THE CONTRIBUTION OF LINGUISTICS TO UNDERSTANDING THE FORAGING/FARMING TRANSITION IN NE INDIA

Chapter for: *51 Years after Daojali Hading: Emerging perspectives in the Archaeology of Northeast India*.
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ABSTRACT

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. Ethnographic evidence suggests this might be quite late in some regions, with hunting and gathering remaining an important element in subsistence until recently. 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. Finally, because the introduction of iron is clearly of great significance and some the published statements concerning linguistic reconstruction are highly misleading it looks at iron terminology.

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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 2004; Higham & Higham 2009; Blench 2011; Sidwell & Blench 2011). However, a key region which has been largely neglected is Northeast India. Archaeology and prehistory remain poorly developed, with few sites that have reliable stratigraphy and an emphasis on late Hindu temples and the megaliths of Meghalaya. Dates for the Neolithic and other key cultural stages, such as the introduction of metals, remain speculative.

Archaeological accounts of the region largely depend surface finds or speculation (Banerji 1924-5; Dani 1960; Singh & Sharma 1968, 1969; Chakravarty 1973; Raikar & Chatterjee 1980; Singh 1980; Sharma 1980; Ashraf 1990; Tripathy 1998). Ethnoarchaeological accounts of local pottery in Arunachal Pradesh exist, but without regional context they can only convey limited information (Roy 2004). Jamir (2012) provides an extremely comprehensive review of the literature and remains highly critical of poorly-founded 'Neolithic' ascriptions, based on doubtful typologies. Hazarika (2006; Table 2) lists a large number of pottery styles attributed to sites in NE India and compares this with dates for pottery in East Asia, some of which are earlier than 10,000 BP. Nienu (1983) refers to 'Hoabinhian, cord-marked pottery' a construct which hardly inspires confidence. This suggests that can conclude precisely nothing about the dates of the Neolithic in NE India. As a result, 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. As a consequence our understanding of the transition from foraging to farming has been hampered by a lack of hard information.

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 for 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. Cordaux *et al*. (2004) provide a very interesting genetic perspective on the importance of this corridor. 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 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 are 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

[1] Thanks to Mark Post, Jummar Koyu, Jiken Bomjen, Serwa Dajusow and Tiatoshi Jamir for assistance in the field. A version of some of the ideas in this paper was presented at EURASEAA XIV, focusing on the origins of Sinitic (Blench, under review)

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.

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. 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 are difficult to classify, such as Miji-Bangru, Puroik, Mey, Bugun, Koro, and Hruso, 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 addition, 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[3]. 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; for a genetic perspective see Kumar *al*. 2006). 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.

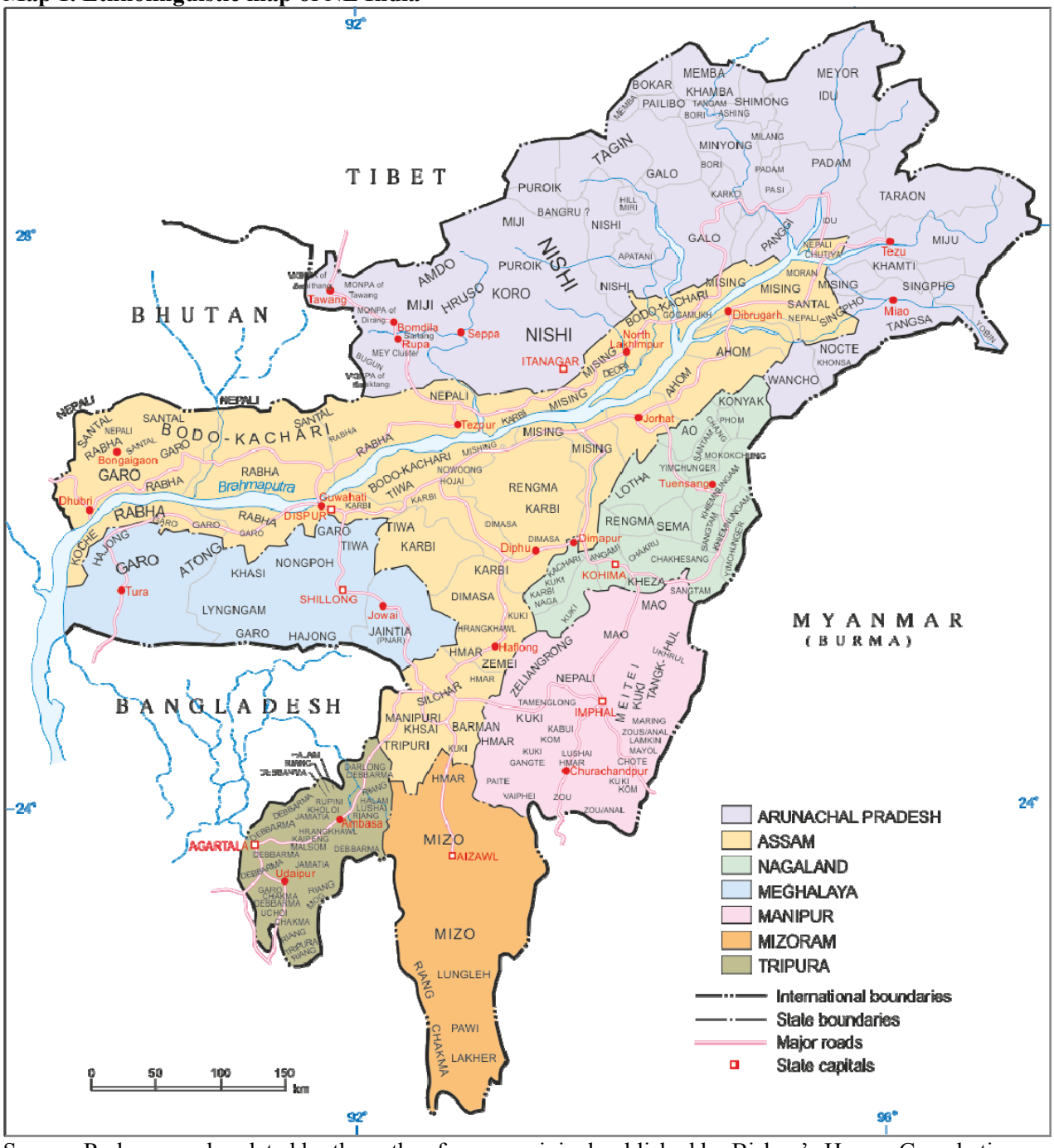
Following this era, which may have been around 4000-3500 years ago, Sino-Tibetan languages began further expansion. The exact homeland and period at which this took place is much disputed (Van Driem 1998). Scattered across the region are various individual branches of Sino-Tibetan, including the isolates 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 (Roy 1981; Sharma 2007). This group of languages is similarly coherent, although what caused their expansion is unknown. Other local expansions of Sino-Tibetan are the movement of the Jingpho into this region from

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

[3] There is a strong argument connection the Khasi expansion with the striking megaliths found throughout Meghalaya, though this association is not certain (Mittri 2009).

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 grouping 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.

Map 1. Ethnolinguistic map of NE India



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

More difficult to explain are the groups of peoples called by the general term 'Naga', who are spread across India and Myanmar (Van Driem 2008b). Together with Kuki-Chin, the group counts some eighty 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 difficult to group them together. 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 (Medhi 1990, 1991). 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, probably migrated south into the valley and learnt rice cultivation from the Assamese.

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 2. Ruins of Dimapur

Source: Author photo

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 Northeast India, mithun are imported, primarily for the purpose of cross-breeding with other bovids, for example in Bhutan.

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

Source: Courtesy Mark Post

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 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.s.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		
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, unlike the mithun, 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.s.vak* and *#lik*, widely occurring in Tibeto-Burman, and both with outside cognates in South China and in Austroasiatic languages.

3.2 Crops and evidence for domestication

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. It is locally 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 (see also the review in Blench, in press). 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 ʤey, 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-ɲin
	Bokar	kuŋ kar	ɲi-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	

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

Subgroup	Language	Banana, plantain[4]	Arum, taro
	Liangmei	ŋuna	
	Maram	kola	
	Puiron	makuŋ	
	Rongmei	hau	
	Zeme	heraŋʧi	
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	phungu	

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.

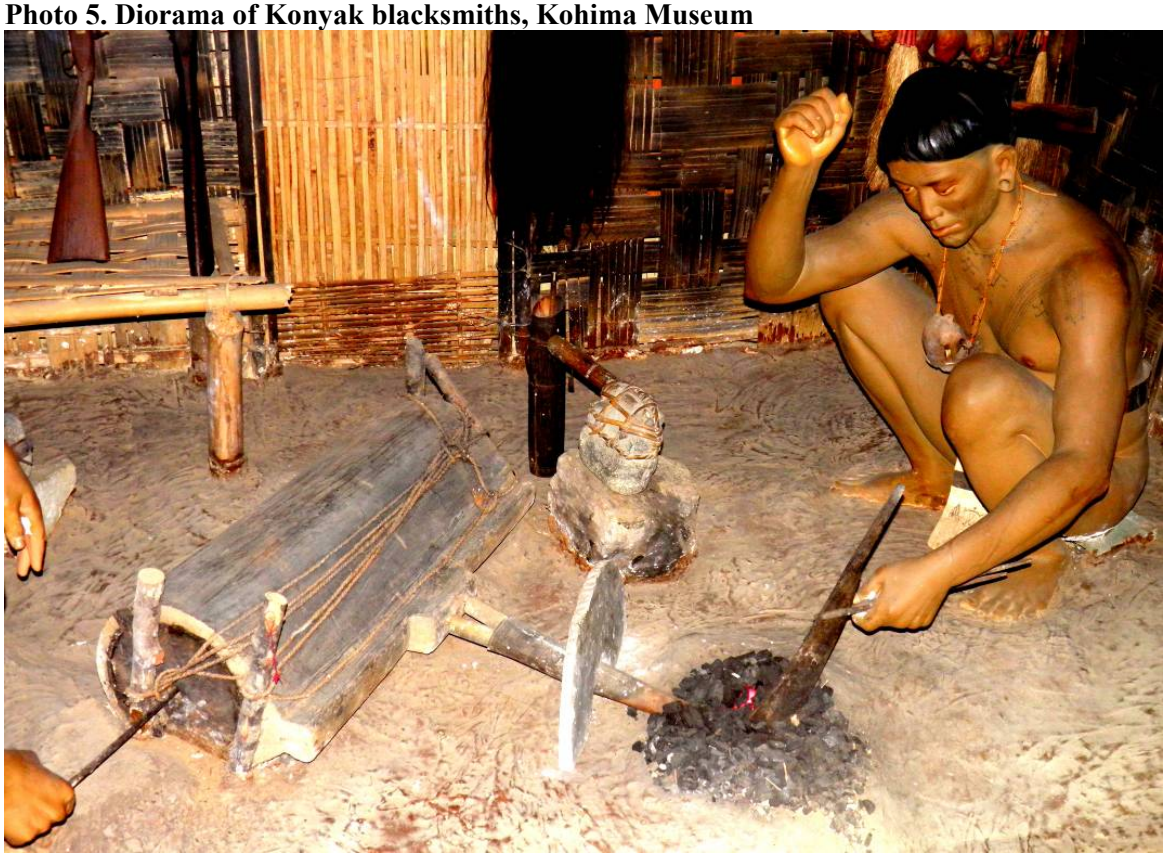
4. The coming of iron

Iron is a metal of key importance in transforming subsistence, far more so than bronze. Once steel-bladed hoes and axes can be traded or made, times for agricultural work are dramatically shortened and numerous other household processes are made easier. In the New Guinea Highlands, where even traded iron was unknown until the early twentieth century, when steel axes began to percolate from the lowlands they began to change society even before direct contact (Salisbury 1962).

Discounting objects of meteoric iron, the first iron objects in Henan, Central China, date to about the 8th century BC, and by the following century we have evidence for iron smelting. By the 5th century BC, techniques for making decarbonised iron, i.e. steel, had been discovered, making the production of sharp tools and swords a reality. Iron smelting in India goes back to around 1300 BC, so the transmission of the technique to China was relatively slow. Beyond this, information is extremely limited, as there are no direct dates for archaeological iron in NE India. In much of Arunachal Pradesh iron was probably not smelted until the coming of Tibetan blacksmiths. Smelting using typical SE Asian techniques was spread across much of the Naga-speaking region in pre-European times. Photo 5 shows a diorama of Konyak blacksmiths in the Museum at Kohima using a curious sideways version of the piston-bellows typical of highland SE Asia. The Assamese incursions into the valley of the Brahmaputra must also have brought new iron goods and manufacturing techniques.

Table 5 compiles the linguistic evidence for names of iron in NE India. These suggest strongly that there is one widespread root, given in STEDT as **syam*, but more probably something like *#ʨa-* and which may have spread from Sinitic languages, via Bodish, into many languages of NE India. Given the dates for iron, this should *not* be a starred form pointing to a reconstruction but a widespread regional loanword. Such a spread does not imply iron-smelting, only a trade in iron implements. In the Naga region a highly diverse set of lexemes is applied to 'iron' which suggests that knowledge of the metal arrived via diverse routes. Interestingly none of these names are borrowings from Khasian, *nar*, or Indo-Aryan.

Photo 5. Diorama of Konyak blacksmiths, Kohima Museum



Source: Author photo

Table 5. Names for 'iron' in NE India

Subgroup	Language	#tɕa-	Others
	CTB	*syam	
Isolate	Hruso	sɨ	
Isolate	Miji	sen	
Isolate	Mey of Rupa	sẽ	
Isolate	Bugun		yuŋ mnan
Idu-Mishmi	Taraon	say	
	Idu	sí pɹá	
Isolate	Miju		tù glí
Bodish	Memba	ʧa^{h}	
	Meyor	ʧak	
Siangic	Milang		arəm
Tani	Nah	tagi	
	PT	?	
Northern Chin	Paite	siik	
	Thado	thíʔ	
	Tiddim	siik	
	Lai	thíir	
	Lushai	thíir	
Tangsa Naga	Chang		nam
	Konyak		yan
	Nocte		jan
	Wancho		jan
Ao Naga	Ao		in
	Lotha	yón ʧak	
	Sangtam		ithse

Subgroup	Language	#tɕa-	Others
Angami Naga	Angami		tʰe ʒe
	Rengma		tegi
	Khoirao		kapha
	Liangmei	ʧagi	
	Maram		kephu
	Puiron		tin
Zeme Naga	Zeme		hegei
	Tangkhul		mari
	Champhung		a-ruk
Meithei	Meithei		yot
Karbi	Karbi		iŋʧin
Bodo Garo	Bodo	sər	
	Deuri	ʃiŋ	
	Dimasa	ʃer	
	Garo	sil	
Bodic	Tsangla	tɕaʔ	
Sinitic	Old Chinese	*t'iet	

5. Conclusions

In the light of this, what can be said about the transition from foraging to farming in Northeast India? The linguistic evidence points to this being very recent in some areas with residual foraging continuing to play a major role in subsistence. The abundance of the natural environment and the relative ease of subsistence through hunting and gathering would be a deterrent to the adoption of farming in many areas. It suggests that the underlying production system was dependent on a semi-wild livestock species, the mithun, and vegetative crops which were also partly wild. Use of tubers such as taro, yams and bananas may well be older than the conventional 'Neolithic' and thus not necessarily associated with a particular tool type and certainly not pottery. Whether pseudo-grains such as Job's tears were associated with vegeculture is unclear but seed agriculture in general is clearly much later.

This pattern has been obscured by the introduction of humid-zone cereals and the panoply of livestock species characteristic of SE Asia. The evidence is that many of the pathways to domestication were indigenous until the coming of rice. This type of hypothesis is no substitute for rigorous archaeobotany and the excavation of well-dated stratified sites across the region and it is to be hoped that these will be undertaken in the coming years.

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