
V	46	A	Early Nasc	4		1	17 83	14 13	4 21	0		1			utilized margins, multiple flake scars on both faces
V	46	A	Early Nasc	4		1	10 7	18 56	11 82	0	2	1	2		utilized margins
V	46	B	Early Nasc	4		1	5 15	26 57	2 83	0	2	1	0		small utilized area on one margin
V	46	B	Early Nasc	4		1	10 98	9.33	2.86	0	5	1	1		utilized on distal margin
V	46	B	Early Nasc	4		1	17 18	11 28	2 22	0	2	1	4		utilized along one margin
V	46	B	Early Nasc	4		1	13 92	22 68	4 33	0	3	1	0		utilization along margin

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V	46 B	Early Nasc	4	1	24 96	9 47	2 51	0	3	1	3		utilization along margins
V	46 B	Early Nasc	4	3	13 11	17 1	5 45	0		1			utilized along one margin
V	46 B	Early Nasc	4	1	18 64	32 33	6.81	0	2	1	2		utilized along one margin, denticulate retouch along margin
V	46 B	Early Nasc	4	1	19 6	12 05	5.8	5	2	1	4		utilization along margin
V	46 B	Early Nasc	4	1	13 21	12 82	5 59	65	2	1	1		utilization along margins
V	46 B	Early Nasc	4	6	14 52	14 18	6 63	0		1			biface frag
V	46 B	Early Nasc	4	1	12.68	14 15	2 17	0	2	1	1		utilized along margin
V	46 B	Early Nasc	4	6	3 32	22 08	5 39	0		1	3		medial biface frag
V	46 B	Early Nasc	4	1	22 86	8 78	2.65	0	2	1	2		medial biface frag
V	46 B	Early Nasc	4	3	8 44	21 44	6 9	0		1			biface frag
V	46 B	Early Nasc	4	1	9 23	14 51	7	0	5	1	3		utilized along margin
V	46 B	Early Nasc	4	1	10 84	11 99	3 32	0	2	1	4		utilized along margin
V	46 B	Early Nasc	4	3	5 39	15 43	2 39	0	4	1			utilization along 3 margins
V	46 B	Early Nasc	4	3	12 78	12 43	4.73	0		1			utilization along margins
V	46 B	Early Nasc	4	1	8.71	15 91	3 26	5	1	1	4		utilization along 1 margin
V	46 B	Early Nasc	4	1	16 78	14 38	3 56	0	2	1	7		utilization along margin
V	46 B	Early Nasc	4	1	14 84	11 89	4 61	0	5	1	4		utilization along margins
V	46 B	Early Nasc	4	6	5 18	10 85	5 33	0		1			biface frag
V	46 B	Early Nasc	4	1	13 63	8 88	4 75	0	2	1	12		utilization along margins
V	46 B	Early Nasc	4	1	11 43	12 75	2 08	0	2	1	4		utilizatoin along margin
V	46 B	Early Nasc	4	1	5 99	12 38	3 49	0	2	1	1		utilized along one margin
V	46 B	Early Nasc	4	3	15.34	15 99	6 44	0		1	4		utilized along one margin
V	46 B	Early Nasc	4	1	15 09	11 03	3 16	0	2	1	2		utilized along margins
V	46 B	Early Nasc	4	1	13 49	18 86	1 93	0	3	1	2		utilized along margins
V	46 B	Early Nasc	4	1	18 3	14 18	3 19	0	3	1	3		utilized along margins
V	46 B	Early Nasc	4	1	13 13	13 18	3 98	0	5	1	2		utilized along one margin
V	46 B	Early Nasc	4	1	17 16	8 19	2 75	0	5	1	3		utilized along two margins
V	46 B	Early Nasc	4	1	11 42	18 76	7.24	0	5	1	4		utilized along margins
V	46 B	Early Nasc	4	1	10 53	16 41	5 57	10	1	1	4		utilized along one margin
V	46 B	Early Nasc	4	1	10.93	12 82	2.62	0	5	1	3		utilized along margins
V	46 B	Early Nasc	4	1	16 19	9 75	2 43	0	2	1	4		utilized along one margin
V	46 B	Early Nasc	4 rasgo 2	1	21 41	8 15	1 04	0	2	1	4		utilized along two margins
V	46 B	Early Nasc	4 rasgo 2	1	17 26	10.07	6.03	0	2	1	4		utilized along one margin
V	46 B	Early Nasc	4 rasgo 2	3	11 64	7.95	3 87	0		1	2		utilized along margins
V	46 B	Early Nasc	4 rasgo 2	1	12 04	7 85	2.04	0	2	1	2		utilized along one margin
V	46 B	Early Nasc	4 rasgo 2	1	19 11	15 03	7 73	0		1			retouched utilized flake
V	46 B	Early Nasc	4 rasgo 2	1	19 69	17 12	6.17	0	2	1			utilized along one margin
V	46 B	Early Nasc	4 rasgo 2	3	8 54	12 19	3.07	0		1			utilized along margins
V	46 B	Early Nasc	4 rasgo 2	1	15 93	12 12	2.51	0	2	1	9		utilized along margins
V	46 B	Early Nasc	4 rasgo 2	6	6 31	12 67	4 68	0		1			biface frag, medial
V	46 B	Early Nasc	4 rasgo 2	1	18.51	14 17	5.79	0	2	1	5		utilized along margins
V	46 B	Early Nasc	4 rasgo 2	1	14.21	16 78	2 73	0	5	1	5		utilized along margin
V	46 B	Early Nasc	4 rasgo 2	1	18.32	12 88	2.28	0	2	1	1		utilized along one margin
V	47 B	Early Nasc	4	1	11 59	7 33	3 21	0	5	1	1		utilized along margins
V	47 B	Early Nasc	4	1	13 22	5 94	2 88	0	2	1	3		utilized along margins
V	47 B	Early Nasc	4		14 51	10 89	3 97	0		1			utilized along margins
V	47 B	Early Nasc	4	1	9 77	8.96	4 41	0	2	1	3		utilized along margin
V	47 B	Early Nasc	4	3	6 62	10.5	3 07	0		1	3		utilized along margin
V	47 B	Early Nasc	4	4	3.46	2 85	3.97	0		1			biface fragment
V	46 B	Early Nasc	4	6	13 04	15 59	4 33	0		1		7/11.60	medial biface frag
V	47 B	Early Nasc	4	3	20 46	16.3	3 57	0		1	4	7/17 52	broken bifacial tool
V	46 B	Early Nasc	4 rasgo 2	1	20 39	19 79	2.57	0	5	1	3		utilized along two margins
V	46 B	Early Nasc	4 rasgo 2	1	20 28	17 34	4.36	0	5	1	4		utilization wear along one margin
V	47 C	Early Nasc	4	6	9 81	16 32	3 95	0		1			tool frag with retouch along one margin
V	46 B	Early Nasc	4	3	15 61	14 85	4 95	0		1		7/12 97	biface frag, bending fracture at break removing basal fragment

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V	47	B	Early Nasc	4		1	6 13	18.71	5 52	15	2	1	0		utilized along two margins
V	47	B	Early Nasc	4		1	12 71	19 52	4 18	20	2	1	1		utilized along one margin
V	46	C	Early Nasc	4		3	14 3	13.31	5 88	0		1	3		utilized along one margin
V	47	C	Early Nasc	4		1	68 06	51 36	24 48	0	3	2	6		utilation along one margin
V	47	C	Early Nasc	4		1	22 63	37 34	9 66	0	2	6	2		utilation along one margin
V	47	C	Early Nasc	4		1	17 04	13	3 77	0	5	1	3		utilization along one margin
V	47	C	Early Nasc	4		1	12 57	10.15	3.79	0	3	1	4		utilized along margins
V	47	C	Early Nasc	4		1	12 37	7.23	4 78	0	5	1	3		utilized margins
V	47	C	Early Nasc	4		4	3.58	11 85	3 55	0		1			biface frag
V	47	C	Early Nasc	4	rasgo 3	1	16.61	12.41	3 27	0	2	1	3		utilization alone one margin
V	47	C	Early Nasc	4	rasgo 3	1	14.09	8.88	4.26	0	5	1	2		utilization wear along one margin
V	entierro 7	C	Early Nasc	4		1	9 65	9 96	4 15	0	2	1	3		utilization wear along margins
V	entierro 7	C	Early Nasc	4		1	10 43	9.47	1 75	0	5	1	1		utilization wear along one margin
V	46	B	Early Nasc	4	entierro 8	1	8 04	18 49	3 66	0	2	1	3		utilized along one margin
V	46	B	Early Nasc	4	entierro 8	1	16 7	11 58	2.93	0	5	1	2		utilized alone one margin
V	46	B	Early Nasc	4	entierro 8	3	8.83	18 5	3 78	0		1			utilized along one margin
V	47	C	Early Nasc	4	hallazgo 1	1	109.17	99 13	23 44	45	1	5			basalt tool, axe/hoe?
II	51	A	Nasca (mix	5		1	6.23	14 81	4 52	0	2	1		10/14 83	retouched along margin
II	51	B	Nasca	5		1	31 45	67	5 48	0	2	6	3		utilization along most margins
II	51	C	Nasca	5		1	24 57	30 02	4 91	0	2	3	0		retouch along lateral margins
17	VB	B	Middle Ho	6		1	22 52	11 14	5 57	40	5	1	0		Retouch along one margin
17	VB	B	Middle Ho	6		1	14 74	13 53	3.22	0	2	1	4		Utilization wear along edges
17	VB	B	Middle Ho	6		1	47 59	27 26	5	0		1		17/44 22	Bifacial tool, Resharpened mutiple times 0060-0061
17	VB	B	Middle Ho	6		1	37 06	39 35	6 69	0		1		18/34.47	Biface with steep retouch along edges, 0062-0063
17	VB	B	Middle Ho	6		1	52 35	22 34	5 26	0		1		25/50 88	Bifacial point, mostly complete, extensive resharpening, 0064-65
17	VB	B1	Middle Ho	6		1	16 31	17 12	3 16	5	1	1	3		end of 2004
Tumba 1	exterior	A (Limpiez	MH -mixec	6		1	15 66	7 84	1 88	0	2	2	3		utilized flake
Tumba 1	exterior	A (Limpiez	MH -mixec	6		2	13 82	13 59	4 92	0	5	1	6		utilized flake
Tumba 1	exterior	A (Limpiez	MH -mixec	6		4	20 53	18 26	7 19	0		1			fragment of retouched flake
20	IVA	B	Middle Ho	6	2004	6	18 37	13 75	4 93	0		1		6/17 43	medial biface frag
20	IVA	C	Middle Ho	6	2004	4	22.03	23 58	3 22	35		1		10/22 25	small biface end scraper
Tumba 1	interior	A (Limpiez	MH -mixec	6		1	14.81	8 38	4.22	0		1	3		utilized flake
Tumba 1	interior	B	MH -mixec	6		1	9 42	12 69	1 56	0	3	1	4		utilized flake
Tumba 1	interior	B	MH -mixec	6		3	13 34	25.51	7 21	0		1			utilized flake
Tumba 1	interior	C	MH -mixec	6		1	25.69	23.57	3 42	0		1		15/26 03	broken bifacial point basal base missing, beveled resharpened, 0087-88
Tumba 1	interior	D	MH -mixec	6		6	14 45	10 58	4 14	0		1			utilized flake
Tumba 1	interior	E	MH -mixec	6		1	65 17	64 11	25 01	40	2	1	2		utilized flake
Tumba 1	interior	E	MH -mixec	6		1	11 97	5 18	3 36	0	5	1	2		utilized flake
Tumba 1	interior	E	MH -mixec	6		4	9.24	6 86	3 28	0		1		5/5 97	biface frag
Tumba 1	interior	E	MH -mixec	6		4	8 14	12 16	4 62	0		1		5/8 14	biface frag w/resharpening
Tumba 1	interior	E	MH -mixec	6		1	18 67	8 71	3 9	0		1	2	4/5.91	retouched on proximal end
Tumba 1	interior	E	MH -mixec	6		3	9 89	9 74	2 79	0		1	3		utilized flake
Tumba 1	interior	E	MH -mixec	6		1	11 52	5.79	2.37	5	1	1	2		utilized flake
V	45	A	MH -mixec	6		1	33 97	23 78	10.06	40	2	1	0		utilized flake margins utilized
V	45	A	MH -mixec	6		1	11 53	14 75	5 95	0	3	1	3		utilized flake margins utilized
V	45	B	MH	6		1	14 6	17.27	3 76	0	5	1	5		utilized flake with some evidence of retouch
V	45	B	MH	6		1	17 53	14	5 03	0	2	1	5		utilized flake margins utilized
V	45	B	MH	6		6	6 29	16.99	6.14	0		1			retouched along one margin, broken tool?
V	45	B	MH	6		1	20 05	11 46	2 8	10		1	1		retouched along margins, drill? 0089-92
V	45	B	MH	6		1	15.34	12.3	3.44	0	2	1	3		utilized along margin
V	45	B	MH	6		1	13.82	14 99	8 06	5	1	1	2		utilized along two margins
V	45	B	MH	6		1	20 26	13 21	3 8	0	2	1	3		utilized along all margins
V	45	B	MH	6		1	13 29	12 75	3 72	0	3	1	2		small area of utilization
V	45	B	MH	6		4	8 18	10 69	7 31	0		1		5/7 33	medial biface? Frag
V	45	B	MH	6		3	14 71	16 03	7 19	0		1			utilized flake, reused as a core

La Tiza Tools

V	45		B	MH	6		1	14 61	14 07	2.3	0	2	1			utilized flake, resharped several times
V	45		B	MH	6		2	9 86	11.02	4 25	0	2	1	5		Utilized on both lateral margins
V	45		B	MH	6		4	11 63	10 51	2 46	0		1	3		utilized along one margin
V	45		B	MH	6		6	7 92	11 5	5 48	0		1			utilized along one margin
V	45		B	MH	6		5	9.09	12 57	4 29	0		1			utilized along one margin
V	45		B	MH	6		1	12 18	10.25	3 11	0	2	1	3		utilized along two margins
V	45		B	MH	6		3	23.94	22 99	4 46	0		1		9/26 73	broken point, basal end missing. Little sign of resharpening, 0096-97
V	45		B	MH	6		3	19 16	19 54	5 03	0		1		10/22 29	broken point, basal end missing, reshaped into scraper?, 0098-99
V	45		B	MH	6		3	17 3	17 38	5 29	0		1		9/16 94	biface tool, broken, resharped
III		Tumba VI	A	MH -Mixe	6		3	17 82	22 71	5 41	0		1		7/16.48	biface frag with both retouched and utilized margins
III		Tumba 4	A	MH -Mixe	6		1	10 17	21 51	4 46	0	2	1	5		utilized flake
V	45		D	MH	6	hallazgo 2	4	14.58	11 54	3 99	0		1		9/13 04	biface frag
III		tumba 6	A	MH	6		1	55 79	27 32	9 79	0	2	2	3		utilized flake
III		tumba 6	B	MH	6		1	40 5	33 37	10 56	30	2	6	1		utilized along margins
		tumba 6	Surface	MH -Mixe	6		1	37.85	16.47	5 79	0		1		9/26.35	projectile point with burin break on tip, 160-61
	12	VC	B1	UP	8	2004	1	7.48	14 63	2 99	0	2	2	2		Utilization scars along margin
	35	VA	B	UP	8		1	15 48	15 35	3 11	5	3	1	3		Utilization along margin
	32	IVA	A	UP	8		1	32 67	21.46	6 1	0		1		11/33 48	point with impact fracture at tip, 0083-0084
	32	IVA	C	UP	8		1	23 76	15 37	2 86	0		1		17/21 31	bifacial point with break out of lateral margin0085-86
	32	IVA	C	UP	8		1	21 75	20 95	7 21	10	1	1	4		utilized along one margin
	32	IVA	C	UP	8		6	21 08	14 24	6.52	0		1	5		utilized along margins
	32	IVA	C	UP	8		5	16 12	14 07	4 55	0		1			utilized along margins
	33	IVB	B	UP	8		1	37 59	27 78	12 77	0	2	2	8		utilized flake
II	41		A	UP	8	FEAT 1	1	10 94	8.06	1 35	0	2	2	2		utilized flake
II	41		A	UP	8		1	28 99	17 53	3 54	0	2	1		17/25 69	retouched on all edges, steep flaking, raspador
II	42		A	UP (Possil	8		1	14 26	7 68	2 96	0	2	1	3		utilitzed flake
II	42		A	UP (Possil	8		6	4 76	12 1	5 43	0		1			utilized along margin
II	42		A	UP (Possil	8		1	17 59	15 91	4 08	0	2	1			Utilization along margins
	13	VD	C	Late Horiz	9		1	12 42	21 38	4 83	0	5	1	5		

La Tiza Cores

Unit	Scector	Capa/Nive	Period	Period#	Other Pro	Flake Type	Length(mr	Width(mr	Thickness(	Cortex %	Platform	Material	# Dorsal S	flake scar/	Comments
8	IIB	F2	Nasca 5	5			58.38	67.66	32 74	50		6	5		Core tool- retouch along one margin
17	VB	B1	Middle Ho	6			10 63	14 82	8 92	0		1	15		Bipolar core
17	VB	B-H14	Middle Ho	6			39.73	34 81	28 84	20		2			Small core of andecite associated with burial
11	VC	C	LIP	8	2004		59 83	51 2	78 5	80		6			Partially used core
35	VA	B	LIP	8			15.17	18 09	10 17	0		1			Small exhausted core
25	IIC	B	EH/EN	3		5	8 31	16.39	12 95	10		1	8		
28	IIF	C	EH/EN	3			78 33	80 58	44 62	0		6	8		large core with several flakes taken off
28	IIF	C	EH/EN	3			114 02	76.08	45 47	35		5	4		large core with flakes removed
33	IVB	B	LIP	8			70 29	41 65	34 24	0		6	11		core with many flakes removed
Tumba 1	interior	B	MH -mixec	6			7.46	7 57	4 73	0		1			small bipolar core
Tumba 1	interior	E	MH -mixec	6			13 11	14.38	6.96	0					small bipolar core
Tumba 1	interior	E	MH -mixec	6			11.92	13.67	5 32	0		1			small core, possibly bipolar
Tumba 1	interior	E	MH -mixec	6			8.05	9 45	6 91	0		1			small exhausted core
IVB	33	B	LIP	8	entierro 4	3	22.53	12.11	3.34	0		1		3	utilized flake
II	50	B	Early Hori	3			14 12	17.36	5 13	0		1			small obsdian core
V	45	A	MH -mixec	6			69 8	52.05	29 48	30		6			core with many flake scars
V	45	A	MH -mixec	6			13 49	19.69	9 67	0		1			exhausted core
V	46	A	Early Nasc	4			23 87	24 11	13.18	0		2			exhausted core
V	46	B	Early Nasc	4			28.73	13 15	15.15	0		1			exhausted core bipolar
V	46	B	Early Nasc	4			17 38	15.34	14 06	10		1			exhausted core bipolar
V	46	B	Early Nasc	4			29 27	13 59	8 72	0		1			exhausted core bipolar
V	46	B	Early Nasc	4			21.42	13 87	11 27	0		1			exhausted core bipolar
V	46	B	Early Nasc	4			18.89	11.13	11 33	0		1			exhausted core bipolar
V	46	B	Early Nasc	4			16.51	7 31	6.45	0		1			exhausted core bipolar
V	47	C	Early Nasc	4			70 21	113.72	73 06	40		6			lightly used core with few flakes removed
V	47	C	Early Nasc	4			59 28	53 34	51 97	30		6			extensively flaked core

Pataraya Debitage

Unit	E Arq	Capa/Nivel	Other Proven	Flake Type	Length(mm)	Width(mm)	Thickness(mm)	Cortex %	Platform	Material	# Dorsal Scars	flake scar/mm	Comments
4	A	3	Rasgo 1	1	25 67	22 17	6.38	0	2	2	2		
1-1/1-2	A	2		1	37 36	54 38	22 78	5	2	2	4		
1-1/1-2	A	2		1	31 17	10.35	12 88	0	3	2	2		
1-1/1-2	A	2		1	23 78	33 64	10 86	0	2	3	2		
1-1/1-2	A	2		1	19 9	13 52	18.2	20	1	2	2		
1-1/1-2	A	2		1	13 71	12	7 03	25	2	2	0		
1-1/1-2	A	2		1	13 89	17 92	5 57	10	1	2	1		
1-1/1-2	A	2		1	27 11	18 83	3 8	0	2	3	1		
1-1/1-2	A	2		1	13 52	15 51	3 47	0	3	2	2		
1-1/1-2	A	2		1	9.8	15 06	4.26	0	2	2	0		
1-1/1-2	A	2		5	8 22	6 8	3 97	20		2			
1-1/1-2	A	1		1	38 98	22 55	10 99	0	2	2	3		
1-1/1-2	A	1		5	14.7	12 83	20 19	0		2			
1-1/1-2	A	1		1	21 76	24 49	5 98	0	2	2	2		
1-1/1-2	A	1		1	17 43	15.52	7 47	0	3	2	3		
1-1/1-2	A	1		1	17.47	15 09	7 26	0	2	3	2		
1-1/1-2	A	1		1	26 59	26 76	14 78	25	2	2	1		
1-1/1-2	A	1		3	18 86	20.29	11 8	20		2	1		
1-1/1-2	A	1		1	16.21	11 6	2 52	0	2	2	2		
1-1/1-2	A	1		1	14 33	11.22	1 95	0	2	2	3		
15/16	A	4		1	52.29	40.35	15 51	0	3	2	3		
15/16	A	4		1	38.33	59 55	16 85	0	4	2	2		
15/16	A	4		1	44 63	23 12	5 69	0	2	2	3		
15/16	A	4		1	25 16	20 52	17.21	0	2	2	2		
15/16	A	4		1	15 69	19 7	3 52	0	2	3	1		
15/16	A	4		1	9 78	18 82	10 89	0	2	2	3		
15/16	A	4		3	7.19	15 26	1 87	0		2	1		
15/16	A	4		1	10 4	16 73	5 01	0	2	2	3		
15/16	A	4		1	12 7	12 03	4 92	0	5	2	0		
15/16	A	4		5	14 12	5 8	6 67	0		2			
4-2	A	1		5	44 57	27 28	13.21	0		2			
4-2	A	1		1	29 5	29 04	9 45	0	3	2	1		
4-2	A	1		1	34 46	27 22	13 14	0	2	2	2		
4-2	A	1		2	16 33	23.22	6 99	0	3	2	2		
1-1/1-2	A	3		2	53 33	43 41	25 99	0	3	2	3		
1-1/1-2	A	3		3	51 87	66 66	12 3	0	2	2	1		
1-1/1-2	A	3		5	24.51	42 28	12 31	0		2	1		
1-1/1-2	A	3		5	29 41	20 44	9 51	0		2	4		
1-1/1-2	A	3		2	37 24	21 79	9 52	0	2	2	3		
1-1/1-2	A	3		2	15 19	23 19	10 82	5	1	2	3		
1-1/1-2	A	3		1	27 28	23 17	12 31	0	2	2	2		
1-1/1-2	A	3		1	14 79	23 51	10 43	0	2	2	4		
1-1/1-2	A	3		5	20 53	11.57	10 98	0		3			
1-1/1-2	A	3		1	33 2	15 89	6 17	0	2	2	2		
1-1/1-2	A	3		1	10 83	13 61	9 14	0	2	2	3		
1-1/1-2	A	3		1	9 16	23.24	11 74	0	2	2	2		bipolar flake
1-1/1-2	A	3		1	21.3	17 11	13.33	0	2	2	5		
1-1/1-2	A	3		3	16 82	24.68	13 98	0	4	2	3		
1-1/1-2	A	3		1	12 03	12 66	7 03	5	3	2	3		
1-1/1-2	A	3		1	18 88	17	3 48	0	2	2	3		
1-1/1-2	A	3		1	9 22	10 32	7 83	0	2	2	2		
1-1/1-2	A	3		2	11 94	16 6	2 27	0	4	3	1		
1-1/1-2	A	3		1	29.54	14 07	9 14	0	3	2	1		
1-1/1-2	A	3		1	11.69	20	13 6	5	1	2	1		
1-1/1-2	A	3		1	24 89	16.82	6 69	0	3	3	2		
1-1/1-2	A	3		1	23 72	16 12	14 95	0	2	2	2		
1-1/1-2	A	3		1	17 55	18 75	3 06	0	2	2	1		
1-1/1-2	A	3		1	8 72	10 09	3 93	0	2	2	2		

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1-1/1-2	A	3	1	16.31	11 79	4 06	0	2	2	1	
1-1/1-2	A	3	1	17 75	22	2 86	0	2	2	0	
1-1/1-2	A	3	3	14 37	10 24	5.48	0		2	0	thermal spal removed
1-1/1-2	A	3	5	10 42	10 76	11 44	0		2		
1-1/1-2	A	3	1	15 84	8 61	2 44	0	2	2	2	
1-1/1-2	A	3	1	8 8	10 58	3 2	0	2	2	2	
1/2	A	4	1	42 68	68 68	11 96	25	2	2	1	
1/2	A	4	2	26 58	46 78	14 17	10	1	2	2	
1/2	A	4	1	14 7	29 18	33 65	0	4	2	3	
1/2	A	4	5	30 81	19 39	8 59	5		2		
1/2	A	4	6	15 08	21 18	9 02	0		2	2	
1/2	A	4	1	15 41	18.59	3 7	0	2	2	2	
1/2	A	4	1	16 58	15 98	6 68	0	2	2	2	
1/2	A	4	1	24 05	27 24	2 61	0	2	2	1	
1/2	A	4	1	32 58	26 89	12 56	0	2	2	2	
1/2	A	4	1	14 05	26 76	4 14	0	2	2	1	
1/2	A	4	1	36 93	19 11	6 39	0	3	2	2	
1/2	A	4	5	11 19	16.3	12 58	0		2		
1/2	A	4	1	12 98	10 54	8 11	0	2	2	1	
1/2	A	4	1	15 52	7 06	6 76	0	2	2	1	
1/2	A	4	1	35 47	12.22	7 74	0	2	2	2	
1/2	A	4	1	11 55	24 04	4 79	0	4	2	2	
1/2	A	4	1	15 47	14.53	8 75	0	2	2	2	
1/2	A	4	1	22.36	9.29	5.14	0	5	2	2	
1/2	A	4	1	18 05	12 73	3 51	20	1	2	1	
1/2	A	4	1	11 13	11 18	2 77	0	2	2	2	
1/2	A	4	5	18.82	27 3	12 67	0		2		
1/2	A	4	5	16 82	15 32	8 18	0		2		
1/2	A	4	2	10 53	16 4	7 32	0	4	2	2	
1/2	A	4	1	15 67	20 73	2 88	0	5	2	2	
1/2	A	4	1	8 29	13 3	7 77	0	4	2	2	
1/2	A	4	1	10 96	12 37	1 48	0	2	2	2	
1/2	A	4	1	19 19	18 75	3 48	0	2	2	3	
1/2	A	4	1	18 24	9 15	4 3	0	2	2	3	
1/2	A	4	3	15 8	20.2	3 01	0		2	1	
1/2	A	4	1	10.1	13.26	3 75	0	2	3	1	
1/2	A	4	1	16 8	12 08	3 83	0	2	2	1	
1/2	A	4	1	8.93	13 76	1 49	0	4	2	1	
1/2	A	4	2	11 82	17 31	5 97	0	2	2	4	
1/2	A	4	1	7 43	8 52	3 84	0	2	2	2	
1/2	A	4	5	9.26	8 99	8 6	0		2		
1/2	A	4	2	16 96	13 03	3 71	0	2	2	1	
1/2	A	4	1	8 34	17 84	4 7	0	2	2	2	
1/2	A	4	1	12 03	11 31	5 65	0	2	2	2	
1/2	A	4	1	13 49	10 53	2 8	0	2	2	4	
1/2	A	4	1	10 1	8.65	1 53	0	2	2	0	
1/2	A	4	1	13.67	17 98	10 13	0	4	2	2	
1/2	A	4	1	15 09	16 46	7 54	0	4	2	2	
1/2	A	4	1	13 02	11	5.34	0	2	2	2	
1/2	A	4	3	7 89	8 14	3 45	0		2	2	
1/2	A	4	2	9 83	16 42	2 3	0	2	2	1	
1/2	A	4	1	11 64	12 15	1 78	0	2	2	1	
1/2	A	4	1	13 69	6 57	2 88	0	4	2	2	
1/2	A	4	5	14 1	10 61	1 85	0		2		
1/2	A	4	6	6 61	14 14	4 41	0		2	1	
1/2	A	4	1	6 33	14 34	6 2	0	4	2	0	
1/2	A	4	1	11 03	6 4	1 63	0	4	2	2	
1/2	A	4	1	12.35	7 41	1.89	0	2	2	3	
1/2	A	4	1	9 8	9 99	2 08	0	2	2	1	

Pataraya Debitage

1/2	A	4	1	9 22	9.37	2 17	0	2	2	2	
1/2	A	4	1	6 79	7 81	3 07	0	2	2	1	
1	ecoz	4	6	9 5	25 06	4 19	0		2	2	
1	ecoz	4	1	27 2	21 18	6 5	0	2	6	3	
2-3-4-5	B	1	1	31 28	16 16	8 69	10	1	2	2	
5-6-7-8	D	2	1	36 24	51 8	18.3	0	2	2	3	
5-6-7-8	D	2	1	19 45	21.3	9 91	0	2	2	1	
5-6-7-8	D	2	1	22 42	24 95	5 62	0	2	3	1	
2-3	A	2	1	15 43	29 32	9 43	0	2	2	3	
7-8-9-1	A	1	1	39 98	41 6	15 89	0	2	2	2	
7-8-9-1	A	1	1	19 98	21.12	5 04	0	2	2	3	
7-8-9-1	A	1	1	45 91	52 98	20 98	30	2	2	5	several flakes removed
11-12-1	A	superficie	1	21 04	19 33	4 83	0	2	1	4	
11-12-3	A	superficie	5	14 77	12 55	6.23	0		2		
7-1	E	6	1	63 63	49 39	24 06	5	2	2	3	
5	C	1	1	21.21	11.22	5 52	5	1	2	2	
1/2	A	5	1	31 62	23 06	4 33	0	2	2	3	
1/2	A	5	1	9 86	17 35	4 04	0	2	2	2	
1/2	A	5	1	12.28	19 37	3 49	0	2	2	2	
1/2	A	5	1	15 07	17 54	10 94	0	5	2	3	
1	H	3	1	13 9	16 75	3 24	0	2	2	1	
1	H	3	6	8 6	22 42	8 82	0		2	2	
1	H	3	1	12 42	6 15	3 67	0	2	2	1	
1	H	3	1	9 98	11 26	5 06	0	2	3	1	
1	H	3	1	13 97	10 46	2 64	0	5	2	2	
1	H	3	1	8 61	11 08	2 92	0	2	2	3	
1	H	3	3	7 68	11 11	1.2	0		2	0	
1	H	3	1	5 8	11 52	4 59	0	2	2	1	
1	H	3	5	14 6	15 14	8 13	15		2	1	
1	H	3	2	14 07	15 2	3 87	0	2	2	2	
3-3/3-2	A	superficie	1	30 57	36 5	6 43	0	4	3	1	
3-3/3-2	A	superficie	2	24 94	27.34	10.28	10	1	2	4	
5	C	3	1	10 48	18 59	3 63	0	2	2	3	
5	C	3	1	27 67	14 97	3 74	0	4	2	3	
5	C	3	1	16 95	12 17	3 44	0	2	2	3	
5	C	3	5	8 06	11 57	5 38	0		2		
5	C	3	2	17 6	10 65	5 81	0	2	2	4	
5	C	3	1	15 21	30 92	15 1	0	2	2	2	
5	C	3	1	21 59	35 86	8 39	0	2	2	2	
5	C	3	1	16 41	13 43	8 69	5	2	2	2	
5	C	3	5	6 84	10 47	3 6	0		2		
2	I	1Y2	5	26 57	19 6	10.2	0		2		
2	I	1Y2	1	16 68	23 97	12 14	60	1	2	1	
2	I	1Y2	1	12 79	13.87	3 1	15	4	2	1	
2	I	1Y2	1	16 57	19.3	3 54	0	2	2	3	
2	I	1Y2	1	21 11	18 18	4 2	0	2	2	3	
2	I	1Y2	1	13 44	17 43	6 33	0	2	2	0	
2	I	1Y2	1	10 33	14 46	3 77	0	3	2	1	
2	I	1Y2	1	12 57	10 18	3 54	20	1	2	4	
2	I	1Y2	1	21 9	12 23	7 15	0	3	2	2	
2	I	1Y2	1	16 71	12 98	4 83	0	2	2	2	
2	I	1Y2	1	14 93	10.62	9 32	0	2	2	1	
2	I	1Y2	1	14 66	22 96	6 95	20	1	2	1	
4-3-2	C	1 (Limpieza inicial)	1	16 77	14 41	3 46	0	5	2	2	
4-3-2	C	1 (Limpieza inicial)	1	10.5	21 87	5 51	0	2	2	3	
4-3-2	C	1 (Limpieza inicial)	5	28 04	13 09	9 42	0		2		
4	C	2	5	10 74	13 65	11 38	0		2		
5	C	4	1	25 95	15 09	2.31	0	2	2	1	
1	ecol	1	1	22 49	20 85	3 84	0	4	2	3	

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1-1	E	3	1	18 56	29 42	25.2	85	1	2	0
7-1	E	4	1	26.22	29 49	9 91	45	3	2	3
7-1	E	4	5	8 94	11.33	9 5	0		2	
7-1	E	4	1	16.38	18.38	3 53	10	5	1	2
7-1	E	4	1	19 59	9 14	9 54	0	5	2	4
4	A	3	1	13 95	21 5	5 73	0	3	2	3
4	A	3	1	12 33	18 05	7 16	0	3	2	1
4	A	3	1	13 98	15 61	2 35	0	5	1	1
4	A	3	1	23 49	17 59	6 19	0	4	2	2
4	A	3	3	12 85	11 41	1 87	0		2	2
4	A	3	1	25 78	15.28	9 69	10	2	2	2
4	A	3	1	12 84	10 02	3 12	0	2	2	2
4	A	3	1	9.79	14.31	2 01	0	3	2	2
4	A	3	1	14 88	8.33	2 87	0	2	2	3
4	A	3	1	9 71	7 3	1 64	0	5	2	3
4	A	3	1	14 75	15 12	9 27	0	2	2	3
4	A	3	5	16 46	9.35	9 78	10		2	
1	B	3	1	19 95	32 4	5.23	0	2	2	1
1	B	3	1	13 17	17 13	5 68	0	2	2	1
1	B	3	1	14 14	12 66	5 46	0	2	2	2
1	B	3	1	18.39	12 75	2 81	0	3	2	3
1	B	3	1	11 93	18 13	3 63	0	4	2	0
1	B	3	1	9 02	10.38	1 71	0	4	2	0
1	B	3	1	31 66	23 4	10 43	0	2	2	5
1	B	3	1	17 42	20 75	6.33	0	2	2	3
1	B	3	1	15 91	9.83	3 68	0	2	2	2
1	B	3	1	13 63	10 19	5 57	0	3	2	2
1	B	3	1	15 36	14 75	7 82	0	2	2	2
1	B	3	1	15 16	10 42	1 98	0	2	2	0
1	B	3	1	7 79	10 49	2 06	0	3	2	1
1	B	3	1	19 61	18 58	2 9	0	2	2	3
1	B	3	1	12 83	12 17	1 97	0	3	2	2
1	B	3	3	8 96	10 22	2 39	0		2	2
1	B	3	3	9 16	7 4	2 93	0		2	0
1	B	3	3	22 17	18.83	6 3	0		2	2
1	B	3	2	9 43	19 88	4.33	0	4	2	1
1	B	3	5	17 48	7 58	6 66	0		2	0
1	B	3	1	8 84	18 57	3 66	0	2	2	1
1	B	3	1	13 93	9 44	4 07	0	2	2	3
1	B	3	1	16 11	10 07	4 1	0	3	2	0
1	B	3	1	15 45	10 24	5.2	0	2	2	2
1	B	3	2	9 47	13 12	2 29	0	2	2	0
1	B	3	1	18 97	13 49	2 69	0	2	2	2
1	B	3	1	10 61	7 15	2 27	0	2	2	0
1	B	3	1	7 71	10 67	1 46	0	3	2	1
1	B	3	3	8 61	8 75	1 17	0		2	0
1	B	3	1	11 31	8 76	3 58	0	3	2	2
1	B	3	1	12 3	12.22	3 48	0	2	2	2
1	B	3	1	12 99	12.16	1 84	0	4	2	2
1	B	3	1	18 67	9 29	4.28	0	2	2	0
1	B	3	1	12 79	15 42	1 46	0	2	2	3
1	B	3	1	12.26	19 09	2.29	0	3	2	2
1	B	3	1	7 7	9 99	2 4	0	4	2	1
1	B	3	1	9 4	11 87	5 14	0	2	2	3
1	B	3	1	8 69	8.38	2 35	0	2	2	3
1	B	3	5	11	14 7	6 29	0		2	
1	B	3	1	11 86	18 51	2 78	0	3	2	4
1	B	3	1	7 07	16 57	2 85	0	2	2	0
1	B	3	1	7 28	5 73	5 67	0		2	

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1	B	3	1	6	12 13	5 13	0	2	2	5
1	B	3	1	12 72	5 8	4 96	0	2	2	3
1	B	3	1	13 87	8 07	2 45	0	2	2	1
1	B	3	1	7 54	16 01	2.28	0	2	2	3
1	B	3	1	5 93	6 9	5 79	0	4	2	2
1	B	3	1	9 65	9 35	15 8	0	2	2	4
1	B	3	5	22 17	11 83	10.24	0		2	
1-3	A	1	1	36.2	51 02	33 81	15	2	2	1
3-2	F	2	2	21 83	11 11	4 5	20	1	2	2
3Y2	C	2	1	46	48.02	14 35	0	3	2	3
3Y2	C	2	1	69 71	25 75	20 4	15	2	2	2
3Y2	C	2	1	33 96	28 07	14.26	15	4	2	3
3Y2	C	2	1	19 72	17 64	7 74	5	4	3	3
3Y2	C	2	1	18 51	34 04	8 72	0	2	2	1
3Y2	C	2	1	19 86	19 48	5 5	0	3	2	3
3Y2	C	2	1	16 1	8 01	9 08	0	2	2	3
3Y2	C	2	1	13 34	13 38	2 07	0	2	2	2
3Y2	C	2	1	12 24	16 84	5 97	0	3	2	3
3Y2	C	2	1	18 08	17 17	6 62	0	2	2	1
3Y2	C	2	1	27 36	21 7	6 04	0	2	2	3
3Y2	C	2	1	19.22	20 45	8 43	0	2	2	1
3Y2	C	2	1	12.98	24.87	9 06	0	2	2	2
3Y2	C	2	1	14 79	16 52	6 69	0	3	2	2
3Y2	C	2	5	20 56	15.34	5 33	0		2	
3Y2	C	2	1	15 19	22 57	5 28	0	2	2	1
3Y2	C	2	1	7 33	25 16	16 42	0	2	2	2
3Y2	C	2	1	29 73	15 96	3 89	0	2	2	3
3Y2	C	2	1	16 71	22 86	5.22	0	3	2	2
3Y2	C	2	1	24	15.55	5 15	0	2	2	2
3Y2	C	2	1	17 94	7 71	5 62	0	3	2	3
3Y2	C	2	1	12 72	17.22	4.29	0	2	2	2
3Y2	C	2	1	18 27	12 19	11.21	10	2	2	3
3Y2	C	2	1	6 91	26 03	4.94	0	2	2	2
3Y2	C	2	1	14 34	19 3	14.28	0	3	2	1
3Y2	C	2	1	13 3	16.07	4 61	0	2	2	2
3Y2	C	2	1	14 92	14 06	3 76	15	1	2	0
3Y2	C	2	5	10.27	16 3	7 03	0		2	
3Y2	C	2	1	17 67	20 98	11.26	10	2	2	2
3Y2	C	2	1	20 09	33 19	10 31	0	2	2	4
3Y2	C	2	2	10 61	14 67	8 09	5	5	2	3
3Y2	C	2	1	14 68	22.98	8 12	5	1	2	3
3Y2	C	2	1	9 09	20 14	6 86	5	2	2	1
3Y2	C	2	1	17 19	11 17	4 95	0	3	2	1
3Y2	C	2	1	21 61	15 22	6 78	10	1	3	6
3Y2	C	2	3	11	12 79	1 89	0		2	
3Y2	C	2	1	18.37	13 49	12.33	5	2	2	2
3Y2	C	2	1	12 44	10 69	7 73	0	2	2	2
3Y2	C	2	5	17 68	11 63	6 67	0		2	
3Y2	C	2	1	11 75	12 39	5 49	0	5	2	1
3Y2	C	2	1	13 38	9 71	4 15	5	2	2	3
3Y2	C	2	1	14 67	28 87	10 42	0	3	2	3
3Y2	C	2	5	13 27	7 4	4 08	0		2	
3Y2	C	2	3	12 09	11 76	4 67	10	2	2	1
3Y2	C	2	3	7 94	9 52	2 21	0		2	
3Y2	C	2	1	11 72	14 55	8 92	10	2	2	2
3Y2	C	2	1	10 71	14 41	3 46	0	3	2	2
3Y2	C	2	1	7 44	10 01	2 48	0	2	2	1
3Y2	C	2	1	8 7	5 85	9 76	0	3	2	2
3Y2	C	2	1	12 57	9 02	2 15	0	2	2	2

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3Y2	C	2	1	9 06	12 75	2 02	0	2	2	0
3Y2	C	2	5	8.66	19.05	9.38	0		2	
3Y2	C	2	1	14 37	7 06	3.3	0	3	2	3
3Y2	C	2	1	7 49	11 76	2 05	0	3	2	0
3Y2	C	2	1	17 14	11 1	7 34	0	5	2	2
3Y2	C	2	1	10 44	8 77	5 7	0	2	2	1
3Y2	C	2	5	16 51	11 43	9 68	0		2	
3Y2	C	2	2	9 91	15 06	11 45	0	2	2	2
3Y2	C	2	5	11 93	16.35	11.22	0		2	
3Y2	C	2	5	13 89	10 52	9 38	5		2	
3Y2	C	2	1	17 82	14.83	9 57	0	3	2	3
3Y2	C	2	5	14 62	14 78	10 15	0		2	
3Y2	C	2	1	27 57	16 46	14.2	0	2	2	1
3Y2	C	2	5	28 89	13 39	8 88	0	2	2	2
3Y2	C	2	5	22 62	13 79	10 44	0		2	4
3Y2	C	2	5	13 88	9 9	19 8	0		2	
3Y2	C	2	5	12 15	19 8	9 72	0		2	
3Y2	C	2	5	17 84	13 77	12 18	0		2	
3Y2	C	2	1	9 89	11 59	2.86	0	2	2	3
1-4	F	2	1	19 84	10 17	3 38	0	2	2	2
1-4	F	2	1	14.22	10.2	6.23	0	3	2	1
1-4	F	2	1	20 61	23 62	2 06	0	2	2	1
1-4	F	2	1	11 08	12 24	3.65	0	2	2	2
1-4	F	2	5	15.2	17 17	10 13	5		2	
1-4	F	2	5	19	10 89	8 56	0		2	
4	A	5	2	32 65	41 67	19 33	0	2	2	2
4	A	5	1	10 89	25 45	5 95	0	2	2	1
4	A	5	1	10 39	19 4	3 71	0	4	2	0
4	A	5	1	19.25	18.22	7 65	0	2	2	3
4	A	5	1	10 96	23 5	5 63	0	2	2	2
4	A	5	1	13 39	16 07	3 39	0	3	2	2
4	A	5	1	14 62	12 79	7 77	5	1	2	2
4	A	5	5	16 9	17.31	7 77	5		2	
4	A	5	1	12 79	10 65	5 05	0	4	2	2
4	A	5	1	9 26	16 97	13 98	0	2	2	4
4	A	5	1	9 64	14 53	4 9	0	2	2	1
4	A	5	2	11 85	10 87	6 66	0	2	2	2
4	A	5	5	10 53	6 36	7 08	0		2	
4	A	5	1	18 29	6 93	7 3	0	2	2	2
4	A	5	1	13 08	12 84	11.65	10	1	2	2
4	A	5	1	9 93	7 86	6.35	0	2	2	3
4	A	5	1	18.23	9 07	3 55	0	2	2	2
7-5	E	4	1	35 32	29 52	10 79	0	2	2	1
7-5	E	4	1	29 29	14 5	4.53	0	2	2	2
7-5	E	4	1	32 47	31 83	10 77	0	2	2	4
7-5	E	4	1	20 53	26 75	5.58	5	2	2	1
4	A	6	1	5 65	26 51	9 75	0	2	5	0
4	A	6	1	25 67	20 03	3 85	5	3	2	2
4	A	6	1	19 6	28 99	6 81	0	2	2	2
4	A	6	1	19 96	9 61	4 12	0	2	2	0
4	A	6	1	12 77	13 57	3 76	0	3	2	4
4	A	6	1	17 5	22 81	2 61	0	2	2	0
4	A	6	1	16 91	15 41	5 97	0	2	2	3
4	A	6	1	17 93	11 75	4 46	0	3	2	3
4	A	6	5	13 66	18 44	10 53	0		2	
4	A	6	1	29 07	11 81	3 11	0	2	2	2
4	A	6	1	19 31	23 34	5 86	0	2	2	3
4	A	6	1	20 66	22 79	6 79	0	2	2	4
4	A	6	1	18 72	14 7	7 85	0	2	2	4

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4	A	6	1	13 88	9 42	3 53	0	2	2	4
4	A	6	1	17 01	13 19	3 6	0	2	2	2
4	A	6	1	9 7	11 3	1 28	0	2	2	0
4	A	6	1	17 45	14 82	3 92	0	2	2	3
4	A	6	1	13 55	8 55	3 05	0	2	2	3
4	A	6	3	9 16	8 7	1 77	0		2	0
4	A	6	5	10 97	17 96	10.24	0		2	
4	A	6	5	9 36	11 76	18 17	0		2	
4	A	6	2	17 69	22 89	9 18	0	2	2	4
3	A	5	1	30 17	22 99	7 89	0	5	6	2
3	A	5	1	7 96	18 04	1 95	0	2	2	1
3	A	5	1	15 2	9 48	4 62	0	2	2	2
3	A	5	1	11 92	12 37	2 03	0	2	2	2
1-5	E	6	1	20 83	25 7	10 15	5	3	2	1
1-5	E	6	6	14 47	17 61	4 97	0		8	0
1-5	E	6	5	15 42	11 97	14.36	0		2	
1-5	E	6	1	27 41	18 55	9 25	0	2	2	2
1-5	E	6	1	21 6	22 17	12 48	0	2	2	4
1-5	E	6	1	20.25	12 18	8 11	0	1	2	2
1-5	E	6	1	10 44	19 22	5 77	0	2	2	2
1-5	E	6	1	18 51	19 78	10 75	0	2	2	3
1-5	E	6	1	9 66	11 13	7.22	0	2	2	2
1-5	E	6	1	25 73	14 72	5 74	0	2	2	3
1-5	E	6	5	7 41	8 15	6.32	0		2	
1-5	E	6	1	11 11	8 41	2 26	0	2	2	3
1-5	E	6	1	21 61	12 89	4 18	0	2	2	3
1-5	E	6	5	12 46	22 16	8.33	0		2	
16	D	1	1	19 61	19.2	5 83	0	2	2	0
1-3	A	3	1	18 98	25 05	5 65	85	1	2	0
1-3	A	3	5	16.63	7 73	9 35	0		2	
4	C	3	1	13 24	11 15	3.2	5	4	2	2
4	C	3	5	15.85	18 68	11 11	0		2	
1-1	E	2	1	18 7	14.27	3 79	45	5	2	0
1-1	E	2	1	19 16	23 45	11.36	0	3	2	2
1	eco2	2	1	10 57	17 49	4.35	0	2	2	4
1-3	A	5 rasgo 1	5	13 29	11 58	9 4	0		2	
1-3	A	2	1	22 47	30 84	15 47	40	2	3	0
1-1	B	4	1	17 15	14 61	6 65	15	2	2	1
1-1	B	4	1	13 72	14 9	7 45	50	1	2	2
1-1	B	4	3	14 96	24 33	9 04	0		2	3
4	A	7	1	28 6	22 8	7 48	25	3	2	2
4	A	7	1	18 55	16 55	13.24	0	2	2	1
4	A	7	1	14 9	14 65	2 87	0	5	2	1
4	A	7	2	10 54	16 73	3 59	0	2	2	5
1	eco2	5	1	43 52	40.28	14 21	0	3	2	3
1	eco2	5	1	13 93	17 72	3 72	15	1	2	3
1	eco2	5	1	10 86	6 98	3 59	0	3	1	3
1	eco2	5	1	25 77	10 14	3 92	45	1	1	2
1	eco2	5	3	18 1	12.26	2 76	5	5	1	4
4-2	F	2	1	63 3	43 99	19 33	0	2	2	2
4-2	F	2	3	26 87	27.42	5 84	5		2	3
4-2	F	2	1	13 81	20.21	5 67	0	2	2	1
4-2	F	2	1	19.2	12 49	13 65	0	2	2	3
4-2	F	2	1	19 81	12 37	2 28	0	2	2	3
1-5	E	5	1	18.8	20 87	6 48	0	5	2	1
1-5	E	5	1	16 51	14 83	3 89	0	2	2	1
1-5	E	5	1	12 12	7 41	1 88	0	2	2	3
1-5	E	5	1	19 13	18 96	7 78	0	2	2	1
1-5	E	5	2	17 73	30 04	9 82	0	5	2	3

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1-5 E	5	1	12 48	27 95	6 28	0	2	2	2		
1-5 E	5	1	15 92	18 44	7 11	0	2	2	2		
1-5 E	5	1	9 71	13 41	9 29	0	2	2	4		
1-5 E	5	1	13 43	15 64	8.28	0	2	2	2		
1-5 E	5	1	16 96	12 91	5 81	0	2	2	1		
1-5 E	5	5	13 89	12 9	10 72	0		2			
1-5 E	5	1	13 91	17 63	6 59	0	2	2	2		
1-5 E	5	1	17 15	28 48	10 8	0	2	2	2		
1-5 E	5	2	9.26	11 13	3 56	0	2	2	1		
1-5 E	5	5	14 06	11 54	7 83	0	2	2	2		
1-5 E	5	2	21.35	21 05	8 07	0	2	2	2		
1-5 E	5	1	18 31	19 4	9 49	0	2	2	3		
1-5 E	5	1	15 45	17 63	12 44	0	5	2	4		
1-5 E	5	5	11 7	10 65	12 36	0		2			
1-5 E	5	1	21 86	16.22	8 6	0	2	2	6		
9-10-11D	2	1	53 86	63 06	21 84	0	2	2	4		many flakes reomoved from this large flake
9-10-11D	2	1	35 12	30.52	9 66	0	2	3	1		
9-10-11D	2	1	17 54	8 96	5 14	0	2	2	3		
7-8-9-1 A	2	1	26 57	24 52	6 05	0	2	2	5		
7-8-9-1 A	2	1	13 98	45 19	11 57	0	2	2	2		
7-8-9-1 A	2	1	34 9	13 58	5 78	15	1	2	2		
7-8-9-1 A	2	1	19 64	26 79	11 92	25	1	2	2		
7-8-9-1 A	2	3	15 31	8 7	6 31	0		2	1		
7-8-9-1 A	2	1	17 03	21 06	5 92	0	2	2	3		
7-8-9-1 A	2	1	16 57	16 04	3 65	0	2	2	1		
7-8-9-1 A	2	2	23 84	39 06	6 6	0	3	3	0		
7-8-9-1 A	2	5	13 67	26 58	12 66	10		2			
7-8-9-1 A	2	1	30 07	21 79	6 12	0	2	2	2		
7-8-9-1 A	2	1	38 84	23 13	16 05	0	2	2	6		
7-8-9-1 A	2	1	14 45	20 35	8 59	0	3	2	4		
7-8-9-1 A	2	1	24 69	9.21	10 58	0	2	2	3		
7-8-9-1 A	2	1	16 85	14 75	6 76	0	2	2	3		
7-8-9-1 A	2	2	14 68	16 91	5 34	0	2	2	1		
7-8-9-1 A	2	1	9 64	13.97	3 08	0	2	2	0		
7-8-9-1 A	2	1	11 66	17.22	2 55	0	2	2	0		
7-8-9-1 A	2	1	18.24	14.46	9 03	0	5	2	3		
7-8-9-1 A	2	1	16 96	12.27	2 52	0	5	2	2		
7-8-9-1 A	2	1	18 08	7 65	5 24	0	2	2	3		
7-8-9-1 A	2	1	15 98	10 61	2 8	0	2	2	2		
7-8-9-1 A	2	1	18 48	16 09	6 08	0	2	2	6		
7-8-9-1 A	2	3	13 86	21.41	6 14	0		2	5		
7-8-9-1 A	2	5	20 9	12.32	9 78	0		2			
7-8-9-1 A	2	1	10 87	7.37	3 28	0	2	2	1		
7-8-9-1 A	2	1	14 71	9 7	2 8	0	2	2	0		
7-8-9-1 A	2	1	20 37	15 11	5 3	0	2	2	3		
7-8-9-1 A	2	1	17 73	17 19	4 98	0	2	2	2		
7-8-9-1 A	2	1	12 3	20 12	7 44	10	1	2	3		
7-8-9-1 A	2	1	14 59	9.34	5 65	0	2	2	1		
7-8-9-1 A	2	1	25 21	22.25	6 93	35	2	2	1		
7-8-9-1 A	2	1	28 56	14 08	13 41	0	2	3	2		
7-8-9-1 A	2	1	19 95	22 08	2 56	0	2	2	1		
7-8-9-1 A	2	1	12 6	17 16	2 72	0	4	2	1		
7-8-9-1 A	2	1	3 96	13 77	3 57	0	2	2	2		
7-8-9-1 A	2	1	13 78	23 52	4 21	0	2	2	0		
7-8-9-1 A	2	1	23 34	21 25	13 72	0	2	2	1		
7-8-9-1 A	2	1	16 15	14 6	3 08	0	2	2	3		
7-8-9-1 A	2	1	8 69	16 35	3 01	0	2	2	3		
7-8-9-1 A	2	1	18 04	14.28	3 99	60	1	2	0		
7-8-9-1 A	2	1	10 56	12 98	3 66	0	2	2	2		

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7-8-9-1	A	2	1	7.39	18 52	6 23	0	2	2	4
7-8-9-1	A	2	1	10 17	9 66	1 21	0	5	2	0
7-8-9-1	A	2	1	8 09	7 93	3 52	0	2	2	2
7-8-9-1	A	2	1	10 75	17 22	2 93	0	2	2	0
7-8-9-1	A	2	5	11 56	14 85	11 11	0		2	
7-8-9-1	A	2	1	10 95	10 02	6 11	0	2	3	1
7-8-9-1	A	2	1	18 7	17 3	12 08	0	2	2	3
7-8-9-1	A	2	1	15 73	27 79	13 23	15	1	2	1
7-8-9-1	A	2	5	15 94	12 35	10 4	0		2	
7-8-9-1	A	2	5	13 96	12 45	9 72	0		2	
7-8-9-1	A	2	1	8.27	9 66	3.21	0	2	2	3
7-8-9-1	A	2	1	15 01	9 73	4 14	0	5	2	3
7-8-9-1	A	2	1	11 57	9 75	9 64	0	2	2	2
7-8-9-1	A	2	5	12 39	6 69	4 5	0		2	
7-8-9-1	A	2	1	20 14	22 23	21 37	0	2	2	2
7-8-9-1	A	2	1	10 72	11 12	4 99	0	2	2	1
7-8-9-1	A	2	1	12 06	7.28	3	0	5	1	1
7-8-9-1	A	2	1	19 41	23 42	8.3	0	2	2	3
7-8-9-1	A	2	1	13 68	14 57	7.2	0	4	2	1
7-8-9-1	A	2	1	13 16	7 53	3.3	0	2	2	2
7-8-9-1	A	2	1	13 46	21 93	3 89	0	5	2	2
7-8-9-1	A	2	1	9 49	17 57	2 02	0	2	2	1
7-8-9-1	A	2	1	11.3	15 12	9 66	0	5	2	3
7-8-9-1	A	2	1	16 61	8 88	2.27	0	5	2	3
7-8-9-1	A	2	1	14 4	7 11	4 74	0	2	2	3
7-8-9-1	A	2	1	15 14	13 8	9 54	0	2	2	1
7-8-9-1	A	2	1	12 65	9 74	3 47	0	2	2	1
7-8-9-1	A	2	1	18 7	9 79	14 4	0	4	2	1
7-8-9-1	A	2	2	9 81	17 09	5 47	0	3	2	1
7-8-9-1	A	2	1	15 73	18 08	5 93	0	2	2	0
7-8-9-1	A	2	1	16 01	14.35	5 19	0	5	2	2
7-8-9-1	A	2	1	13 42	15 42	8 23	0	2	2	0
7-8-9-1	A	2	1	6 44	15 51	5 99	0	3	2	2
7-8-9-1	A	2	1	13.25	20 6	1 91	0	3	2	1
7-8-9-1	A	2	1	10 8	11 51	0 99	0	4	2	0
7-8-9-1	A	2	1	12 54	12 63	2.9	0	5	2	3
7-8-9-1	A	2	5	14 75	10 78	5 43	0	3	2	2
7-8-9-1	A	2	1	11 42	9 53	6 77	0	2	2	2
7-8-9-1	A	2	2	10.25	11 54	3 1	0	2	2	3
7-8-9-1	A	2	1	9 67	10 84	3.31	0	3	2	0
1	H	2	2	14 12	26 76	4.66	0	3	2	2
11-12-1	A	2	1	13 14	23 67	2 15	0	2	3	0
11-12-1	A	2	2	9 18	16 35	4 16	0	4	3	0
11-12-1	A	2	1	12.31	9 14	2 78	0	5	2	0
1-2-3-4	D	2	1	57 71	34 75	10 42	0	2	2	3
5	C	2	1	29 85	7 48	6.32	0	1	2	1
5	C	2	1	16 75	14 58	1	0	2	2	0
5	C	2	1	18 11	10 12	7 51	5	1	2	3
5	C	5 rasgo 4	1	14 55	12.33	8 5	0	5	2	2
5	C	5 rasgo 4	1	10 47	9 65	4 19	0	2	2	3
5	C	5 rasgo 4	1	5.09	12 29	3 94	0	3	2	1
8	C	4	5	13 9	13 64	14 03	0		2	
7-5	E	3	1	33 81	23 32	10 88	0	2	5	3
7-5	E	3	1	23 67	19 38	8.35	0	2	2	3
7-5	E	3	1	22 01	12 53	4.22	0	4	2	3
5-6-7-8	D	3	1	10 29	20 67	6 96	15	1	2	2
5-6-7-8	D	3	1	14 07	24.27	4 61	0	2	2	2
1-5	E	2	1	49 5	37 87	12 92	15	5	2	7
13/3-1/	D	1	1	32 49	19 56	6 44	0	2	4	3

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13/3-1/	D	1	1	11 13	8 85	1 96	0	2	2	2	
13/3-1/	D	1	1	14 18	9 66	6 14	15	2	3	1	
13/3-1/	D	1	1	14 35	8 79	5.23	0	2	2	0	
13/3-1/	D	1	3	14 96	10 43	1 76	0		2	2	
13/3-1/	D	1	5	14 08	16 89	17 34	20		2		
13/3-1/	D	1	1	16 7	44 97	25 33	0	2	2	1	
4	A	4	1	13.68	19 22	1 51	5	3	2	0	
4	A	4	1	19 99	24 16	6 68	0	2	2	0	
4	A	4	1	29 45	44 63	16 56	25	1	2	3	
4	A	4	1	17.24	24 75	4 04	5	2	2	2	
4	A	4	1	18 75	17 88	5.27	0	2	2	1	
4	A	4	1	21 21	25 75	15 71	0	2	2	2	
4	A	4	1	34 66	26 12	8.39	0	2	2	3	
4	A	4	1	12 02	13 11	1 89	0	3	2	0	
4	A	4	1	18.76	23 06	5.32	0	2	2	2	
4	A	4	3	9 32	19 51	4.22	0		2	0	
4	A	4	1	10 31	11 76	6 1	0	2	2	2	
4	A	4	1	18.5	23 47	5 16	0	2	2	1	
4	A	4	1	20 2	12 05	4 57	0	2	2	2	
4	A	4	1	17 69	14 61	5 8	0	3	2	3	
4	A	4	1	17 44	10 19	3 98	0	2	2	2	
4	A	4	1	10 17	15 09	2 96	0	2	2	0	pot lidding
4	A	4	1	33 65	28 43	15 97	0	2	2	1	burnt, pot lidding
4	A	4	1	17 53	20 25	1 59	0	3	2	2	
4	A	4	1	16 55	14 1	1 96	0	2	2	0	
4	A	4	4	22 86	11 34	6 38	0	2	2	1	
4	A	4	1	19 5	36 75	14 75	0	5	2	3	
4	A	4	3	20 09	33.25	8 65	0		2	3	
4	A	4	2	22 81	16 46	4 17	0	2	2	2	pot lidding
4	A	4	1	18 15	12 95	2.58	0	2	2	3	
4	A	4	2	6 43	24 88	4 55	0	3	2	2	
4	A	4	1	19 15	18 74	7 79	0	3	2	0	
4	A	4	1	16 82	12 47	3 45	0	5	2	2	
4	A	4	1	18 92	13 4	5 5	15	1	2	1	
4	A	4	1	19 25	23 76	6 22	0	2	2	2	
4	A	4	1	23 31	25 38	14 7	10	1	2	1	
4	A	4	4	24 96	12 03	6	0	3	2	2	
4	A	4	1	17 29	24 08	13.37	0	2	2	1	
4	A	4	1	12 16	16 87	3 75	0	2	2	1	
4	A	4	1	11 77	18 78	4 05	0	2	2	3	
4	A	4	5	12 45	19 19	8 1	0		2		
4	A	4	1	15 77	13 07	7 38	10	5	2	2	
4	A	4	1	14 9	13 01	6 64	0	2	2	2	
4	A	4	1	11 1	16 8	2 49	0	2	3	0	
4	A	4	1	16	20.25	10.4	0	2	2	1	
4	A	4	1	31 64	14 64	12.64	0	3	2	4	
4	A	4	2	49 85	42 63	19.26	0	5	2	7	pot lidding
3Y2	C	3	2	18 25	33 65	8	0	3	2	2	
3Y2	C	3	1	15 09	16 7	9 62	0	2	2	2	
3Y2	C	3	1	23 61	16 45	4 07	0	2	2	3	
3Y2	C	3	3	18 84	17 67	5 58	0		2	2	
3Y2	C	3	1	11 55	15 15	4 68	0	4	2	0	
3Y2	C	3	1	17.24	6 06	4 63	0	1	2	1	
3Y2	C	3	1	17 89	12 67	7 59	0	2	2	1	
3Y2	C	3	1	7.89	17 04	6 94	0	2	2	1	
3Y2	C	3	5	7.25	6 93	7 69	0		2		
3Y2	C	3	1	10 45	13 12	3 97	0	2	2	1	pot lidding
3Y2	C	3	1	13 55	12 55	1 54	0	5	2	0	
3Y2	C	3	5	8 76	6 41	9 81	0		2		

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3Y2	C	3	3	17 93	13 23	5 47	0		2	1
3Y2	C	3	1	15 4	6 1	2 94	0	2	2	1
3Y2	C	3	1	12 97	11 85	3.29	0	5	2	2
3Y2	C	3	1	10 37	8 79	7 85	35	1	2	0
3Y2	C	3	1	11 96	14.53	2 85	0	3	2	0
3Y2	C	3	1	7 29	8.29	3 88	0	4	2	2
3Y2	C	3	1	10 57	5 59	2 03	0	5	2	0
3Y2	C	3	1	17.22	15 44	19 89	0	2	2	3
3Y2	C	3	1	30 22	20 18	15 92	0	2	2	3
8	C	2	1	21 46	31 38	12 72	0	2	8	1
8	C	1 rasgo 2	1	7 96	15.26	3 66	0	3	2	1
8	C	1 rasgo 2	1	11.29	16 08	11 5	0	2	2	1
8	C	1 rasgo 2	1	23 03	14 03	5 83	0	3	2	3
1-5	E	7	1	16 54	6 77	6 93	0	2	2	1
1-5	E	7	1	12 77	6 93	2 2	0	2	2	2
1-5	E	7	1	9 27	7 68	1.37	0	2	2	1
1-5	E	7	1	11.2	11 08	3 86	0	5	2	4
1-5	E	7	1	9 51	8 85	5 83	0	3	2	2
1-5	E	7	1	20 45	12.24	7 21	0	3	2	1
1-5	E	7	5	18	13 97	13 83	0		2	
7-1	E	2	1	24 56	27 11	3 68	0	2	2	1
7-1	E	2	1	19 86	14 14	7	0	2	2	1
7-1	E	2	1	14.27	28 49	6 09	0	5	2	1
7-1	E	2	5	16 77	15 1	7 72	0		2	
7-1	E	2	2	9 64	18 89	7 64	0	3	2	0
7-1	E	2	1	15 88	14 12	16 62	0	2	2	6
7-1	E	2	1	26 72	18 06	7 74	0	2	2	1
7-1	E	2	3	21 97	20 24	5 94	0		2	2
7-1	E	2	1	15 68	17.38	9 44	10	1	2	1
7-1	E	2	1	12 27	16 13	8 69	0	2	2	1
7-1	E	2	1	16 68	10 16	8 08	0	2	2	1
7-1	E	2	1	15 76	13 63	10 79	5	2	2	1
7-1	E	2	5	24 19	19 07	20 24	10		2	
4	C	2	1	32 37	22 75	8 08	0	2	2	1
4	C	2	1	16.25	24 75	9 03	0	5	2	3
4	C	2	1	17 26	11.32	4 07	0	2	2	1
4	C	2	1	14 52	20 53	2 94	0	2	2	3
4	C	2	1	22 93	21 61	10 37	5	2	2	1
4	C	2	1	21 6	9.49	4 83	15	2	2	1
4	C	2	1	12 93	7 85	21 59	0	2	2	1
4	C	2	1	9 42	9 79	3 47	10	2	2	0
4	C	2	1	13 62	8 95	1 42	0	5	2	0
4	C	2	1	12 61	8 92	2 85	0	2	2	2
4	C	2	1	9 02	13 9	5 35	0	4	2	0
4	C	2	1	7 59	25	1 8	0	2	2	0
4	C	2	1	17 1	6 04	3 92	0	2	2	1
4	C	2	1	10 63	7 82	5 01	0	3	2	1
4	C	2	1	10 58	16 48	2 42	0	2	2	0
4	C	2	1	21 08	8.81	2 73	0	2	2	1
4	C	2	1	6 67	19 05	4.23	0	4	2	1
4	C	2	1	17 56	15 6	5.36	0	5	2	2
4	C	2	1	16 58	9 7	3 3	0	5	2	2
4	C	2	1	8 13	13 15	1 77	0	5	2	0
4	C	2	1	10 06	8 74	1 67	0	5	2	0
4	C	2	3	13 78	10 63	3 83	0		2	2
4	C	2	1	8 86	12 37	1 52	0	5	2	0
4	C	2	1	11 76	11 61	3 07	0	4	2	0
4	C	2	1	9 09	9 45	1 84	0	2	2	0
4	C	2	1	10 86	9 06	1 87	0	2	2	1

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4	C	2		5	10 33	8.31	4 09	0		2		
4	C	2		1	10 02	8 47	2 21	0	2	2	1	
4	C	2		3	13	10.33	3 1	0		2	1	
4	C	2		1	16 75	8 18	0 63	0	2	2	0	
4	C	2		1	9.24	8	1 86	0	2	2	3	
4	C	2		1	9 06	14	3.75	0	5	2	1	
4	C	2		1	14 91	5 45	2 59	0	5	2	1	
4	C	2		1	10 05	14 07	1 59	0	2	3	0	
4	C	2		5	15 37	6 27	2 55	0		2		
4	C	2		3	15 08	14 68	7 99	0		2	3	
4	C	2		1	11 83	4 92	1 38	0	5	2	0	
4	C	2		1	11 51	6 68	2.26	0	2	2	1	
4	C	2		1	13.35	14 3	6 85	0	5	2	1	
3-3	D	5		1	58 12	25 71	13 17	0	3	2	2	
13	D	2		1	23 78	12 47	14 55	0	2	2	2	
13	D	2		3	21 6	26 46	7 53	0		2	1	
3-4-5-6	B	3		1	31 97	25 02	10 65	0	2	2	2	
3-4-5-6	B	3		1	30 63	21 9	10 38	0	2	2	3	
3-4-5-6	B	3		1	22 59	10 41	3 45	0	2	2	2	
3-4-5-6	B	3		1	29 6	17 9	12.48	0	2	2	3	
1-2-3-4	D	3	tnnchera III	1	11 61	19 02	2 16	0	2	2	0	
1-2-3-4	D	3	tnnchera III	1	10 21	17.38	3 63	0	2	2	1	
1-2-3-4	D	3	tnnchera III	1	10 81	22 94	5 45	0	2	2	0	
1Y19	B	3		1	37 31	20 67	9 05	0	2	2	2	
1Y19	B	3		1	21 52	33 44	12 73	0	2	2	2	
1Y19	B	3		2	33 91	34 01	14 44	0	2	2	1	burnt, pot hddmg
1Y19	B	3		3	25 23	34 27	13 49	0		2	1	burnt, pot hddmg
1Y19	B	3		1	26 81	24.44	9 58	10	2	2	1	
1/2	A		rasgo 1	1	6 55	9 99	1 19	0	5	2	0	notchmg flake
1/2	A		rasgo 1	1	20 58	16 11	3 19	0	2	2	1	
1/2	A		rasgo 1	1	9 63	14.24	5.23	0	2	2	0	
1/2	A		rasgo 1	1	7 86	16 68	3 44	20	1	2	1	
1/2	A		rasgo 1	1	25 47	19 47	5 47	0	2	2	3	
1/2	A		rasgo 1	1	18 42	9 87	6 72	0	2	2	1	
1/2	A		rasgo 1	5	10 74	7 12	6 07	0		2		
1/2	A		rasgo 1	1	13 2	8 3	3 89	0	2	2	3	
3-3	D	5	rasgo 1, nivel	3	11 06	37 84	10 48	0		2	1	
3-3	D	5	rasgo 1, nivel	1	23.2	37.2	26 53	0	2	2	2	
7-1	E	3		1	18 83	15 71	6 14	0	2	2	2	
7-1	E	3		1	13 94	16.26	6 46	0	5	2	0	
7-1	E	3		3	18 14	18 3	7 37	0	2	2	2	burnt
7-1	E	3		1	15 01	13 31	6 27	0	2	2	1	
7-1	E	3		1	19 88	35 18	13 71	0	2	4	1	
7-1	E	3		1	21 41	18 86	6 34	0	3	2	1	
7-1	E	3		1	25 99	19 79	16 15	35	2	2	0	
7-1	E	3		5	15 19	17 82	8	0		2	3	
7-1	E	3		1	14 62	25 24	17 81	0	2	2	2	
3-3/3-2	A	2		1	17 36	9 71	5 69	0	2	2	3	
3-3/3-2	A	2		1	22 01	26 05	9 02	0	3	2	2	
3-3/3-2	A	2		1	19.41	17 97	4 55	0	2	2	2	
3-3/3-2	A	2		5	10 97	18.2	14 4	0		2		
7-5	E	5		1	23 1	33 73	15 56	0	2	2	2	
7-5	E	5		3	17 09	11 17	3 48	0		2	2	
7-5	E	5		1	9	8 46	6.3	0	2	2	4	
7-5	E	5		1	32 65	7 87	5 84	0	2	2	2	
7-5	E	5		1	24 93	19 72	8 91	15	2	2	1	
7-5	E	5		5	9 98	30.41	17 95	0		2		
1	eco2	3		2	30 83	13 79	7 71	0	2	2	1	
1	eco2	3		1	15 07	24 56	9 05	0	2	3	1	

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1	eco2		3		1	27.25	14 03	6 24	0	2	2	2
1	eco2		3		1	24 68	13 54	5 91	0	5	1	2
1	eco2		3		1	12 95	8 42	1 86	0	5	1	2
1	eco2		3		1	19 32	11 49	5 34	0	2	2	2
1	eco2		3		1	17 02	9 43	5 23	0	2	2	2
1	eco2		3		5	14 85	11 05	3 75	0	2	2	1
1	eco2		3		1	19 93	9 59	1 83	0	5	1	0
1-5	E		4		1	19.39	15 81	7 13	0	2	2	1
1/2	A		3		1	12 01	27 94	3 86	0	4	2	3
1/2	A		3		1	20 85	19 77	5 08	5	1	2	3
1/2	A		3		5	13 36	16 64	10 46	0		2	
1/2	A		3		1	14 9	26 41	10 63	0	2	2	2
1/2	A		3		1	18 89	11 23	8.33	0	2	4	2
1/2	A		3		1	19 38	13 57	10 68	0	2	2	2
1/2	A		3		1	17 78	12 87	7 38	0	3	2	2
3	A		3		1	46 32	50 8	20.36	0	2	2	3
limpiez	C				1	35 75	29.22	15 67	20	2	2	3
8	C		2	limpieza mur	1	43 86	33.32	20 74	0	2	2	2
8	C		2	limpieza mur	1	12 8	15 18	4 32	0	4	2	1
3-3/3-2	A		1		1	15 41	18 16	6 88	0	3	2	3
3-1	C		3		5	15 84	22 62	10 21	0		2	
3-1	C		3		1	15 54	13 02	9 08	5	1	2	2
3-1	C		3		1	12 87	23 69	6 92	0	2	2	2
8	C		2		1	23 7	24 97	8 42	0	2	2	4
1-1	E		3		1	15 37	35 63	10 32	0	2	2	3
1/2	A		4	rasgo 2	1	15 42	13 46	5 74	0	2	2	3
1/2	A		4	rasgo 2	5	20 94	10 08	8 72	0		2	
1	B		1	fuera del mur	1	20 57	29 51	7 58	0	2	2	4
1	H		1		1	30 45	19 75	6 33	10	1	2	2
9	C		9		1	14 73	12 07	3 67	0	2	2	3
1-1/1-2	A	superficie			1	19 08	22 79	12 74	40	3	2	1
1-1	F		2		1	36 98	54.35	10.73	0	2	2	2
1-1	F		2		1	38 11	30 81	5 12	0	2	2	0
1-1	F		2		1	17.39	18 26	2 54	0	3	2	3
1-1	F		2		1	24 45	18 48	7 12	0	2	2	3
1	I		1		1	12 7	59 1	10 47	0	4	8	0
1	I		1		1	13 34	16 79	3 89	0	2	3	3
1	I		1		1	33 97	34 42	9 09	0	3	2	2
1	I		1		1	13 42	10 19	4 47	0	2	2	2
1	I		1		1	6 54	12.2	1 05	0	5	1	3
1	I		1		1	9 37	12 06	1 35	0	3	1	4
1	I		1		1	5 86	5 12	0 97	0	2	1	0
1	H		4		1	19 62	15 17	5 55	0	2	2	2
to1-AMP			1		1	17 22	15 99	3 18	0	4	1	3
5	C		4	rasgo 3	1	18 41	10 69	5 78	40	2	2	0
5	C		4	rasgo 3	5	9 7	8 93	6 61	0		2	
7-4	F		1		1	9 01	14 32	5 32	20	3	2	1
1-1	E		5		1	17 41	12.32	8 55	0	5	1	4
1-1	E		5		5	8 19	10 15	5 31	0		1	
1-1	E		5		1	17 97	5.21	4 72	0	5	1	2
1-1	E		5		1	21 77	18 62	13.35	0	2	2	4
19	B		3		6	9 4	15 83	3 92	0		2	0
19	B		3		1	9.58	16 68	1 59	0	2	2	0
19	B		3		1	13 09	8 34	3 87	0	2	2	2
19	B		3		1	15.27	3 63	2 6	0	2	2	3
19	B		3		1	13 88	13 34	6 44	0	2	2	1
15/16	A		3		1	15 89	24 98	11 96	0	3	2	3
15/16	A		3		1	19 54	13 93	3 57	0	2	2	2
15/16	A		3		1	15 85	17 02	7 31	0	3	2	5

Pataraya Debitage

lipieza	E	sur		1	14 25	24 11	5.28	0	2	2	1	
3-3	D		5 rasgo 1- nivel	1	28 6	18 16	5 59	0	4	2	1	
3-3	D		5 rasgo 1- nivel	1	9 53	16.29	15 39	0	2	2	1	
3-3	D		5 rasgo 1- nivel	1	17 1	27 88	6 1	0	5	2	1	pot lidding
3-3	D		5 rasgo 1- nivel	1	10 59	14 11	2 73	0	2	2	3	
2-3	A		1	1	24 08	17 66	4 08	0	3	2	1	
2-3	A		1	1	20 16	14 18	5 95	0	2	2	2	
2-3	A		1	1	12 02	8 58	5 23	0	2	2	2	
2-3	A		1	1	9 31	14 09	8 3	20	1	2	0	
2-3	A		1	1	10 04	6 86	4.32	0	3	2	1	
4	A		2	1	42 11	60 12	25 34	0	3	2	5	
4	A		2	1	54 22	29	21 33	0	2	2	3	
4	A		2	1	40 21	10 79	4 92	5	1	2	0	
9,10Y1	D		3	1	20 16	18 88	3.43	0	3	2	1	
9,10Y1	D		3	1	20 84	37 71	19 29	0	2	2	3	
9,10Y1	D		3	1	35 85	11 84	12 47	0	4	2	3	
4-3	A		6	1	9	15 02	2 05	0	2	2	0	
4-3	A		6	3	8.31	13.34	2 92	0		2	0	
4-3	A		6	1	18 47	10 19	3 47	0	4	2	3	
4-3	A		6	1	13 4	14 59	1 64	0	2	2	0	
4-3	A		6	1	12 62	16 45	2 01	0	2	2	0	
4-3	A		6	1	14 84	8 49	2 98	0	2	2	2	
4-3	A		6	1	7 55	17 41	3 96	0	5	2	4	
4-3	A		6	1	8 92	10 23	2 4	20	2	2	0	
4-3	A		6	1	28 45	10 45	6 97	20	2	2	0	
4-3	A		6	5	10	10 62	7.26	5		2		
4-3	A		6	1	10 18	16 77	12 18	0	2	2	2	
4-3	A		6	1	16 04	8 78	3 77	0	2	2	1	
7-1	E		5	1	28 1	22 5	9 81	0	2	2	2	
7-1	E		5	1	22 16	18 74	8 94	0	2	2	3	
7-1	E		5	2	18 86	23 7	9 69	0	2	2	3	
7-1	E		5	1	22 7	13 73	7 64	0	5	2	5	
7-1	E		5	1	20 48	20 17	9 35	0	2	2	2	
7-1	E		5	1	18.18	24 17	10 09	0	5	1	2	
1-1	E		4	1	16 9	17 75	4 71	0	2	2	2	
1-1	E		4	6	8.2	39 91	13.29	0		2	1	
1-1	E		4	5	15 61	17 44	6.28	0		2		
2-3-4-5	B		4	1	20 43	14 64	3 49	0	2	2	1	
2-3-4-5	B		4	1	13 8	19 87	5 8	0	2	2	1	
2-3-4-5	B		4	1	18 39	13 08	5 38	0	3	2	3	
2-3-4-5	B		4	1	13 61	20 09	4 74	0	4	2	1	
2-3-4-5	B		4	1	29 16	15 58	3 57	0	2	2	1	
2-3-4-5	B		4	1	11 17	24	6 12	0	3	2	0	
2-3-4-5	B		4	1	13 59	17 37	6 56	0	2	2	3	
2-3-4-5	B		4	1	19 51	21 37	4 76	0	2	2	1	
2-3-4-5	B		4	1	19 16	14	8 09	0	2	2	2	
2-3-4-5	B		4	1	22 01	15 82	10.23	0	3	2	1	
2-3-4-5	B		4	2	20 48	30.21	17 79	0	2	2	3	
2-3-4-5	B		4	1	14 74	14 83	8 87	0	2	2	2	
14	D		2	1	41 83	34 44	7 2	35	2	2	3	
14	D		2	1	26 03	23 18	10 71	0	3	2	3	
14	D		2	1	20 27	15 12	8 49	0	5	2	3	
14	D		2	1	20 51	17 68	6 76	0	2	2	1	
1-4	F		3	1	13.22	30.24	3 97	0	2	2	2	
1-4	F		3	1	10.21	15 11	10 6	0	3	2	3	
15	D		2	1	22 45	33.35	17.36	0	2	2	2	
7-4	F		2	1	16 68	25 01	3 16	0	3	2	0	
7-4	F		2	2	20 45	19 94	9 34	0	2	2	2	
7-4	F		2	3	9.27	15 71	2 42	0	2	2	0	

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7-4	F	2		1	15 93	16 89	11.23	0	2	2	2	
1-1	F	2		1	22 61	16 04	4 34	0	2	2	3	
1-1Y2-	D	1		1	19 05	23 09	7 2	0	2	2	2	
1-1Y2-	D	1		1	20 81	32.37	3 65	0	5	2	0	
14	D	1		1	19 46	11 41	5 75	15	1	2	1	
14	D	1		1	15.19	14 68	2 25	0	5	2	1	
14	D	1		1	44.09	17 19	10 74	0	2	2	2	
14	D	1		1	13 1	14 49	8 76	0	2	2	2	
limpiez	F		rasgo 1	2	18.2	23.21	16 13	0	2	2	2	
limpiez	F		rasgo 1	1	11 81	15 37	8 88	20	1	1	2	
limpiez	F		rasgo 1	3	11 94	18 55	3 1	0		1	0	
limpiez	F		rasgo 1	5	11 28	7 89	14 42	25		1		
limpiez	F		rasgo 1	5	6 72	3 17	7 7	0		1		
limpiez	F		rasgo 1	1	34 74	14 17	11 35	0	5	1	3	bipolar
limpiez	F		rasgo 1	1	35 14	23 4	5 24	15	3	1	1	
limpiez	F		rasgo 1	1	11 49	17 25	8.37	20	5	1	1	
limpiez	F		rasgo 1	1	9 47	22 25	6 97	20	2	1	0	
limpiez	F		rasgo 1	1	18 57	14 04	3 82	0	2	1	2	
limpiez	F		rasgo 1	1	15 07	2 92	7 13	0	5	1	0	
limpiez	F		rasgo 1	1	24 32	5 73	3.1	0	2	1	1	
limpiez	F		rasgo 1	1	13 88	11 85	6 74	0	2	1	2	
limpiez	F		rasgo 1	1	10 71	17 74	3 76	0	2	1	1	
limpiez	F		rasgo 1	2	19 46	6 44	5 16	0	2	1	1	
limpiez	F		rasgo 1	5	27 54	10 89	11 33	0		1		
limpiez	F		rasgo 1	1	11 14	8 97	8 41	0	2	1	2	
limpiez	F		rasgo 1	1	13 97	8.81	5 92	0	2	1	2	
limpiez	F		rasgo 1	1	13 1	5 78	5.21	35	1	1	0	
limpiez	F		rasgo 1	3	18 88	15 18	6 06	0		1	4	
limpiez	F		rasgo 1	5	15 66	19 87	10 06	0		1		
limpiez	F		rasgo 1	1	12 76	7 74	3 46	0	5	1	2	
limpiez	F		rasgo 1	2	13.26	10 53	5 83	0	2	1	1	
limpiez	F		rasgo 1	3	15.34	12 62	2 8	0		1	3	
limpiez	F		rasgo 1	1	10 98	15 77	1 72	10	1	1	0	
limpiez	F		rasgo 1	1	15 59	9 93	4 19	0	5	1	3	
limpiez	F		rasgo 1	6	10 16	9 47	2 54	0		1	2	
limpiez	F		rasgo 1	5	8 69	9 65	4 04	0		1		
limpiez	F		rasgo 1	1	9 47	6 74	3 47	0	5	1	3	
limpiez	F		rasgo 1	1	8 93	8 42	4.3	0	2	1	2	
limpiez	F		rasgo 1	1	7 36	7 94	6 8	0	2	1	0	
limpiez	F		rasgo 1	6	4 35	16 12	4.25	0	5	1	0	
limpiez	F		rasgo 1	1	18.81	4 14	2 4	0	2	1	0	
limpiez	F		rasgo 1	1	14 45	2.25	1 88	0	5	1	2	
limpiez	F		rasgo 1	1	13 83	3 73	5 6	0	5	1	3	
limpiez	F		rasgo 1	2	10.43	8 14	2.39	0	5	1	3	
limpiez	F		rasgo 1	3	7 7	8 7	2 22	0		1	1	
limpiez	F		rasgo 1	4	11 88	5.31	1 43	0	5	1	1	
limpiez	F		rasgo 1	3	4 74	12 66	3 14	0		1	2	
limpiez	F		rasgo 1	1	20 54	4.29	3.29	0	2	1	3	
limpiez	F		rasgo 1	1	12 74	3 6	3 14	0	2	1	2	
limpiez	F		rasgo 1	1	16.37	2 05	1 54	0	2	1	1	
limpiez	F		rasgo 1	5	5 49	8 18	1 57	0		1		
limpiez	F		rasgo 1	1	10 94	3 65	2 09	30	2	1	2	
limpiez	F		rasgo 1	5	3 26	6 26	1 84	0		1		
limpiez	F		rasgo 1	5	6 48	3 15	4 03	20		1		
limpiez	F		rasgo 1	1	7 67	2 21	1 19	0	2	1	2	

Pataraya Tools

Unit	E Arq	Capa/Nivel	Other Prove	Flake Type	Length(mm)	Width(mm)	Thickness(mm)	Cortex %	Platform	Material	# Dorsal Scars	flake scar/mm	Comments
1-1/1-2	A	2		1	11 17	13 81	2 02	5	1	2	3		Utilized along two margins
4-2	A	1		1	40 33	39 84	16 18	0	3	2	3		utilized along margin
4-2	A	1		3	18.22	29 04	14 64	0		2	2		utilized along one margin
4-2	A	1		1	20.2	19 38	5 59	0	2	2	3		utilized along one margin
4-2	A	1		1	20 01	11 96	3 52	0	3	2	3		utilized along one margin
1-1/1-2	A	3		1	41 65	22.25	8.35	0	2	2	1		utilization along one margin
1-1/1-2	A	3		1	27 75	26.2	5 76	0	5	2	0		utilized along one margin
1-1/1-2	A	3		1	16 01	19 95	7 15	0	2	2	3		utilized along one margin
1-1/1-2	A	3		1	17 86	13 79	3 63	0	2	3	1		small area utilized
1/2	A	4		1	66 29	35 36	20 56	0	2	2	4		utilized alone one margin
1/2	A	4		1	23 48	43 49	6 02	5	3	2	3		heavily utilized
1/2	A	4		1	34 13	26 58	8 66	0	2	2	4		Utilized along two margins
1/2	A	4		1	61 03	40.39	10 54	0	3	2	2		lightly utilized along one margin
1/2	A	4		1	18.22	34.85	3 13	0	2	2	0		lightly utilized along one margin
1/2	A	4		1	32 67	48 19	12 96	0	3	2	2		utilized alone one margin
1/2	A	4		1	20 01	18 33	5 88	0	2	2	2		utilized along one margin
1/2	A	4		1	20 98	24.16	8 48	0	2	2	3		Utilized along two margins
1/2	A	4		1	14 34	9 63	4 59	0	5	2	1		utilized along one margin
1/2	A	4		3	11.56	15 15	4 19	0	2	2	1		utilized along one margin
field trench 4				1	32 39	27 36	5 84	0		1		10/34 15	triangular projectile point, 102-3
field trench 4				2	41 81	39 22	19 73	0	2	2	1		utilized along two margins
1	ecoz	4		1	35 04	15	5 95	0		1		7/33 35	projectile point with snap fracture on tip, 104-105
1	ecol	1		1	15 48	35 77	8 95	0	2	3	1		utilized along one margin
1	ecol	1		1	28 81	13 95	4 25	0		1		11/25 84	projectile point with impact fracture on tip, 106-8
1	ecol	1		1	23 82	17 87	4 1	0	2	1			broken drill, 109-10
3-3	D	2		1	72.26	59 47	22.46	0	2	2	2		large flake heavily utilized along margins, ax?
2-3-4-5-6	B	1		1	14 16	12 57	1 85	0	2	2	1		utilized along one margin
7-8-9-10	A	1		1	19 72	16 2	8 94	0	2	2	1		utilized along one margin
7-8-9-10	A	1		1	19.34	15 65	5 94	0	2	2	2		denticulate margin with utilization wear
1-2	B	4		1	50 86	42 56	12 61	0	3	2	4		utilization along two margins
1	ecol	6		4	12 71	8 93	6 13	0		1			utilized alone one margin
2-3-4-5-6	B	2		1	17 03	22 12	7 71	0	3	1	3		utilized along two margins
1/2	A	5		1	8 84	12.09	1 22	0	5	1	1		utilized along one margin
1	H	3		2	18 7	32 61	4 44	0	4	2	1		utilized along one margin
3-3/3-2/3-1	A	superficie		1	60 2	32 57	7 38	0	3	2	3		utilized along all margins
5	C	3		1	12 99	21.28	4 07	0	5	2	2		Utilized along two margins
2	I	1Y2		1	37 58	20 13	7.2	0	2	2	2		utilized along two margins
4-3-2	C	1 (Limpieza inicial)		3	19 92	27 46	5 79	0	2	2	4		Utilized along two margins
4	C	2		3	31 16	19 3	5 34	0		2		10/21 04	retouch along margins
7-1	E	4		1	29 04	50.27	10 41	0	2	2	5		retouch/utilized along one margin
4	A	3		1	41.36	28 99	9.49	10	1	2	2		Utilized along two margins
4	A	3		1	60 7	21 04	12 87	0	2	2	2		utilized along one margin
4	A	3		6	16.39	11 44	1.83	15		1			utilized along one margin
1	B	3		1	13 79	39 94	5 93	0	2	2	2		utilized along one margin
1	B	3		2	7 08	14 7	3 52	0	4	2	3		utilized along one margin
1	B	3		2	18 89	28 48	4 29	0	3	2	3		utilized along one margin
3-2	F	2		1	27 62	31 56	6 82	0	2	2	5		utilized along three margins
3-2	F	2			58 32	24 81	7 98	0		1			projectile point with snap fracture on tip, 153-54
3Y2	C	2		1	13 62	11 83	3 2	0	2	2	3		utilized along one margin
3Y2	C	2		1	20.26	14 68	5 05	0	3	2	1		utilized along one margin
3Y2	C	2		1	19 39	16 12	3 59	0	2	2	2		utilized along one margin
3Y2	C	2		1	19 04	12 48	2 46	0	2	2	2		utilized along one margin
3Y2	C	2		1	8 37	21 41	16	0	3	2	1		utilized along one margin
3Y2	C	2		1	27 97	16 58	7 5	0	2	2	2		utilized along one margin
3Y2	C	2		1	15 48	15 63	13 07	0	1	2	2		utilized along one margin
3Y2	C	2		3	13 84	15 72	4 02	0		2			retouch along one margin, some utilization wear
3Y2	C	2		1	17 75	10.48	4 95	0	3	2	1		utilized alone one margin
1-4	F	2		1	40 14	26 46	8 15	0	4	2	3		Utilized along two margins

Pataraya Tools

1-4	F	2	6	26 68	13 41	5 49	0	2	2	1	Utilized along two margins
1-4	F	2	1	30 96	35 33	5 63	0	2	1		utilized along two margins, retouched on some edges, biface, 155-156
4	A	5	1	15 56	13 71	8 03	40	1	3	2	utilized along one margin
4	A	5	2	28 1	43 61	13 76	0	2	2	3	utilized along two margins
4	A	5	1	42 58	17 31	21 01	0	2	2	5	utilized along part of one margin
4	A	5	2	26	31.27	17 91	0	3	2	3	utilized along one margin
4	A	5	1	21 62	20 73	5 94	0	2	2	2	Utilized along two margins
7-5	E	4	2	28 25	36 99	12 97	0	2	2	3	utilized along one margin
7-5	E	4	1	28 68	14.29	23 14	10	1	2	2	Utilized along two margins, possibly an exhausted core
4	A	6	1	32 38	17 71	4 17	0	5	1	4	utilized along one margin
4	A	6	6	11 45	38 7	9 9	5		8		utilized along small area
4	A	6	3	27 11	21 01	8 55	0		1	2	utilized along margins
4	A	6	1	11 94	8 66	1.94	0	3	1	3	utilized along one margin
3	A	5	2	44 92	52 87	15,15	0	2	2	2	utilized along two margins
3	A	5	1	56 33	80 73	21 54	35	1	2	1	utilized along one margin
1-5	E	6	1	26 8	48 76	14 43	0	2	2	3	utilized along two margins
1-5	E	6	1	14 71	22 8	9 07	0	2	2	2	utilized along one margin
1-5	E	6	1	20 5	20 06	3 22	0	2	2	3	slight utilization wear along two margins
1-5	E	6	3	11 66	25 08	8 67	0		1	4	utilized along one margin
8	C	2 rasgo 1	1	14 24	34 38	8 66	0	3	2	2	utilized along one margin
8	C	2 rasgo 1	3	18 52	10.26	3.33	0		2	2	utilized along one margin
1-3	A	3	1	8 41	21 49	4 12	0	4	1	1	utilized along one margin
1-3	A	2	1	15.35	15.26	4 44	0	5	2	4	utilized along one margin
4	A	7	3	40 41	35.25	7 98	0		1		biface fragment with snap fracture on proximal end, 157-8
1	eco2	5	1	31 21	17 97	7 54	0	3	2	5	utilized along two margins
1	eco2	5	3	12 42	9 47	1 7	0		1	3	utilized aong one margin
1	eco2	5	3	14 18	14 91	4 93	0		1	2	utilized along one margin
1	eco2	5	5	16 67	40 64	20 5	0		2		utilized along two margins
1-5	E	5	1	34 81	22 82	8 3	0	2	2	3	utilized along two margins
1-5	E	5	3	22.21	25.37	6 94	0		1	5	utilized along three margins
1-5	E	5	1	13.27	7.22	4 14	0	2	2	1	utilized along one margin
9-10-11-12	D	2	1	15 37	10 7	5 48	10	1	2	0	utilization along one margin, pot lidding present
7-8-9-10	A	2	1	13 18	17 34	8 12	0	3	2	2	utilized along one margin
7-8-9-10	A	2	1	19.25	24 53	7 45	0	2	2	4	utilized along one margin
7-8-9-10	A	2	1	46 69	54 97	14 98	0	2	2	4	utilized along one margin
7-8-9-10	A	2	1	13 17	22 59	4 38	0	3	2	1	utilized along one margin
7-8-9-10	A	2	1	48 66	24 92	8 3	0	3	2	2	utilized along two margins
7-8-9-10	A	2	1	15 62	17 45	5 63	0	2	2	1	utilized along one margin
7-8-9-10	A	2	2	25 14	18 65	6 8	0	5	1	3	utilized along one margin
7-8-9-10	A	2	1	9 83	14 74	2 44	0	2	2	1	utilized along one margin
12	D	3	1	34 37	21 49	6 7	0	2	2	4	utilized along one margin
11-12-13-14	A	2	1	32 07	41 84	12 46	0	2	2		utilization along three margins with minimal retouch
1-2-3-4	D	2	1	13.35	11 53	3 75	0	3	1	2	utiliatation along one margin
5	C	2	1	25.92	23.75	9 64	0	5	2	1	utilized along one margin
8	C	4	1	23 27	37 44	9 58	0	2	2	1	utilized along one margin
4	A	4	1	36 42	26 76	9 85	0	2	2	3	utilized along one margin
4	A	4	1	28 76	35.38	6 7	0	2	2	2	utilized along two margins
4	A	4	6	11.24	31 64	4 52	0		1		biface fragment
4	A	4	1	46 66	38 12	17.37	0	2	2	2	utilized along one margin
4	A	4	1	22 6	44 13	16 56	0	3	2	2	utilized along one margin
4	A	4	1	22 87	15 35	4 15	0	2	2	1	utilized along one margin
4	A	4	1	13 42	15 23	3 66	0	5	2	1	utilized along two margins
4	A	4	3	19 93	12 07	9 17	0		2	4	utilized along one margins, some retouch
4	A	1	1	25 77	11 16	6 35	20	1	1	1	utilized along one margin
7-1	E	2	3	14	22 82	8 4	0	2	2	0	utilized alone one margin
7-1	E	2	1	17.2	17 46	6 03	5	1	1	2	utilized along one margin
4	C	2	1	14 51	16 47	3 98	0	2	2	0	utilized along one margin
4	C	2	1	26 41	36 74	13 57	0	2	2	2	utilized along two margins
1-2-3-4	D	3 trinchera III	1	16 02	23 4	4 48	0	2	1	3	utilized along two margins

Pataraya Tools

1Y19	B	3	1	34 5	15 4	9 67	0	2	2	1	utilized along one margin
1/2	A	rasgo 1	1	26 75	10 77	5 85	0	5	3	1	utilized along one margin
1/2	A	rasgo 1	1	28.34	16 63	5 62	15	1	1	1	utilized along one margin
1/2	A	rasgo 1	1	23 17	13 09	5 15	0	5	1	0	utilized along one margin
7-1	E	3	1	15 06	23.21	4 45	10	2	1	1	utilized along one margin
3-3/3-2/3-1	A	2	1	20 96	27 66	7 33	0	2	2	2	utilized along one margin
3-3/3-2/3-1	A	2	3	36.33	36 26	17 61	0		2	2	utilized along three margins, possibly an utilized core
7-5	E	5	1	39 32	28 56	8 47	0	2	2	0	utilized along one margin
15/16	A	1	1	16 72	14 87	4 23	0	2	1	2	utilized along two margins
15/16	A	1	1	23 58	15 59	9 25	0	2	2	1	utilized along one margin
1	eco2	3	1	33 38	29 88	13 05	0	4	2	3	utilized along one margin
1	eco2	3	1	53 15	43 1	20 07	0	2	3	3	utilized along one margin
1/2	A	3	1	19 92	15 34	7.35	0	2	2	1	utilized along one margin
1	H	1	1	34 79	21 03	6 71	0	2	2	3	utilized along three margins
1-1	B	2	1	13 85	9 39	3 49	0	2	1	1	utilized along one margin
1	I	1	1	9 79	11 66	1.93	0	5	1	4	utilized along one marign
1-1	E	5	1	15 66	30 18	2 82	0	2	2	1	utilized along one margin
2-3	A	1	1	22 78	37 7	7.5	0	3	2	0	utilized along one margin
2-3-4-5-6	B	4	1	26 79	32 49	13.22	0	2	2	3	utilized along one margin
14	D	2	1	20 28	8	5.47	0	2	2	5	biface frag
7-4	F	2	3	15 36	10 72	2 12	0		1	2	utilized along two margins
1-1Y2-1	D	1	1	28 06	26 42	7 31	0	2	2	1	utilized along one margin
limpieza de mu	F	rasgo 1	1	13.37	18 28	3 86	20	1	1	1	utilized along one margin
limpieza de mu	F	rasgo 1	6	21 87	7.33	2 82	0		1	3	utilized along one lateral margin
limpieza de mu	F	rasgo 1	1	10.95	28 86	4 54	0	2	1	4	utilized along one margin

Pataraya Cores

Unit	E Arq	Capa/Nivel	Other Prover	Flake Type	Length(mm)	Width(mm)	Thickness(mm)	Cortex %	Platform	Material	flake scar/mm	Comments
4	A	3	Rasgo 1		41.59	37 41	19.33	5		2		heavily used core
2-1	B	4			38 56	42 13	25 34	15		2		core with a few flakes removed, large impurities
1/2	A	5			40 89	29 98	19 5	0		2		Core with several flakes removed
1/2	A	5			24 27	26 99	15 41	0		2		Core w/several flakes removed
1/2	A	5			21 88	25 28	9 43	10		2		Core w/few flakes removed
5	C	3			31.29	42 93	17 64	15		2		Core w/few flakes removed
4-3-2	C	1 (Limpieza inicial)			21.27	37 84	17 95	0		2		core w/flakes removed
1-1	E	3			27 72	42 05	22 75	40		2		core w/flakes removed
3Y2	C	2			13 75	23 02	17 74	0		2		Core w/several flakes removed
3Y2	C	2			32 15	18.42	21 15	10		2		Core w/several flakes removed
3Y2	C	2			23 28	19 75	14 84	20		2		Core w/several flakes removed, evidence of use wear on two margins
4	A	5			14 74	25 01	12 7	0		2		exhausted core, burnt w/potlidding
7-5	E	4			22 43	17.29	15,93	0		2		Exhausted core
4	A	6			23 67	22 47	13 68	0		2		exhausted core
1-5	E	5			25 3	31 07	18 15	0		2		exhaused core, burnt, cracked
7-8-9-10	A	2			34.29	28 63	26 52	0		2		Core with several flakes removed
7-8-9-10	A	2			43 64	31 32	24 79	0		2		core with several flakes removed
3Y2	C	3			39 42	33 46	24 1	0		2		Core with several flakes removed
7-1	E	2			39 05	29 71	19 27	0		2		core with few flakes removed
7-1	E	2			13 08	24 19	22 91	0		2		exhausted core
4	C	2			24 81	13 64	19 25	0		2		core with several flakes removed
4	C	2			17 17	15 03	12 58	0		2		core with several flakes removed
4	C	2			14,36	15 42	13 53	0		2		core with several flakes removed
4	C	2			13 07	18 28	10 51	0		2		exhausted core
4	C	2			29 1	21 35	17 85	0		2		Core with several flakes removed
7-1	E	3			22 74	35 88	14 26	0		2		core with a few flake scars present
7-1	E	3			23 55	17 78	22 83	0		2		Core with several flakes removed
1-5	E	4			65 79	45 97	37 4	0		2		Core with several flakes removed
1/2	A	3			30 16	36 46	20 07	5		2		Core with several flakes removed
limpieza de muro	F		rasgo 1		40 81	36.35	19 71	5		1		core wth several flakes removed
limpieza de muro	F		rasgo 1		31 89	28 15	13 52	15		1		Core with several flakes removed
limpieza de muro	F		rasgo 1		34 4	30 44	15 63	25		1		core with few flakes removed
limpieza de muro	F		rasgo 1		26 4	20 97	11 42	0		1		exhausted bipolar core

Works Cited

Alvarado, Luis A.

2007 "Proyecto Arqueológico La Tiza 2006". Manuscript on file, anthropology department Texas State Univerity, San Marcos, Texas.

Andrefsky, William Jr.

1994 Raw Material availability and the Organziation of Technology. *American Antiquity* 59:21-35.

2005 *Lithics: Macroscopic Approaches to Analysis.* 2nd ed. Cambridge Manuals in Archaeology. Cambridge University Press, Cambridge.

Burger, Richard L., Frank Asaro, Guido Salas, and Fred Stross.

1998a The Chivay Obsidian Source and the Geological Orgin of the Titicaca Basin Type Obsidian Artifacts. *Andean Past* 5:203-223.

1998b The Alca Obsidian Source: The Origin of Raw Material for Cuzco Type Obsidian Artifacts. *Andean Past* 5:185-202.

Burger, Richard L. with Katharina J. Schreiber, Michael D. Glascock and José Ccencho

1998c The Jampatilla Obsidian Source: Identifying the Geological Source of Pampas Type Obsidian Artifacts from Southern Peru. *Andean Past* 5:225-239.

Burger, Richard L. with Michael D. Glascock

2000 Locating the Quispisisa Obsidian Source in the Department of Ayacucho Peru. *Latin American Antiquity* 11:258-268.

Conlee, Christina A.

2003 Local Elites and the Reformation of Late Intermediate Period Sociopolitical and Economic Organization in Nasca, Peru. *Latin American Antiquity* 14:47-65.

2006 Regeneration as Transformation: Postcollapse and Regeneration in the Southern Peruvian Andes. In *After Collapse the Regeneration of Complex Soceities*. Editors Glenn M. Schwartz and John J. Nichols. University of Arizona Press Tucson.

2007 Decapitation and Rebirth: A headless Burial from Nasca Peru. *Current Anthropology* 48:438-445.

2010 Nasca and Wari: Local Opportunism and Colonial Ties during the Middle Horizon. In *Beyond Wari Walls: Exploring the Nature of Middle Horizon Peru away from Wari Centers*, edited by Justin Jennings, University of New Mexico Press, in press.

Conlee, Christina A. Michele R. Buzon, Aldo Noriega Gutierrez, Antonio Simonetti and Robert A. Creaser

2009 Identifying Foreigners versus Locals in the Burial Population of Nasca, Peru: An Investigation Using Strontium Isotope Analysis. *Journal of Archaeological Science* 36:2755-2764.

Crabtree, Don E.

1972 *An Introduction to Flintworking*. Occasional Papers of the Idaho State University Museum, 28:1-97.

Cuadrado, Johny Isla

2009 From Hunters to Regional Lords: Funerary Practices in Palpa Peru. In *New Techologies for Archaeology: Multidisciplinary Ivestigations in Palpa and Nasca, Peru.* Editors Markus Reindel and Güther A. Wagner. pp. 119-140. Springer, Berlin.

Edwards, Matthew James, Francesca Fernandini Parodi, and Grace Alexandrino Ocaña

2009 Decorated Spindle Whorls from Middle Horizon Pataraya. *Nawpa Pacha* 29:87-100.

Eitel, Bernhard and Bertil Mächte

2009 Man and Enviroment in the Eastern Atacama Desert (Southern Peru): Holocene Climate Change and Their Impact on Pre-Columbian Cultures. In *New Techologies for Archaeology: Multidisciplinary Ivestigations in Palpa and Nasca, Peru*, Editors Markus Reindel and Güther A. Wagner. pp. 17-38 Springer, Berlin.

Glascock, Michael D. with Robert J. Speakman and Richard L. Burger.

2007 Sources of Archaeological Obsidian in Peru: Descriptions and Geochemistry. *Archaeological Chemistry* Editors Michael D. Glascock, Robert J. Speakman, Rachel S. Popelka-Filcoff. pp.522-552. American Chemical Society

Goodyear, Albert C.

1993 Tool Kit Entropy and Bipolar Reduction: A study of Interassemblage Lithic Variability Among Paleo-Indian Sites in the Northeastern United States. *North American Archaeologists* 14:1-23

Hayden, Brian

1980 Confusion in the Bipolar Wrold; Bashed Pebbles and Splintered Pieces. *Lithic Technology* 9:2-7.

Isla, Johny.

1990. La Esmeralda: una ocupación del períod arcaíco en Cahuachi, Nasca. *Gaceta Arqueológica Andina* 4(20), 67-80.

Moseley, Michael Edward

1975 *The Maritime Foundations of Andean Civilization.* Edited by C.C. Lamberg-Karlovsky and Jeremy A. Sabloff. Cummings Publishing Company, Menlo Park, California.

2001 *The Inca and their Ancestors: The Archaeology of Peru.* Thames and Hudson Ltd, London.

Paul, Anne

1991 *Paracas Art and Architecture*. University of Iowa Press, Iowa City.

Proulx, Donald

2006 *A Sourcebook of Nasca Ceramic Iconography: Reading a culture through its art.* University of Iowa Press, Iowa City.

Rowe, John H.

1967 Stages and periods in archaeological interpretation. In *Peruvian Archaeology: Selected Readıngs*. Edited by J.H. Rowe and D. Menzel, Pek Publications, Palo Alto, CA:1-15.

Schreiber, Katharina J.

2001 The Wari Empire of Middle Horizon Peru: The Epistemological Challenge of Documenting an Empire without Documentary Evidence. In *Empires*, edited by Susan E. Alcock, Terrence N. D'Altroy, Kathleen D. Morrison and Carla Sinopoli, pp. 70-92. Cambridge University Press, Cambridge.

2005 Imperial Agendas and Local Agency: Wari Colonial Strategies. in *The Archaeology of Colonıal Encounters: Comparative Perspectives*. Editor Gil J. Stein. School of American Research Press Sanata Fe.

Schreiber, Katharina and Josué Lancho Rojas

2003 *Irrigation and Soceıty in the Peruvıan Desert: The Puquios of Nasca*. Lexington Books, New York.

Silverman, Helaine

1996 The Formative Period on the South Coast of Peru: A critical Review. *Journal of World Prehistory* 10:2.

Silverman, Helaine and Donald Proulx.

2002 *The Nasca*. Blackwell Publishers, Oxford.

Shott, Michael J.

1989 Bipolar Industries: Ethnographic Evidence and Archaeological Implications. *North American Archaeologist* 10:1-24

Unkel, Ingmar and Bernd Kromer

2009 The Clock in the Corn Cob: On the Development of a Chronology of the Nasca Style Pottery from Palpa. In *New Techologies for Archaeology: Multidisciplinary Ivestigatıons ın Palpa and Nasca, Peru*. Editors Markus Reindel and Güther A. Wagner. pp. 231-244 Springer, Berlin.

Van Gijseghem, Hendrik
2006 A Frontier Perspective on Paracas Soceity and Nasca Ethnogensis. *Latin American Antiquity* 17:419-444.

Vaughn, Kevin J. and Michael Glascock

2005 Exchange of Quispisisa Obsidian in the Nasca Region: New Evidence from Maracaya. *Andean Past* 7:93-110.

Vaughn, Kevin J. and Moisés Linares Grados

2006 3,000 Years of Occupation in Upper Valley Nasca: Excavations at Upanca. *Latin American Antiquity* 17:595-617.

Vaughn, Kevin, Chrisina A. Conlee, Hector Neff, and Katharina Schreiber.

2006 Ceramic Production in Ancient Nasca: Provenance analysis of pottery from the Early Nasca and Tiza cultures through INAA. *Journal of Archaeological Science* 33:681-689.

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