Rethinking the Andes–Amazonia Divide
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Both the archaeological and genetic evidence reveals that humans migrating from North America colonized South America (Dillehay 2009; Meltzer 2009). The latest archaeological data suggests that the earliest populations moved along several probable entry and dispersal routes: down the Pacific coastline, down the spine and throughout the lateral valleys of the Andes, and along the Caribbean and Atlantic sides of the continent, with occasional movement into the deeper interior environments (see Figure 2.1.1; Rothhammer and Dillehay 2009).

The evidence also indicates that people had arrived in South America by at least 15,000 years ago (all ages are calibrated). The presently available radiocarbon dates for sites across the continent do not suggest a particular dispersal rate; nor do they necessarily imply the initial appearance of people in each region. Instead, they indicate a record of demographic growth. Although sparse, the genetic and human skeletal records also document human demography and, along with the archaeology, suggest some of the conditions and complexities of that growth. Collectively, the data suggest that dispersal was a slow, prolonged, complex process with multiple colonizations of many different regions, probably with some environments (for example, high Andes, dense humid forests) never fully settled on a permanent basis due to less productive resources or difficult climatic conditions, at least during the Terminal Pleistocene period (~15,000–10,000 cal BP). Others, such as the coastlines and major river valleys, appear to have continuously supported human populations since the outset of human entry. This essay briefly discusses current evidence for the demographic relationships and cultural transmissions among different culture areas in the north and central Andes and the eastern tropical lowlands from approximately 14,000 to 5,000 years ago. The focus is primarily on the intervening corridors between these two broad regions, which currently have a paucity of reliable early archaeological, skeletal and genetic evidence. In order to understand the types of contacts and relationships that might have occurred...
during this early period, this chapter aims to project from the better-known records of adjacent regions to hypothesize the long-term relationships within and across these corridors.
Terminal Pleistocene and Early Holocene: ~15,000–8000 cal BP

While culture areas changed over time and were certainly different in the terminal Pleistocene, the continent was also ecologically different than it is today (Clapperton 1993; cf. Netherly 2011a). Geography and biota, which were changing dramatically in some environments during this period in response to the glacial and interglacial periods in parts of the Andes, would have shaped some human movement into some areas, especially through mountain passes from one side of the continent to the other. As a result of major environmental and climatic changes, some plant and animal communities were altered considerably throughout this period. For instance, the tropical rainforest of the Amazon basin was generally less dense and characterized by patchy parklands and savannahs. The middle Holocene climatic information (~8000–4000 cal BP) demonstrates a greater stability and more modern-day environments than the earlier periods (Bush et al. 2011; Mayle and Power 2008), but due to gradual population increases in hunter-gatherer and incipient farming communities over time, minor changes such as prolonged local droughts or excessive flooding during El Nino years probably had major effects on the distribution of sites, their size and duration of occupation, and ultimately their preservation and archaeological visibility. For instance, long-term drought may force some local groups to migrate to more productive areas or to stay for shorter periods of time in one locale, either creating a brief hiatus in the local archaeological record or resulting in smaller campsites with less cultural debris left behind, respectively.

Some forms of hunter-gatherer social and economic behaviour are inferred from a few documented archaeological site locations, sizes, and internal features (for example, León Canales 2007; Schmidt Dias and Bueno 2014). But the fundamental archaeological data provide only insights into certain aspects of the economy and technology of these people and suggestive hints as to how they might have interacted with each other and with their environments. In this regard, site distribution, preservation and visibility are major factors that shape the current archaeological and human skeletal evidence available for reconstructing the early prehistory of the continent. But in many regions, such as the Amazon basin and the high mountain valleys of the northern and central Andes, this evidence is very scarce. For instance, what is known of the late Pleistocene of the northern half of the continent is derived from a handful of reliably 14C-dated archaeological sites, and most of these are along the Pacific coastal plains of Peru and north Chile, in the major river valleys of the western and central Andes, and in parts of far eastern Brazil (Léon Canales 2007; Dillehay 2000; Lourdeau 2015; Schmidt Dias and Bueno 2014; and see also Chapter 4.4 for Llanos de Mojos, Bolivia). Unfortunately, those areas most crucial for understanding early east-west contacts and especially the later cultural transmission of ideas and goods between the Andes and the eastern lowland tropics are the least known. Specifically, these are the far western fringes of the Amazon basin, the northern rim of the continent (today where
Venezuela and the Guyanas are located), the western tropics of Colombia, Ecuador and northern Peru that front the Pacific Ocean, and the lower eastern slopes and foothills of the Andes from Colombia to north-west Argentina. The existing data suggesting connections among these regions primarily come from genetic affiliations based on present-day blood groups of living Native Americans and on human skeletons from a few archaeological skeletons of the early Holocene period (for example, Barbieri et al. 2014; Rothhammer and Dillehay 2009) as well as the presence of a few diagnostic projectile points and other stone tools.

A problem with early diagnostic lithic assemblages, however, is that the more widespread projectile point classifications are often ill-defined, overlapping, and in some cases – such as the Fishtail and stemmed Paijan point types (Figure 2.1.2) – vary appreciably in spatial extent and duration.

The present distribution patterns of these and other point types reflect more information about sampling biases than technological trends. Given that the Fishtail point, for example, was one of several early contemporary types, potentially recognizable patterns distinguishing its regional technological traditions should be detected in subsistence and settlement, site distributions, and typology wherever such traditions existed. But they are little understood in most regions and presently non-existent in the intervening corridors between the Andes and the Amazon. The problem is that so few sites have been excavated

![Fishtail Points ~11,200-10,500 BP](image)

![Paiján points ~10,800-9,800 BP](image)

**Figure 2.1.2** Fishtail projectile points from northern Peru dated around 11,200 BP (Dillehay 2011: courtesy of G. Maggard).
and analysed in detail, not only across the continent but especially in the intervening regions, that hardly any data are available on chronology, genetic, technological, subsistence and settlement patterns. Moreover, point styles and other diagnostics do not represent people and their movements and relationships. Nor do they provide geographical vectors or causes and effects of human movements and contacts. At best, they reveal temporal and spatial markers, the diffusion of technological styles.

Furthermore, as yet, Fishtail and other diagnostic artefact types have not been documented in the Amazon basin and the corridors between the east and west (although most major drainages run west to east in these corridors), but given their ubiquity in neighbouring areas such as semi-tropical northern Uruguay and south-east Brazil around 10,500 BP (for example, Suárez 2015), it is likely only a matter of time before they are found in these areas. Their presence would help fill temporal and spatial lacunae as well as inform us of early techno-environmental adaptations. Unifacial lithic industries across the northern half of the continent are also significant. Although ubiquitous in many regions, they are not as diagnostic as projectile points and generally provide less information about early technologies, economies, and lifestyles in general. An exception may be the limace, an elongated, multi-purpose unifacial tool present throughout many regions, suggesting it spread early during the transition from the Pleistocene to the Holocene period (for example, Lourdeau 2015). Again, little is known about the conditions and types of sites associated with the diffusion of this and other tool types and, above all, of the specific kinds of societies producing them and of their demographic and subsistence patterns.

We can thus only surmise that the first people in the intervening corridors were generalized hunters and gatherers whose mobility allowed them to adapt to changing environmental challenges at the end of the Pleistocene and the beginning of the Holocene period. Perhaps once certain levels of demographic density were reached in the early to middle Holocene, exchange networks were established along accessible routes of movement and communication, probably large river basins, through which certain ideas, resources (for example, food crops), and technologies spread. These developments were probably more consistent and accentuated in more productive environments such as the coastlines, lacustrine and riverine systems, and some of the richer forest habitats (for example, seasonally dry forests).

**Incipient farming**

It is becoming clear that the consistent use of several productive environments such as the seasonally dry tropical forests in the north-west Andes and in parts of the Amazon basin played an important role in the appearance of early hunter-gatherer social and economic complexity. For instance, recent genetic and
archaeological studies inform us that the wild ancestors of many staple crops are native to the varied seasonally dry forests in the northern Neotropics of the continent, in Colombia, Ecuador and the north-west Amazon (Piperno 2007, 2011a). More so than projectile point styles and genetic linkages, it is perhaps food crops that best suggest human movement across the northern half of South America and/or systematic short-distance, down-the-line exchange of ideas and goods from one group to another during the Terminal Pleistocene to the middle Holocene period (~8000–4000 cal BP). More systematic long-distance exchange is probably less likely during this period because socio-economic networks would have required a certain density of the human population across several contiguous environments and less mobility among them in order to have established and sustained semi-permanent to permanent nodes of contact and exchange. It is thus more likely that ideas and goods spread during the terminal Pleistocene and early Holocene as a result of the migration of people, and those people in contact with a few more territorially based groups in richer environments. More permanent exchange networks probably developed during the early to middle Holocene period, also the time when exotic crops from the tropical lowlands, such as squash, peanuts, and chilli peppers, began to appear in the distant areas such as regions of western Ecuador and northern Peru (Pearsall 2003; Piperno 2011a; Piperno and Dillehay 2008).

For this early period, there is only scant evidence of plant foods that survive in the archaeological record. In localities where organic remains are preserved, there is good macro-botanical evidence (for example, burned seeds) of the cultivation of squash (*Cucurbita moschata*) in Colombia, Ecuador and Peru by at least 10,000 BP (Piperno 2011a) and the use of palm nuts (*Arecaceae* sp.) and other plants in Colombia by 9200 BP (Gnecco and Mora 1997). At the end of the Pleistocene, when climate conditions were generally warmer and more stable, current evidence indicates that intentional plant manipulation was underway in a few areas, but primarily in the Neotropics of north-west South America (Pearsall 2003; Piperno 2007, 2011a; Piperno and Dillehay 2008). Much of this manipulation can probably be attributed to the mobility of early hunters and gatherers, either through deliberate migration from one habitat to another or simply opportunistic exchange between groups occasionally coming into contact with one another.

The only early known Terminal Pleistocene site in the high-altitude corridor between the Andes and the eastern lowlands is Manachaqui Cave in the Chachapoyas area, which has calibrated $^{14}$C dates between 12,200 and 11,900 cal BP. These dates are associated with stemmed point types similar to the Paijan style on the north coast of Peru and in highland Ecuador and with Manachaqui and other points possibly of types representing early lithic styles from the eastern slopes of the northern Andean. As Church notes, ‘great stylistic variability suggest that more than one transient population used the cave’ (Church and von Hagen 2008, 907–8).
Genetic and craniometric evidence

Although not directly pertinent to the Terminal Pleistocene period, the continent-wide bioanthropological information on interregional human contact and movement is inferred from genetic and craniometric studies. Several studies of genetic variation among living Native South Americans (cf. Wang et al. 2007; Lewis et al. 2007; Nakatsuka et al. 2020) have suggested east-to-west differences in genetic diversity, showing that eastern Brazilian populations had slightly lower levels of heterozygosity. (This pattern was also observed earlier with Y-chromosome markers [Tarazona-Santos et al. 2001; Llamas et al. 2016]). If Brazil and the Amazon basin generally exhibit the lowest levels of genetic variation, this might suggest an initial colonization of western South America and perhaps a subsequent peopling of the eastern part by western subgroups, even though both were probably derived from the same founder population. There also might have been two or more migrations inhabiting these regions at different times, but from the same founder group. These patterns are only suggestive at this time because there are sampling problems with these studies; in short, more data are needed from more regions to confirm these and other patterns.

We also must keep in mind that the current genetic record is based on a very small sample of ancient skeletal material, most of which is derived from early to middle Holocene skeletons. These later remains do not represent the first Americans; they are descendants removed by at least 450 generations, during which time many processes could have altered the genetic record. This is not to say that these records do not reflect some early genetic and morphological traits. Rather, they are useful for suggesting some of the continuous and transformational processes of demographic exchange among different east and west groups over extended time and space, and how these processes might have added or reduced variation in the sampled populations.

The possibility of two distinct and chronologically separate populations entering South America also is suggested in the early to middle Holocene skeletons, where more narrow and long, prognathic faces generally occur in the west and more short and wide, orthognathic faces generally are in the east (Neves et al. 2007; González-José et al. 2008). These regional differences generally agree with the genetic evidence, which also suggests some differences between the east and west. It is not known whether this pattern is best explained by genetic drift, by the division of a single founder population after people first entered the continent (that is, the founder effects in two different colonizing groups splitting east and west), by geographic isolation, or by selection. Geographical barriers of the Andes and the Amazon basin may have contributed to some skeletal differences and to discontinuous and continuous connections, as well as regional population dynamics and socio-cultural patterns. Variation in the early skull forms could also be indicative of climatic adaptations more than genetic signals, or of gene drift and adaptations to local evolution after the first people arrived and then spread out.
over the continent. Whatever the reasons may be, the data reveal some variation in early crania morphology, and like the genetic data, only suggest at this time the possibility that separate migrations took place into or within the continent perhaps from different source areas, or that the first immigrants were already heterogeneous at the time of entry and dispersal from east to west or vice versa, or that there was simultaneous entry into both sides of the continent.

The archaeological record of the early Holocene (~10,000–8000 cal BP) generally agrees with the patterns produced by the genetic and cranial studies, suggesting that the east and west sides of the continent have different chronologies of human dispersion, albeit also connected both in early times and continuously connected throughout prehistory. Yet, during this early period, there is no combined archaeological, genetic, and skeletal evidence to suggest a continuous one-way direction of genes, ideas, peoples or goods between the east and west. If anything, the movements are two-way or multiple ways through time and space. As mentioned above, patterns drawn from the current evidence probably relate more to sampling biases than to widespread demographic and cultural trends.

**Early to Middle Holocene**

Between ~10,000 and 8000 BP, there is a more complete archaeological record to draw from for reconstructing past contacts and relationships. Early Holocene foragers continued many of the patterns that characterized the previous period, although there were changes in the social, demographic, and economic organization. In the Andes, from ~10,000 to 7000 BP, there is evidence for more socially complex foragers practising a broad-spectrum economy that included gardening and food production, living in semi-permanent to permanent households (Lavallée 2000; Dillehay 2011). In the tropical lowlands mixed economies of foragers are evidenced at several early sites (Bueno et al. 2013; Lourdeau 2015; Kipnis 1998). There also is archaeological evidence that early Holocene groups began to become less mobile, aggregate, establish more permanent camps and manipulate environments to their benefit along major rivers, in coastal bays and near active springs. Examples are in the north-eastern lowland tropics at sites like Peña Roja in Colombia (Gnecco and Mora 1997), possibly in the eastern Amazon basin (Roosevelt et al. 1996), at several sites of the Nanchoc Valley in northern Peru (Dillehay 2011), and at the Las Vegas II site in south-west Ecuador (Stothert et al. 2003). These and other sites were more localized, as indicated by the presence of local lithic raw material and by various floral and faunal foods indigenous to the local environments. The populations occupying these sites also established more permanent settlement nodes and probably places of down-the-line exchange of plant foods and other items. This becomes more evident after 8000–6500 BP when more exotic crops begin to appear in the archaeological record of sites such as Las Vegas II in south-west Ecuador, at Paredones and Huaca Prieta on the desert coast of north
Peru (Dillehay et al. 2012), and slightly later at a few Chinchorro sites on the hyper-arid north coast of Chile (Marquet et al. 2012), environments far distant from the wet tropics where most of these crops were likely first domesticated.

More specifically, some of the major species exchanged long distances during this period are manioc, sweet potato, peanuts, squash, avocado, palm, potato, common and lima beans, quinoa, chilli peppers, maize, cotton, coca, tobacco, and others (Piperno 2011a), many of which were likely derived from the western Amazon basin. Squash from Colombia and peanuts from south-eastern Bolivia moved into northern Peru by 10,000 and 9000 BP, respectively. Manioc from the eastern tropical lowlands occurs there by about 7000 BP; it is present in central Panama at about 7600 BP. Chilli peppers were dispersed from western Amazonia by at least 9000 BP. Maize from Mexico spread into lower Central America by 7600 BP and moved into Colombia by 7000 BP and Peru by 6500 BP (for example, Chapter 3.6). These and other plant foods suggest north to south, south to north, and east to west long-distance movements of crops, most probably originally from the eastern Andean valleys or western Amazonia. But these developments were not taking place everywhere, as evidenced by our study of numerous sites in multiple ecological zones in the Nanchoc and nearby valleys (Dillehay 2011).

The introduction of non-native plants into regions on the western side of the Andes suggests that the maintenance of widespread interregional communication channels probably fulfilled the important adaptive and economic task of keeping up reliable networks for accessing exotic food crops. Furthermore, the configuration of these routes, whether along major rivers, coastlines, and/or mountain passes, would have required the maintenance of contact points and interaction spheres along major lowland rivers and on either side of the Andes and up and down the Pacific coast. Not known is whether this contact was direct by long-distance exchange, indirect by down-the-line exchange, or both. It can be surmised that most of these crops were probably diffused throughout a vast geographic network of social and economic interaction along down-the-line exchange routes as well as some migration that connected the tropical lowlands both east and west of the Andes and the coasts of Colombia, Ecuador, Peru and Chile. It is important to keep in mind that the tropical forests of western Colombia down to northern Peru could have provided many of the same plant foods and other items (for example, bird feathers, jaguars, harpy eagles) found on the eastern side of the Andes. One must remember that southern Ecuador and northern Peru, as well as other geographical areas in Colombia and northern Ecuador (see Figure 2.1.1), represent the narrowest and lowest areas of the Andean mountain chain (Chapter 2.4). The eastern side of northern Peru is where the Marañón River flows down into the Amazon basin. Yet, on the other hand, even the opposite type of terrain – high and wide mountains such as those in the south-central Andes – may not have been much of a geographic impediment to long-distance exchange because tropical bird feathers and seeds are present in tombs of the late Chinchorro culture around 5,500 years ago.
(Rivera 1974). It is possible that these items were obtained via north-to-south down-the-line exchange along the Pacific coast.

Epilogue

It seems that we often forget the long-term persistence of widely ranging, highly mobile foragers and hunter-gatherers during the long time span from the Terminal Pleistocene to the middle Holocene, and specifically their continued presence alongside and beyond areas later inhabited by early farmers, fishers and pastoralists, and the continued role they played in dispersing ideas, people, economic plants and other resources. As part of this persistence, the unevenness with which early stone tool industries and the first cultigens spread throughout the continent provided opportunities for foragers and non-foragers to strike a variety of early, short- and perhaps long-distance down-the-line exchanges with each other across multiple ecological zones stretching from the Pacific coast to the Amazon basin. Whatever the cause and effect of these contacts and movements, they must have been multi-directional, forming mosaics of many different types of early exchange patterns and cultural transmissions from north to south, south to north, and especially from the Andes to Amazonia and from Amazonia to the Andes and the Pacific coast among many different kinds of societies. These and other transformations provided some of the earliest demographic and economic foundations for the subsequent development of early Andean and Amazonian civilizations.