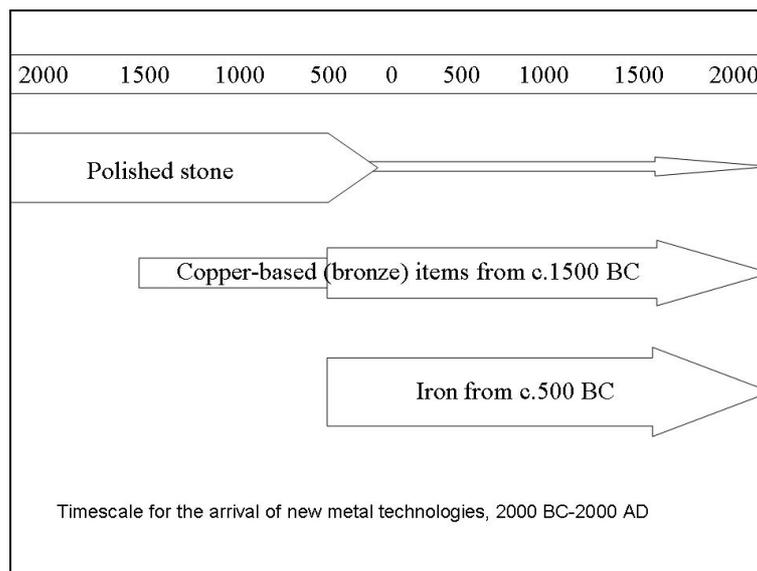


## Thoughts on some chronological markers of Myanmar archaeology in the pre-urban period.

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Archaeologists deal with material that was deposited, discarded, lost or deliberately buried over long and often difficult-to-discern periods of time. This paper presents some ideas for periodising Myanmar archaeology and interpreting archaeological evidence that may reduce our reliance on the old-style European terminology of “Neolithic”, “Bronze Age” and “Iron Age”. The development of technology in pre-urban Myanmar has involved increasing complexity and an increasing diversity in the materials used (as Tan discusses in detail in his paper elsewhere in this volume) rather than the sudden replacement of one material by another as might be implied in the notion of a sequence of “ages”. The addition of copper/bronze and iron to a technological repertoire that before the arrival of metals included highly skilled drilling and polishing of stone tools and ornaments can be put into a broad timescale. But we can also look for other indicators of the passing of time



### Bronze.

By the time the people found in the well-known excavations at Nyaunggan died and were buried with polished stone rings, a few bronze axes and dozens of pots of food for each person, it is obvious that production of bronze, or trade in bronze from other areas, was under way in Myanmar (Workshop on Bronze Age Culture, 1999). The consensus of the workshop participants was that Nyaunggan might date to 900-600 BC, based on a comparison with similar sites and assemblages in Thailand (Glover 1999). Elizabeth Moore has suggested that given the lack of precise evidence, the date range could be extended to include the period 1500-1000 BC (Moore 2003). The middle of the second millennium BC is generally accepted as the time for the appearance of bronze in Southeast Asia (Glover 1999; 1999; Higham 1999). An interesting feature of the Nyaunggan cemetery is that while the people were buried with bronze axes and spear heads, there do not appear to be any bronze ornaments.

The skeletons instead are associated with flat rings made from polished stone. We could ask whether this was because the people of Nyaunggan had never seen bronze bracelets and rings, or because they simply preferred their stone ones.

### **Stone rings and glass copies.**

Those polished stone rings were obviously very important to ancient people, ranging at least from Myanmar to Vietnam, and as far north as Hong Kong (Masato 1994). Stone rings have been found in north-east Thailand at Ban Lum Khao, a site dated to 1400-500 BC and at Ban Na Di, dated approximately to 900-400 BC. As in Myanmar, some of the Thai rings had been drilled with small holes and repaired with bronze wire after apparently breaking (Higham 2002). The form was so popular that it was copied in blue/green glass in the last few centuries BC. Glass bracelets in eastern Cambodia and western Vietnam, similar to examples found at Halin and in the Samon Valley, have been dated to around 400-200 BC, and examples from Ban Don Ta Phet in western Thailand may go back to the 4<sup>th</sup> century BC (Dega 1999; Albrecht, Haidle et al. 2001). Polished stone bracelets and their later imitations in blue glass might be seen as the Rolexes of ancient times, a symbol of the wealth of the owner. In the case of the ancient people, they wore those symbols to the grave as well as during their lifetime.

### **Iron.**

It is not controversial to state that iron appeared in Myanmar and other parts of Southeast Asia in the middle of the first millennium BC (Bronson 1985; Stargardt 1990; Higham and Thosarat 1998; Higham 2004). However it is useful for the archaeologist to think about what the introduction of iron means to a society. Iron tools can chop through roots and hard soil perhaps ten times more efficiently than polished stone or bronze, aiding in the expansion of agricultural areas and the creation of canals for irrigation. Iron also makes sturdy fasteners for building construction (Elvin 1973; Bellwood 1999). Iron weapons and tools give an advantage not just because of their strength but because they can be produced in much greater volume than bronze once the extractive and blacksmithing technology has reached the appropriate level.

### **Iron for hoe, bronze for show.**

It was suggested above that the appearance in the archaeological record of new technologies should be seen as cumulative, rather than as a replacement. The introduction of iron did not mean that bronze disappeared. On the contrary, there seem to be many more bronze artifacts found in Myanmar that date to after the arrival of iron around 500 BC than to before that time (Hudson 2004). A simple economic reason can be suggested for this. Wealth brought about by the economic growth that was due to the use of iron tools could be spent on status goods that included the glittering (when new) bronze items that have been excavated from graves, notably in the region between Mandalay and Pyawbwe (Patreau, Pauk Pauk et al. 2001; Nyunt Han, Win Maung et al. 2002; Moore 2003; Patreau, Mornais et al. 2003; Win Maung 2003; Patreau, Coupey et al. 2004). If we could travel in a time machine to the period generally defined as the “Bronze Age”, around 1500-500BC, we would not really see very much bronze. We would need to travel forward to what is called the “Iron Age”, after 500 BC. If we visited the home of a wealthy agriculturalist in the Samon Valley

around 200 BC we might be impressed by his beautiful bronze horse on wheels that had probably been imported from Yunnan in the north (Hudson 2004, and see the illustration in Elizabeth Moore's paper in this volume), by the complex bronze coffin decorations he may have been preparing for a family member's funeral (Hudson 2001) or by his leaf-shaped iron sword with a finely cast bronze handle (Win Maung 2003) that suggests this might not have been a completely peaceful society. Most of his iron possessions, by contrast, would probably be under the house among the farm tools.

### **Beads and the carnelian boundary.**

In the mid 1990s residents of Ywahtinkon near Pyawbwe discovered old beads while digging the foundations for a new school. High prices offered by antique dealers in Mandalay and Yangon led to "bead fever" and farmers, using scatters of potsherds as their initial clue, unearthed numerous burial sites. The farmers later described a consistent stratigraphy, which in their terms consisted of an upper "poor man's" layer of potsherds and rusted iron, below which was the "rich man's" layer with inhumations that contained carnelian beads. The farmers know, however, that if they dug even deeper they would only find another "poor man's" layer, with talc beads and bronze implements that were at the time not very saleable (Win Maung 2003). Excavation at this site (Patreau, Mornais et al. 2003) revealed iron tools among the burials, with pottery, and carnelian and glass beads. Carnelian beads and white-etched agate beads are popularly known in Myanmar as "Pyu" beads, but the indication from finds in burial contexts is that they predate the early urban "Pyu" period by hundreds of years.

Line decorated carnelian and agate beads were manufactured in western India as early as the Harappan period (Insoll and Bahn 2001), but they only appear in quantity in south-east Asia from around 500 BC (Glover 1991; Glover and Bellina 2001). While stone beads may have initially been prestige goods imported from India (Basa 1991) there is increasing archaeological evidence of early local manufacture of beads in Myanmar. At least five villages in Myanmar are named Padigon or "bead mound" (NIMA 2001), and Barbie Campbell-Cole has shown that finds of unfinished beads now stretch from the Samon Valley to Moulamein (Campbell-Cole 2003). There is a growing body of evidence for an early southeast Asian stone bead industry, at sites in peninsular Thailand such as Khao Sam Kaeo (Bellina and Praon Silapanth 2004) and Khuan Lukpad, and at Oc Eo in southern Vietnam (Bronson 1990; Theunissen, Grave et al. 2000). There are also indications of a regional glass bead industry, as distinct from one dependent on India or China, at Khuan Lukpad (Bronson 1990; Basa 1991), perhaps from the early centuries of the Christian Era, and in Cambodia (Stark and Dussubieix 2002). It can now be suggested that Myanmar was probably producing carnelian and agate beads in the Late Prehistoric period (from around 500 BC onward). Sites containing quantities of carnelian beads can therefore be dated to after 500 BC.

### **The Qin emperor and the Myanmar tiger beads.**

Some of the beads that can be placed convincingly in the last two centuries BC or early centuries AD are pieces of carnelian in the shape of a tiger. Most known

examples of these come from the Samon Valley (Nyunt Han, Win Maung et al. 2002; Campbell-Cole 2003) although there are at least two from Halin. One of these was recorded during excavations (Myint Aung 1970 Plate 7). Another was found by farmers and is now in a private collection. One tiger bead was found at Ban Don Ta Phet in Thailand in a context radiocarbon dated to 400-200 BC. A tiger bead described as similar to the Ban Don Ta Phet example has been reported at Khuan Lukpad, on the west coast of southern Thailand, around 200 kilometres south of the Myanmar border, and a further find has been noted at Khao Sam Kaeo on the Gulf of Siam (Glover 1990; Glover 1991, Fig 5; Mayuree Veraprasert 1992; Higham 2002). These figures generally have holes drilled from below the chin to above the tail, a commendable technological feat in a bead that could be 10 cms long.



The Qin Emperor's bronze tally tiger (Cheng & Cheng, 1993).

There is a close morphological relationship between the Myanmar carnelian tigers and bronze Qin Dynasty (221-207 BC) "Tally Tigers" of China which were symbols of military office (Museum of Chinese History 1964; Cheng and Cheng 1993; Gengwu 2001). The Chinese evidence allows a precise estimate of the date at which carnelian tigers may have first appeared. The *Museum of Chinese History* tally tiger, which has also been published by Cotterell (1981) and Cheng & Cheng (1993, and see illustration above), appears to be a virtual template for the Samon Valley tigers. The Chinese example was issued for the disposition of troops, who could be ordered into battle only when the emperor sent his right hand half of the figure to his general, who held the left half. The emperor named on the bronze tiger is Qin Shihuang Di (Museum of Chinese History 1964; Cheng and Cheng 1993). The first emperor of a united China, who also left behind thousands of terracotta figures of his army buried near his tomb outside Xian, this military expansionist ruled between 221 and 207 BC (Zhang Lin 2001). It appears that his symbol of authority was seen and adopted by the bead makers of Myanmar's Samon Valley during or after this time. The presentation of Tally Tigers by Chinese officials to Burman princes occurs in the late Bagan period (Chen Yi-Sein 1960; Aung-Thwin 1998), demonstrating their longevity as a symbol of office in China. But apart from two examples found at Halin, a site that seems to have been operating, probably as a salt making centre, for more than 2000 years (Hudson 2004), they are not associated with the Pyu cities that appear in Upper Myanmar in the first half of the first millennium AD. The Pyu, it seems, preferred Indian symbols such as the srivatsa and the conch, which appeared on their coins and pottery.

## Conclusion.

The development of society in pre-urban Myanmar can be linked to economic growth that was brought about by the introduction of iron around 500 BC. Before this, people had developed considerable skills in drilling, cutting and polishing artifacts such as stone rings. These stone rings were duplicated in glass from the 4<sup>th</sup> century BC onward, and the new glass versions were as popular across Southeast Asia as were the stone rings. People had earlier taken an interest in bronze axes and spears, to the extent that some of the stone-workers copied the shape of bronze spears in stone (Hudson 2004). The arrival of iron, and an associated increasing sophistication in metals technology, was followed by an increase in the production of bronze goods, which the ancient people, conveniently for the archaeologist, took to their graves. They loved beads, including carnelian and agate beads which appeared in increasing numbers from around 500 BC. From around 200 BC, particularly in the Samon Valley, many people owned carnelian tiger beads that were based on bronze tally tigers of China's Qin Dynasty. While we can only look at these people through their possessions and their burial customs, we can picture a society in which new technologies and the new ideas that may have come with them were not at all frightening. We might even suggest that in their way, given the adoption of blue glass versions of the traditional stone bracelets, they may have been a little fashion conscious. The great changes to ancient Myanmar society from around 500 BC that eventuated in the development of the Pyu cities, the spread of Buddhism, and the growth of the mighty Bagan empire are only just beginning to reveal themselves to archaeologists. Exciting discoveries, discussions and challenges lie ahead.

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