It is today increasingly accepted that by the early sixteenth century, when Europeans first reached the area, the Amazon basin was filled with people, (Heckenberger and Neves 2009; Roosevelt 2013) and that the current composition of Amazonian biomes derives at least partially from past pre-Columbian indigenous agency (Balée 2013; Ter Steege et al. 2013; Levis et al. 2017). Yet there remains much uncertainty about the patterns of social and political organization of the people settled along the major Amazonian floodplain and the uplands of the basin at that time – and, indeed, in the deeper past. In the 1990s, scholars proposed that some of these societies, such as those of Marajó Island at the mouth of the Amazon, were strongly hierarchical and stratified, with economies based on the intensive cultivation of crops such as maize (Roosevelt 1991). However, as research has continued in these areas and elsewhere, the role of agriculture as the major productive activity of ancient Amazonian societies has begun to be questioned, because of a lack of evidence for the intensive cultivation of crops such as manioc and maize, in sites mostly along the main course of the Amazon (Fernandes Caromano et al 2013; Hermenegildo et al. 2017; Meggers 2001; Neves 2008; Schaan 2008). On the other hand, evidence from areas upstream, far from the main Amazon channel, suggests a broad and diversified pattern of social economic organization for Amazonia more widely. Such evidence includes investment in constructing earthworks and mounds in the coastal plains of French Guiana (Rostain 2013), the upper Acre basin (Pärssinen et al. 2009; Saanaluoma and Schaan 2012; Saanaluoma 2012; Saanaluoma et al. 2018), and the Llanos de Mojos of Eastern Bolivia (Carson et al. 2014; Erickson 2000a; Prümers and Jaimes Betancourt 2014a); and the creation of a road network establishing a loose, low-density urban pattern in the upper Xingú (Heckenberger 2005; Heckenberger et al. 2008).

Such a wide array of new data demonstrates that there was no single economic and political pattern for ancient Amazonians. This marks a significant departure from how the debate was conducted over much of the second half of the twentieth century by authors such as Lathrap (1968 a and b) or Meggers
In which discussion revolved around refinements to the so-called ‘tropical forest pattern’, originally defined by Robert Lowie (1948). Notwithstanding the importance of these contributions, the realization that Amazonian societies were economically and politically much more diversified in the past makes sense when one examines the similarly varied patterns of language diversity found among current Amazonian indigenous societies (for example, Chapter 3.4). For the Amazon and Orinoco basins, there are more than 300 languages included in over 50 ‘genealogical units’: language families or isolates for which no relationship to any other language has been demonstrated (Epps and Salanova 2013, 1). Many of these languages are disappearing at a fast pace. Across the world, scholars have argued that, up to the beginnings of the European expansion into the Americas, Africa, Asia and Oceania in the modern era, there was some correlation between past subsistence patterns and the distribution of major or hypothesized language families (Ammerman and Cavalli-Sforza 1984; Renfrew 1987), in a history that in some cases may go back to the beginnings of agriculture. Briefly, they suggest that such ancient economic patterns relate to the initial adoption of agriculture and the population growth that followed, leading to the demographic and geographic expansion of certain groups speaking genealogically related languages from an initially localized homeland. Such farming language dispersal processes may, for instance, lie behind the expansion of languages of the Indo-European family into both Europe and India (Renfrew 1987), as well as that of Austronesian languages in Polynesia (Bellwood 2005). In Amazonia, quite to the contrary, the lack of any single economic package may be one of the underlying reasons for the significant degree of language diversity found there. Indeed, with the exception of the Arawak and Tupí families1 most of the other language families of the Amazon seem to have a localized distribution within particular areas of the basin, sometimes in a positive correlation with distinct geographical areas, such as, for instance, Carib languages and the areas around the Guiana Plateau.

These ideas will be briefly discussed in this chapter. Its underlying thesis is that despite the genetic, botanical and archaeological evidence showing that ancient Amazonian and Andean societies were connected throughout their histories (Valdez 2008; Chapter 2.4), the sharply distinctive ecological and geographical contexts – on the one hand, the markedly circumscribed valleys of the dry Pacific coast and Central Andean highlands; on the other hand, the extensive floodplains and uncircumscribed and ecologically diversified tropical Amazonian lowlands – created at the outset conditions for very distinct economic and political trajectories to emerge in the long-run (cf. Chapters 1.1 and 3.1).

The recognition that highland and lowland societies were politically different is hardly new, and it sustained comparative research in South American archaeology in the twentieth century (Steward 1948; Chapter 1.1). The main difference from traditional approaches in the hypothesis presented here is that the opposition between highlands and lowlands has traditionally been constructed from a perspective that accorded the former the role of centre of cultural innovation for the whole continent, whereas the latter was relegated to the status of recipient of such
innovations. I will try to briefly show that despite the evidence of mostly political differences in the histories of ancient highland and lowland societies, there is nothing in the archaeological record that supports the notion the tropical lowlands were marginal backwaters in the deep history of South America. By political differences I mean to say that the state never evolved in the Amazon as it did in the Andes at least from the Middle Horizon onwards.

Likewise, I will try also to show that the picture of language and cultural diversity currently found among native Amazonians is probably the outcome of a long-term process of occupation and management of productive environments in the lowland tropics that started at the very outset of the human occupation of South America and that favoured, in the long run, the development of localized and territorial economic strategies which were inimical to demographic expansions. The chronological focus of the chapter rests mostly within the Middle Holocene, that is, from c. 8000–4000 years BP because it is at that time that such economic strategies initially unfolded (Watling et al. 2018; Neves and Heckenberger 2019).

Distinct long-term perspectives on the highlands and lowlands of South America

One of the fascinating aspects of South American archaeology is the fact that most, if not all, indigenous populations that settled the continent by 1492 had a common genetic background, but displayed a wide array of patterns of social and political organization (Skoglund and Reich 2016). South American societies by the late fifteenth century displayed probably all forms of political organization known to social scientists, and likely other forms still waiting to be described and understood. This is remarkable when one considers that the continent remained basically isolated throughout the Holocene. Isolation here does not mean that South America was closed to external influences: maize, a Mesoamerican crop, was introduced quite early from its centre of origin in Mesoamerica (Piperno 2011a), and by c. 4,500 years ago was cultivated far to the south, near the mouth of the River Plate in what is now Uruguay (Iriarte et al. 2004). Likewise, tobacco, a South American domesticate, spread all the way north to the Saint Lawrence basin by the late 1400s. And sweet potato, another South American domesticate, was cultivated in Polynesia and Melanesia before the onset of European colonization of the Pacific.

Isolation, in the context of the discussion presented here, is meant simply to point to the fact that there were no major demographic or military movements into South America from other continents, as happened many times over in Europe, but also in Africa and the Pacific. In this sense, in general, current patterns of indigenous language distribution in South America (despite the brutal losses brought by European colonization) reflect local histories. The deep contrast to be observed when one compares the relatively smaller number of languages and language families recorded in the highlands, with the relatively larger number of languages,
language families, and language isolates found in the lowlands, is therefore noteworthy, as much as it may have partially resulted from depopulation in the colonial era or from language loss continuing into more recent times. Moreover, it is interesting to see how the highland/lowland barrier applies to language distribution patterns too: the varieties of Quechua spoken in the lowlands, for instance, result from recent colonization of these areas by Andean settlers, and then local adoption of Quechua (for example, Chapter 3.4).

The high level of language diversity in Amazonia is also remarkable given the fact that there are no major physical barriers isolating local populations, such as the mountain ranges found in other hotspots of language diversity (like the Caucasus or New Guinea). Forty-odd years ago, Meggers (1977) proposed that language diversity in Amazonia would be compatible with the general pattern of biological diversity found there as well, a matter that has puzzled naturalists since the nineteenth century. To explain this diversity, botanists have proposed that past climate change created refugia of forests isolated by expanses of drier savannahs (Meggers 1977). This so-called ‘refuge theory’ has been intensively discussed and tested in the years since, and it is probably not the only way to explain the emergence of biological diversity in tropical America. Meggers was correct, however, when she proposed that there was some form of positive correlation between the intertwined history of the emergence of biological and cultural diversity in Amazonia. The arguments presented here will build also on that hypothesis.

The integration of language phylogenies and histories with the archaeological record is notoriously difficult, and it becomes ever more so as one moves further back into the past. Despite such shortcomings, the archaeological record of the early to middle Holocene in Amazonia shows a picture of cultural diversity that seems too closely compatible with the pattern of language diversity found there today for this parallel to be ignored. In other words, in the Amazon there seems to be a coherent, consistent and long-term picture of diversification that could be as old as human settlement there. It is thus important to examine some of the archaeological evidence for this, before moving on to presenting some hypotheses that might explain it. Let us look initially at the context of early ceramic production in South America.

A brief review of the contexts of early occupation and ceramic production in the Amazon and other tropical areas of lowland South America

Human occupation of the tropical lowlands is as old as in other parts of the continent (Dillehay 2008; Roosevelt et al. 2002). But despite such antiquity, there is no single cultural tradition that can be linked with these early occupations, at least from the examination of the lithics produced by the early settlers (cf. Chapter 2.1). Thus, in the upper Guaporé basin, the Abrigo do Sol rock shelter yielded dates
between 14,700 and 8930 BP (Meggers and Miller 2003), associated with a diversified unifacial lithic assemblage belonging to the so-called Dourados complex. At Pedra Pintada cave, on the lower Amazon, close to the Taperinha shell mound, Roosevelt (Roosevelt et al. 1996) has found bifacial lithic artefacts dating back to c. 11,200 BP. Further west, in the middle Caquetá river in Colombian Amazonia, the open-air sites of Peña Roja and San Isidro produced unifacial lithics dating back to c. 9000 BP (Gnecco and Mora 1997). In the Carajás hills of eastern Amazonia, a distinct unifacial lithic tradition found in rock shelters has been dated to c. 8800 years BP (Magalhães 2018). In the upper Madeira basin, south-western Amazonia, there is a long record of the production of unifacial artefacts and flaked axes that also goes back to the early Holocene (Meggers and Miller 2003). There are other examples, such as bifacial lithic industries in the Guiana plateau (Rostain 2013) or central Amazonia in the early Holocene (Neves 2013), but the main point is that of cultural diversity from the onset of human occupation (see Figure 3.6.1).

The same perspective is valid when one looks at the evidence for early ceramic production. One of the interesting aspects of New World archaeology in recent decades has been the quiet realization that the initial centres of ceramic production are located mainly away from the supposed centres of plant domestication.

![Figure 3.6.1](image_url) Chert bifacial projectile point and silicified sandstone unifacial artefact dated to c. 6500 BC, Dona Stella site, Central Amazonia. Late Pleistocene and Early Holocene lithic industries from Amazonia displayed a wide array of technological and formal variability without a single unifying founding tradition. Drawings by Marcos Castro, Central Amazonia Project.
and the emergence of stratified societies across the continent. Among these early centres, in North America there are a series of shell mounds located in the coastal and lagoon areas of Florida and Georgia in the United States, with dates up to 7,000 years ago (Anderson and Sassaman 2012). In South America, the picture is perhaps even more interesting: there are at least four initial production centres, all located along an arc that spans distinct tropical environments: coastal plains, dry tropical forests, estuaries and mangroves: from the Guayas basin in Ecuador in the west, all the way to the mouth of the Amazon in the east, by way of what today are the Caribbean coasts of Colombia and Surinam.

In Ecuador, early complexes include Valdivia, on the Santa Elena peninsula, in the dry forest zone of the Pacific coast, with dates of over 5500 bp (Marcos 2015). In Colombia, early pottery is found at San Jacinto and Puerto Hormiga on the lower Magdalena River, with dates back to 6000 bp in San Jacinto (Oyuela-Caycedo 1995). On the Atlantic coast east of the mouth of the Amazon there are shell-tempered Mina ceramics, associated with shell mounds and open-air sites in a region currently covered by mangroves (Roosevelt 1995; Silveira et al. 2011). Finally, there are Taperinha ceramics, the earliest in South America, found at the eponymous freshwater shell mound located in the lower Amazon, downstream from the present-day city of Santarém, dating back to c. 7000 bp (Roosevelt 1995; Roosevelt et al. 1991). Other early ceramics associated with shell mound contexts are found at Monte Castelo, in south-western Amazonia (Pugliese et al. 2019) (see Figure 3.6.2).

Most of the authors who work with such early ceramics agree that these early complexes were probably unrelated to each other, and that ceramic production in South America began independently in different centres, all in lowland tropical environments (Roosevelt 1995; Oyuela-Caycedo 1995; but see Meggers 1997 for a different perspective). Even the recent findings by Valdez (2008) and Olivera (2014), of ancient ceramics in western Amazonia, dated to about 4200 bp and with remarkable similarities to the later styles of Chorrera and Cupinquisque, have parallels in transitional contexts between the Andes and Amazonia, in the ceja de selva (Chapter 2.4). Such evidence should be strong enough to refute the hypotheses – more political than scientific – that would relegate the tropics to a marginal context within the cultural history of South America (Evans and Meggers 1968; Meggers and Evans 1957). More interesting, however, is that such early contexts of ceramic production seem to be divorced from the early adoption of agriculture.

**Ceramics without agriculture in the lowland tropics**

When comparing the processes of domestication of plants and animals, as well as the emergence of institutionalized social inequality in the New and Old Worlds, some contrasts are remarkable. Perhaps the most striking of these is the wide chronological gap between the first evidence for the domestication of plants and
The example of maize (*Zea mays*) is illustrative in this sense. Maize was domesticated in Mesoamerica, in the Balsas River region, at least 7,000 years ago (Piperno 2011a), and spread rapidly across the continent, reaching (among other places) Ecuador 6,000 years ago (Piperno 2011a), south-western Amazonia around the same time (Kistler et al. 2018) and the distant shores of Uruguay about 4,500 years ago (Iriarte et al. 2004). It is clear that the mere presence of maize among these populations, so distant from each other, does not indicate that they were exclusively farmers, but once again, opportunistic and generalist groups for the emergence of urban life or even villages in the Americas. In places like Mexico and Ecuador, evidence of early plant domestication is clearly associated with groups that had diversified economies based on hunting, fishing and gathering – as well as on the consumption of plant domesticates – in lifestyles that were maintained for millennia (Piperno 2011a). In the Americas, early plant domestication, and especially the incorporation of domesticated plants into the diet of a given population, seems to have been primarily a process of selection, and not the result of an adaptive imperative, as is indicated by Hastorf (2006) for the contexts of Peru’s Pacific coast. It is plausible, therefore, that in the New World there was no adaptive pressure for a rapid adoption of agriculture, just as there was very little pressure to domesticate animals (Stahl 2015).

**Figure 3.6.2** Ceramic fragments from the Bacabal tradition dated to c. 2200 BC, Monte Castelo site, Southwestern Amazonia. Bacabal tradition ceramics are part of a host of different and apparently unrelated early ceramic complexes found across Amazonia from the fifth to the third millennium BC. Photo by Eduardo Góes Neves.
that displayed consumption patterns based on the management and cultivation of natural and wild resources. It is worth noting in this regard that by 1492, the Amerindian plants that were most widespread across the continent were maize and tobacco, whose uses in many cases – aside maybe from parts of the Andes, Mesoamerica and the Mississippi – were associated more with recreational or religious consumption than purely with food consumption (cf. Chapter 3.1). Such data from the New World show that the very distinction between ‘natural’ and ‘wild’ in such cases results more from an intellectual heritage forged in other contexts and based on other experiences, than from a faithful reflection of Amerindian classification categories (Fausto and Neves 2018).

In the case of the oldest ceramics of the Americas, perhaps the best study of the associated productive contexts has been made by Oyuela-Caycedo and Bonzani (2005) in San Jacinto, near the Caribbean coast of Colombia. Large surface excavations led to the discovery of preserved food-processing structures, formed of cavities lined with clay and in some cases with fire-cracked rocks disassociated spatially from the places where ceramics were found. This lack of association suggests that the initial ceramics at San Jacinto were not linked to food processing, but rather to the consumption of beverages at festive events. Likewise in Amazonia, data obtained from the shell mounds of Mina phase sites and Taperinha do not support the hypothesis that these were early farmers, even if eventually remains of domesticated plants are found in their midst. On the other hand, on the dry Pacific coast of Central Peru, at sites such as Caral with early monumental architecture and plant cultivation going back to c. 5500 BP, there is no evidence of ceramics (for example, Chapter 1.1).

Such data seem to support the hypothesis that, at least in South America, it is possible to view early ceramic production and the adoption of agriculture as distinct processes, as is also becoming recognizable in parts of the Old World, such as northern Eurasia (Jordan and Zvelebil 2009).

Conclusion

If future work confirms the dissociation between the beginnings of ceramic production and of agriculture in Amazonia and other areas of the Americas, perhaps we will reach the point of rejecting the widespread use of categories such as ‘archaic’ and ‘formative’ as evolutionist categories for the Americas. Such concepts were proposed to replace in the New World concepts apparently successful when applied in the Old, such as ‘Mesolithic’ and ‘Neolithic’ (Willey and Phillips 1958).

The Amazon basin is a vast area, still poorly known to archaeology. But research undertaken in recent years has contributed to establishing a unique scenario for its past human occupation. The interesting results include the confirmation of a picture of cultural diversity that may go back to the early Holocene, and the dissociation between the early adoption of ceramics and the practice of agriculture, even where domesticates are present in the archaeological record. To
these observations must be added the mounting evidence that the dense societies that settled along the main Amazon floodplain and its tributaries, at the core of the basin, based their productive activities in part on cultivating domesticates such as maize, but mostly on the management of tree crops, such as various palms and Brazil nuts, among many others (Neves 2013; Moraes 2015; Shock et al. 2014).

A large-scale inventory of trees in the Amazon basin has revealed that out of the estimated 16,000 tree species found there, just 227, or 1.4 per cent, account for half of all individual trees. Moreover, many of the 227 species found are economically and symbolically important for contemporary indigenous and peasant societies (Levis et al. 2017; Ter Steege et al. 2013), adding to the mounting evidence that Amazonian environments have been strongly managed in the past (Clement et al. 2015). Most of these tree species, however, are technically ‘non-domesticates’, although highly managed in the past and the present, to the point of being considered tree crops. Similar patterns are being uncovered by research showing the prevalence of ‘polyculture agroforestry’ over 4,500 years in the lower Tapajós in eastern Amazonia (Maezumi et al. 2018). There, data from lake coring, archaeological excavations, soil profiles and modern vegetation inventories show a consistent pattern of cultivation of annual crops, including root crops and maize, combined with long-term tree management leading to the emergence of the hyperdominant pattern verified in the botanical record. Finally, archaeobotanical work done in south-western Amazonia show a pattern of management and replacement of bamboo-dominated forests by palm-dominated forests over several centuries during the construction of geometric earth structures (Watling et al. 2017). Palms are exceptionally important sources of raw materials and food and it is likely that such pattern of replacement of one type of forest by other, or of extensive palm cultivation in forests, also documented ethnographically among the Waorani of western Amazonia (Rival 2002), could have been prevalent elsewhere in the Amazonian past (see Figure 3.6.3).

Going back to the central argument of this chapter, it is important to consider the role of polyculture agroforestry over the millennia in the making of the large language diversity found in Amazonia. David Harris proposed that:

the nutritional potential and expansion capacity of EASs (early agricultural systems) were strongly influenced by the presence or absence of domestic herd animals, cereals, pulses (herbaceous legumes), tree and root crops … Tree crops are nutritionally valuable, especially as a source of vegetable oils, but because they are long-lived perennials their cultivation has been inimical to agricultural expansion. So too has been the cultivation of carbohydrate-yielding root crops, which is commonly complemented with protein obtained by fishing and hunting. (Harris 2002, 31–2)

Such an argument applies to the evidence presented here. If the combination of long-term tree cultivation and short term annuals or root crop cultivation was
Figure 3.6.3  Contemporary house garden standing on the top of archaeological site, Parintins, Lower Amazonia. Among the plants cultivated are maize, squash, chives, chilli peppers, and papaya. In the background is a stand of mucajá palms. Archaeological data show that house gardens such as this were cultivated at least since the Middle Holocene in Southwestern Amazonia. Photo by Eduardo Góes Neves.

Indeed inimical to agricultural expansion, as proposed by Harris, it is to be expected that, over millennia, the operation of such agroforestry systems would contribute to the emergence of a rich mosaic of distinct languages with the relatively localized distribution typical of Amazonia. These agroforestry practices would in turn contribute to the emergence of the ecological patterns found today in the region. If true, then such forests need to be understood as historical heritage, and as repositories of ancient knowledges and practices, as much as biological heritage. The exception to this was the large demographic expansion of speakers of Tupí and Arawakan languages, a topic long discussed in lowland South American anthropology (Lathrap 1970; Heckenberger 2002), but Tupí and Arawak are but two of the 50 ‘genealogical units’ – language families or isolates – found in Amazonia (Epps and Salanova 2013, 1).

The deep history of language diversity in Amazonia, then, like so much else, needs to be understood in the context of the long-term occupation of ecologically diversified and highly productive environments in the lowland tropics. This is a major difference to either the arid Pacific coast or the circumscribed valleys of the Central Andes. Although welded from the same basic shared ancestral cultural (Urton 1996) and genetic (Skoglund and Reich 2016) backgrounds, highland and lowland societies eventually unfolded distinct economic, demographic, and political trajectories over time. The state never developed in the lowlands and it is likely that plant cultivation there evolved in distinct ways as well. These processes were deeply intertwined but their discussion lies beyond the scope of this chapter. However, as new data emerges from Amazonia, it is becoming clearer that past and contemporary native populations there devised ways to live which were favourable to the emergence of biological and cultural diversity; and this in itself may be a lesson worth learning.