Chapter 17
What Role for Language Prehistory in Redefining Archaeological "Culture"? A Case Study on New Horizons in the Andes

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Introduction

Since setting aside its youthful indiscretions of culture history, archaeology has cast about more or less continuously for more nuanced definitions of "culture", and mechanisms by which it is transmitted across space and through time. At times, the discipline has seemed almost resigned in the face of the great intrinsic difficulties in extracting the prehistories of *people* from the material culture record. Yet, we are not as helpless as either the puritans of New Archaeology, or the postmodern reactionaries they provoked, would pretend.

For of course archaeology is not the *only* discipline that seeks to understand human prehistory. Genetics and comparative/historical linguistics offer, through their independent data and methods, their own partial windows on the past, and in recent years the so-called 'new synthesis' has sought to converge these various perspectives into a single, coherent, holistic picture of human prehistory. Progress has been fitful, however. All too often these attempts are plagued by the misunderstandings that attend any cross-disciplinary enterprise. Archaeology seems willing to plunder other disciplines almost by instinct. Sadly, like most looting, this typically turns into a blundering affair that seeks nuggets of "value" and is careless of context or methodology. Examples abound of linguistic neophytes hitching some waggon-load of vaguely understood language baggage to their archaeological hobby-horses, then given free rein to gallop across the empty plains of speculation. Nor have linguists been immune from the temptations of deeply dubious "cultural reconstruction" on the flawed assumptions of "linguistic palaeontology".

Simplistic assumptions of the past that "culture equals language (equals genes)" have rightly been cast aside. Yet too many archaeologists, once burnt by this simplistic trap, now show themselves twice shy of *any* attempt to link to historical linguistics. And just as the initial flaw was simplistic, so too is the overreaction.

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Just throwing up our hands that it simply cannot be done and can be nothing more than vacuous speculation will not do. For great language expansions are not simply inconvenient, unproven hypotheses that archaeologists are free to pretend do not exist and are safe to ignore as "nothing to do with our discipline". They are incontestable facts about the human past. Not to account for them is not an option; it is nothing less than an abnegation of our duty as prehistorians.

In this chapter we wish to set out some fresh methodological principles for how one might after all go about linking findings from archaeology and linguistics, so that together they might better inform our understanding of prehistory. We shall illustrate how these principles can be applied by means of a case–study set in a part of the world which, despite its significance as one of humanity's rare independent hearths of agriculture and cradles of "pristine" civilization development, has been conspicuous by its absence from attempts at cross-disciplinary synthesis so far: the Central Andes. Indeed, the story of archaeology here makes for a useful vignette of the vicissitudes of archaeological theory more widely.

The great pioneers who led Andean archaeology beyond the frontiers of Inca mytho-history – Middendorf, Uhle, Tello and Rowe – could confidently distinguish "Horizons" in the vast archaeological record they surveyed: periods for which that record showed some degree of unity or interaction across great expanses of the Central Andes. Each of three successive Horizons originated high in the Andes, in urban centres far inland (Fig. 17.1). Best known is the Late Horizon, alias the Inca

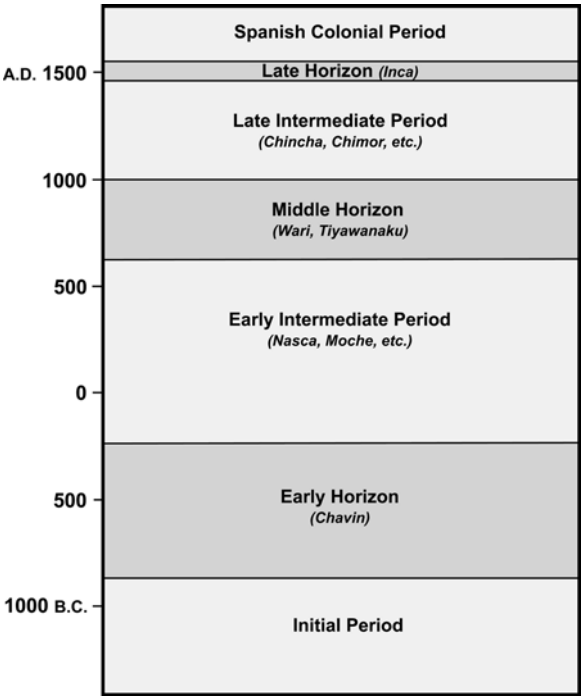

Fig. 17.1 Simplified archaeological chronology for the Central Andes

Empire, stretching from Ecuador to Argentina and Chile, with its capital in Cuzco in the southern highlands of Peru. The Middle Horizon, meanwhile, was a bipolar affair: a Wari "Empire", with its heartland in Ayacucho, south-central Peru; and a more vaguely perceived sphere of influence of Tiyawanaku[1], by the shores of Lake Titicaca in the Bolivian "Altiplano" (high-altitude plain). The Early Horizon was centred on the monumental site of Chavín de Huantar in Ancash, north-central Peru. Between the Horizons were the so-called "Intermediate" periods, for which the archaeological record is more fragmented.

Often it proved possible to impute these Horizons to expansionist conquest empires, by uncritical analogy with the Inca Empire. Inevitably, this "poetic licence" bred a puritan reaction. Culture history, with its predilection for mapping "diffusion" and "migration" on grand geographical scales, fell from grace, to be succeeded by a "New Archaeology" with its emphasis on processes of culture evolution, within a wider movement of processual archaeology. Rather than ripples of cultural influence, this saw the past in terms of long autochthonous cultural trajectories within tightly circumscribed geographical regions (see Isbell and Silverman 2008, 500).

This was not an approach that sat easily with the concept of "Horizons" (Rice 1993, 362). Soon, doubts were raised as to the extents and natures of the putative Horizons: the "Problems" of the Middle and Early Horizons, respectively (Schreiber 1992, 71; Willey 1951, 103). Eventually, those doubts extended to the very utility of the Horizon idea itself, such that Boone (1993, vii) could write that "in the end, the judgement is that the horizon concept is too broad and simple for the scholar, but that it is useful for the student".

Yet, like the concept of "culture" more widely, that of the Horizon stubbornly persists in Andean archaeology. Burger (1993, 41), for instance, acknowledges that "the concept of horizon style has fallen out of fashion in North American archaeology"; but he can nonetheless go on to conclude his succinct review of the evidence by insisting that "the Chavin horizon is not a stylistic chimera as some have contended, but a real pattern" (Burger 1993, 74).

Great Language Expansions Do Not "Just Happen"

We shall argue here that the Horizon concept does indeed remain of great value in Andean archaeology, not least in how it underlies a new proposal to link archaeological and linguistic patterns in the region. This entails a radical revision of the traditional view of the linguistic prehistory of the Andes, which in turn informs the archaeological debate about the nature of the Andean Horizons. Indeed, we hope to make plain that while the oversimplifications of culture history are indeed

[1] We eschew here the popular "pseudo-indigenous" spelling *Tiwanaku* as doubtless erroneous, omitting the second syllable *-ya-* suggested both by etymology and by the original Hispanicized version *Tiahuanaco*.

bathwater to be discarded, we should take care not to throw out the baby with it: the perspective that culture history provided on the wider geographical scales necessary for comparing the data of archaeology with those of linguistics.

Our new proposal for Andean prehistory is based firstly on a major reclassification, long overdue, of the relationships between the various languages and "dialects" within the main indigenous language family of the region, Quechua; and secondly, on establishing a far more satisfactory correlation with the archaeological record. We have here the space to present only its bare bones; for a full elaboration see Beresford-Jones and Heggarty (forthcoming a & b). Nonetheless, this skeleton still serves to illustrate some fundamental methodological guidelines by which archaeological and linguistic visions of prehistory might be linked in a principled and more sophisticated way than has so often been the case.

Fifty years on from the supposed demise of culture history, as hailed by the "New Archaeology", these first principles must start by setting aside any simplistic assumption that "culture equals language (equals genes)". Here, we seek to link archaeology and linguistics not through "cultures", nor even populations, but through driving *forces*. As we shall shortly elaborate, our founding principle is the linguistic "fact of life" that language expansions do not "just happen"; rather, they happen only for those very same reasons of real human demography and sociocultural context that archaeology seeks to describe through its own, independent data: the material culture record.

It follows, too, that *great* language dispersals must have been driven by real-world processes *of* commensurate scale: the great expanse of the *Roman*ce language family today, from the Black Sea to the Atlantic, is none other than the direct linguistic reflex of the strength and lasting impact of Rome. Similarly in the Andes, the dispersal of the Quechua and Aymara families cannot have happened in a social and demographic vacuum. This principle is one we can make use of to identify correspondences between archaeological and linguistic patterns on three levels: *chronology*, *geography*, and above all *causation* – or in other words, *when*, *where* and *why*?

We begin by clarifying briefly a number of principles from historical linguistics that are indispensable to an understanding of how language data can inform us of prehistory at all. Or in other words: for the purpose of archaeology, what does historical linguistics actually *say*? (for a fuller treatment of these principles than is possible here, see Heggarty 2007, 2008; Heggarty and Beresford-Jones 2010).

What Does Historical Linguistics Actually Say?

Among scholars outside the discipline, the single most common misconception about historical linguistics is that it looks for correspondences between different languages simply in order to demonstrate thereby that those languages have a common origin. Or in other words, to imagine that language correspondences necessarily indicate *relatedness*.

In fact, there are *two* processes that give rise to patterns of correspondences between languages; and not only are these processes separate, they are but all the reverse of each other.

- The first does indeed start out from a single original source language, which over time *di*verges into different "daughter" languages. Given that all languages inevitably change through time, once the same original language is implanted in two or more different regions, and *contacts are lost* (or at least reduced) between the populations in each, their speech begins to change in different ways from region to region. That is, they gradually *lose* some of their original correspondences, though still retaining others.
- The second process, conversely, *begins* with multiple different source languages, which *con*verge over time when their originally different speaker populations *come into contact* and interact with each other. These languages thereby *acquire* some correspondences which they did not originally have.

It follows that just because one can identify correspondences between two languages on its own means nothing. Everything depends on which particular *type* of correspondence one finds. The business of comparative–historical linguistics is to compare languages to identify which type of correspondence they show (if any), and from that information to go on to work out the histories of those languages as either *di*vergence or *con*vergence.

This distinction matters for other disciplines because the two processes reflect very different real-world (pre)histories of the human populations. Languages do not determine the external contexts in which their speaker populations live; on the contrary, languages, particularly the patterns of divergence and convergence between them, are moulded by and reflect those contexts. While it may be somewhat contrary to popular perception, it is a founding axiom of linguistics that all natural languages are, to all intents and purposes, effectively equal in their communicative utility (for clarification, see Heggarty 2007, 338, endnote 6). Whether certain languages "succeed" over time, and spread and diverge into families at the expense of others that become marginalized and extinct, is nothing to do with any intrinsic linguistic qualities of their vocabularies, grammars or sound systems. For speakers of any language to imagine the contrary is only to delude themselves as to the relationship between language and "culture". Any of a panoply of Quechua derivational suffixes soon makes a mockery of attempts to count a language's "wealth" by how many "words" it can boast. Quechua borrows Spanish words, just as Spanish borrows English ones, for obvious real-world reasons that have nothing to do with the languages themselves.

Rather, language expansions are entirely a function of demographic, social, cultural and political forces, created by and acting upon the communities that speak those languages. The relationship here is one of cause-and-effect: real-world forces leaving linguistic effects. Among these forces are: the size, density and growth of a population; the degree and nature of its contact with, or isolation from, other populations; and its relative socio-cultural or political power and/or prestige. Language patterns are thus a reflection – and a valuable surviving record, a linguistic "history" – of how such forces operated on given populations

over time. It is precisely these same forces that archaeology seeks to track and explain through its own record of the past.

And just as that archaeological record is but partial and fragmented, so too is the linguistic one: many language lineages – Pictish, Etruscan, in fact countless indigenous languages across most of the world – have gone extinct without leaving any significant traces. In seeking to correlate these two fragmentary records, we can hope to use the strengths of each to mitigate the weaknesses of each. For an example of how to go about this, we can return to the two processes by which different languages can come to show correspondences, to set each in its corresponding real-world context. Language *convergence* reflects more or less intense *contacts* between what were originally separate population groups. By contrast, *divergence* of a single ancestor language into a language family reflects a past *expansion* of what had once been just a single population group. Our case study of the Central Andes serves well to illustrate these two different mechanisms.

Two major indigenous language families survive in the region, as mapped in Fig. 17.2. The largest, Quechua, is by number of speakers our greatest surviving link to the speech of the New World before the European conquest. Today, the various languages and "dialects" within the family can still be heard over a patchwork of territories extending almost 4,000 km from southern Colombia to northwest Argentina, equivalent to the distance between Morocco and Moscow. The second language family of the Andes, Aymara, today dominates the vast *Altiplano*, the high-altitude plains of Bolivia, though another quite different variety is still spoken in a tiny pocket some 800 km to the north, in the mountains of central Peru.

Correspondences both within and between these Andean language families make for a rich mine of information about their prehistories. Those of the first type attest to processes of divergence. The respective linguistic records of Quechua and Aymara divergence unfailingly tell us that each family goes back to its own separate single ancestor language, each spoken (necessarily) only in some narrowly circumscribed geographical area. From these respective homelands – wherever they were – each began to *expand*, such that in due course the two came to occupy their known ranges over vast areas of the Andes. The stage of a language lineage at the point in time just before it first diverged is known as that family's *proto-language*; stages long before divergence as the *pre-proto-language*.

There is no language divergence without geographical expansion. But the language families of the world vary greatly in both the degrees of divergence within them, and the geographical extents across which they are spoken. Furthermore, since language change and divergence tend to increase cumulatively with the passage of time, the degree of divergence across a family gives some indication of the time-depth of the geographical expansion that gave rise to it. Indeed, methods have even been proposed, including the so-called *glottochronology*, which try to derive from this approximate correlation a means of actually pinning hard dates on divergence time-depths. We discuss elsewhere the severe limitations on these methods (Heggarty 2007, 321–325; Heggarty and Beresford-Jones 2010, 165).

What matters for our purpose here is that while measures of intra-family diversity certainly do not produce "dates" that can in any sense be regarded as absolute, comparisons between different language families do at least provide a useful guide

Fig. 17.2 The two major language families of the Andes: present-day distribution

to their *relative* time-depths. And such order-of-magnitude measures indicate that Quechua and Aymara, despite their wide geographical extents, are *not* particularly deep families in time. Each encompasses a degree of internal diversity that is distinctly limited by the standards of the six to nine millennia variously estimated for the Indo-European language family. Estimates for Quechua range from just 1,200 to c. 2,500 years of divergence, comparable with just the very "last generation"

of Indo-European, such as Slavic, Romance or Germanic (Heggarty and Beresford-Jones 2010, Figure 1). For a start, then, such a time-depth is more than enough to dismiss the popular myth that attributes all Quechua's diversity and expansion to the Inca Empire of c. AD 1450–1535. For what drove most of Quechua's expansion, we must look deeper into the archaeological record.

As regards the Aymara family, attempts to assess its internal diversity and time-depth are hampered by how little of its former diversity now survives outside its modern *Altiplano* heartland. Within that heartland, Aymara exhibits such limited variation that linguists can be all but certain that its expansion there is of relatively recent date. Again, long-established linguistic consensus serves to contradict widespread belief within archaeology, wrapped up in Bolivian national ethos, that Aymara "must have been" the language of the Tiyawanaku polity of the Middle Horizon. Measures of diversity that include the other surviving branch of the family, the Central Aymara (alias "Jaqaru-Kawki") of the Central highlands of Peru suggest a time-depth of a similar order to that of Quechua. Moreover, place name studies and early Spanish colonial reports attest that Aymara was once spoken widely across many other regions, in forms now lost to us (Figs. 17.3 and 17.4), and suggest that its expansion across the region *predates* that of its now larger partner in Andean linguistic domination.

Indeed, on first impressions "partnership" seems an appropriate term for the relationship between speakers of these two language families, for they do show some striking structural parallels, and share a great deal of vocabulary (estimated at as much as 30% for certain of their dialects in closest contact with each other: see Cerrón-Palomino 2000, 311). In the heyday of earlier, now long discredited approaches in linguistics (glottochronology and "multilateral comparison"), these inter-family correspondences led some to propose that Quechua and Aymara's proto-languages in turn go back ultimately to a single common ancestor, i.e. that they are related, and that the correspondences between them are survivals from divergence at some great remove (Büttner 1983; Greenberg 1987). This so-called "Quechumaran" hypothesis is still occasionally entertained among Americanist linguists who do not specialize in the languages of the Andes, but among those who do, not one signs up to it (Torero 2002, 154; Adelaar and Muysken 2004, 35; Heggarty 2005, 2008; Heggarty and Beresford-Jones 2010, 170). Certainly for all practical purposes here, Quechua and Aymara can safely be taken as *not* related.

Rather, the remarkable correspondences between them are of the opposite type: those that attest to that other, all but diametrically opposed process: *convergence*. Countless languages across the Andes and Amazonia, in fact, have gradually come to share in certain general, abstract, structural characteristics, though without any one language recognizable as the source (see for instance the typological criteria in Torero 2002, 539). Such "areal" features are of precisely the type that typically denote chains of localized interactions – over prolonged time-scales and across extensive territories – between small-scale groups speaking a mosaic of different languages. They absolutely do not denote expansions of single languages into broad families, which would leave quite the opposite linguistic signal. That is, correspondences of this type reliably denote only areal proximity and contacts, *not relatedness* (Torero 2002, 154; Adelaar and Muysken 2004, 34–36; Heggarty 2006, 185–188).

Fig. 17.3 Current and assumed earlier distributions of Aymara, by nature and strength of evidence

Between Quechua and Aymara in particular, however, such correspondences are exceptionally strong. Far beyond simply sharing in general areal characteristics, they extend to a host of identifiable borrowings and specific structural "calques" throughout both families, which denote an especially intense interaction and convergence between early stages of their lineages. But even with this type of linguistic effect we remain firmly in the realm of *interactions* that bring about a degree of *con*vergence between originally *un*related languages. Interpretations of which historical scenarios might account for this vary (Heggarty and Beresford-Jones forthcoming, Muysken forthcoming, Urton forthcoming), but certainly this intimacy between the two language families dictates that any satisfactory explanation of the history of the one must be coherent with the history of the other, and

Fig. 17.4 Chavín (Ocucaje 3/4) ceramic (c. 750 BC) excavated by the author (DBJ) in Ullujaya, Ica – the periphery of the Early Horizon. Ullujaya is one of many place names in southern Peru that lends itself to a convincing Aymara etymology, with the meaning "look out" or "vantage point" (R. Cerrón-Palomino, personal communication)

incorporate intense contact between them (see for instance Cerrón-Palomino 2000, 337; Cerrón-Palomino 2001, 140). Ignoring this linguistic fact is the one failing common to all previous attempts by Andean archaeologists to synthesize language prehistory into their interpretations.

Put most simply, then, what historical linguistics says is not that there *may* have been one or more language expansions at given times over given extents of territory – but only provided we can find signals in the archaeological record that we feel are so overwhelmingly strong and match so perfectly as to account for them. Imperfect archaeological evidence is not in a position to deny these language expansions: they are facts.

In our Andean case, for instance, linguistics establishes that at some stages during a time-frame from the Middle Horizon back perhaps as far as the end of the Early Horizon, out of some points within the Central Andes two language dispersals spread across wide and overlapping territorial extents: Aymara and Quechua (most likely in that order). Their expansions were spectacular, and their driving force(s) very real.

It is not a question, then, of *whether any* expansive forces *might* have existed and have left such perfectly clear and matching signals in the archaeological record as to satisfy even the most sophisticated sceptic so that we might "dare" entertain any language-archaeology association. Rather, the burden of proof lies far more heavily on the overcautious sceptic to explain the irrefutable language dispersal while denying any real-world expansive forces to drive it. Of course, material culture (at least in preliterate societies) cannot of itself identify for us who spoke which language and

when. But that is beside the point. Let us stress once more: the task is not to work out *whether* some expansive forces in human demography and society propelled particular language expansions, but only *which* of those we can discern in the archaeological record are able to account for the established linguistic facts *most plausibly*. And thus, methodologically, of how and on what levels that plausibility might be judged.

Linking Archaeology and Linguistics in the Andes: The Traditional Model

What, then, is the traditional model for associating the linguistic and archaeological records in the Andes, and how does it fare when we apply our proposed methodology for linking the two? We shall review it briefly and draw attention to certain infelicities in the associations it proposes.

There is some consensus that the homelands of the respective separate ancestor languages of the Quechua and Aymara families lay somewhere in Central Peru, although considerable uncertainty remains as to more precisely where within this rather broadly defined region. Proposals from the two key authorities in the field – Alfredo Torero, generally seconded by Rodolfo Cerrón-Palomino – have acquired at least the status of the most convincing expounded so far.

For Aymara, both authors argue for a homeland in the Nazca region on the south-central coast, from where it is imagined to have expanded during the Early Intermediate Period into its highland hinterlands, including the Ayacucho region (Fig. 17.3). Some time later, that region was to become the heartland of the Wari Middle Horizon, to which they attribute the spread of Aymara more widely across southern Peru, including to the Cuzco region. Finally, during the Late Intermediate, Aymara expanded further south into the Altiplano, where it survives most strongly today, perhaps by the so-called "Aymara Kingdoms" of the Lupaqa and Qulla (although some of these, like their predecessor Tiyawanaku, may not in fact have spoken Aymara at all, but Puquina).

The two main authorities differ, however, as to the likely location of the Quechua homeland. Torero places it on the central coast, immediately to the north of Aymara, while Cerrón-Palomino prefers to set it inland, in the central highlands. Torero (2002, 42) even entertains the suggestion that much earlier, during the Late Preceramic period, i.e. long before its expansion, the pre-proto stage of the Quechua lineage was spoken in the Norte Chico area (Fig. 17.5a), but this is generally regarded as extremely speculative (see Cerrón-Palomino 2003, 22, and Heggarty and Beresford-Jones 2010, 179).

In the traditional view, the details of the earliest Quechua expansions remain rather unclear. What the linguistic data do show unequivocally is that certain of its secondary expansions (to Bolivia, Argentina and arguably Ecuador too) date to the relatively recent past – the Inca Late Horizon and Spanish Colonial periods (Heggarty 2007, 2008). Once these are "peeled back", the picture left, as in Fig. 17.5a, shows that long before them, Quechua had *already* come to be spoken across a great swathe of Peru: the central and southern coasts, and from the north-central through to the southern

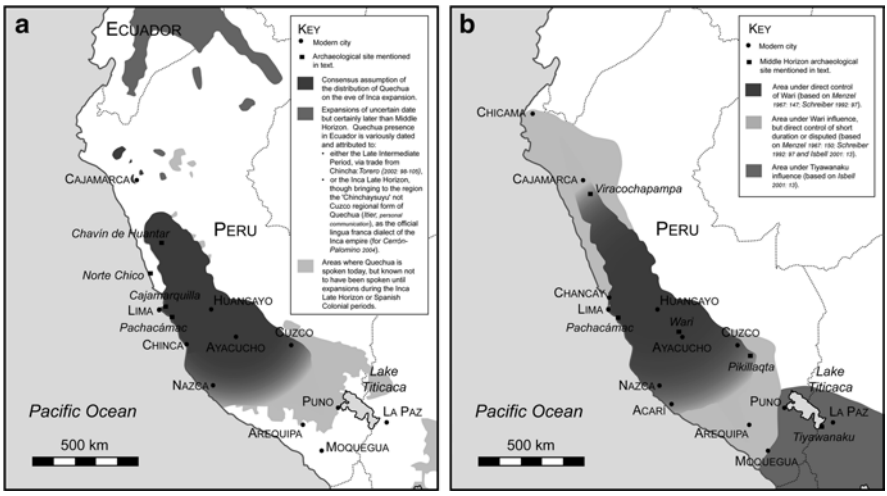

Fig. 17.5 (**a**) Assumed expansions of Quechua prior to and since the rise of the Incas. (**b**) Extents of Wari or Tiyawanaku direct control or influence during the Middle Horizon

highlands, from Ancash to Cuzco. It is also clear that the greatest degree of divergence within Quechua is between the northernmost and southernmost extremes of this broad territory of its earlier expansion. The traditional model would have this divergence explained by a series of vaguely defined migratory expansion stages, not least a first radical split into two separate branches: alias QI and QII, in the terminology proposed by Torero (1964), who envisages these putative expansion stages as stretching from the Early through to the Late Intermediate.

Whichever homeland they started out from, the first stage is seen as an expansion which left Quechua spoken on the central coast and through the north-central highlands of Peru, from Ancash south to Huánuco (but in the traditional view, not yet as far south as the Ayacucho region, which is associated at the time with Aymara instead). This expansion is taken to have given rise to the Central Quechua or QI branch. The remaining QII or North–South Quechua branch, meanwhile, is taken to have formed out of a later expansion to the south coasts and highlands of Peru.

What is unclear in the traditional model, however, is exactly what particular demographic and/or cultural driving *forces* in the archaeological record might account for this initial major expansion. Torero (2002, 124) identifies no particular driver for the first stage at all, though he imagines the split into central (QI) and north–south (QII) subgroups to have begun with an expansion of QII-speakers southwards, culminating in the foundation of the city of Cajamarquilla, at the southern extremity of his proposed proto-Quechua homeland in the Lima Valley, around the fourth century AD (Torero 2002, 127). QII is imagined to spread further south first during the Middle Horizon, along the south-central *coast* and its immediate highland hinterland, an expansion attributed to cult and trading influences of the great oracle of Pachacámac in the Lurín Valley near Lima. Next, from here and driven by the Chincha culture that flourished on the south coast during the Late Intermediate,

Torero (2002, 127) posits that QII encroached into the *highlands* of the south (overwriting the Aymara imagined to have been spread there earlier by Wari).

This relatively late spread of Quechua into the southern highlands is invoked to explain the linguistic evidence that until quite late in prehistory the Cuzco region, including the Incas themselves, spoke not just (nor even predominantly) Quechua, as popular perception would have it, but Aymara. Strong evidence for this emerges from a number of linguistic and Spanish documentary sources (see Heggarty 2007). Certainly, as Quechua spread southwards, it picked up increasingly heavy influences from Aymara, especially by the stage that it eventually reached into the Cuzco region, at around the time that the Inca state was beginning to form.

How does the traditional model fulfil our criteria for establishing correspondences with archaeology, on the three levels of geography, chronology and causation? Firstly, on the level of chronology, there are at least some linguistic indications that Aymara began its expansion *before* Quechua, including Torero's own lexicostatistical measures of divergence across each family (see Torero 2002, 88 and the discussions in Cerrón-Palomino 2000, 287; Cerrón-Palomino 2003, 333–334). The traditional model does not account for this; indeed Torero effectively discards this inconvenient datum entirely (see Cerrón-Palomino 2003, 331). That said, even its advocates repeatedly identify Aymara as a *sub*strate (i.e. earlier) language to the present-day Quechua in areas, such as Central Peru – ignoring how this contradicts and inverts the relative chronology of their own model. Torero's (2002, 124) chronology of the various migratory expansions behind Quechua's initial and greatest expansion is defined in particularly vague terms in any case.

On the level of geography too, the traditional model is uncomfortable on a number of counts. It posits Ayacucho as the source of Aymara's most significant expansion during the Middle Horizon; but today Ayacucho is the heartland of Quechua, not Aymara. Indeed, of Southern Quechua's regional varieties today, that of Ayacucho is the one that shows the *least* specific influence from Aymara. Furthermore, Torero's model locates the original, pre-expansion homelands for both Quechua and Aymara on the coast. Yet the entire prehistory of the Central Andes seems to present *no* instances of coastal societies expanding to dominate their highland hinterlands over any significant territory. As Julio C. Tello (1923) long since observed, *major* expansions clearly visible in the archaeological record all proceeded the other way around, spreading *out of* the highlands.

But it is on the third level for linking archaeology to linguistics – that of causation – that we find the most serious objections to the traditional model. For it imputes *major* stages of the language family expansions not to the Horizons but to the *smaller-scale* polities of the so-called "Intermediate" Periods: Nazca, Cajamarquilla and Chincha. Torero's model is particularly implausible on driving forces invoked for the main expansions of Quechua – so far as one can understand his often vague and inconsistent presentation.

Torero locates the starting point of Quechua expansion on the Central coast, in the closely spaced valleys between Chancay and Lurín. These were indeed densely populated during the Early Intermediate, with a major urban centre at Cajamarquilla in the Rímac Valley. But the archaeological record for this period shows nothing here that

might correspond with a major language *expansion*, particularly in the direction Torero envisages, into the north-central highlands as far as Ancash (Torero 2002, 124). In fact, Torero never offers clear explanation for this expansion of his QI, Central Quechua. He does, however, invoke a period of intense commercial interaction between Cajamarquilla and a number of other, independent regional polities during the sixth and seventh centuries AD (Torero 2002, 48). In this he follows an interpretation of the archaeological record for this period which effectively disputes its characterization as a Middle "Horizon" at all (see Shady 1982, 1989). The widespread dissemination of a material culture style at the time, which led to this "Middle Horizon" being identified in the first place, is for Shady just the result of a *trading* network, and Torero invokes this to account for intense early contact between Quechua and Aymara speakers. But few of the "urban centres" Torero lists show any coherence with the geography he claims for Quechua's expansion at this stage. Moreover, no sooner did the Wari Middle Horizon first extend into the Rímac Valley but Cajamarquilla was abruptly abandoned (Shady 1989; Mogrovejo and Segura 2001).

Torero is clearer in setting out his explanation of the driving forces for the southwards expansion of his QII, viz. Pachacámac and Chincha; though these turn out to be even less compatible with any evidence presented by the archaeological record. Pachacámac was founded early in the first epoch of the Middle Horizon. So similar is its material culture style to that of Wari that it prompted Uhle's first recognition of a Middle Horizon (even if the precise relationship underlying those styles is still debated: Isbell 1988; Schreiber 1992; Kaulicke 2001). During the Middle Horizon, the Pachacámac style became widely distributed along the coast as far south as Nazca, and into its immediate highland hinterland to Huancayo (Menzel 1967, 151). But during the subsequent Late Intermediate Period, the extent of this influence collapsed, back to just the immediate vicinity of the oracle itself. There is no evidence in the way of material culture remains for major population movements into the Wari heartland following its demise, as required by Torero's model. Nor is there any archaeological evidence that the influence of the rich Chincha society of the Late Intermediate Period extended much into its sierra hinterlands – certainly not as far as the Cuzco region, as Torero's model requires to take Quechua there. On the contrary, in the south this was a time of intense, small-scale conflict and tension, and a breakdown of pre-existing networks. We shall argue that what forces the traditional model to perform these serpentine and unhappy pastiches with the archaeological record is a flawed model of divergence relationships within the Quechua language family.

Linking Archaeology and Linguistics in the Andes: A New Proposal

The traditional model, then, betrays multiple flaws on the various levels of chronology, geography and causation. To overcome them, we propose instead a strong, straightforward new model starting out from the logic that it is the *Horizons* in Andean prehistory, not the Intermediate periods, that offer by far the best evidence of significant geographical expansions of people and ideas – and thereby also the best candidates for

drivers to account for the major language expansions too. This broad-scale observation stands, regardless of one's position on the many important debates within archaeology as to what were the driving forces behind these Horizons, and their exact extents.

Indeed we should clarify how we use the term "horizon" here, for different scholars have taken it in two different senses, focusing either on the distribution of a material culture style, or on a phase in chronology during which that style appears (see the discussion in Silverman 2004, 11–14). Originally the geography–chronology match was thought to be so consistent that the two were effectively synonymous, and the stylistic horizons could thus be taken also to define fixed blocks of time, valid for all the regions concerned together. Naturally though, when and how stylistic horizons manifest themselves in the material culture record can in practice vary considerably from place to place. Archaeologists working at ever finer timescales and within more limited geographical areas have become increasingly sensitive to these variations. Much of the radiocarbon evidence on Wari now falls outside Rowe's original chronological specification of the "Middle Horizon". We need to progress to a more sophisticated and flexible definition which accepts that a horizon applies over different time-spans in different areas – though without that undermining the essential unity of the phenomenon. In concepts such as the "Roman Empire", the same subtlety is of course widely understood and implicit. It is in this more sophisticated sense of core geographical and chronological overlaps that we employ the terms "Chavín Early Horizon" and "Wari Middle Horizon".

The Andean archaeological record shows three Horizon epochs, while its linguistic record reflects just two major language dispersals. For the reasons already discussed, however, we can rule out the Late Horizon as too late to account for the main expansions of either Aymara or Quechua. Thus we are left with a strikingly straightforward picture of *two* Horizons and *two* language dispersals. Our proposal overturns the traditional model's vision of Wari as Aymara-speaking and associates it with the dispersal of Quechua instead, leaving the Aymara spread to be accounted for by the Chavín Early Horizon.

We see the simplicity of this proposal as its great strength: it satisfies Occam's injunction by providing the most parsimonious match between the relative strengths and timings of the key socio-cultural and demographic driving forces in Andean prehistory, and their effects in propelling language expansions. We are of course aware that the instinctive reaction of archaeologists familiar with the not inconsiderable debates on Andean chronology may well be that our proposed match is more simplistic than simple. We shall argue, however, that under the methodology for linking archaeology and linguistics put forward here, our proposal in fact stands up far better than the traditional model also in its *detail*, on all three levels of geography, chronology and causation.

Chronology

Firstly, associating Aymara with the Early Horizon is in line with those indicators we do have that suggest that Aymara expanded earlier than Quechua. More

significantly, the chronology of our proposal would have Aymara dispersing widely with the Early Horizon, out of its Chavín homeland. Its associated prestige would, in the Ayacucho region, exert on the pre-proto-Quechua language spoken there at the time a powerful "superstrate" influence (whereby speakers of a lower-status language refashion aspects of it on the model of a higher-status one). Yet in due course, Quechua would undergo its own expansion, driven by the Middle Horizon and thus "overwriting" the earlier dispersal of Aymara, to leave it surviving only in small isolated highland pockets across its original range in Central Peru.

We envisage, then, a heavy Aymara superstrate impact on the ancestor language of the entire Quechua family, which then in turn expanded across Aymara's previous extent. This pattern in fact far better explains the particular form and strength of the convergence between the two families than does the traditional model's vaguer proposal, of simply "adjacent" homelands for ancestors of both families on the Peruvian coast. Indeed, their convergence is often explicitly described in terms of one of the two being restructured in the image of the other (e.g. Cerrón-Palomino 2000, 337), though different views are expressed on which "remodelled" which (Muysken, forthcoming).

Geography

On the level of geography, the linguistic data are, as Adelaar and Muysken (2004, 263) put it, "not incompatible with the alternative hypothesis of an original Aymaran homeland further north, in the heart of central Peru itself". Our association of Aymara with the Early Horizon would put that homeland in the central highlands of Ancash, centred on its core site of Chavín de Huantar (Fig. 17.3). Furthermore, Cerrón-Palomino (2000, 378) reports "significant" Aymara toponymy across precisely this region of central Peru. As he observes, these place names and other linguistic evidence provide "indirect evidence of the presence of a prior Aru [Aymara] substrate [in Ancash]" (Cerrón-Palomino 2003, 333, personal translation). His mapping of Aymara toponymy extends even further north in Peru, though here characterized only as "tenuous" ("tenue"), over an area that would correspond well with the known extent of the Cupisnique material culture style, forerunner to the Chavín Early Horizon.

Outside its Ancash heartland, the frontiers of the Early Horizon (so far as they existed) remain to be precisely determined. On the coast, distinctively "Chavinoid" material culture certainly extends as far south as the Ica and Nazca river drainages. Witness for instance the classically Chavín "fanged feline" iconography in Fig. 17.4, excavated as far south as Ullujaya (Ica). In the highlands, meanwhile, a major Chavín site is currently being excavated near Vilcashuamán, 60 km south-east of Ayacucho (R.L. Burger, personal communication). This southern limit of the Early Horizon is thus entirely consistent with an Aymara superstrate "remodelling" the language ancestral to the Quechua family, as per section

"Chronology" above. It also takes Aymara far enough south to be at least "within range" of what would become its southernmost regions, Cuzco and eventually – over a millennium later – the Altiplano.

Strikingly, on the level of toponymy, several of the place names just mentioned lend themselves to convincing Aymara etymologies, not least Ica, Ullujaya, Vilcashuamán and Cuzco itself (Cerrón-Palomino 2008; R. Cerrón-Palomino, personal communication). Indeed, Cerrón-Palomino's (2003, 292–293) inspection of toponymic dictionaries "indicates the presence of such elements diagnostic of Aymara in the departments of Lima, Junín, Pasco, Huánuco, Ancash, and to a lesser degree, in La Libertad, Piura and Cajamarca" – respectively, we note, the core and periphery of the Early Horizon.

For the Middle Horizon, the geographical correlation between archaeology and the historical linguistics of Quechua is even stronger. As we shall shortly see, there are several starkly contrasting interpretations of the archaeological record for the Middle Horizon. But for our purposes here, at least a partial consensus has been established: "most researchers agree that Wari was an expansive state, an empire that consolidated power rapidly", as Cook (2004, 146) puts it.

The Wari heartland lay in the Ayacucho highlands of the south-central Andes, centred on the eponymous urban centre there. The consensus would have Wari expanding rapidly out of this region during its so-called Epoch 1B, to control directly the central and southern coast between Chancay and Acarí, and the Peruvian highlands over an even greater extent, from Ancash to Sicuani (Fig. 17.5b; Menzel 1967, 147). At its apogee around 800 AD, its capital at Wari was vast, covering some 15 km^2. It remains to this day the largest archaeological site in South America (Isbell et al. 1991, 24).

We have not the space here to review in any detail the evidence or associated controversy behind this model of a Wari Empire. Suffice it to say that it includes the identification of permanent Wari administrative architecture (Fig. 17.6); distributions of mobile Wari material culture; evidence that much of the Inca road network was rehabilitated from an earlier Wari system; Middle Horizon antecedents of the Incas' *khipu* knotted-string accounting device; and even fragmentary hints in ethnohistory (Lumbreras 1974; Isbell 1987; Schreiber 1992, 2001; McEwan 1991, forthcoming; Hiltunen and McEwan 2004; D'Altroy and Schreiber 2004; Urton, forthcoming). Such evidence is deployed to support a model of "direct control" by Wari of the vast area of central and southern Peru defined above. Further north, beyond Ancash and into La Libertad and the Cajamarca basin, evidence for that direct control becomes fragmentary. There are scattered sites here that offer tantalizing hints of Wari administrative architecture, but they are still to be fully investigated (Schreiber 1992, 96; Watanabe 2001). On the densely populated north and north-central coasts, meanwhile, with their own long, independent prehistoric trajectories, evidence for Wari's presence is still more ambiguous – limited to mobile material culture and mortuary remains, leading archaeologists to infer only "indirect control" or influence (D'Altroy and Schreiber 2004).

South of the Cuzco region, Wari confronted the other major pole of the Middle Horizon: Tiyawanaku in the Titicaca basin. The archaeological story

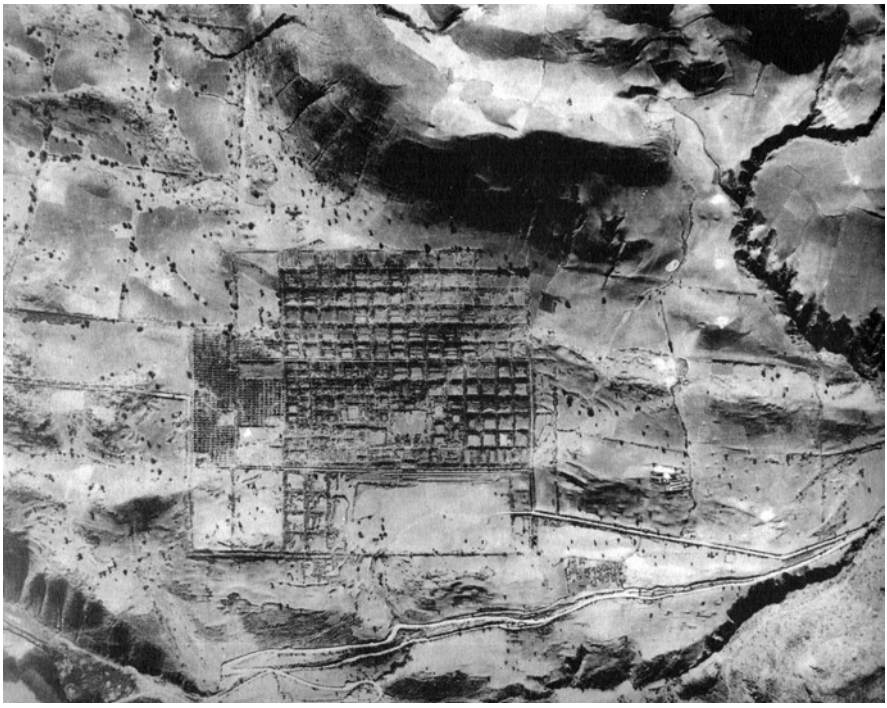

Fig. 17.6 Aerial view of Pikillaqta, a Wari outpost south-east of Cuzco: "such incredibly regimented planning…is not otherwise known in the world history of human environments" (Conklin 1991: 287). Courtesy of the Servicio Aerofotográfico Nacional, Peru

behind the Wari–Tiyawanaku relationship is another subject of considerable complexity. So similar is their iconography that both were initially conflated under the label "Tiahuanacoid". Clearly both partook of a shared ideological tradition widespread across the south-central Andes and which dates to the Early Intermediate or even before (Isbell and Knobloch 2008), and at times the two appear to have interacted intensely. Yet in all other aspects of their economy and society, they show entirely distinct prehistoric trajectories (Conklin 1991; Schreiber 1992; Isbell and Vranich 2004). Indeed, there is evidence from around Cerro Baúl (Moquegua, S.E. Peru) that their "interactions" at times took the form of open military conflict (Moseley et al. 1991; Isbell 2001; Williams and Nash 2002). Finally, and most importantly for our purpose here, their respective influences extended over mutually exclusive territories (Fig. 17.5b).

How does this geographical extent of the Wari Middle Horizon compare with that of the Quechua language family? We observe a remarkably close correlation between them. As already discussed, linguistics can reliably identify those parts of the Quechua expansion that date to more recent periods: into Ecuador during the Late Intermediate or Late Horizon; into Bolivia and north-western Argentina with the Inca Late Horizon and early colonial period; down the eastern flanks of

the Andes into the Amazon during colonial times. It has long been appreciated, meanwhile, that other parts of Peru where today only Spanish is spoken, in particular the south-central coast, were Quechua-speaking at the time of Spanish conquest, and indeed well before that of the Incas too (Cerrón-Palomino 2003, 327–328). Once these later expansions and disappearances are respectively stripped away from and added back to the map of Quechua's current distribution, we are left with a map bearing a strikingly close resemblance to the extent of the Wari Middle Horizon. Quechua dominates the highlands of Peru from Ancash in the north towards Cuzco in the south. Further north in the highlands it persists – and seems only ever to have been present – in just a few isolated pockets in Cajamarca and highland Lambayeque, within wider regions that previously spoke a patchwork of non-Quechua languages. And while Quechua dominated the south-central coast, north of Lima it never gained much foothold among the densely populated valleys of the north coast.

The only part of the map that shows uncertain correspondence with the Wari Middle Horizon is that area of the southern sierra towards the Titicaca basin that is Quechua-speaking today but lies somewhat beyond the southern limits of where archaeology would define Wari's influence, and its abutment on the Tiyawanaku sphere (see for instance Williams and Nash 2002; Tung and Owen 2008). Yet here too, linguistics tells a revealing tale, for the region is seen as a "linguistic battleground", where Quechua's predominance over Aymara came rather late in prehistory, perhaps only during the Inca Late Horizon and early Spanish control.

Causation

Though the correspondences in chronology and geography may well be striking, they are but circumstantial evidence for our core case. Its real strength lies on the level of causation. We reiterate the axiom of our methodology: language expansions do not "just happen", they happen only for those very same reasons of real human demography and socio-cultural context that archaeology seeks to perceive through the material culture record. And great language dispersals like those of Quechua and Aymara can only have been driven by processes of commensurate scale.

For our proposal to stand we need not attempt to link the expansions of these language families in the Andes to particular "cultures", nor indeed infer their association with the spread of a particular "people" and their genes. By our proposed methodology we seek to link them through *driving forces*; and the only ones of commensurate *scale* evident in the archaeological record of the Andes are those associated with the Horizons.

Quechua has long replaced Aymara throughout Peru, save for the southernmost strip bordering Bolivia and the tiny central highland enclaves of Jaqaru-Kawki. All other indigenous languages are extinct from the highlands. Quechua's early expansion closely matches that of the ancient Wari Empire (even today the most heavily

Quechua-speaking region is that of Ayacucho, the heartland of Wari.) And while archaeologists have proposed very different interpretations to explain the material culture record left by the Middle Horizon, all have in common an agreement that the period was characterized by major social change and upheaval.

The size, complexity and poor state of preservation of the site of Wari itself have defied comprehensive archaeological survey to date (see Isbell 1988, 167). Speculative population estimates for the city range between 50,000 and 100,000 (Benavides 1991, 56), or 20,000 and 34,000 (Isbell 1988, 173). Whatever, it was by any measure an enormous ancient city: even half a millennium later, Venice, the largest city in Europe, had a population of under 50,000 (McEvedy 1992, 75). Survey data indicate how the populations in surrounding areas gradually became drawn into the vast agglomeration that was Wari (Schreiber 1992, 88; Isbell and Vranich 2004, 177).

Furthermore, the Middle Horizon archaeological record indicates much larger scale movements of people across the Andes than do those of the Intermediate Periods that preceded and succeeded it. Mobile material culture indicative of Wari influence is distributed throughout the highlands and along the south-central coast of Central Peru, but for the very far south (Fig. 17.5b; Menzel 1967). Sites in the Cuzco region, meanwhile, and Wari itself, have yielded significant quantities of ceramics from Cajamarca, almost 1,000 km to the north. As Menzel (1967, 152) observes, "their abundance [at Wari itself] is such as to suggest that there were colonies of northerners established at the imperial capital". In non-mobile material culture, for Isbell (1987, 86) "perhaps the dominant feature of Wari architecture" is that of "barracks-like residential facilities", interpreted as housing for mobile labour or military personnel (see also McEwan 1991, 117). D'Altroy and Schreiber (2004, 274) summarize the consensus view thus: "it is now clear that these sites were occupied by large numbers of people, both foreigners from Wari and local peoples". And some of these sites were huge. Pikillaqta, for instance, shown in Fig. 17.6, is but a part of the intense Wari occupation of the Cuzco region (McEwan 1991; Glowacki 2002). Yet this single component of the Wari periphery is larger than the later Inca imperial *capital* of Cuzco (see McEwan 1991, Fig. 17.2).

There is strong evidence also that the Wari Middle Horizon was, in large part, based upon the intensification of food production in the intermontane valleys of the highlands: the "quichua ecozone". The extent of Huari direct control seems intimately associated with this zone – the same area over which Quechua saw its first major expansion, and from which, incidentally, it acquired its very name. (Cerrón-Palomino 2008, 33–49), however, for a path through the minefield of popular myths surrounding the etymologies of the terms *Quechua* and *Aymara*. The evidence includes large-scale shifts in settlement and in subsistence regimes from tubers to maize cereals; massive terracing construction (Schreiber 1992, 2001); and the introduction of new maize varieties (Grobman et al. 1961; Bird et al. 1984). All appear to have been instigated by the "state" in order to supply distant urban populations. Isbell (1988, 182) credits the Wari Middle Horizon with the development of a uniquely Andean form of "state finance" – what Godelier (1977, 188) had first called the "Inca mode of production" – whereby long-standing local traditions of

reciprocal exchanges of labour were elaborated into a system of labour-taxation, in exchange for food and drink provided at state-sponsored feasts. Much Wari iconography, particularly that of gigantic ceramic vessels associated with feasting, reflects an apparent preoccupation with agricultural themes (see for instance Shady 1989, 13). Indeed, some see the innovations wrought by Wari in these respects as so fundamental and enduring that they defined the course of subsequent Andean civilization (Isbell 1988, 182), and settlement patterns still today (Schreiber 1992, 260; Williams and Nash 2002, 255).

We argue here that so too did they define language patterns. Indeed, that Quechua was later adopted by the Incas as the language of administration for their empire was not because it was their own original tongue. Rather, there are strong indications that the Incas themselves may well originally have spoken Aymara, and switched their "official" language of empire to Quechua only relatively late in their trajectory of imperial expansion, during the reign of Tupac Inca Yupanqui (1471–1493). Their reason may have been an entirely pragmatic one: that most northern lands that fell to the Incas were already speaking it, precisely because the earlier Wari Empire had so dramatically spread it there. It even appears that the form of Quechua the Incas selected for this purpose was not that ultimately spoken in the Cuzco region, but a more northerly "Chincha" version (for details on all these issues, see Cerrón-Palomino 1998, 1999; Cerrón-Palomino 2003, 342; Cerrón-Palomino 2004).

As for the longevity of the Wari Middle Horizon, Menzel's original relative chronology based only on ceramic typology would have us believe that its rise and fall were swift. As Schreiber (1992, 276) puts it: "each phase of the Middle Horizon 1B, 2A and 2B, is estimated to have lasted only about 50 years…If this accurate, the Wari Empire lasted only about 150 years". Yet in the face of mounting ^{14}C evidence (see for instance Williams 2001), this view has now been abandoned. As Cook (2004, 158) summarises: "instead of a 200-year span (approximately 650–850 AD) during which time the empire flourished, the time frame has doubled (approximately 550–1000 AD)". This relatively recent understanding that the time-depth of the Middle Horizon approached half a millennium is far more compatible with the dramatic linguistic impact that our proposal would attribute to it.

For the Early Horizon, both the archaeological signature and linguistic traces are naturally far fainter. In linguistics, no language expansion has to date been explicitly attributed to the Chavín Early Horizon. It is true that Cerrón-Palomino's reflections on a homeland in the central highlands, not the coast, might at least hint at Chavín as a possible candidate homeland for Quechua (Cerrón-Palomino 2003, 22). His reluctance to formalize such a claim, however, is based on the same objection that most other writers see: the Early Horizon seems just too far back in time to correspond with the expansion of so shallow and compact a family as Quechua. On this last point we could not agree more, but it remains deeply problematic in the traditional thinking that such a defining archaeological signal as the Early Horizon is left without any significant linguistic correlate, when the linguistics is crying out for a driver for Aymara – and before the spread of Quechua.

Elsewhere (Heggarty and Beresford-Jones 2010), we have drawn attention to the correspondences in broad scale and timing between: the first major language family

expansion in the Andes; the "real pattern" (Burger 1993, 74) that the archaeological record of the Early Horizon represents; and the first point in time for which we can unequivocally assert that maize has "suddenly" become *ubiquitous* in the archaeobotanical record. We have also argued that it was only at this point in Andean prehistory that a number of gradual processes in the development of food production in the region finally intersected to tip agriculture here across an *expansive* intensification threshold. We hypothesize that it was the significant incorporation at last of a true cereal, maize, that was crucial to this coalescence of a geographically expansive agricultural package – a "mobile food chain", to use Jones' term (Jones 2007, 144).

In the end, however, given its far fainter traces, our association of the Early Horizon with the expansion of Aymara on this level of causation relies also on reductive reasoning. If our proposal to ascribe Quechua to the Middle Horizon stands, then our axiom associating major language family expansions with Horizons leaves us with one major Andean language family expansion to explain, and only the Early Horizon to explain it with. It fits, moreover, with the clear indications that over almost all its core range in Peru, Quechua seems to overlie an *earlier* Aymara spread.

We also explicitly associate both the Early and Middle Horizons with step-changes in food production: two different agricultural intensification thresholds (Pearsall 2008). What we do not advocate, of course, is a simplistic argument that the spread of the major language families of the Andes is to be sought *uniquely* in agriculture (Heggarty and Beresford-Jones 2010). Both Horizons were unquestionably much more than merely intensifications of maize agriculture. We shall return shortly to the debate in archaeology about the nature of each of the Andean Horizons, and what our proposed "new synthesis" of archaeology and linguistics here might mean for those debates.

Not Seeing the Web for the Trees

There have been two partial precedents for our proposal: Isbell (1974) and Bird et al. (1984). Isbell suggested that the expansion of Quechua was associated with that of maize agriculture, though at a time remove too great to be reconciled with linguistic data (Cerrón-Palomino 2003, 336–338). Bird et al., meanwhile, recast Torero's original language data alongside a biogeography of maize varieties – data radically different to our own here, but arriving at a conclusion in part the same: linking the expansion of Quechua to the Middle Horizon. Neither linguists nor archaeologists have engaged meaningfully with this proposal beyond merely citing it, except for Cerrón-Palomino (2001) and Isbell (1984), respectively, both of whom are highly critical. We too disagree strongly with Bird and colleagues' unorthodox vision of the linguistics, not least the disconcerting methodological liberties they take with "linguistic dating" (Bird et al. 1984); nor does their proposal take into account the deep correspondences between Quechua and Aymara that any model needs to explain.

Certainly there were serious flaws in the linguistic argumentations of these previous proposals, then. But why is it that Andean linguists themselves have never yet entertained so straightforward a proposal of Quechua as driven by the Middle Horizon, and Aymara by the Early Horizon? The key obstacles, in our view, have been two: the traditional view of the classificatory structure of each language family as a branching tree; and the assumption that since they attest to deep contacts between each other early in their histories, they must have their origins in territorially neighbouring homelands.

The traditional classification of the relationships between the different regional "dialects" and languages within the Quechua envisages a "family tree", with a series of binary branches: first, the original Proto-Quechua ancestor is imagined to have split into so-called QI and QII branches; QII then split in turn into QIIa vs. QIIb/c; the latter then into QIIb and QIIc and so on. This tree model seeks to explain the various degrees of difference between modern Quechua varieties primarily in terms of greater or lesser time-depths since their respective ancestral lineages separated from each other.

In real world terms, this concept of a language "split" typically corresponds to a stark division of an original population into two groups, thereafter no longer in contact and whose speech thus develops separately into different varieties (Heggarty et al. 2010). So to link his branching-tree view of Quechua prehistory with the archaeological record, Torero is compelled to seek a whole string of separate population splits and expansions by "migration". The result is an over-extended chronology which needs to invoke driving forces from multiple periods through Andean prehistory, and assign major roles to relatively minor regional polities in the Early and Late Intermediate Periods. Moreover, assuming that the Quechua and Aymara homelands must be placed near each other therefore pushes Torero to hypothesize that Aymara's origins were on the south coast of Peru, and requires the Wari Middle Horizon to be a key second-stage driver of its expansion, ruling out a role for it in spreading Quechua instead. There are a great many infelicities in the complexities of these multiple expansion stages, and in attributing major linguistic impacts to minor polities in the archaeological record; but they are forced on the traditional model by its insistence on a branching tree as the classificatory structure of the Quechua, and also Aymara, language families.

True, as an intellectual model, binary branches may seem more "elegant" – for which however read "simple", indeed "simplistic", in linguistic and indeed real-world terms. For binary branches are by no means the only pattern in which languages diverge in practice. On the contrary, for many language families it is well known that no family tree classification is viable at all, and a quite different model is needed: the "dialect continuum". This applies to large swathes of all four major language families of Europe (Romance, Germanic, Slavic and Celtic), as well as to Arabic, Bantu, Turkic, the languages of northern India, China and elsewhere. Great swathes of human linguistic diversity cannot be represented by family trees, but only by dialect continua.

For Quechua too, the initial family-tree classification has fallen increasingly into disarray as our knowledge of the geographical diversity across the family has grown over recent decades, especially with the documentation of dialects intermediate between the supposed two main branches, or that classify well with neither (Adelaar 1977, 1987; Taylor 1984a, b). As early as Landerman (1991), it was demonstrated that the two-way QI–QII split is untenable; but because he still kept faith with the tree idealization in principle, he remained unable to offer any alternative.

To propose and justify one, more radical steps were required. Heggarty (2005) applied new network-type phylogenetic analyses to Torero's own measures of divergence across the family, and to new datasets and quantification methods of his own. All of these consistently favour a view of Quechua not as a branching tree at all, but as a "network" or "web" of cross-cutting linguistic relationships, the signal typical of a dialect continuum. We have called, then, for the traditional family tree classification to be abandoned altogether, in favour of a dialect continuum model instead. It then remained to set this new view of Quechua's origins in a real-world context that might explain how and why the family diverged into such a pattern, if not by Torero's sequence of migrations.

In dialect continua, the respective degrees of difference between language varieties within a family are typically explained not by chronological differences in the stages at which their lineages diverged, but by degrees of coherence across a wide "speech community", determined in large part simply by geographical distance. Romance – and we argue also Wari – provide classic examples. Typically, a single ancestor language – in our cases Proto-Romance (i.e. Latin) and Proto-Quechua – is spread in what is effectively a single, contemporaneous expansion, across a continuous geographical area. If extensive enough, the speech in different sub-regions will naturally diverge, and all the faster after the collapse of "political" unity across it (the fall of Rome, and of Wari). Nonetheless, local-level contacts continue, allowing new linguistic developments to spread by "waves", overlapping across different parts of the overall region, so that the original ancestor language at length turns into a dialect continuum. From one village to the next, minor differences do not disrupt mutual intelligibility, but between the distant poles of the continuum so many differences accumulate that they speak what are effectively different languages, albeit related. A useful analogy is a colour spectrum, where colours contrast starkly at the extremes, even if between them there is never a sharp break in the shading from red to orange to yellow to green, etc. Portuguese is most similar to Spanish, then to Catalan, Provençal and so on the further one travels eastwards. But all these territories were settled by Latin speakers at more or less the *same* time: a single, all but contemporaneous expansion with no "splits".

As what best accounts for the core structure of the Quechua language family, we propose a similar process: an initial major expansion propelled *only* by the Wari Middle Horizon. The increasing differences in Quechua from Ancash in the north to Cuzco in the south go back not to a chronological sequence of separate migrations, but merely to the greater geographical distance between them across this Quechua continuum. The intermediate varieties of Yauyos are in their due place, in the middle of that continuum, while the "unclassifiable" north Peruvian varieties such as

Cajamarca reflect the isolated northernmost Wari outposts, beyond the continuous zone and thus developing more independently of the wave changes spreading across it (the closest Romance equivalent is the isolated "outlier" that is Romanian).

Certainly, a dialect continuum picture can be complicated by later disruptions: political frontiers draw fault-lines within it; intermediate dialects die out or are "standardised" towards others (especially in modern western nations). Indeed, later expansion episodes can emerge from just points within it: late Medieval Spanish to the New World, for instance; or Cuzco Quechua to Bolivia. Nonetheless, for the core of Quechua's divergence history, our vision of a single Horizon expansion in practice makes for a far more economical and straightforward explanation in real-world terms than the supposedly "elegant" binary tree, with its need for a string of successive migrations, first in one direction and then in others. For more on this issue of the real-world (pre)historical correlates of dialect continua vs. branching trees, see Heggarty et al. (2010) and, for the Quechua case, Heggarty and Pearce (forthcoming).

What Does It Mean for Archaeology?

Finally we turn to the archaeological debate about the nature of each of the Andean "Horizons". It is one thing, of course, to identify a "Horizon" (alias "stylistic coherence over a broad region": Rice 1993, 9) and to describe its extent and variation in time and space as culture history wished to (difficult tasks in themselves). It is quite another to tease apart and explain, as archaeology now aspires to do, those cultural *forces* – economic, political, ideological, and so forth – that shaped that archaeological record.

We have so far presented Wari as a military, expansionist empire – the partial consensus within Andean archaeology. We have also alluded to how archaeologists have nonetheless read from the same material culture record stories of the Middle Horizon that can be very different. Various primary driving forces have been invoked to account for that record, which Schreiber (2001, 443) usefully summarises as (1) political expansion/conquest; (2) religion; and (3) commerce.

The idea that the mainspring of the Middle Horizon was a religious movement has a long pedigree in archaeology, dating back to Menzel herself, and is still advocated in several forms, with considerable archaeological evidence marshalled in its support (see for instance Topic and Topic 2001). Certainly there is little doubting the significance of religious ideology in its material culture record. Another alternative to the leading model envisages a number of independent regional polities, but linked by a substantial *trading* network (e.g. Shady 1982, 1989). As we have seen, it is this model that seems to underlie part of Torero's scenario for Quechua expansion, but confusingly also that of Aymara (see also Isbell 1984 for criticism).

For the Early Horizon, meanwhile, sunk in far deeper recesses of Andean prehistory, speculation is lent an even freer rein. Most archaeologists see it as the expression of little more than a proselytizing cult, radiating out from (or in towards) the

monumental site of Chavín de Huántar (Burger 1993; Kembel and Rick 2004). Some would even deny its very existence as a "Horizon" (e.g. Pozorski and Pozorski 1987).

Here, our proposed synthesis between archaeological and linguistic data proves instructive in making an explicit claim: that whatever our interpretations of the Early and Middle Horizons, each should include one or more forces capable of driving a *major* language expansion. This leads us in turn to question an archaeological model for either that "places the vital motor of cultural change in ideology rather than in the material realm", as Willey (1999, 86) puts it. For despite popular impressions to the contrary, on closer inspection history offers surprisingly few, if any, precedents for major language expansions driven by religion.

To understand this, one must avoid confusing two utterly different linguistic realities: on the one hand, the territorial expansions of natural, changing, native-tongue language families (such as Quechua, Aymara, Romance or Indic); on the other hand, the use of a particular "fossilised" language as an "élite" medium of religious discourse (such as Church Latin or Classical Sanskrit), often among communities speaking various different native languages. Certainly, across Europe a fossilized form of Latin was once widespread in liturgical and scholarly uses; but even by early mediaeval times it was a learned code, the native tongue of no one, and restricted to contexts which, for all their status, were always sociolinguistically highly marked, marginal, and ultimately largely doomed.

Such language uses are but an artificial sideshow to the vast real-world expansion and lasting survival of the Latin (i.e. *Roman*ce) lineage as living, native tongues. The populations of much of modern Europe speak Romance languages not because of Christianity, but because of the very temporal, *pre*-Christian powers of Rome; so too, now, do those of "Latin" America and much of Africa, because of the later power of imperialist European empires. Christianity may have *accompanied* these later language expansions, but it did not *drive* them. On the contrary, both were driven together by other, much more material forces. Notwithstanding Europeans' appeals to Christianity to "legitimise" their conquests, it was not religion that provided the primary incentive in practice, and much less still conferred the key "germs and steel" advantages that made the conquests possible at all. Similarly in India, the continued use of fossilized Sanskrit for religious and administrative purposes pales alongside the spread of the Indic family of native languages, with almost a billion native speakers across Pakistan, Northern India and Bangladesh, derived instead from the living *Prakrits*.

The net linguistic effects of religions per se, even proselytizing ones, have been very modest. The one oft-cited case of major language dispersal apparently in step with a religious one, that of Arabic and Islam, likewise turns out to be a chimaera which only reinforces this principle. For again, the lasting spread of Arabic as a native language across parts of the Near East and North Africa was driven far less by religion than by one of the most crushing military conquests in history. Elsewhere, wherever the Arabs' military conquest did not reach, and even across Persia where it did, their language failed to make headway except as a medium of religion discourse, and a source of loanwords into the regions' native

languages. From Senegal to Sulawesi, Islamic populations continue to speak African, Indo-European and Oriental tongues – not Arabic.

Religious ideology doubtless was an important trapping of both the Chavín Early Horizon and Wari Middle Horizon; it is certainly conspicuous in the archaeological record. Yet for all that, it signally fails as a "vital motor" to drive major language expansion. Perhaps archaeology has been misled by the all-too visible representation of ideology in the Andean material culture record; upending Hawkes' (in)famous "ladder of inference" (Hawkes 1954).

More generally, prior to the transformations brought about by the rise of the nation state and associated phenomena of mass education and literacy, language standardization, transport and (tele-)communications, through most of human history mechanisms of language dispersal have been radically different to those we observe in the modern era.

In this light, and as with religion, a strong case can be made that trade too is altogether too weak a driving force to explain Quechua's expansion. Until these modern transformations (and indeed arguably even since then), the sorts of contacts made through trade and exchange have had surprisingly little linguistic impact. The Phoenicians, for instance, may have dominated trade for over a millennium in the Mediterranean, but they have left precious little linguistic trace (Ostler 2005, 45–46, 68–78). Trade, like religion, has through history had far less linguistic impact than many would like to believe. As a stock explanation to invoke for archaeology–linguistics links, trade too is all too facile, and smacks of instincts from our context of the modern world, rather than those that prevailed through most of human history.

Some authors, meanwhile, have made much of the existence of "bilingual" or "multilingual empires", known from historical times, to challenge the claim that, as Isbell (1984, 246) puts it, "conquest states and empires spread single languages, establishing linguistic uniformity". Empires are – by definition – multilingual at their inception, though for our purposes what matters is that they typically drive the expansion of just one language. The supposed counterexample inevitably invoked is that of the Roman Empire, which did indeed eventually split into a western Latin-speaking half, and an Eastern, predominantly Greek-speaking one. Yet this is to convey a misleading impression of Rome's linguistic impact, for over the course of its great expansion and consolidation Rome really drove just *one* language of empire: Latin, from its humble origins as but one among the patchwork of many languages of Iron Age Italy to what would ultimately turn into the vast Romance language family.

Other than in administration (and ultimately, increasingly there too) the two halves of the Roman Empire were largely independent entities, not least linguistically speaking. The so-called "Jireček Line" across the Balkans marks the sharp divide between the Latin and Greek-speaking halves, visible to this day in the inscriptions and archaeological records on either side. The Roman Empire was thus never a truly bilingual empire operating in, or driving the expansion of, two languages side-by-side. Greek had *already* been spread by earlier seaborne expansions and by Alexander, which is what made it a useful *lingua franca* for the Romans to avail themselves of in the east in the first place. It also assured Greek sufficient

status in the face of Latin that the latter failed to spread significantly here at Greek's expense, as it had eclipsed most languages in the West. A final key difference is that while in the West Latin was the everyday language of the populace and a major demographic expansion, this was never the case for either Latin or Greek in most of the East; hence their very different eventual fates.

A synthesis of linguistics and archaeology has considerable implications, then, for how we interpret what the Andean "Horizons" really were. For if Wari spoke Aymara, as proposed by the traditional model, then the modesty of its linguistic legacy across the Central Andes – toponymy and a few scattered pockets of speakers – is *incompatible* with the model of a military expansionist empire establishing direct control over vast territories, in the manner of the Incas or the Romans. On the other hand, if our new proposal is correct and Wari spoke Quechua, then the model of direct control Empire is almost *required* in order to account for its linguistic impact. The fainter surviving trace of Aymara's expansion across the Central Andes is then explained by the greater time-depth (and relatively weaker impact?) of the Early Horizon.

Conclusions

By their very nature, interdisciplinary syntheses run a risk of circularity. One model, weakly substantiated in one discipline, is invoked to bolster its counterpart model in the other; which then, by definition, feeds back to support the first. Such dangers lurk in the forests of phylogenetic trees proposed for human genetic and linguistic lineages – not least the linguistically infamous, simplistic and invalid match for all of humanity proposed by Cavalli-Sforza (1997, Fig. 17.3). Many of the trees, moreover, turn out to be "rooted" in archaeological manure.

The distinction between a coherent picture between the disciplines, and a "just-so" story based on circular argument, can lie ultimately only in judgements passed independently in each discipline on the strength of the data and their interpretations. Here this includes the case for abandoning outdated and inappropriate tree models of how each of the major language families of the Andes diverged, and replacing them with dialect continuum scenarios.

The risks can be mitigated also through the principled new methodology we propose: seeking to correlate the disciplines independently on each of our three levels of chronology, geography and causation. Nonetheless, in setting sail for any new synthesis goal, it is *causation* that stands as mast and sail, with the other levels adding little more than ropes and rigging. Links between our archaeological and linguistic records of the past should first and foremost be cast in terms of those same *forces* that affect human populations, and to which both those records attest; and they must be coherent above all in the *commensurate scale* of their impacts in each.

As culture history fell out of favour and the material record came to be viewed through the processual lens of culture evolution, archaeology lost some of its perspective on those appropriate scales. Unfortunately so, for a principled synthesis of the

archaeological and linguistic stories has great potential to enrich our understanding of prehistory. Moreover, for all the elaborations in semantics of more recent archaeological theory, in the case of the Andes the current leading model of the Wari Middle Horizon turns out to be no different in essence to that founded by the culture-historical work of Menzel and Rowe (see for example Rowe 1956; Menzel 1967). The Wari "Empire" fell only for the "state" to be built upon its theoretical ruin. Our own proposal strengthens still further this interpretation of Wari as an expansionist, military conquest empire, akin to the Incas. To the many elements of "Inca" statecraft that archaeology has gradually revealed to have had their roots in the lost empire of the Middle Horizon, we now propose to add one more: the expansion of the greatest surviving language of the New World, Quechua.

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