Rethinking the Andes–Amazonia Divide

Pearce, Adrian J., Beresford-Jones, David G., Heggarty, Paul

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This chapter provides an overview of the history of an Andes–Amazonia divide from the perspective of archaeology. Strictly speaking, by this we refer to the study of the past through the excavation of archaeological sites and the analysis of ancient artefacts and other physical remains. Such an emphasis is necessary because so much of the interpretation of prehistory on both sides of the Andes–Amazonia divide has long been made upon other lines of evidence, not least analogies drawn from a relatively recent historical past and then projected back in time.

We begin at one extreme of the historical imagination, first sparked by the Old World’s encounter in the sixteenth century with the Inca Empire. Here was a manifestly highland power that imposed a political and economic order on such a scale that the early Spanish chroniclers turned to ancient Rome for comparisons. This Andean order was, moreover, sustained by a sophisticated agriculture set amidst an alpine landscape, itself seemingly domesticated into monumental flights of terraces and intricate traceries of irrigation canals.

Though there were a few divergent accounts by conquistadors swept away down the continent’s vast eastward draining river systems, the early view of Amazonia through Andean eyes – whether Inca or Spanish – was of an indomitable green wilderness inhabited by colourful ‘savages’ and ‘cannibals’. Its relentless environment imposed seemingly self-evident limits on agriculture, demography and social complexity. By the late nineteenth century, Amazonia had come to be regarded as a mostly empty wilderness beyond the course of human history and ripe for ‘colonization’ by the new South American republics, particularly in the exploitation of rubber. This vision of the Andes–Amazonia divide as the last frontier between culture and nature was, however, never much justified by archaeology.

Amazonia’s enormity is now acknowledged to encompass a significant diversity of environments beyond merely uniform seasonally flooded forest with poor soils. Rather than being everywhere hindered, agriculture’s very origins in South America may have been incubated in that diversity. Far from being the passive recipient of Andean influences, some archaeologists would now see the tropical lowlands as the wellspring of the civilization that eventually emerged in the...
highlands. Arriving at that current orthodoxy, however, will also entail a brief review of its epistemology: the critical issue of how we know what we (think we) know scientifically. For Amazonia sometimes seems transformed in the prevailing academic imagination from one extreme – that of an empty, pristine wilderness fit only to be either conquered, cultured or preserved as a moral imperative – into another, in which its environments seemingly imposed no limits, or even much influence, on the populations and societies sustained here during prehistory.

We begin with the briefest sketch of the environmental distinctions that have for so long shaped ideas of divergent trajectories across the so-called divide between the Andes and Amazonia by following a notional transect through the Neotropical realm.

A transect across the Andes–Amazonia divide

Any west–east transect across South America embraces extreme topographical and environmental variations (see Figure 1.1.1).

Rising almost directly out of the Pacific Ocean, the Andes attain altitudes second only to the Himalaya, across a mere few hundred kilometres. Over such a transect the Andean highlands occupy between 200 and 600 km, comprising, for the most part, two parallel longitudinal chains of mountains and high plateaus, bisected by deep intermontane valleys descending roughly south–north into Amazonia. After some 200 km of varied, precipitous piedmont, the remainder of any such transect, more than 80 per cent, is virtually flat for up to 3,000 km to the Atlantic Ocean. The northern and southern peripheries of this Amazon basin are marked by other significant geographical features, including the Orinoco basin, and the Guiana and northern Brazilian highlands. Together they comprise ‘Greater Amazonia’ (in the sense of Denevan 2002, 53) which totals some 7 million km$^2$, more or less equivalent to the area of Western Europe.

The extreme altitudinal variation along the western end of this transect compresses the most ecologically diverse region on earth, across ‘horizontally condensed’ space (Shimada 1985, xi). No fewer than 84 of Holdridge’s (1967) 103 world ‘life-zones’ are to be found here. The Pacific littoral itself is extremely arid because of a rigidly stratified atmosphere over cold seas driven by the Humboldt Current, yet is traversed by lush riverine oases along the dozens of watercourses that rise in the adjacent Andes. Seasonally inundated with rich alluvium and endowed offshore with the world’s richest marine resources, these valleys were the locus of the earliest florescence of large populations and monumental civilization during the third millennium BC, and of a rich succession of coastal cultures thereafter, built upon irrigation agriculture on ever-increasing scales.

The Andean cordilleras themselves are unique among alpine regions because they span tropical latitudes and therefore can sustain life year-round, even at great altitudes. Long before the Inca Empire, large populations and social complexity
flourished in the highlands: around Lake Titicaca, for instance, at 4,000 m on the Bolivian Altiplano during the first millennium AD, sustained by lakeside tuber agriculture and the greatest extent of camelid pasturage in the Andes. Indeed, expansions of people or ideas termed ‘horizons’ in the archaeological record all arose from highland heartlands, and periodically came to control or otherwise interact with the adjacent lowlands to the west and east.

To the east, the flanks of the Andes descend precipitously, blocking the humidity of the inter-tropical convergence zone over the Amazon basin, which is thereby...
forced to rise and condense as tremendous seasonal rainfall so that these eastern slopes are lush with montane cloud forest. Geographically, the idea of an Andes–Amazonia divide arises here. For while there was an enduring flux of products and crops across this eastern piedmont, historically at least, its dramatic changes in elevation and ecology imposed physical and adaptive barriers to relationships between highland and lowland populations. In densely vegetated landscapes, rivers offer natural conduits of movement, but across certain Andean gradients navigation upstream can become impossible, as early Spanish expeditions discovered.

Misconceptions of a homogeneous tropical landscape across Amazonia also arise here, whereas any notional transect to the east will embrace many different ecologies. As the many high-energy rivers that drain the eastern slopes emerge onto the Amazonian foreland basin, they transit abruptly to slow meandering systems, depositing their sediment burden in rich alluvial floodplains all along the foot of the Andes. Many now envisage the origins of South American agriculture as lying in the distinctively seasonal tropical savannahs (‘Llanos’) around the periphery of the Amazon basin. The spread of that agriculture, and indeed later interactions between highlands and eastern lowlands, likely followed the courses of rivers draining the deep intermontane valleys between the various Andean cordilleras, rather than the vertiginous outer flanks of the Andes themselves (Sauer 1952, 117). Transects across northern Peru and Ecuador bring the coast, highlands and eastern lowlands into particularly close proximity. Later, after around AD 800, large tracts of these seasonal wetlands in Bolivia, Ecuador, Guiana and Venezuela were transformed by systems of raised field agriculture to support significant settled populations.

Beyond the piedmont, the rivers bear the different geological signatures of their Andean headwaters into the heart of Amazonia, where they merge into constantly shifting courses across a vast, entirely flat landscape characterized by ‘large [vegetation] patterns with gradual transitions and … reduced floristic diversity’ (Sauer 1952, 43). Along the banks of these rivers the first European explorers claimed to have seen almost continuous, well-organized settlements, now understood to have been sustained by rich aquatic resources and agriculture along the river floodplains (‘varzea’), complemented by more dispersed exploitation of the enormous interior (‘terra firme’) that makes up the vast majority of the Amazon basin (Denevan 2002, 127).

Finally, at the far eastern extreme of the transect, the combined waters of what is by far the largest river system in the world emerge into the Atlantic across a delta 320 km wide, in which large fluvial islands such as Marajó were home to flourishing complex societies in the centuries after AD 500.

**Archaeology in South America**

Archaeology emerged in South America, as it did in the Americas generally, from anthropology, much coloured by a presumed continuity between the New World societies that had emerged into history only centuries earlier and their
ancient ancestors. This led to the division of the continent into ‘culture areas’ (or ‘co-traditions’, see Chapter 3.7), within which peoples inhabiting similar environments were assumed to share aspects of culture in common, eventually crystallized in Stewart’s (1946, 1948) Handbook of South American Indians. The Andes–Amazonia divide ran through the HSAI, between volumes, on the one hand, for ‘marginal’, ‘tropical forest’ and ‘circum-Caribbean tribes’; and on the other, for ‘Andean civilizations’, the very titles of which conferred cultural evolutionary privilege on the Andes (Isbell and Silverman 2008).

The recognition by Max Uhle, among others, that stratigraphy recapitulates chronology was the foundation of a specifically archaeological methodology to trace culture history back to long before the relatively recent ethnohistorical past. The pioneers of that archaeology in South America, such as Kroeber, Tello and Bennett, sought the hallmarks of a distinctively Andean civilization, including intensive agriculture and herding, large polities sustained by co-opting communal labour, highly developed material cultures and long-distance exchanges promulgated by pilgrimages. Yet many of these hallmarks (later sometimes termed ‘lo Andino’) were, and indeed still are, derived by analogies with the Inca Empire that had been described by Spanish chroniclers (for example, Cobo 1653/1998): that is, from a version of history or ethnography, rather than from archaeology per se.

The problem of chronology

Throughout the first half of the twentieth century, archaeologists were concerned to describe and classify into relative chronologies the material remains of the ‘cultures’ revealed by stratigraphic excavation, periodically integrated across ‘horizons’. Most research was invested in the Andean cultural area, as the presumed hearth of civilization, and defined initially by three such pan-regional epochs of cultural unity – Chavín, Wari/Tiwanku and Inca. These horizons all emanated from highland heartlands, and were interspersed with periods of more fragmented, local cultures, in due course elaborated into a unified archaeological chronology (Rowe 1960, 1967). While a separate and significant trajectory within this Andean culture history was often accorded to its western Pacific coast based upon its rich material culture record (for example, Lanning 1967; Moseley 1974; Bird et al. 1985; Chapter 3.7), the eastern lowlands were more or less excluded from it.

Despite the long-standing prejudices that conceived of only small-scale societies dwelling from time immemorial amidst virgin tropical forest wilderness, and indeed the formidable difficulties of practising archaeology there, chronological schemes were also developed for the tropical lowlands: for the Caribbean area (Cruxent and Rouse 1958–9); and for central Amazonia (Meggers and Evans 1961).

While many refinements and restyling of nomenclature have been proposed, and gaps acknowledged in these ‘culture histories’ of both sides of the Andes–Amazonia divide, they still provide the essential chronological skeletons for more than six decades of subsequent archaeological work.
From chronology to explanation

By the later part of the twentieth century, however, there was increasing interest in explanations for how and why change in the archaeological record had occurred. Although culture history provided the building blocks for such interpretations, facile associations between material cultures, ‘peoples’ and languages became widely mistrusted. One reason for this was the advent of radiocarbon dating in the 1960s, which forced a reassessment of time depth, slowing perceived rates of transformation so that ‘events’ became ‘processes’ in prehistory. Rather than explaining change in the archaeological record though ‘migrations of peoples’ or ‘diffusion of cultures’, archaeologists in the latter half of the twentieth century looked to autochthonous processes of population growth, social differentiation and human–environment interactions: not least the advent of agriculture, widely presumed to be the foundation for all subsequent demographic and social transformations and the emergence of complex civilizations (for example, Childe 1951).

Clearly, the densely populated, state-level societies that eventually emerged in the Andean region had depended on sophisticated agricultural systems set amidst the high intermontane valleys and along the fertile riverine oases along the Pacific coast. Yet early research on that coast (for example, Bird et al. 1985), motivated in part by the extraordinary preservation of organic plant, animal and human remains afforded by its arid climate, suggested that the genesis of that Andean civilization had lain not in agriculture but rather in exploiting the ocean’s prodigious inshore marine resources (Lanning 1967; Moseley 1974). Certainly, by around 5000 BP, marine resources and floodplain agriculture sustained large-scale sedentary populations building monumental architecture in a number of these valleys, today epitomized by the site of Caral (Shady and Leyva 2003; Dillehay et al. 2012) (see Figure 1.1.1).

Meanwhile, apparently contrasting features of the historical ‘tropical forest’ and ‘marginal’ tribes of the eastern lowlands – small, autonomous villages of root crop farmers or mobile hunter-gatherers, respectively (Steward 1946, 1948) – were explained as the outcome of environmental limitations. Meggers (1954, 1957), for instance, proposed Amazonia to be a ‘counterfeit paradise’, whose abundant vegetation belied poor soil fertility in an extremely wet climate and rendered intensive agriculture impossible. Others presumed that the slash-and-burn that defined contemporary Amazonian agriculture had been impossible before the coming of steel tools and in the general absence of suitable stone sources (for example, Métraux 1959). Such factors were claimed self-evidently to impose limits on demographic growth and social development, and yet were increasingly questioned in subsequent debates about the degree to which human action is conditioned by the environment (Carneiro 1974; Lathrap 1968a and b; Roosevelt 1989, 1991; Balée 1989).

Julio C. Tello (1923) had strongly advocated the highland origin of all the major pan-Andean cultural expansions, but also called attention to supposedly
jungle-derived archetypes in the earliest, Andean ‘mother culture’ of these: the Chavín Early Horizon (see Chapters 1.4, 2.4, 2.5 and 3.7). The geographer Carl Sauer (1952), meanwhile, held that early plant domestication in South America differed from that of ‘seed farmers’ elsewhere, in its focus on vegetatively propagated starchy root crops, whose origins he envisaged in the highly seasonal wetlands along the western peripheries of Amazonia (see Chapters 2.1, 4.3 and 4.4).

In due course Lathrap (1970, 1977) elaborated these ideas into an influential thesis that, far from being the occasional passive receiver of traits and cultigens from outside habitats, the eastern lowlands had been foundational to the Andean trajectory, as movement up the western tributaries of the Amazon had brought sophisticated ‘house garden’ traditions into the Andes as early as 10,000 BP (see Chapters 1.4, 2.4 and 3.7). Rather than historical Amazonian societies reflecting some unchanging primordial subsistence regime, Lathrap (1970) argued that the history of the tropical forest cultural area had been dynamic: marked by epochs of expansion and agricultural intensification as evidenced by the early historical accounts of large, centrally organized societies living along the Amazon and Solimões rivers (Medina 1934), and increasingly, also by archaeology.

At the same time, mechanisms for intense contacts and interchanges between different culture areas were also being proposed, such as Murra’s (1985) concept of the ‘vertical archipelago’ to describe how particular highland ethnic groups established colonies dispersed into lowland ecological tiers, thereby gaining access to a broader range of agricultural products and diversifying subsistence risk (Chapters 2.5 and 3.1). Under such models, rather than hindering movement, the extreme environmental variations along the Andes–Amazonia divide actually drove social dynamics between culture areas: interactions eventually written into the institutions of the Inca Empire, and indeed the antecedent pan-Andean horizons (for example, Wilkinson 2018).

Although such systems of ‘ecological complementarity’ (Salomon 1985, 511) affirm how different environments moulded the different cultural trajectories of their occupants, they also illustrate how the relationships between people and habitat were mediated by culture. This ‘cultural ecology’ attenuated the environmental determinism of earlier eras as new methodologies revealed recursive, long-term relationships between culture and environment (for example, Denevan 2002; Heckenberger and Neves 2009). Those methods also enabled a more refined perception of the range of lifestyles that lay between mobile hunting and gathering on the one hand, and intensive agriculture on the other; and a better understanding of how combinations of intensive foraging and agriculture along that continuum might sustain sedentary populations and different degrees of social complexity, not least in Amazonia (for example, Dillehay et al. 2012; Roosevelt 2017; Chapters 2.1 and 3.6).
The application of archaeological science

Throughout the twentieth century, developments in methodologies in archaeology and in other related disciplines continued to promote a more rigorous, empirically based approach to field archaeology. By the end of the century these coincided with increasing political stability and economic development through much of South America, greatly facilitating archaeological fieldwork. While such methodological and economic developments have reshaped research across the Andes–Amazonia divide, they have had particular impact on the archaeology of the tropical lowlands.

For the enormous environmental diversity along the Andes–Amazonia transect entails commensurate variation in all those factors that influence the preservation and visibility of the archaeological record, from its moment of deposition to its uncovering and analysis. These ‘taphonomic’ variations inherent in particular environments enormously skew data recovery and, therefore, greatly influence the empirical basis on which we can make interpretations of the past. Just as the visibility and preservation of the archaeological record of the arid Pacific coast made it an early focus of research, in the highlands a highly visible monumental archaeological record also attracted long investigation, although here organic remains, other than in certain dry cave sites, are poorly preserved. Yet this same high visibility also provoked centuries of destructive depredation of both coastal and highland archaeological records, through looting, initially for precious metals and later to supply antiquities and ‘art’ markets. Meanwhile, the humid tropical lowlands have long presented specific challenges to both the preservation and visibility of the archaeological record (Meggers 1954), making progress in research here particularly responsive to the application of new methodologies.

From the 1960s onwards, methods from physical geography, earth science, climatology, zoology, ecology and plant sciences were increasingly incorporated into archaeology, not least to reconstruct past environments and to trace the origins and consequences of agriculture. These revealed the hitherto unsuspected extent of human intervention in world environments through time. For South America this included evidence for the dramatic effects of ancient land use practices on many parts of the coast, highlands and tropical lowlands (for example, Denevan 2002, 2003; Beresford-Jones 2011), and a growing suspicion that the ‘pristine’ New World of historical imagination was no more than a myth (Denevan 1992b), distorted by the catastrophic population collapse that followed first contact with Old World pathogens and subsequent history (Cook 1981; Hemming 1995; Chapter 5.3).

For parts of Amazonia in particular, these new methodologies have revealed greater social complexity and promoted far higher estimates of past populations (Denevan 2003; Heckenberger et al. 2003; Erickson 2006). Soil science has given us a more nuanced understanding of variations in the productivities of tropical soils (cf. Sombroek 1966; Coulter 1972) and, with micromorphology, has identified tracts of black earth (‘terra preta’) as the legacy of ancient human occupations
(Lehman et al. 2003; Woods et al. 2009; Chapter 4.4). Multiple lines of botanical evidence have also been applied to reconstructing past environments and subsistence regimes, ranging from microfossil evidence in the form of pollen, phytoliths and starch grains, to plant macro remains, sometimes preserved more abundantly than commonly assumed in humid tropical environments, through charring (Piperno and Pearsall 1998; Piperno 2011a; Iriarte et al. 2010; Roosevelt 2017). Meanwhile, technological advances in geophysics, GIS systems, LIDAR (Light Detection and Ranging) and lightweight survey tools such as drones have made it possible to discover and record archaeological sites through increasingly accessible, high-resolution, remotely sensed data. In Amazonia this has been inadvertently enabled by massive, ongoing deforestation, revealing previously invisible archaeological records (Heckenberger et al. 2008; Prümers 2014).

Andes–Amazonia: A new archaeological orthodoxy?

While the possibilities opened up by these new methods have influenced archaeology across the Andes–Amazonia divide, it is particularly in Amazonia that they have substantially altered perceptions of prehistory, and made Amazonian archaeology one of the discipline’s fastest growing and most prolific research fields in the past decade.

Over the deepest time-depths, archaeological orthodoxy now envisages little difference across the divide in the timing of first human occupation during the Late Pleistocene (Roosevelt et al. 2002; Dillehay 2017; Rademaker et al. 2014; Chapters 2.1 and 4.4), or the subsequent coalescence of various complexes of domesticated plants and animals to form the basis of sedentary, small-scale horticultural lifestyles before 7000 BP (Dillehay et al. 2011; Waters et al. 2014; Roosevelt 2017; Lombardo et al. 2020; Chapters 2.1 and 2.4). Indeed, the Neotropical lowlands are, following Sauer (1952) and through biogeography, now widely claimed as a major cradle of agricultural origins, home to around half of all crops of the Americas (Iriarte 2009; Piperno 2011a), and Amazonia, in particular, the source of ‘at least 83 native species … domesticated to some degree’ (Clement et al. 2015, 2) – although archaeological evidence of these processes is extremely sparse.

Along the coasts of South America between 6000 and 4000 BP Mesolithic-like lifestyles based on rich aquatic resources sustained increasing social complexity and sedentism (Marquet et al. 2012; Dillehay et al. 2012; Dillehay 2017; Beresford-Jones et al. 2015, 2018); and into its interior along the river levees of the tropical lowlands of Ecuador, Colombia, Brazil, Bolivia and Guyana (Chapters 2.1 and 4.4). In Amazonia sites such as Taperinha (Roosevelt 2017) (see Figure 1.1.1), show the earliest evidence for pottery on the continent around 7000 BP, long before the advent of agriculture (Hoopes 1994; Roosevelt 1995; Lombardo et al. 2013; Chapter 3.6). Since moving plants through different ecologies selects for those genetic factors controlling harvest timing and seed dispersal – ultimately
‘domestication’ (Vavilov 1992; Lynch 1973) – agriculture’s very origins in South America likely lay in deep-time interchanges across the tremendous ecological diversity of the Andes–Amazonia transect. The lowest and narrowest such transect between Amazonia and the Pacific lies through the Huancabamba depression (see Chapter 2.4, Figure 2.4.3), and the archaeological record of southern Ecuador and northern Peru includes the earliest hints of plants being moved beyond their ranges of natural distribution (Piperno 2011a; Dillehay et al. 2011; Chapter 2.1), and indeed of the subsequent unfolding of precocious complex society (Chapter 2.4).

Beginning around 5000 BP, however, significant differences start to emerge in the Late Archaic trajectories on either side of the Andes–Amazonia divide. In certain valleys of the coast of Peru, subsistence regimes underwent transformational intensification through floodplain agriculture of cotton for fishing nets and, increasingly, certain food crops, which precipitated the earliest monumental civilization in South America (Moseley 1974; Shady and Leyva 2003; Chapter 2.4). Similar precocious developments followed immediately thereafter in the highlands (see Chapter 2.4). While archaeologists may debate precisely what kind of societies built monumental sites like Caral on the coast of Peru, there can be little doubt that by the end of the third millennium BC, the Late Archaic archaeological records of the coast and highlands evince population densities and social complexities of a different order of magnitude to any contemporary developments in Amazonia.

These differing trajectories became more marked as the subsequent Formative Period unfolded (for example, Chapter 2.4). This culminated during the first millennium BC with the first truly pan-Andean transformation, the Cupisnique–Chavín Early Horizon, followed by the florescence of diverse, complex and (on the north coast) expansive societies during the Early Intermediate Period to around AD 500. And although the northern periphery of Greater Amazonia also saw the expansion of ‘horizons’ (as yet poorly understood) along the Caribbean coast and into the Orinoco basin during the Formative (Cruxent and Rouse 1958–9; Roosevelt 2017), the archaeological record of central Amazonia for this time is essentially silent. This ‘Amazonian hiatus’ (Neves 2008) remains one of the most important unanswered questions of archaeological and palaeoenvironmental research in the basin, not least because, for the centuries immediately thereafter, the new archaeological orthodoxy does envisage rapidly increasing populations and social complexity across Amazonia (Denevan 2003; Heckenberger et al. 2003; Erickson 2006; Chapter 3.6).

On the Andean side of the divide, the Middle Horizon dawned around AD 500, showing what many would regard as the first unequivocal hallmarks of ‘state-level’ societies in the Andes, including the co-opting of labour for agricultural intensification, roads and military expansion, khipu record-keeping and those other elements that would later define ‘Inca’ statecraft too (D’Altroy and Schreiber 2004). The Middle Horizon saw the building of urban conglomerations such as Wari and Tiwanaku, today among the largest archaeological sites in South America
(see Figure 1.1.1), and some would link this period to the expansions of major Andean language families (Beresford-Jones and Heggarty 2012a; Chapter 3.4).

Evidence suggests that around this time Greater Amazonia too saw significant demographic growth, nucleated along the Amazon and Orinoco floodplains and the Guiana coasts, and sustained by intensive agriculture of root crops and sometimes maize (Heckenberger et al. 2008; Dickau et al. 2012; Roosevelt 2017). When this began remains vaguely defined, sometimes related with putative dates of language family expansions (Clement et al. 2015; Chapter 3.6). Certainly, however, by AD 500 many of those Amazonian societies exhibited features typically taken to connote social complexity: ranging from extended patterns of semi-autonomous villages along the central Amazon (Neves and Petersen 2006) to integrated networks of settlements, sometimes attached to monumental centres, epitomized by sites in Marajó (Roosevelt 1991) or the Llanos de Mojos (Lombardo and Prümers 2010; Chapter 4.3). From around AD 900 there is evidence too for increasingly intensive land-use practices across the lowlands of Bolivia, Ecuador, Colombia and Guyana (Denevan 2002; Rostain 2008). Yet despite increasingly convergent trajectories1 on either side of the Andes–Amazonia divide at this time, there is little archaeological evidence that they were directly related. For instance, not a single fragment of unequivocally Amazonian material culture has been excavated in the Andes from this period; or vice-versa (Chapter 4.3).

As the Middle Horizon collapsed in the Andes around AD 1000, it was replaced during the Late Intermediate Period once again by expansive large-scale polities along the coast, epitomized by the Chimú Empire, while the now relatively dense populations in the highlands became fragmented into hundreds of small-scale petty chiefdoms engaged in almost constant warfare and competition. One of these, the Inca, would suddenly emerge after 1450 to dominate a vast 4,000 km swathe of the highlands and coast (the Late Horizon, see Figure 1.1.1). During this time in Amazonia, there is also evidence of broader, pan-regional systems (Heckenberger et al. 2008), and for frequent conflict between larger-scale chiefdoms including defensive architecture and buffer zones separating them (Heckenberger et al. 1999; Schaan 2001).

In sum, then, the archaeological record suggests considerable flux across the Andes–Amazonia divide unfolding gradually over the millennia from first occupation of South America to the Late Archaic (c. 5000 BP); gradually increasing divergence in largely independent trajectories thereafter, through the Formative and Early Intermediate Periods to around AD 500; followed by increasing convergence, again of largely independent trajectories, albeit with ephemeral periods of resonance between the two, before the European conquest. Archaeological consensus also suggests, however, that while on the north coast of Peru or in the south-central highlands, expansionist ‘state-level’ societies arose from time to time to exert influence across vast geographies (culminating in the Inca Empire), this was never the case in Amazonia (Chapter 3.6).
Conclusions

Twenty-five years of accumulated methodological innovation and archaeological research have made it possible to test the theories of Tello, Lanning, Moseley, Meggers, Lathrap and others. This has forced a critical re-evaluation of many of the preconceptions that lay behind the concept of an Andes–Amazonia divide. Indeed, they have led some to conclude that the idea of that divide is little more than ‘a product of colonialism, epidemics, preconceptions and ignorance’ (Chapter 1.4).

Certainly, a new archaeological orthodoxy calls far greater attention to the deep-time flux of cultigens, products, people and ideas across the eastern piedmont of the Andes, and to how they shaped significant cultural changes on both sides of the Andes–Amazonia divide. ‘To state the obvious, the Amazon basin is a very big place’ as Piperno et al. (2015, 1595) put it, and patently, it was not all inimical to intensive agriculture, nor forever sparsely inhabited by small-scale dispersed communities. Long-discounted claims of the ill-fated 1542 Orellana expedition (Medina 1934) of towns for leagues along the banks of the Amazon with ‘land as fertile and normal in appearance as our Spain’, are today far more credible under this new orthodoxy.

Perhaps the most significant change in our perception, however, has been in how large parts of Amazonia’s supposedly pristine landscape and vegetation have in fact been shaped by millennia of significant human occupation, with consequently profound and widespread impacts on its ecology (Erickson 2010; Roosevelt 2013; Clement et al. 2015; Watling et al. 2017; Maezumi et al. 2018; Chapters 3.6 and 4.4). Under the paradigm of ‘historical ecology’ (Balée 1989), Amazonia’s environment, rather than determining its cultural trajectories, is envisaged as the outcome of them, still exhibiting vestiges of its former ‘cultural parkland’ condition (Heckenberger et al. 2003), in much the same way as tracts of the Andean highlands and Pacific coast have long been understood to be domesticated landscapes (for example, Denevan 2002).

The implications of this change of perception, however, remain contentious within the discipline. Measuring the distributions of thousands of square kilometres of anthropogenic terra preta, raised fields and other earthworks later reclaimed by the tropical forests could provide a proxy for the intensity of past human occupation and impact on Amazonian landscapes. Indeed, some have extrapolated from these indicators to revise estimates for pre-European contact populations of Greater Amazonia to between a ‘minimum’ of 10 million, and an ‘unlikely maximum’ of 50 million (Clement et al. 2015, 5). Such figures would be at least equivalent to, or at their upper extremes far greater, than estimates for the population of the Inca Empire (D’Altroy 2015, xv) that extended across much of the Andes at that time.

Estimates of prehistoric populations are, however, notoriously problematic and, across the enormity of Greater Amazonia they are further confounded by very uneven demographic distributions: along the Atlantic coast, in the llanos, and along its riverine levees, as suggested by terra preta distributions.
For the Andes and the Pacific coast population, estimates at the moment of European contact have been made by synthesising many different lines of evidence; including, inter alia, extrapolations from Spanish census data, ecological data, estimates from social organization, disease mortality models and archaeology (Cook 1981; Chapter 5.3). By contrast, using a single proxy of extrapolated anthropogenic terra preta distributions to estimate pre-contact Amazonian populations almost certainly conflates many different and weakly established chronologies, perhaps over millennia of occupation.

Indeed, it may be time to rein back on some of the recent hyperbole attending the intensity and chronology of human settlement in Amazonia and to rebalance, somewhat, the pendulum of archaeological perceptions. To see Amazonia as either a largely untouched wilderness, or an extensively transformed landscape, is to set up a false dichotomy with, as Piperno et al. (2017) note, ‘an expectation of the latter … likely to be as misleading as the former’. For no-one outside the discipline should fail to understand the serious uncertainties and empirical problems that still underlie many parts of the new archaeological orthodoxy. Roosevelt (2017) offers a useful review of these. Many culture historical sequences, fashionable but still the backbone of archaeological method, remain poorly studied across the Andes–Amazonia divide. Establishing secure stratigraphy presents many challenges, not least in contexts disturbed by centuries of tropically fecund bioturbation or enormous water throughput. Radiocarbon dating of many archaeological contexts is still scanty and sometimes inconsistent across the immensity of Amazonia, particularly when applied to large-scale, long-term processes of landscape modification. Different classes of plant remains, particularly certain microfossils (for example, Mercader et al. 2018) used to reconstruct past agriculture and land use, each come with particular limitations of taphonomy, identification and comparability. And last, but not least, diverse factors may be implicated in changing environments and thereby confound perceptions of past human impacts, including Holocene climate change (Burbridge et al. 2004; Mayle et al. 2000, 2006; Whitney et al. 2011; Chapter 2.1), natural fires (Cordeiro et al. 2008; Mayle and Power 2008; Urrego et al. 2013), massive avulsions (Lombardo et al. 2015) and tectonics (Lombardo and Veit 2014). There is, for instance, particular debate about how far distributions of plant microfossils or modern botanical inventories over relatively small scales can be extrapolated to determine the intensity of the human imprint beyond the river floodplains, across the terra firme hinterlands that make up the vast majority of Amazonia (McMichael et al. 2012; Piperno et al. 2015; Watling et al. 2017; Piperno et al. 2017; Lombardo et al. 2020).

This review began by emphasising just how much long-standing perceptions of an Andes-Amazonia divide were not the consequence of archaeology, per se, but rather of Inca and Spanish imperial histories and relatively recent ethnologies. Acknowledging all the problems and limitations just mentioned, the patient accumulation of empirical archaeological evidence, increasingly augmented by the methods of archaeological science, has and will certainly continue to challenge
those perceptions. Such evidence, however, alongside that from other disciplines, informs our interpretations over particular, often radically different, scales of spatial and temporal resolution, as illustrated by many of the chapters in this book. So while at certain scales, such as the transitory reverberations across the divide of the Andean horizons or the deep-time protracted introduction and adaption of cultivars across different ecologies, new archaeological evidence seems to render the Andes–Amazonia divide less substantial, at others it seems to establish it more firmly than ever. How else would materials from across the divide connote particular value and exotic status? For this reason, archaeology will always be best used to understand prehistory across the Andes–Amazonia divide in conjunction with the other, independent lines of evidence offered by disciplines such as history, genetics and linguistics: this book’s raison d’être.