Hudson, Bob 2005 "A Pyu Homeland in the Samon Valley: a new theory of the origins of Myanmar's early urban system." ***Myanmar Historical Commission Conference Proceedings, Part 2: 59-79*** **Universities Historical Research Centre, Yangon**

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Archaeological evidence suggests that between about 500 BC and 200 AD, a rice-growing population was living in a densely settled system of small villages in the Samon Valley in Upper Myanmar. This area was at the crossroads of ancient trade routes. Wealth was accumulating due to agriculture and to access to the copper resources of the Shan hills, the semi-precious stone and iron resources of the Mount Popa plateau, and the salt resources of Halin. This wealth is evident in grave goods unique to the Samon region, which includes items traded from or inspired by Qin and Han Dynasty China. This paper will explore the possibility that the appearance early in the First Millennium AD of the walled Pyu cities of Maingmaw, Beikthano, Halin and Sriksetra, at remarkably consistent distances from the Samon Valley, may be a consequence of intra-regional population flow from the Samon area. While the Pyu cities shared cultural elements such as religious and decorative items, and coins bearing auspicious symbols, with neighbours including Dhanyawadi and Vesali on the west coast, the Dvaravati settlements of Thailand, and trade centres such as Oc Eo in Vietnam, their relationship to the landscape, to each other and to the Samon valley suggests that they formed a distinct economic and cultural system (Gutman & Hudson 2004).

Pre-urban Upper Myanmar, c. 1500-500 BC.

Pre-urban artifact groups are distributed across Upper Myanmar in two distinct geographical patterns. Artifacts widely seen across the whole region include polished stone rings, bronze spear and arrow heads, bronze axes, burials involving megaliths and earthenware distillation bowls. Finds of polished stone axes and bracelets, largely on river plains that are used today for a mixture of paddy and dryland farming, suggests the dispersed occupation of about 37,500 square kilometres (for references to individual artifact finds, which number in the hundreds, see Hudson 2004). The distillation bowls strongly suggest the production of alcohol (Win Maung 2003a), a substance that appears to have been so widespread in the ancient Asian world, and to have caused such social problems, that it was proscribed in Buddhist scripture. The extensively studied site of Nyaunggan (Kyi Kyi Hla 1998; *Proceedings of the Workshop on Bronze Age Culture in Myanmar* 1999; Glover 1999; Higham 1999; Khin Lay Yi 1999; Kyaw Han 1999; Nyunt Han 1999; Nyunt Htay & Khin Maung Win 1999; Pauk Pauk 1999; Pe Maung Than & Win Naing 1999; San Nyein 1999; Sein Myint 1999a, 1999b; San Nyein 2000; Tayles, Domett & Pauk Pauk 2001; Yee Yee Aung 2002; Sein Myint 2003) gives a glimpse of how people were living at the time, or more accurately, as the main evidence is from a cemetery, how people behaved when someone died. While the individuals at Nyaunggan were not buried with great personal wealth- there is less than one bronze artifact or polished stone personal decoration per skeleton- the archaeological finds represent an average of 70 pots of food per funeral. This may be compared with the early phases of Noen U-Loke in Thailand, where similarly large quantities of grave goods suggest the "achievement and expression of status through communal feasting on domestic animals" (Theunissen 2002: 271-272).

Archaeologists have left the dating of Nyaunggan broad. The finds of bronze axes suggest it could relate to the earlier stages of Southeast Asian bronze production, the period from 1500-1000 BC during which knowledge of the smelting and casting of copper and tin "seems to have spread very rapidly along the Neolithic exchange routes", but as "bronze only became truly abundant in mortuary rituals in the iron age"(Higham

2002: 117-121) the small number of bronzes at Nyaunggan may extend the possible date of the site to 1500-500 BC. Nyaunggan indicates the existence of a pre-iron culture featuring skilled stonework and the production or exchange of bronze weapons, with mortuary rituals that involved communal eating and/or communal offering of food to accompany the deceased, and probably the consumption of alcohol. Similar sites should be expected eventually to be found across Upper Myanmar.

The Samon Valley, c. 500 BC to AD 200.

Some artifact classes are, according to the available evidence, focused on the Samon Valley, around Pyawbwe, south of Mandalay (Figure 2). These are beaten bronze coffin decorations, bronze wire packets, bronze bracelets, bronze-handled iron swords, *symbolic* bronze spearheads, bronze bells, blue glass bracelets and carnelian tiger beads (Hudson 2001; Nyunt Han, Win Maung & Moore 2002; Win Maung 2003b). Pottery with rice husk inclusions is part of the Late Prehistoric (c. 500 BC-500 AD) mortuary assemblages of the Samon area (Moore 2003: 36), indicating rice agriculture. The increasing wealth in the Samon Valley can be credited to the successful exploitation of natural resources such as agricultural land and minerals, and the dominance of trade routes. There are extensive copper resources not far away in the Shan Hills (Chhibber 1934; Bender 1983), and iron (Chhibber 1926; Wuntha 1980) and semi-precious stones including carnelian, agate and quartz crystal (Campbell-Cole 2003) near Mount Popa. The expanding variety of grave goods seems to relate to social differentiation. Some individual burials, such as one excavated by a Myanmar-French team at Ywahtinkon (Patreau, Mornais, Coupey *et al.* 2003) contain a range and quantity of goods far greater than those around them. The clustering of burials in groups to which coffins were added from time to time (Patreau, Pauk Pauk & Domett 2001; Patreau, Mornais, Coupey *et al.* 2004) suggests a system of kin-based chiefdoms, with each group dominating a small, easy to manage village amid a network of similar villages densely packed on the landscape. The decoration of individual coffins with beaten bronze sheets (Win Maung 2003b) also suggests that some burials were more important than others.

Evidence such as the appearance of carnelian beads among the grave goods suggests that this society was already functioning in the middle of the first millennium BC, when carnelian began to arrive in southeast Asia from India (Glover 1991; Glover & Bellina 2001). A comparison can again be drawn with Noen U-Loke in Thailand, where later burial phases feature an increase in agate and carnelian beads, suggesting that "status is more dependant on visual display of storable wealth in the form of new high value personal ornaments" (Theunissen 2002: 271-272). The phase in which these new artifact groups appear in the Samon Valley is not a "Bronze Age" culture, despite the prevalence of bronze among the metal grave goods. From around 500 BC, after iron came into use in Myanmar (Stargardt 1990: 13-14, 28), it is more a matter of "iron for hoe, bronze for show". The adoption of iron for tools and weapons means increasing economic growth. It has been estimated that iron brought about a tenfold increase in economic efficiency in ancient Asia (Elvin 1973).The wealth resulting from this expanding efficiency is shown in glittering (when new) bronze display goods.

Pre-Pyu Halin.

Halin shares the archaeological signature of the Samon Valley. Iron swords with bronze handles, carnelian tigers and coffin decorations are among the similar artifact classes found in these two places. Most of these finds come from around the salt fields south of Halin's Pyu walls, and the occupation of Halin in the Late Prehistoric period may have related to the exploitation of its salt resources. Higham has proposed that an expansion of

bronze production during the Iron Age, along with the replacement of marble, slate and marine shell jewellery by carnelian, agate and glass, and the increased production of efficient iron weapons and agricultural implements, was symptomatic of the breakdown of the "long-standing affinal alliance and exchange system between independent communities" and indicated the increasing domination of new centres which controlled the best land and resources (Higham 2002: 226-227). With its salt fields, Halin fits this model as a pre-urban resource centre, a supplier to the Samon.

Dating the Samon artifacts, and some links with China.

Two of the artifact groups, glass bracelets and carnelian tigers, lend themselves to a possibility of comparative dating. Blue glass bracelets appear in the upper stratigraphic layers of circular earthworks in eastern Cambodia and western Vietnam. Radiocarbon dates for these sites tentatively suggest a terminal date around 400-200 BC. Similar bracelets to the Cambodian and Myanmar examples have been found in southern Vietnam and at Ban Don Ta Phet in western Thailand, the latter site dated to the 4th century BC (Dega 1999; Albrecht, Haidle, Chhor Sivleng *et al.* 2001).

Dozens of carnelian pendants carved like a tiger have been found in Myanmar, mainly in the Samon Valley. On the basis of the effort taken to carve them, they seem to have been important and probably expensive items. There is a remarkably close morphological relationship between the Myanmar carnelian tigers (Glover & Bellwood 2004, Plates 3 & 5) and bronze Qin Dynasty (221-207 BC) "Tally Tigers" of China (Figure 1), which were symbols of military office (*Museum of Chinese History, Guidebook to the Exhibits* 1964; Cheng & Cheng 1993: 193; Gengwu 2001: 64). Assuming that the Chinese model was the original, the Samon region from c.200 BC onward is the likeliest source of carnelian tiger beads.

Two more individual finds that indicate Chinese links with the Samon Valley were shown to the author by local people in the Pyawbwe area in 2003. A cast bronze horse standing loose on a wheeled platform had been found by farmers. On stylistic grounds (see, for example, Wen Fong 1980: 342, 346), a Chinese origin, perhaps Han Dynasty, is a possibility. Another informal find, a bronze gourd-shaped object, decorated with sculpted figures on the narrow end, was similar to the Chinese *sheng* flutes which are attributed to the Late Warring States-early western Han periods, c. 300 BC to AD 9 (see *Chinese Bronzes of Yunnan* 1983: 116). The appearance of what are likely to be Chinese bronzes and the apparent use of the Qin tally tiger as a model for carnelian beads shows that the Late Prehistoric society of the Samon valley had trade links with China as well as with India, the original source of carnelian beads.

Artifact groups found across Upper Myanmar in the pre-urban/Late Prehistoric period.	**Artifact groups found in the Samon Valley and at Halin in the pre-urban/Late Prehistoric period.**
Polished stone axes.	Polished stone axes.
Polished stone rings including star shapes or t-section (flat rings found on wrists of skeletons and in burial contexts generally).	Plain polished stone rings only, no star shapes or t-section.
	Perforated ovoid "ringstones" (also found between Halin and the Samon near the Myitnge-Ayeyarwady junction, and at Padah-lin, east of the Samon).

Artifact groups found across Upper Myanmar in the pre-urban/Late Prehistoric period.	**Artifact groups found in the Samon Valley and at Halin in the pre-urban/Late Prehistoric period.**
Socketed bronze axes.	Socketed bronze axes, stone axe moulds.
Megaliths associated with inhumation burials.	Megaliths associated with inhumation burials.
	Bronze bracelets.
	Blue glass bracelets.
Bronze spear or arrow heads.	Symbolic bronze spear heads as well as functional bronze spear or arrow heads.
	Bronze-handled iron swords.
	Bronze wire packets.
	Bronze bells.
	Beaten bronze coffin decorations.
Carnelian beads, etched or plain, round or oval	Carnelian assemblage includes tiger beads.
Earthenware distillation bowls	Earthenware distillation bowls

From small villages to walled cities.

The characteristic funerary deposits of the Samon Valley and its specialist salt supplier Halin come from around two dozen known sites, many of which appear as mounds in the landscape. Since the finds are mainly from informal discoveries by farmers, it is not yet possible to state conclusively whether the mounds are former settlements with integrated burials, or natural mounds used exclusively as cemeteries. Clues such as the use of potsherds, possibly habitation debris, as a cue for treasure hunting at Ywahtinkon (Win Maung 2003b) and reports of building materials among burials at Taungthaman (Stargardt 1990) support the idea of burials within villages, but other reports such as Nyaunggan seem to identify separate cemeteries. Whether the sites are former villages or dedicated cemeteries, or a mixture, they all seem to be under 4 hectares in area. The deposits at Hnawkan covered less than a hectare (Patreau, Pauk Pauk & Domett 2001: 76), with 3 or 4 hectares at Ywahtinkon (Patreau, Mornais, Coupey *et al.* 2003: 56), where the archaeological phases of the cemetery suggest long-term occupation. The Samon Valley sites are significantly smaller, Patreau (2003: 56) has pointed out, than the "vast" necropolis sites of northeast Thailand, suggesting a comparatively smaller site population.

By the first half of the first millennium AD, perhaps the 2nd to 4th centuries according to the only radiocarbon dates available for wall construction (at Halin: see Myint Aung 1970), large walled central places had begun to appear at consistent distances up and down central plains from the Samon Valley. It is unlikely that these were the front line of a new settlement system. Smaller places might better be expected to have been the pioneers. Letpanywa, with its rectangular brick structures and associated burials (Nyein Lwin 2004), may fit the typological gap between early settlements which featured inhumation burials accompanied by grave goods but without ritual structures, such as Myohla in the Samon Valley (Patreau, Coupey, Maitay *et al.* 2004), and settlements where burials involved ritual buildings with urns, and communal burial structures became an increasing feature, such as Halin, Beikthano and Sriksetra. The movement of people and farming skills into these new areas might have been stimulated by population pressure. Intra-regional migration is a recurring theme in the chronicles (Pe Maung Tin &

Luce 1923). This population drift need not necessarily be seen as the simple Malthusian pressure of growing population on sparse resources. It may have involved pressure from a segment of the population that was becoming exposed to imported Indic notions of kingship and wanted to be leaders, but found themselves locked into an old established system where there was no room for expansion.

The establishment of central places at Maingmaw, Beikthano, Waddi, Halin and Sriksetra beyond the geographical edge of the old system and within an expanding framework of Indic architecture and Brahmanical kingship can be seen as a means for new societal managers to attract and retain followers. A mechanism for this may have been an adaptation of founder's cults (Lehman 2003; O'Connor 2003) that had existed in the Samon homeland, as witness the differential burials there. The archaeological evidence at Beikthano points to a number of pre-Buddhist shrines in which the Indic traditions of cremation and urn burial were beginning to replace inhumation, at least for those who merited burial within the ancestor shrines (Stargardt 1994). The leaders of the new settlements adopted Indic auspicious symbols which were circulated on stamped coins (Gutman 1978; Robinson & Shaw 1980; Mitchiner 1982; Mahlo 1998; Win Maung 2002). The combinations of these symbols on coins may have served to differentiate individuals or polities or both. Given the earlier presence of Chinese cultural influences, as shown by the trade in bronze artifacts and the adoption of the Qin tally tiger form for carnelian pendants, the choice of Indian, rather than Chinese, modes of social management looks much more like the deliberate selection of something new and useful than the acceptance of something imposed from outside. This fits the model of active rather than passive "Indianisation". As far as can be seen so far, the carnelian tigers fell into disuse as the early urban system developed. Very few tiger beads seem to have been found at Pyu sites. There have been two reported at Halin, but as discussed above, pre-Pyu Halin was probably part of the Samon economic system. If the Pyu system represented a society that was "under new management", and the tigers were marks of status in the old system, then it might be expected that most tigers should be found in Late Prehistoric contexts in the Samon Valley apart from a few that were traded elsewhere.

If the Samon is the Pyu homeland, then where are the Pyu bricks?

There are no major walled sites in the core area. The only known walled areas within the southern Samon are Hlaingdet, a 23 hectare site whose rectangular wall and the presence of an inscription (Aung Myint 1999: 235; The Making of Burma 2000) suggest that it may belong to the Bagan period, and some brick walls of indeterminate antiquity near Binnaka (Moore 2003: 25). However, there is not necessarily a contradiction involved in the absence of walled cities in the proposed homeland of the system of walled cities. By the time the walled Pyu sites appeared, the archaeological evidence suggests that the Samon Valley had been a stable territory for hundreds of years, offering no operational advantage to any of its member settlements to try to expand. A key indicator of this is settlement size. The size of the few settlements whose areas have been surveyed or published is right at the bottom of the maximum 30 hectare operable size range that has been proposed for long-term stability in non-literate settlements (Fletcher 1995). During the years of occupation that lasted long enough for noticeable cultural change to occur, such as has been archaeologically determined at Myohla, Ywahtinkon and Hnawkan (Patreau, Pauk Pauk & Domett 2001; Patreau, Mornais, Coupey *et al.* 2003; Patreau, Coupey, Maitay *et al.* 2004; Patreau, Mornais, Coupey *et al.* 2004), the Samon settlements would have maintained a complex relationship, as suggested by the display,

ownership or exchange of goods such as carnelian tiger beads. The presence of swords and spears serves as a reminder that this relationship may at times have involved conflict.

While the measurement of site sizes, and hence the acquisition of data to estimate population densities, has been demonstrated to be difficult in the prehistoric southeast Asian context (Bayard 1992: 19-20), the hypothesis of a stable Samon Valley homeland without a central place hierarchy could be tested by a detailed survey. Such a survey should find the Late Prehistoric settlements of the Samon to be densely packed into the region and of similar size. This settlement pattern would have locked up land use. It would have been in nobody's interest to disrupt the system, or to allow a neighbour to gain ascendency. But when settlement fission or population drift took place, and new, less densely settled zones were opened up, the hold of the old traditions would have been reduced, leaving the way open to the differential application of new management skills, and to a new system that eventually saw the development of large, enclosed central places, situated at an uncannily consistent distance from the homeland and from each other.

The Pyu cities.

The recurring pattern noted at the Pyu central places is one of extensive burial and large scale fortification (Stargardt 2001; Moore 2004: 18). Burial of the population within and around the settlement walls suggests strong local identification, both with the place and with its leaders. The speed of the development of the early urban system might be indicated by the single phase of wall construction and what may have been the relatively speedy redundancy of the walls. While structural modifications were made, such as the addition of an eastern wall to Sriksetra to replace a silted or dried-out tank that appears to have originally formed the boundary (Stargardt 2003), none of the Pyu centres needed to expand their defences beyond the areas covered by initial construction. By contrast Nakhon Pathom, the dominant central place in the Dvaravati system around the old Gulf of Siam, doubled the extent of its fortifications, and seven other settlements in that system also appear to have substantially expanded the areas enclosed by building a second phase of walls (Mudar 1999). The simplest explanation for the Pyu walls is that they were for defence, although once the walls and particularly the characteristic inward-turning corridor gates were constructed, the physical structure of the city was also set up for a form of access control beyond what would be immediately needed in times of conflict. The corridors suggest that the "owners" of the city were deeply concerned over who was allowed in and out.

If the pattern of establishment of settlements is taken to have radiated outward from the Samon Valley, in sheer terms of distance from the homeland Sriksetra would have been the last of the major central places to establish itself in the system. A warrior stelae, proposed as 5th century, may represent founders (Guy 1997). In the late 7th and early 8th centuries, the names of the Vikrama dynasty appear on burial urns and also on a Buddha statue, with an inscription that mentions another leader with a Sanskrit name (San Win 2003; Tun Aung Chain 2003). Sriksetra is twice the size of the other central places of the system. While it is physically the dominant centre, it maintains a respectful distance locationally from the other members of the system. Its size may relate to the circumstances of its later construction, perhaps the need to hold a larger population. Sriksetra also has the largest amount of extramural ritual activity of all the centres, with some of the Vikrama urns buried outside the walls, along with other élite burials and mass burials. Changes in military technology that included the introduction of cavalry, as indicated by the portrayal of sword-wielding riders on brick reliefs at Maingmaw (Sein

Maung U 1981) and Sriksetra (Luce 1985), may have reduced the value of walls for defence. If the Vikramas ruled Sriksetra at the turn of the 7th-8th centuries, but ignored the walls that defined the city when they enshrined some of their ancestors outside, it may be because the Pyu walls were redundant by this time. The likeliest external source of new military methods or technology that may have disrupted the wall-based defence system is Nanchao, which in the 8th and 9th centuries was known for attacking the Pyu (the most notable incursion recorded in AD 832) and for incorporating Pyu levies into its armies (Backus 1981). A chief of Nanchao, Ch'uan-feng-yu, in his role as "Lord of the Pyu", was presented in AD 858 with a gold Buddha as thanks for helping a Pyu group against a military incursion (Harvey 1925: 15), suggesting that the relationship between Nanchao and the Pyu groups fluctuated between enmity and amity.

While Nanchao contributed to the destabilisation of the Pyu system, there was no sudden "fall" of a Pyu empire, because despite the prejudices of later Chinese chroniclers working within a paradigm of imperial rule, there was no Pyu kingdom to fall. There was a system of largely autonomous walled sites with a shared culture, whose walls gradually diminished in significance as practical machines for defence and as symbolic enclosures of powerful kin groups (Hudson 2004). As the world religion, Buddhism, changed the rules by broadening the participation base for ritual activities (O'Connor 2003), the Pyu leaders could no longer rely on maintaining power through élite Brahmanical modes of kingship. This may be seen in the disappearance or the incorporation into Buddhism of many of the Brahmanical auspicious symbols such as the *srivatsa*, the *bhadrapitha*, the thunderbolt and the swastika which had been graphical representations of the authority of the Pyu élite and their relationship with the heavens and the spirits of the land. Since the Pyu continue to be mentioned in histories until at least the 13th century(Aung-Thwin 1998: 184-185), it is obvious that the Pyu ethnic group did not disappear along with "their" symbols. But coin studies suggest that people forgot the old symbols and their meaning, as exemplified by the appearance of "degraded" symbols on later coins (Mahlo 1998; Win Maung 2002). Just as this would have been easier to do if the symbol structure was one imposed by, or exclusive to, the leaders, so the drift of people who had once identified as Pyu to new or more amorphous ethnic or other social identities may have been a matter of adaptation to new circumstances and new leaders.

Conclusion and future prospects for the homeland hypothesis.

The evidence that points to the Samon Valley as the Pyu homeland is circumstantial, and the homeland idea needs to be treated as a working hypothesis rather than as any kind of proven fact. A strength of this theory of local geo-political expansion is that it does not rely on outside agencies. There is no need to posit that some huge ethno-linguistic group arrived from "somewhere else" and started building cities. The use by the people we know as the Pyu of Indic brick construction, symbols and ritual processes can be seen not as the result of the imposition of something from outside, but as the pragmatic adoption of new ideas and technologies by people whose interest in carnelian beads from 500 BC, blue glass bracelets from 400 BC and Chinese-inspired carnelian tigers and bronze artifacts from 200 BC shows that they had long been open to new products and to new ways of doing things.

This theory of intra-regional population shift could be tested by DNA sampling. There are two possible approaches, using DNA extracted from ancient burial remains, or testing modern populations. The use of ancient DNA in the reconstruction of population origins is subject to technical problems, particularly the difficulty of amplifying a significant number of samples and the contamination of samples with modern DNA (Hagelberg

1994; Paabo 1999; Kolman & Tuross 2000; Adachi, Umetsub, Takigawaa *et al.* 2004). Despite this, there have been encouraging results at the 2000 year timescale, with recovered ancient DNA used to distinguish relationships between populations in East Asia (Oota, Saitou, Matsushita *et al.* 1999; Kivisild, Tolk, Parik *et al.* 2002). However the sampling of modern populations is probably a more efficient and simple means of accumulating data which can be used to track ancient populations (Oppenheimer 1998: 177-218; Oppenheimer 2004). The processes are simple. Skin cells for DNA testing can be obtained by the use of self-administered buccal swabs, where the respondent rubs the inside of the cheek with a swab, and places the sample between two cards. This overcomes any need to obtain blood samples or to remove skeletal material, which makes the sampling process more attractive both to authorities and to the individuals who are contributing the DNA. Geneticists, historians, linguists and archaeologists might all find fascinating new data, far beyond the boundaries of this research project on Pyu origins, when DNA samples from Myanmar become available to compare with existing DNA results from China, India and Thailand.

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Figure 1 The Qin emperor's tally tiger, the likely model for the carnelian tiger beads of the Samon Valley (after Museum of Chinese History 1964).

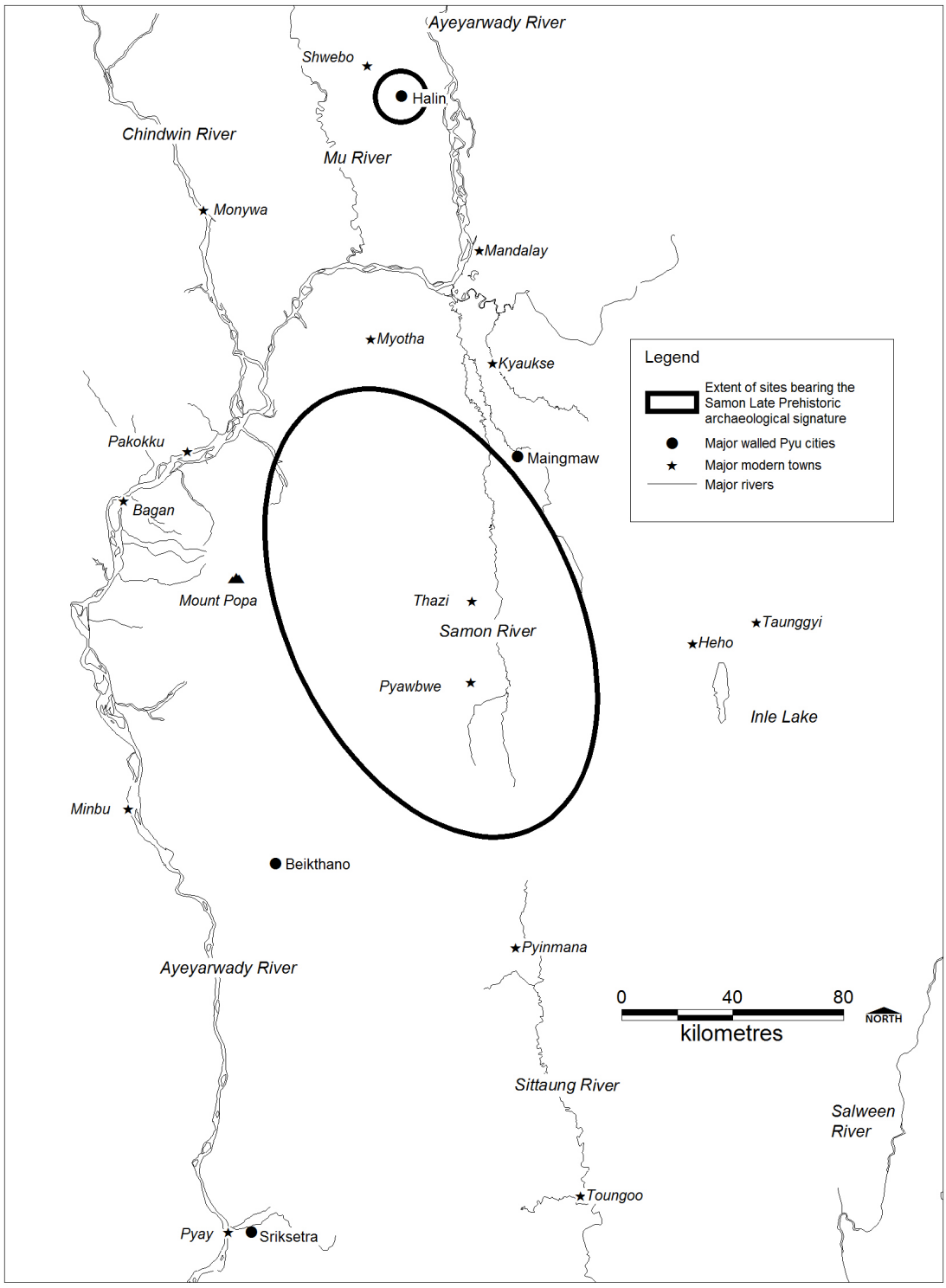

Figure 2. Location of Samon culture sites.