‘The world turned upside down’: sago-palm processors in Northeast India and the origins of Chinese civilisation

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ABSTRACT

The usual image of the Sino-Tibetan language phylum is of a coherent grouping of agricultural peoples in the region between the Himalayas and Yunnan giving rise to the Sinitic languages and in due course to Chinese civilisation, with other branches such as Tibetan and Burmese part of the primary split. It now appears that this view may be very distorted. Arunachal Pradesh and its region is largely occupied by highly diverse populations speaking either Sino-Tibetan languages or possibly isolates. Some of these peoples are former hunter-gatherers, and until recently depended for subsistence on tubers, vegetative crops and processing the sago palm rather than rice. The archaeology of NE India is poorly developed, and in particular there are no direct dates to establish the date or process of the transition from foraging to agriculture. Linguistic methods can be used to contribute to hypotheses concerning the nature of this process. The paper explores regional linguistic ethnohistory, contributing a new and more accurate map of languages. It then looks at evidence for subsistence, in particular the significance of the mithun and vegetative crops such as taro and the Musaceae. In particular it argues that the languages ancestral to Sinitic emerged out of this region subsequent to other branches of Sino-Tibetan, first reaching northern China, adopting millet cultivation and then moving south to the Yang Tze valley. This constitutes a significant inversion of the usual narrative about the evolution of Chinese culture.

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1. Introduction

Recent decades have seen a major expansion of knowledge concerning the prehistory of SE Asia, in part due to the well-attended conference series, EURASEAA and IPPA, and the opening up of many regions previously closed for research. There is now a better sense of the chronology of the Neolithic in China and the much later transition to farming in mainland SE Asia (Blench 2005; Rispoli 2008; Fuller et al. 2008; Higham & Higham 2009; Higham & Thosarat 2012; Blench 2011; Sidwell & Blench 2011). However, a key region which has been largely neglected is Northeast India. Archaeology and prehistory remain poorly developed, with the possible exception of some late Hindu temples and the megaliths of Meghalaya. But dates for the Neolithic and other key cultural stages, such as the introduction of metals, remain doubtful. Linguistics can provide a 'window' into the peopling of the region, albeit somewhat imprecise. There is not a single stratified site in the whole region which has been reliably dated and from which archaeobotanical and archaeozoological materials have been recovered. Ethnoarchaeological accounts of local pottery in Arunachal Pradesh exist, but without regional context they can only convey limited information (Roy 2004). As a consequence our understanding of the transition from foraging to farming has been hampered by a lack of hard evidence. Archaeological accounts of the region largely depend surface finds or speculation (Banerji 1924-5; Singh & Sharma 1968, 1969; Chakravarty 1973; Raikar & Chatterjee 1980; Singh 1980; Sharma 1984, 1990; Ashraf 1990; Tripathy 1998).

Nonetheless, the corridor between mainland India and Yunnan was of considerable importance in prehistory. Trade routes, running both along the Brahmaputra valley and down from Tibet, have operated over a long period (Aris 1980; Sikdar 2000; Pukhan 2002; Riddi 2002; Blackburn 2003/4; 2007) has shown how both oral traditions and material culture travelled along the routes linking Arunachal and Yunnan. The transmission of cereals, such as buckwheat (probably spreading east to Yunnan), and tubers, such as taro and yam, *Dioscorea alata*, spreading westward to Nepal, presumably diffused along this corridor (Blench in press, a).

A method that has so far had little prominence in the reconstruction of prehistory of NE India is the use of comparative and historical linguistics. This involves the compilation of lists of vernacular names for crops and animals or other subsistence items for as many languages as data is available, and using similarities between lexical items to track borrowings and reconstructions. A good example of the use of this technique for an adjacent set of languages is the demonstration by Zide and Zide (1976) of the potential to reconstruct agriculture in the Munda subgroup of Austroasiatic. By this technique we can detect relative antiquity (mithuns are old, goats recent) but also the geographic sources of adopted species (rice spreads up from the Brahmaputra valley, taro diffuses into the region from further east). These results do not give absolute dates, as these depend on a correlation with directly-dated materials derived from archaeology. But they do allow us to model the patterning of the transition from foraging and thus provide a background to target excavation.

This paper[1] uses the linguistic geography of NE India to model its likely prehistory in stratificational terms, in other words, suggesting the types of demographic movements that could have resulted in the current pattern of languages. The data from Arunachal Pradesh is partly drawn from my own research, but elsewhere I have had to depend on a wide variety of published and unpublished sources[2]. The second part of the paper compiles linguistic evidence for some examples of livestock species and crops as well as terms for iron, to try and determine the likely impact of this important technology on the region.

[1] Thanks to Mark Post, Yankee Modi, Jummar Koyu, Jiken Bomjen, Serwa Dajusow and Tia Toshi Jamir for assistance in the field

[2] I would particularly acknowledge the online STEDT (Sino-Tibetan Etymological Dictionary), finally available after many years shrouded in secrecy, and the Mon Khmer Etymological Dictionary.
URL STEDT: http://stedt.berkeley.edu/~stedt-cgi/rootcanal.pl
URL MKED: http://www.sealang.net/monkhmer/dictionary/

2. Linguistic background to Northeast India

Northeast India remains one of the most poorly known regions of the world, linguistically speaking. New languages are regularly reported and the classification of many is disputed (Blench & Post in press). Arunachal Pradesh in particular is inhabited by populations whose languages are hard to classify. Most have been treated as Tibeto-Burman although without any good evidence (Bradley 1997). Many languages are known only by name; no material has ever been published on them, and their actual affiliation remains unproven[3]. It has become clear that the 'Sino-Tibetan' model is a weak hypothesis in accounting for the diversity of the region (Van Driem 2008a) but it has not been replaced by a robust new model. Map 1 shows a linguistic map of NE India, including the most recent discoveries. However, it is likely that future survey work will alter this picture.

From the Palaeolithic onwards the region must have been inhabited by highly diverse hunter-gatherers. These would undoubtedly have spoken comparably diverse languages, which have largely disappeared today, although evidence for them may survive as substrates in existing languages. Only in Arunachal Pradesh, where many languages, such as Puroik, Mey, Bugun, Koro, Hruso and Miji, are difficult to classify, are there probable survivals from this period. Elsewhere, such as in the Khasi Hills and the Assam plains, the subsequent expansion of incoming populations has eliminated the traces of the languages of foragers. In Arunachal Pradesh we find evidence that even populations who farm today, such as the Puroik and Milang, remained partly dependent on semi-wild plants, such as the sago palm and the tree-fern, until recent times. Undoubtedly, the isolation and difficult communications in Arunachal Pradesh have contributed to the persistence of these strategies in remote areas.

The first clear evidence for the expansion in the region of an outside population is the spread of Austroasiatic. Only one Austroasiatic language, Khasi, is spoken in Northeast India today, but distributional evidence makes it clear such languages must once have been common. The Munda languages are spoken in Orissa and other parts of subcontinental India, and these represent the westward limits of Austroasiatic (Sidwell & Blench 2011). Thus, a chain of languages must once have spread through this region which connected Khasi to important Munda languages such as Sora and Santal (Diffloth 2008). Map 1 does show small islands of Munda languages within NE India but these are recent back-migrations, not remnant populations. These languages were overwritten by the later expansions of other language phyla, particularly Sino-Tibetan.

Following this era, which may have been around 3500 years ago, Sino-Tibetan languages began further expansion. The exact homeland and period at which this took place is much disputed (Van Driem 1998). Scattered across the region are various individual branches of Sino-Tibetan, including the isolates Meithei and Karbi [Mikir]. Two very widespread branches represented in Northeast India are the Tani and Garo-Bodo peoples. The Tani peoples are a complex of languages and ethnic groups spreading from the Tibetan Plateau down to the valley of the Brahmaputra. The Adi and the Galo are probably their most well-known representatives, but there are many others. The Tani languages are all closely related and therefore they must have expanded relatively recently, perhaps around 1500 years ago, for reasons presently unknown. Reconstructions of crop names suggest strongly that they were already farmers. Much the same is true of the Garo-Bodo peoples, who occupy the Garo Hills in Meghalaya and the adjacent river valley. This group of languages is similarly coherent, although what drove their expansion is unknown. Other local expansions of Sino-Tibetan are the movement of the Jingpho into this region from South China. One language, Turung [Singpho] is spoken in the north of Arunachal Pradesh. Similar, in the south of Mizoram, the Mog people represent the northern expansion of Arakanese, which is itself a dialect of Burmese. However, some of the incursions into NE India are relatively late. All along the northern edges of Arunachal Pradesh there are Bodic languages, notably the Monpa/Memba cluster, which are part of the same Sino-Tibetan subgroup as Tibetan. These seem to have expanded into the northern mountains and heavily influenced resident populations such as the Mey and the Nah, who are linguistically unrelated.

[3] A good example is Bangru or Levai, whose existence has been reported in several sources, which appears to be quite unlike its neighbours. Mark Post tells me that data has been collected but that it is being kept from circulation until the researcher has completed their MA.

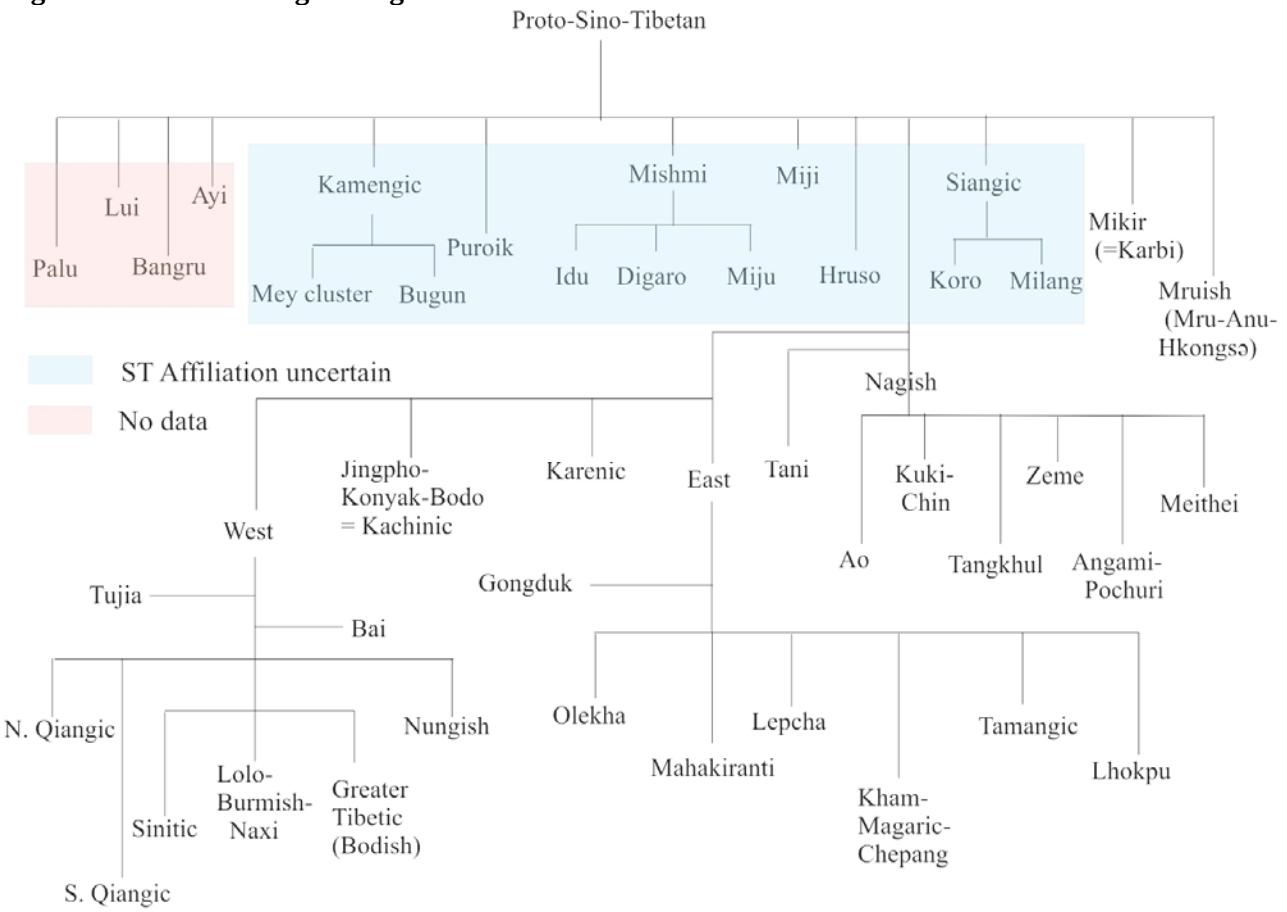
Map 1. Ethnolinguistic map of NE India

Source: Redrawn and updated by the author from an original published by Bishop's House, Guwahati.

The subtext of this paper is a critique of existing Sino-Tibetan phylogenies and their interpretation for prehistory. Is it possible to put anything more nuanced in its place? If it is to be based on numerous low level reconstructions and regular sound correspondences then this will be impossible for a long time to come. Any 'tree' should thus be treated as a speculation, a tool for thinking, a graphic that minimally shows consilience with low-level classifications and which is credible in the light of historical, epigraphic and archaeological evidence. Such a classification should not be afraid of single language branches. Especially in the arc of the Himalayas, where individual communities have been diverging from one another for millennia, it is entirely possible they will no longer have transparent relatives. Figure 1 shows a speculative genealogical tree of Sino-Tibetan which tries to set the languages of NE India in context. It should emphasised that this is very different from other published Sino-Tibetan genealogies (reviewed in Blenc 2001). It includes a number of languages listed in the Ethnologue (2009) for which there is no published evidence which are marked in red.

The isolates of Arunachal Pradesh are shown within the blue rectangle to mark the uncertainties about their affiliation to Sino-Tibetan.

Figure 1. Sino-Tibetan genealogical tree



A particular problem in this context are the populations called by the general term 'Naga', spread across India and Myanmar (Van Driem 2008b). Together with Kuki-Chin, the group counts some seventy-five languages, some forming tight groups, others loosely related. The many Naga subgroups share significant cultural traits, including the *morung*, a distinctive collective house with characteristic decorative features (Photo 1). Linguistically the Naga are so diverse that it is uncertain whether they form a coherent linguistic group. The only comprehensive overview, the unpublished Marrison (1967), is valuable but needs significant revision in the light of more recent information. Naga proper divides into four major branches including some thirty languages, the Angami, Ao, Tangkhul, Zeme clusters and six so far unclassified lects. Kuki-Chin, which includes some languages labelled 'Naga' has at least fifty languages. This type of diversity suggests considerable antiquity, and the Naga probably migrated westwards into the region as forager/vegeculturalists before 6000 BP.

Photo 1. Modern *morung* at Kisama

Source: Author photo

Around the tenth century, perhaps earlier, came the incursion of Indo-Aryan, represented principally by the eastward extension of Bengali into the flood plains of the Brahmaputra valley, and the evolution of Assamese. The striking ruins of Dimapur were built during this period (Photo 2). These populations may have introduced wetfield rice cultivation, a technique previously unknown. Some of the Bodo-Garo groups who live along the river may well have been there for a long time, but the Mishing, a Tani people, seem likely to have migrated south into the valley and learnt rice cultivation from the Assamese.

Photo 2. The ruins of Dimapur

Source: Author photo

The last major expansion was the Tai-Ahom. Representing the westernmost branch of the Tai languages, these peoples entered the region in the early Middle Ages, probably originally as a military expansion (Bora 1996). Indeed, some of their forts can still be seen in the region of Itanagar (Photo 2). After their kingdoms broke up, they dispersed and became small village-oriented populations, which persist as the Khamti and others (Gogoi 1996). Unlike many of the peoples in this region, the Tai had their own writing system, so there is a certain amount of information concerning their history (Morey 2005).

Photo 3. Itanagar fort

Source: Author photo

The British colonial era also had an important impact on language and ethnic distribution. Tibetan military expansion was under way in the late nineteenth century and British opposition effectively halted this process. At the same time, the cessation of chronic warfare among the hill peoples allowed some of them to move south into the plains without fear of attack. The southern distribution of the Mishing is a likely reflection of this process.

3. Linguistic reconstructions of crop and animal names

3.1 The mithun as prototypical livestock species

The mithun, or gayal (*Bos frontalis*) is the most prominent livestock species exploited in NE India (Simoons & Simoons 1968). The mithun is a semi-domesticate, managed in forest tracts but also kept in or near villages. Mithuns are not used as work animals; their principal role is for sacrifice and important life-cycle rituals and family ceremonies require their slaughter. Outside NE India, mithun are imported, primarily for the purpose of cross-breeding with other bovids, for example in Bhutan. The relatively late arrival of other livestock species in the region is reflected in the lexicalisation of the term for mithun as a 'prototypical' meat animal, with all

Photo 4. Mithun (*Bos frontalis*), Dali (Galo) Village

Source: Courtesy Mark Post

other species being derived from it. Table 1 illustrates such a set for Aka [=Hruso] in Arunachal Pradesh.

Table 1. Hruso livestock terminology

Hruso	Gloss
fú	mithun
fŭ babu	donkey
fú-glu	sheep
f(ú)-gra	horse
fú ɦu	wild pig
fú-ɲ	cattle
fŭ lhu imɲi	cow
fú msu	wild dog, wolf
fú fu bʃə	buffalo

Source: Simon (1993) and author's fieldwork

Table 2 shows that this same term is widely spread across the languages of NE India and illustrates the deep-rooted importance of mithun culture in the region.

Table 2. Mithun names in NE India

Language	Name
Hruso	fu
Miji	fu
Koro	sù
Milang	asù
Mey [=Sherdukpen]	smu
Bugun	syá
Puroik	ʧa
Taraon	aʃya
Idu	sa
Miju	ʧal
Proto-Tani	*ɕo
Mongsen Ao	a-ʧə
Lotha	ʧəró
Sorbung	səriám
Tiddim	sial²

By way of contrast, Table 3 shows the names for the domestic pig in the languages of NE India. These include both the isolates, Tibeto-Burman and Khasic (Austroasiatic). The data has been sorted by reflexes of the two most common roots, #*k.vak* and #*lik*, and the remainder given in a third column.

Table 3. Names for the domestic pig in NE India

Subgroup	Language	#k.vak	#lik	Others
CTB		*pwak		
Isolate	Puroik			mədu
Isolate	Aka	vo		
Isolate	Miji	ʒo		
Siangic	Koro		lele	
Siangic	Milang			ayek
Mey	Sartang	swaʔ		
Mey	Rupa	swag		
Isolate	Bugun	wak		
Idu	Taraon		belleig	
Idu	Idu		bili	
Isolate	Miju		lii	
Bodish	Memba	pʰa		

Subgroup	Language	#k.vak	#lik	Others
Bodish	Meyor		lik	
Tani	Nah		ərik	
Tani	Apatani			alyì
Tani	Galo		erek	
Tani	Tagin		arɯk	
Karbi	Mikir	pʰak		
Zeliang	Liangmei	kabak		
Zeliang	Zeme	kebak		
Ao Naga	Mongsen Ao			a-úk
Ao Naga	Chungli Ao			ak
Ao Naga	Yimchungrü			apo
Angami Naga	Angami			mengi, tʰero
Angami Naga	Mao	ovo		
Angami Naga	Rengma			ɲu
Tangsa Naga	Nocte, Wancho	vak		
Tangsa Naga	Nga La [=Matu]	ok		
Tangsa Naga	Chang	ok		
Tangsa Naga	Phom	ok		
Tangsa Naga	Konyak	ak		
Tangsa Naga	Konyak			meila
Kuki-Chin	Tangkhul			hok
Kuki-Chin	Tiddim Chin			ŋal
Kuki-Chin	Lai	vòk		
Garo-Bodo	Garo	wak		
Garo-Bodo	Kokborok	wauʔ		
Garo-Bodo	Bodo			omá
Austroasiatic				
Khasic	Proto Khasic			*sniaŋ

It can be rapidly seen that there are multiple roots, reflecting the introduction and domestication of the pig from different directions (cf. also Hongo et al. 2002). Most common are *#k.vak* and *#lik*, widely occurring in Tibeto-Burman, and both with outside cognates in South China and in Austroasiatic languages.

3.2 Foraged plants and evidence for crop domestication

Sago, the pith of *Metroxylon sagu*, remains a staple of much of the lowlands of New Guinea and is grown as a reserve food in many swampy areas of the South Pacific (cf. review in Blench, in press a). It is managed, but not usually formally grown, and is highly productive if not very nutritious (Rhoads 1981). The palm trunk contains a starchy interior which can be processed as a staple food once the tree is cut down. In a region with a low human population density and dense forest, this is quite an attractive subsistence strategy and requires considerably less work than conventional agriculture. The only other region where it is exploited extensively is in NE India, where the Puroik [=Sulung] of Arunachal Pradesh still process it (Stonor 1952; Deuri 1982; Sharma 1984; Gangwar & Ramakrishnan 1990). Peoples such as the Milang prepare it to feed to pigs but will no longer eat it for everyday consumption (Modi 2008), although it is acceptable as a famine food (Photo 5). Peoples such as the Idu also remember the processing of sago in the recent past (Bhattacharjee 1983:57). It is locally

Photo 5. Milang washing sago log

Source: Author photo

associated with the Puroik [=Sulung] but Ashraf (1990: 139) has a description of sago production among the Nishi as well as a photograph of its processing.

In most areas of NE India today, cereals constitute the dominant staple, rice in the lowland and mid-levels, millets in the higher montane areas. Even a fertiliser-hungry New World species like maize has now made a significant impact on cropping systems. However, there is every reason to think this pattern is recent, and prior to the last thousand years, vegetative crops and a pseudo-grain such as Job's tears were the basis of subsistence. Throughout the region, tubers such as yams and taro are still grown, together with bananas, plantains and sugar-cane. Sago is exploited across Arunachal Pradesh, although it is often fed to pigs these days rather than processed directly for human consumption. The antiquity of these crops and their diverse types is reflected in the diversity of the terminology applied to them. Table 4 shows the vernacular names for the cultivated Musaceae, bananas and plantains, and taro (*Colocasia esculentum*).

Table 4. Names for vegetative crops in NE India

Subgroup	Language	Banana, plantain[4]	Arum, taro
	CTB	*s-ŋak	*grwa
Isolates	Puroik	kepʰak, ʧabuk	ʧuwa
	Hruso	ruloŋ	tʰrɔ
	Miji	drθaŋ, luʔlaŋ (E. dialect)	tɕaʔ
	Bugun	tsyum	ʤawk
Mishmic	Taraon	paydʒ dʒey, ɑ³¹ lɑ⁵³	sam
	Idu	adʒibru	sona
Mey cluster	Sartang	msuŋ	
	Mey of Rupa	msuŋ	
Siangic	Koro	gerdʒi	lăm
	Milang		aaŋ
	Miju	hambyooŋ	gal
Bodish	Memba		solum
	Meyor	sandʒuŋ	
Tani	P-Tani	*kopak	
	Nah	kupak	əŋi
	Galo	`kopak	eŋye
	Apatani	kɯ-pa	ɯ-ŋe
	Bengni	ku-pak	ra-ñin
	Bokar	kuŋ kar	ñi-ruk
Tangsa Naga	Maring		bal
	Chang	thoŋo	
	Konyak	ngao	tiaŋ
	Phom	ŋu³³	
	Nocte	kieke	
	Wancho	ŋa	
Ao group	Ao (Chungli)	soŋ mumu	yi
	Ao (Mongsen)	maŋu	a mi
	Lotha Naga	yóṭ̂hì	ma ni
	Sangtam	lalemsi	pa nu
	Yacham-Tengsa	mongo	ni chang
Angami-Pochuri	Angami (Kohima)	thayiesi	dzünuo
	Meluri	aŋaʧi	api
	Ntenyi	meniga khamuwa	api
	Rengma	teyiʃa	vyi
	Sumi	aoʧoti	ai
Zeme	Khoirao	mpoithai	
	Liangmei	ŋuna	

[4] Despite the link with English /*snak*/ the hypothesis is that the Musaceae were staple foods.

Subgroup	Language	Banana, plantain[4]	Arum, taro
	Maram	kola	
	Puiron	makuŋ	
	Rongmei	hau	
	Zeme	heraŋʧĩ	
Kuki-Chin	Thado		bâal
	Tiddim	bân lăa	ba:l[1]
	Proto-Chin	ɓan hlaa	
Bodo-Garo	Atong	rek thai	riŋ
	Bodo	talír	
	Deuri	tiri	
	Kokborok	tʰa-li	
Meithei	Meithei	laphoi	
Karbi	Karbi	pʰuŋu	

Sources: Author's fieldwork and STEDT online database

The first line gives 'Common Tibeto-Burman' as presented in STEDT, and is an illustration of the problems of historical reconstruction. It is not clear by what conceivable process the reconstructed forms can be arrived at by analysis of the lexical forms tabulated.

Blench (2012) is a study of the broader context of vernacular names of taro which demonstrates that the spread of taro cultivation in both island and mainland SE Asia can be linked to widespread lexemes. However, there is virtually no lexical evidence for either cultigen being imported and it is not unreasonable to imagine that this is a region of separate domestication, and that the boundary between wild and cultivated types is constantly crossed and recrossed.

4. Reconceptualising Sino-Tibetan

If so, what age and homeland can we assign to Sino-Tibetan? Determining the age and homeland of a linguistic phylum depends on several types of evidence coming together. It is assumed here that the results from linguistic reconstruction should be congruent with known archaeological, ecoclimatic and genetic data; if they are not, then the reconstruction should be treated as problematic[5]. Without adhering to any strict version of glottochronology, it is reasonable to expect there to be some correlation between internal diversity and age. There are now reasonable dates for the diversification of phyla or subgroups such as Polynesian, Bantu, Mayan or Turkic. These estimates are based on a combination of linguistic trees, reconstructible roots and archaeology in the presumed homeland. Furthermore, these are all branches of families where agriculture can be reconstructed without question. In other words, these allow us to estimate approximately the level of diversity there should be over a period of 3-4000 years, the approximate age of Sinitic[6].

If the arguments of this paper are accepted, then in its earliest phase Sino-Tibetan was a congeries of diverse foragers in the region of Arunachal Pradesh. Dates for systematic exploitation of the Tibetan Plateau by hunters go back to 7500 BP and presumably some time must be allowed for the movement from the thick forests to the more open montane regions, so it is reasonable to place the origins of Sino-Tibetan at around 8-9000 BP. The diversification of the Naga and related peoples through vegeculture and mithun management can be placed at around 6-5000 BP and the beginnings of livestock production in the Himalayas immediately after this.

The adoption of cereal agriculture in the Himalayan region may well be the initial engine pushing different branches of early Sino-Tibetan eastwards into China proper. There is strong evidence that prior to the expansion of Sinitic proper other Sino-Tibetan speakers had arrived earlier. At least two languages, Tujia and Bai (cf. Map 2), constitute independent branches of Sino-Tibetan, and, strikingly, preserve non-Sinitic

[5] See Blench (2012b) for a discussion of similarly problematic reconstructions in Austronesian.

[6] Sinitic is a general term for the branches of Chinese, usually considered to be seven. Sinitic languages undergo a bottleneck around the period of the consolidation of the Qin kingdoms after 221 BC, and Archaic Chinese as represented in texts is thus not the direct ancestor of modern Chinese.

vocabulary for agriculture (Blench 2011). These peoples are now surrounded by Han Chinese but the Tujia, for example, call them *Kejia* (客家), i.e. 'guest people', as they are considered to have arrived much later.

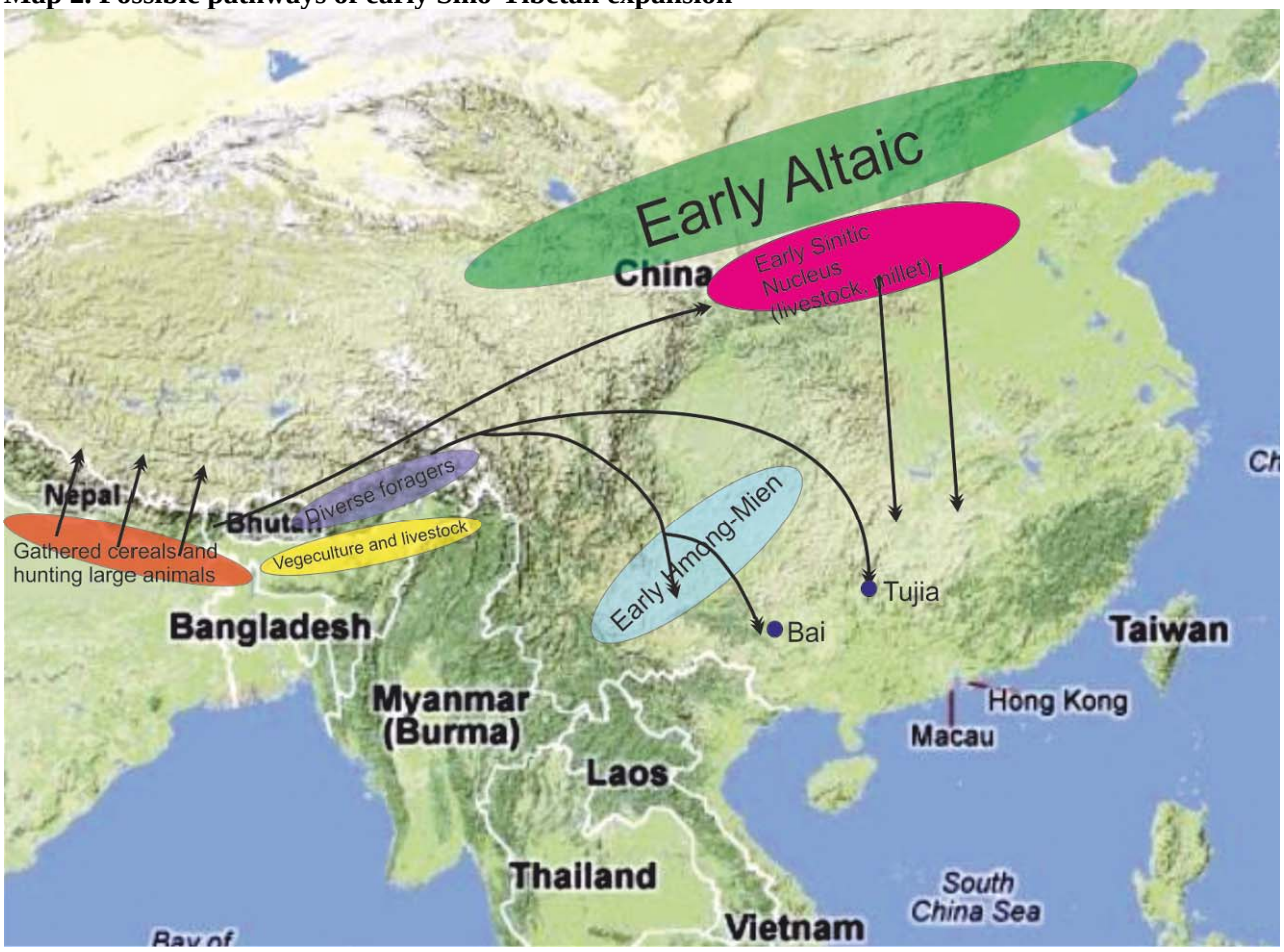
There is strong evidence that early Sinitic speakers pushed northwards into the area south of modern Mongolia, and there encountered the ancestors of Altaic speakers (Starostin 2008 identifies a number of borrowings from Altaic into Old Chinese). Chinese millets, both foxtail millet, *Setaria italica* and broomcorn millet *Panicum miliaceum*, were domesticated very early in this region. Liu, Hunt & Jones (2009) point to a period 6500-5600 cal BC for the earliest foxtail millet, for example at the site of Xinlonggou in Inner Mongolia and Cishan in Hebei. The primary movement of the Sinitic nucleus towards China can then be placed at around 4500-4000 BP. These dates remain approximate and further archaeological research may well provide a far more nuanced picture. Sinitic speakers become millet cultivators who only switch to rice when they push southwards into the Yang Tze valley and probably adopted rice from the Hmong-Mien speakers already in residence.

The evidence presented in this paper is marked by absences; lack of cognate reflexes in many of the smaller branches of Sino-Tibetan, lack of a coherent internal structure and a failure of congruence with archaeology and genetics. Given this, any hypothesis concerning the spread and diversification of the phylum must be speculative and subject to revision. However, we can do better than any of the claims presently on the table. This model at least has the advantage of not contradicting the known parameters of prehistory and not requiring improbable reconstructions of subsistence lexemes at various levels of Sino-Tibetan. With this in mind, the following summary is put forward as a model of the evolution of the phylum;

- The earliest speakers of Sino-Tibetan were highly diverse foragers living in an arc between the eastern slopes of the Himalayas and regional lowland jungles up to 9,000 years ago and practising arboriculture (sago)
- Some spoke early Sino-Tibetan languages, others unknown languages now present primarily as substrates and the rare case of a modern isolate such as Kusunda
- Seasonal foragers exploit the high Tibetan Plateau from 7500 BP
- Perhaps 6-5000 BP 'livestock revolution' takes place in the mid-level Himalayas. Yak herders move up and settle the Tibetan Plateau permanently.
- Gathering of wild cereals (buckwheat etc.) and tubers (high-altitude taro) leads to proto-agriculture in the mid-level Himalayas
- Foragers who will become the Naga complex began to practise vegeculture (taro, plantains) (NE India) and animal management (mithun) by 6000 BP possibly, through contact with Austroasiatic speakers
- By 5000 BP diverse early Sino-Tibetan groups in the Himalayas begin spreading eastwards to China. Sinitic is not a primary branch, but simply the language of one of many migratory groups
- Proto-Tujia, proto-Bai and probably others meet unknown populations (Hmong-Mienic? Austronesians?) with domestic pigs, millet, while also cultivating and beginning to domesticate rice
- Proto-Sinitic speakers encounter early Altaic speakers with foxtail millet and other crops
- The Sinitic languages expand southwards, assimilating or encapsulating many small groups. They encounter Hmong-Mien speakers with rice and switch millet terminology to rice
- Rice moves up from India but also westwards from China (hence hybridised types) and overlays older cereals where ecologically possible
- Ruminants (cows, sheep, goats) spread downwards into China from Central Asia 4400 BP (? Altaic for small ruminants but not cattle)
- Tibetic speakers undergo a major expansion (when?) assimilating linguistic diversity on the Plateau
- Rice invades the lowland vegecultural zones rather later, pushing taro into residual systems
- Groups such as early Burmic spread southwards, fragmenting Austroasiatic-speaking peoples

Map 2 shows a highly simplified map of the early phases of this proposed movement;

Map 2. Possible pathways of early Sino-Tibetan expansion



If these arguments are even partway accepted, then 'Sino-Tibetan' becomes a highly inappropriate name for the phylum, privileging as it does two low-level subgroups. It has been proposed to shift the term 'Tibeto-Burman' to refer to the whole phylum (Van Driem 2002); but in fact, the same objection applies. Tibetan and Burmese are also two culturally prominent subgroups of no classificatory significance. One proposal is to use the term 'Trans-Himalayan' which would capture the geographical locus of the phylum without emphasising individual subgroups.

5. Conclusions

The identification of Sino-Tibetan languages and the internal classification of the phylum has been strongly affected by complex cultural prejudices. Sinitic languages and Tibetan have been taken as somehow primary because of their historic written traditions; but this is not linguistic evidence. The actual data points to much later splits. All the significant diversity in Sino-Tibetan is found in NE India and adjacent parts of Nepal, and it may be that some of the languages of this region are simply isolates. At the same time, this region is notable for a underlying subsistence strategy which was dependent on a semi-wild livestock species, the mithun, as well as sago and vegetative crops which were also partly wild. This pattern has been obscured by the introduction of humid-zone cereals and the panoply of livestock species characteristic of SE Asia. The switch to dry-zone cereals (and pigs?) may have been the primary engine of a significant movement of several branches of Sino-Tibetan into China, of which Sinitic was not the first. When the Sinitic expansion did occur its primary direction was to the North China Plain, where the dryzone millets were adopted. Only when Sinitic speakers turned south and adopted rice were the key elements of 'Chinese' culture put into place. So to return to the title, this really is 'The world turned upside down'. From an image of high-density rice-based agriculture, and all the typical cultural elements associated with Sino-Tibetan, we must rather think of low-density foragers, transformed by adoption of a mosaic of subsistence strategies, constructing Chinese identity relatively late in the day.

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