

The role of agriculture in accounting for the diversity of Amerindian languages

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The absurd theories which have been advanced and gravely defended by men of learning and acuteness respecting the origin of the Indian races are hardly worth even a passing reference... When men sit down crammed with scattering items of historical information, abounding in prejudices, and teeming fancies, to the solution of questions respecting whose conditions they know nothing, there is no folly which they are not prepared to commit.

Whitney (1867)

1. Introduction

1.1 Claims about agricultural expansions

Associated principally with archaeology are a number of highly questionable claims concerning the antiquity of language phyla and the motivation for their expansion. This idea has a long history within Indo-European, but has most recently been associated with the work of Peter Bellwood who has energetically propagated the notion that many language families expanded as a result of both demic diffusion and the spread of farming (e.g. Bellwood 2005, Bellwood & Renfrew 2002). While such explanations might be seriously entertained in a small number of specific cases, the case for attributing this hypothesis a more global explanatory power is questionable. It rarely addresses actual linguistic evidence and indeed, in many cases, the data appears to contradict the model. At the same time, linguists do not always present their results in a most accessible way and sometimes offer reconstructions that are chronologically improbable or culturally unrealistic. Linguists also disagree, rather forcefully in some cases; the case of Sino-Tibetan springs to mind. No wonder many archaeologists and linguists on the margins of the debate simply shrug their shoulders.

1.2 Is it necessary for there to be any engine of language phylum expansion?

It might be asked whether it is necessary to adduce any motive for language phylum expansion other than natural population growth. The answer is that in most parts of the world, the language families are manifestly recent. Indo-European, Afro-Asiatic, Austroasiatic, Austronesian, Kartvelian, Mixe-Zoque and Mayan are all phyla that are relatively tightly knit and have clearly expanded recently, eliminating a great deal of prior diversity. Indeed this is one of the factors that makes a link with the rise of farming credible; what would be behind this if not agriculture? If agriculture is ruled out then it is reasonable for opponents of the hypothesis to present an alternative; close-knit language phyla do not exist simply by chance. Other alternatives are superior military organisation linked with expansionist ideologies, new technology (metals, maritime techniques, bow and arrow even lithics), climate or environmental change leading to new resource availability, changes in health status and religious and social ideas. Some of these are more easily tested against archaeological and linguistic data than others.

1.3 Demographic expansion versus cultural transmission

Associated with the language/farming dispersal hypothesis is the idea of an association with demographic expansion, 'demic diffusion' in the language of its advocates. In principle, this is realistic; we know that in the early stages of the evolution of farming, farmers move regularly, sometimes in large circular patterns, to allow for the regrowth of fallow, but often pioneering new areas of untilled land. Similarly, pastoralists or fishermen may depend on a resource in a particular area for some time, but the year it fails they explore new territory and their movement patterns and dispersal often change irrevocably. Nonetheless, it is clearly also true that language can spread independently of mass migration; the vast majority of Americans have not absorbed American culture by direct transmission from English-speaking forebears, although they also migrated. Similarly, many Chinese populations today were clearly formerly speakers of languages of other phyla and have gradually 'become' Chinese over the millennia.

This is not to question the reality of demographic expansions; they clearly occur. However, the relationship with a subsistence pattern has to be demonstrated on a case by case basis. This is not difficult when the populations and their languages expand into territory only occupied by foragers or is uninhabited. Clearly

this is not an issue to be resolved unambiguously. When people move, artefacts and ideas also migrate. Proving demographic expansion would require the sort of large scale quantitative analysis and sampling that is unlikely to be available for most parts of the world. However, most reasonable onlookers would accept clusters of villages moving and spreading with characteristic new types of material culture as a priori evidence for this type of migration.

2. Methodological issues

What preconditions are required for there to be a reasonable a priori link between the expansion of a language phylum and agriculture (or indeed any other subsistence system, such as fisheries or pastoralism)? The answers may seem obvious, most but published models do not clearly adhere to them. They are;

1. That there be an incontrovertible phylum
2. That the phylum be sufficiently large for useful conclusions to be drawn from reconstruction
3. That the internal structure of the phylum is generally accepted and from this some assessment of the homeland and general direction of migration is available
4. For reconstructions to exist for a significant number of items including those of an ecological nature that broadly support the outline in 3.
5. That reconstructions exist of the principal crops, trees, livestock species or other subsistence items relevant to the hypothesis
6. That reconstructions exist of items suggestive of farming rather than just gathering wild relatives of the crops
7. That well-dated archaeobotanical materials exist that correspond to the reconstructions in areas roughly coincident with the proposed homeland
8. That no other competing hypothesis be available to explain the data equally well

1. Broadly speaking, language phyla can be divided into those which are almost universally accepted, those which are debatable and those which are not phyla at all but merely geographical groupings. New World examples of those universally accepted are Eskimo-Aleut, Mayan, Na-Dene, Uto-Aztecan, Arawakan, Tupain and Cariban. In the debated category are Penutian and Hokan. In addition, there are macro-phyla, bundlings of multiple phyla, most notably Nostratic (Eurasian) and Amerind. These are not widely accepted by the linguistic community and, even if real, would have a time-depth too great to admit significant cultural reconstruction.

2. Not all language phyla are large; Eskimo-Aleut, Wititoan and many other groupings in the New World have just two or three members and thus cannot be reconstructed to any great time-depth. Even if agriculture, herding or fishing can be reconstructed for their proto-language this does not carry much information as we know these methods of subsistence are older than any hypothetical date emerging from the reconstruction process.

3. The internal structure of most language phyla is debated; and in some disagreement is so serious that uncontroversial reconstruction is impossible. Disputed phylic structures include Arawakan. The significance of this is that there can be no convincing reconstructions of a proto-language without a hierarchical structure. Linguists can extract common forms (i.e. likely abstractions based on synchronic attestations) but these are not suitable for the reconstruction of prehistory.

4. If there is a dataset of proposed reconstructions then items of significance for ecology and subsistence should be a small proportion of a large dataset which will mostly include more common lexical items. Regular reconstructions of such items increase confidence in more specialised lexemes.

5. To demonstrate that a phylum or subgroup is associated with true farming as opposed to foraging it is not enough to reconstruct crop names. Where crops are domesticated from indigenous species, then the name often is transferred from the gathered wild plant to the cultigen with no evident linguistic discontinuity. For

example, it is claimed that ‘wheat’ can be reconstructed in proto-Indo-European, but wild wheat can be gathered almost throughout its range of proposed homelands.

3. Amerindian languages and dates for the settlement of the Americas

The settlement of the Americas continues to be a major puzzle to students of prehistory. To linguists (and increasingly geneticists), the extreme diversity of languages looks as if an extremely old date must be assigned to this, something on a par with Australia or Melanesia. But archaeology is stubbornly resistant to such a retrodiction. Many archaeologists, especially in North America, still accept the Clovis dates (ca. 12,500 BP) as the main date for the settlement of the Americas, and even where the Clovis primacy is rejected, ‘Palaeo-Indians’ are still deemed to be of similar age (Roosevelt et al. 2002).

This situation might be explained in a number of ways;

- a. The conservative archaeological dates are correct and Amerindian languages have diversified more rapidly than any other comparable region of the world and produced a highly atypical result
- b. Amerindian languages have been faultily classified and falls into a restricted number of larger phyla which would then be quite compatible with late dates (this view is associated with the classification of Joseph Greenberg (1987)
- c. Some early archaeological dates are indeed correct and the settlement of the Americas is significantly older than current models allow.

Since the consensus of the linguists who have looked at the classification of Amerindian languages is that by and large they fall into a pattern of isolates and small phyla, this view will be adopted here (e.g. Campbell 1997; Kaufman & Golla 2000; Adelaar & Muysken 2004). Even so, there is much to be explained; why are isolates so numerous in comparison with all other continents? Why are Amerindian languages so phonologically and syntactically diverse (in contrast to Papuan and Australian for example)? and why are there no very large phyla?

A proposal that has been extended to the language phyla of the world and has been influential far out of proportion to its evidential base is the idea that phyletic expansions are driven by agriculture (e.g. Bellwood & Renfrew 2002 and many other places). Although this is clearly true in a small number of cases, its explanatory value has been vitiated by the difficulties of validating it in many situations (e.g. Wichmann 2002). This paper¹ looks at the general pattern formed by languages in the Americas and the particular difficulties of explaining the pattern of phyletic expansions. It evaluates the different archaeological models for the settlement of the continent and considers whether DNA studies have yet contributed any significant insights into this process.

¹ Thanks to Søren Wichmann for going through the paper and correcting various errors.

4. Amerindian language groupings

As far back the seventeenth century, European authors have commented on the diversity of Amerindian languages. Bernabé Cobo, writing in 1653 (published 1890-1893) estimated there were upwards of two thousand languages [not an unlikely estimate for pre-Columbian America], and furthermore proposed they must all originate from a single migration and have differentiated *in situ*. He demonstrated this with a comparison of Quechua and Aymara, which he considered related and to have differentiated from a single original mother-tongue². Cobo also argued that spoken languages differentiated faster than written ones, although he gave no estimate of the time-depth of New World languages.

Amerindian languages divide roughly into four categories.

1. Isolates. Many languages in ones or twos with no evident relatives.
2. Small phyla.
3. Large, widely extended families with members scattered over a large area, often close to extinction and even today, often with very small populations.
4. Large, numerous and territorially broad groups, all of whose members seem to have practised agriculture and would be good candidates for agricultural expansions.

Classifications of Amerindian languages, with the exception of Greenberg (1987) have emphasised the difficulties of establishing any very large-scale phyla (e.g. Loukotka 1968; Kinkade & Powell 1976; Campbell & Kaufman 1980, 1983; Witkowski & Brown 1981; Kaufman 1990).

The overall total is thus seventy language isolates in the New World. Including both living and extinct phyla, the total for the New World is 44 small phyla. Another atypical feature of language phyla in the Americas is the presence of geographically dispersed phyla. Arawakan and Cariban are good examples of this; both have a concentrated nuclei along the northeast coast of South America and extend into the Caribbean (possibly recently). Both have branches in the Amazon in Southern Brazil. Algic (a name for Algonquian in the northeast of North America plus two languages in California) has an extension approaching Indo-European, despite having many fewer members. There are some twelve geographically dispersed phyla of this type.

Although the division is not absolute, the remaining phyla form part of relatively well-attested, large, numerous and territorially coherent groups (Table 1). These suggest expansions in recent time, and the potential for archaeological and genetic correlations, as well as historical modelling.

² Linguists do not now consider Quechuan and Aymaran to belong to the same phylum, but long periods of mutual influence are responsible for numerous surface similarities. It is surprising how historians of linguistics have ignored this early insight into language diversification, while the insights of the later Father Gilij into Arawakan and Cariban are now regularly cited.

Table 1. Larger New World phyla forming territorially coherent blocs

Name	No.	Where	Comment	Reference
Arawakan Maipuran	= 64	Caribbean to Brazil		Noble (1965); Matteson (1972); Oliver (1989); Payne (1991); Aikhenvald (1999)
Aymaran	3	Bolivia	Exceptional. Language levelling?	Adelaar & Muysken (2004).
Caddoan	5	US		Chafe (1976, 1979)
Chibchan	22	Colombia to Honduras		Wheeler (1972), Constenla Umaña (1981, 1990)
Guahiban	5	Colombia		Christian & Matteson (1972)
Mayan ³	69	Mexico, Guatemala	Count inflated by dialects	Campbell (1978), Dienhart (1989)
Mixe-Zoque	16	Mexico		Wichmann (1995, 1998)
Oto- Manguean	174	Mexico, Nicaragua		Longacre & Millon (1961), Rensch (1976, 1989)
Quechuan	46	Peru, Bolivia, Andes		Cerrón-Palomino (1987)
Tucanoan	25	Brazil, Ecuador, Colombia		Waltz & Wheeler (1972), Wheeler (1992), Barnes (1999)
Uto-Aztecan	62	US, Mexico		Miller (1967), Hill (2002)
Witotoan	6	Colombia, Peru		Aschmann (1993)

5. Agriculture and language expansions

5.1 Introduction: the genesis of agriculture in the Americas

The idea that there was a relation between the language phyla of the Americas and agriculture appears to go back to Spinden (1915), who, however, had no evidence for correlations with particular phyla. The modern consensus is that agriculture originated independently in the New World, apparently several times. Major reviews of the relevant archaeobotanical data can be found in Piperno & Pearsall (1998) and Iriarte (2007). The most ancient evidence for incipient plant domestication is in the Cauca valley in Peru where the corozo palm (*Acrocomia* sp.) and arrowroot (*Maranta* sp.) are dated to ca. 10,000 BP (Piperno & Pearsall 1998: 199-203), virtually equivalent to other regions of the world, such as the Near East and New Guinea. Shortly after this, sites produce cucurbits and lesser-known plants such as leren (*Calethea alluioa*) and bataua (*Oenocarpus* sp.). Smith (1997) documents domestic pumpkin (*Cucurbita pepo*) at much the same horizon.

The reasons for the genesis of agriculture have been much debated, but with no very conclusive result (Piperno & Pearsall 1998: 10-30). However, it is clear that there is no relationship with population density as has been posited elsewhere in the world; human populations were extremely sparse at this period. Indeed it seems that agriculture did not produce any sort of dramatic shift in human social and economic organisation and there is no evidence for any link with expansion of specific language families at this early period. Also in contrast to the Old World is the apparent genesis of agriculture in the lowland neotropics; elsewhere in the world, semi-arid regions and highlands are the favoured locales for early domestication.

Iriarte (2007: Figure 9.3) identifies at least four locales in South-Central America where agriculture may have begun independently; Central America, Colombia, Ecuador and NW Peru, Brazil, Bolivia and south and Coastal Peru. To these may be added at least one region in North America, the East-Central region (Smith 1987, 1992a,b, 2006). The North American case is particularly interesting, as it is late (2500-1500 BC) and many of the domesticates, such as sumpweed (*Iva annua*) and chenopod (*Chenopodium berlandieri* ssp.

³ Wichmann (p.c.) observes that 30 might be a more credible figure

jonesianum) are now no longer cultivated. Hart et al. (2004) note that the bitter *Cucurbita pepo* may have been domesticated as a fishing float. Fritz (2007) notes that strong academic pressure for the early moundbuilders to be farmers may have led to an over-emphasis on agriculture. Nonetheless, only when maize reached the area (as late as 1000 AD) was farming the basis of subsistence. Similarly, in Peru at the coastal site of Caral, the first urban centre in the New World, there is evidence for the domestication of cotton and gourds, not apparently for direct consumption but to assist in fish production (Shady Solis 2006).

All of this suggests that the evolution of agriculture had a different profile in the New World. Its low populations and abundant resources meant that foraging persisted into the historic period in many areas, and was made possible by intensive landscape management (Peacock & Turner 2000). As a consequence, it may be difficult to argue for any strong link between agriculture and the expansion of language families, *even if* domestic plants and animals are reconstructible to a proto-language. The next section considers the arguments as they have been advanced for particular Amerindian families.

4.2 Reconstructions of agriculture in particular language families

4.2.1 General

Reconstructions of proto-languages in the Americas are usually carried out by linguists, not agricultural historians, and often without a view to the reconstruction of economic prehistory. As a consequence, authors do not always choose the species prehistorians would regard as of most interest and occasionally reconstruct species which are introductions from elsewhere, sometimes casting doubt of the veridicality of their reconstructions. As a consequence many apparent reconstructions for ‘manioc’ or ‘corn’ probably reflect no more than widespread loanwords. Even so, the evidence offered for published reconstructions is often tenuous in the extreme.

In the case of Chibchan, (Wheeler 1972) proposed a reconstruction for ‘corn’, while Constenla Umaña (1981, 1990) reconstructs a variety of terms both for agricultural practice and for specific crops. Given the internal diversity of the group, various authors have placed its origin 6-5000 BP, making it one of the earliest New World agricultural expansions. Waltz & Wheeler (1972) reconstruct *achiote*, chili, coca, corn, cotton, cultivated clearing, manioc, plantain (although this is evidently a transferred term), sweet potato and tobacco for proto-Tucanoan, a repertoire sufficiently large to suggest that agriculture was essential to its speakers. Price (1978) includes tobacco, manioc, maize as proto-Nambiquara while excluding yam and gourd. Whistler (1977) reconstructed plant and animal names for part of Penutian (in itself a controversial hypothesis) and found nothing suggestive of agriculture. Mithun (1984:271) specifically discusses the question of whether agriculture can be reconstructed for Iroquoian and concludes that it cannot. However, she notes that agricultural terminology is found in proto-north Iroquoian (i.e. excluding Cherokee). Villalón (1991) has made a strong case for the Cariban expansion as being essentially ‘trading and raiding’ rather than agricultural although an absence of published reconstructions means that the interpretation of Carib prehistory is rather inconclusive.

4.2.2 Mayan

The Mayan languages form a phylum with 69 members spoken in Mexico and Guatemala. Speakers of the geographically defined lowland Mayan languages have brought fame to the family as a whole through their spectacular stone architecture and their writing system. Campbell (1997:165) mentions the agricultural inventory of Mayan specifically and extensive cognate sets can be found in Dienhart (1989). Table 2 shows a list reconstructions for crops in Proto-Mayan;

Table 2. Proto-Mayan crop reconstructions

P-Maya	Gloss	P-Maya	Gloss
'ix-)'ii'm	maize	maa'y	tobacco
'aak'aach	(female) turkey	matzati'	pineapple
'ajan	ear of corn	mulul	jícara, guacal
'alaaq'	domestic animal	nooq'	cotton
ch'oop	pineapple	'oong	avocado
'iihk	chili pepper	palach	turkey
'iis	sweet potato	pitaq	corn cob
'is-k'um	a kind of gourd	q'ohq'	gourd, squash
'i'taaaj	greens, cabbage	sakiil	squash seed
johm	jicara, guacal	siik'	cigar, tobacco
keenaq'	beans	tz'ihn	yucca
k'uhtz	tobacco	tzoq'	male turkey
k'u hm	calabash	tzuh	gourd, squash

Source: Brown and Wichmann (2004) & Søren Wichmann (p.c.)

Apart from crops, many terms relevant for agriculture such as tools and field names can also be reconstructed, as well as specific food types. Kaufman (1976) argues that a date of > 4000 BP must be attributed to proto-Maya. Xincan has been shown to have borrowed all its agricultural terminology from Mayan languages (Campbell 1978).

4.2.3 Otomanguean

Otomanguean was spoken between southeast Mexico and Costa Rica although its eastern outliers are now extinct (Swadesh 1960). There are no living Otomanguean languages outside Mexico, but the extinct Subtiaba was formerly spoken in Nicaragua, and its closest relative, Tlapanec, is still spoken in Mexico. Prior to the definition of Otomanguean proper, Longacre & Millon (1961) reconstructed proto-Amuzgo-Mixtecan specifically with a view to identifying subsistence modes of its speakers. Rensch (1976) reconstructed a large number of crop names for proto-Otomanguean Table 3 shows reconstructions relating to proto-Otomanguean subsistence that have been proposed by various authors.

Table 3. Proto-Otomanguean subsistence reconstructions

Authors	Crops	Other terms
Longacre & Millon (1961), Rensch (1976)	avocado, bean sp., cacao, chili, maguey, maize, sweet potato (or <i>camote?</i>), squash, cotton, tobacco	maize dough, <i>metate</i> , oven, <i>pulque</i> ,

Hopkins (1984) has connected the spread of Otomanguean with the rise of agriculture in the Tehuacán Valley (The Tehuacán tradition is a horizon 5000-2300 BC). Its culture history has attracted considerable attention and there are competing reconstructions of its hypothetical past (Josserand et al. 1984). Winter, Gaxiola & Hernández (1984) sound a sceptical note; the scattered locales of domestication evidence in Central America cannot make it certain that the proto-Otomangueans spread through agriculture. Nonetheless, if the cooking and food preparations reconstructions are accepted, then this correspondence does appear likely.

4.2.4 The Uto-Aztecan controversy

Uto-Aztecan is a family of languages stretching between the southern United States and Southern Mexico and including the language of the Aztecs. Earlier arguments supposed that this was originally a forager phylum e.g. Fowler (1972), but Bellwood (1994, 1997, 2001, 2005 and elsewhere) and others (e.g. Hill 2002) have turned this argument on its head and supposed that this was an agricultural expansion from Meso-America into the southwestern US. This however, would involve ‘devolution’ i.e. the return of at least some populations (Numic-speakers) back to foraging. Hill (2008) has recently argued that speakers of proto-Kiowa-Tanoan must have borrowed maize vocabulary from Northern Uto-Aztecan. Campbell (2002) argues strongly that the linguistic evidence is very weak and archaeological evidence so far non-existent.

An interesting study not generally cited by these authors is Beals (1932) who surveyed the evidence for agriculture among northern Uto-Aztecan peoples as part of a broader study of comparative ethnology. Beals concludes that it is difficult to assign agriculture to most of these peoples who were principally foragers, supplemented by occasional maize cropping. In other words, although these populations have technically made the transition to farming, crops played only a minor role in their diet. It is therefore very hard to imagine how farming could have been the ‘engine’ of Uto-Aztecan expansion.

4.4.5 Cariban

The Cariban language phylum is widespread across northern South America, from the mouth of the Amazon River to the Colombian Andes and from Maracaibo (Venezuela) to Central Brazil. Cariban languages are relatively close to each other with 20-30 still spoken. Villalón (1991) has made a strong case for the Cariban expansion as being essentially ‘trading and raiding’ rather than agricultural although an absence of published reconstructions means that the interpretation of Carib prehistory is rather inconclusive. Meira & Franchetto (2005) show that the Southern groups are quite coherent and there is no argument for a southern origin of Cariban based on diversity.

4.4.6 Arawakan

The Arawakan languages are spoken from the eastern slopes of the central Andes Mountains in Peru and Bolivia, southward into Paraguay and northward to the north coast of South America (Aikhenvald 1999). Their extension into the Caribbean is thought to be recent. Arawakan is the largest family in the Americas with the respect to number of languages and covers the widest geographical area. It has been the subject of a number of puzzlingly contradictory linguistic reconstructions (e.g. Noble 1965; Matteson 1972; Payne 1991) partly because the affiliation of languages such as Arauan and Harakmbet is unsettled. Payne’s version includes at least some agricultural terms, but the evidence remains tenuous.

The cultural reconstruction of Arawakan has a long history, with a first attempt by Schmidt (1917). Williams (2003) has proposed a link between the so-called ‘Timehri’ petroglyphs and Arawak expansion and Heckenberger (2002) a cultural model that links them to the ‘Barrancoid’ ceramics. These models may have a partial validity but the correlations do not cover the whole Arawakan-speaking area. Hornborg (2005) has proposed ditching the ‘traditional’ migrationist model in favour of ‘modern’ ethnogenesis. While this may play well in anthropology circles, it seems very unlikely to be true in the Amazon, a vast space cut through with waterways, providing almost ideal conditions for actual migration.

4.3 Synthesis

Table 4 shows the New World phyla where agriculture is common synchronically among speakers and these phyla would be good candidates for agricultural expansions. For which published results consider the likely role of agriculture or its absence in relation to their homeland and expansion.

Table 4. Agricultural reconstructions in New World phyla

Name	RAV	Reference
Arawakan	+	Payne (1991)
Aymaran	+	
Caddoan	?	Chafe (1976, 1979)
Chibchan	+	Wheeler (1972), Constenla Umaña (1981, 1990)
Guahiban		Christian & Matteson (1972)
Mayan	+	Fisher (1973), Kaufman (1964, 1976, 1990), Campbell (1977, 1978), Dienhart (1989)
Mixe-Zoque	+	Brown & Witkowski (1979), Wichmann (1995, 1998)
Oto-Manguean	+	Longacre & Millon (1961), Rensch (1976, 1989)
Quechuan	+	Heggarty (2007)
Tucanoan	+	Waltz & Wheeler (1972)
Uto-Aztecan	+	Hill (2002), Campbell (2002)
Witotoan	+	Aschmann (1993)

RAV = Reconstructed agricultural vocabulary

5. Summary and Conclusion

Broadly speaking, the population density of the New World was not a factor in the genesis of agriculture. It is rather the case that plant domestication may have been initiated for variety of reasons, many unconnected with food production. As a consequence, there is no necessary connection with either the genesis of states, urbanism or indeed the expansion of language phyla. In many areas, agriculture continues to be an occasional resource to supplement a largely foraged diet. Large-scale expansions of language phyla continue to occur among groups who with no record of ever practising agriculture. However, in some regions of the New World, agriculture does become important with the domestication of key starch staples such as maize. These appear to be correlated, somewhat imperfectly with the rise of complex states with powerful religious ideologies. Examples are Mayan, Uto-Aztecan and Quechuan. It may therefore be that the sequence is inverted from the Bellwood/Renfrew demographic model; agriculture intensifies as a consequence of the imposition of a central ideology and there is subsequent demographic growth.

With these caveats, a hypothetical demographic history of the New World can be reconstructed as follows;

1. Hunters walk and paddle across from Siberia >13,000 BP. They people the Americas at extremely low population densities and probably diffuse initially down the West Coast.
2. Domestication of cultigens begins in scattered locales by 10,000 BP for a variety of purposes, including food, but does not initiate major socio-economic change.
3. By 6-5000 BP the domestication of key starch staples causes certain groups to expand significantly and many small groups are assimilated.

Low population densities allowed language barriers to remain and the absence of very large polities meant that language levelling remained an insignificant factor. Agriculture developed early, but focused on species that made little distinctive change to subsistence strategies. Only later did cereal and tuber staples make a significant contribution to diet, allowing the spread of small language phyla. Hence the pattern that was in situ in the immediate pre-Columbian era.

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