

Commentary



THE PAST, PRESENT, AND FUTURE OF PREHISTORIC ARCHAEOLOGY IN BURMA

IAN G. GLOVER

I OFFER SOME PERSONAL reflections on the archaeology and prehistory of Burma arising out of my reading of the various papers in this volume and from some thirty years teaching on the (mainly) prehistoric archaeology of Southeast Asia to cohorts of students in London. I feel unequal to the task of writing any substantial account of Burmese archaeology since I have been to Burma on only four occasions, and although I have read almost everything I could find on its early archaeology, I could make little coherent sense from what I have seen and read: too much was missing from the narrative. Documentation on all early sites was sparse and too widely spaced in place and time to relate them to each other.

In 1978 I visited Taungthaman (south of Mandalay) where a few seemingly late prehistoric burials had been dug and briefly reported, but there was no reliable dating, no analysis of the materials, and nothing to relate them to. In early 1999 I was privileged to spend a day at the newly discovered cemetery site at Nyaunggan described here by Moore and Pauk Pauk. That is the sum of my personal experiences of prehistoric archaeology in Burma. Clearly the country has many significant archaeological sites, some, such as Beikthano (Aung Thaw 1968) had been competently excavated and published. Other reports, such as that on the Padah Lin Caves (Aung Thaw 1971), hinted at a long sequence of occupation from mobile hunter-gatherers to settled Neolithic villagers, although details were lacking and the documentation on the contexts of the finds, on the stratigraphy and chronology, lacked authority. Beyond these quite unrelated sites there was little other than stray finds reported in the *Journal of the Burma Research Society*, *The Archaeological Survey of Burma*, and geological reports (see Aung-Thwin, this issue).

I should emphasize that the above and subsequent comments are almost all on prehistoric archaeology and I am far more ignorant than I should be on the archaeology of the historic periods, from Pyu into later times. Of all the great cities of old Burma, I have visited only Pagan, and that only once and more as a tourist than as a scholar. I will thus restrict most of my comments to the prehistory of Burma.

Ian G. Glover is a professor emeritus at the Institute of Archaeology, University College London.

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SOME THOUGHTS ON THE DEVELOPMENT OF
PREHISTORIC ARCHAEOLOGY IN BURMA

The six articles in this issue of *Asian Perspectives* make a significant contribution to our knowledge of the archaeology of this country. That this should be so—that only six rather short chapters should be of such significance—tells us quite a lot about the rather backward state of Burmese archaeology.

This has not always been so, because investigation into the early history of humans in Burma started early, as the chapter by Michael Aung-Thwin tells us. In the late nineteenth century there was much pioneering and thoughtful research into the Palaeolithic in Burma by geologists such as Noetling, Cotter, Clegg, Evans, Pascoe, Sanson, Smith, and Stamp, among others, who, although their framework for Quaternary geology can now be seen to be flawed, recognized the tools of early man in ancient geological contexts and brought them to the attention of their colleagues.

In Burma, as in many other Southeast Asian colonial territories, geologists pioneered archaeological research. Later generations should remember with gratitude the work of Wray in Malaya; Mansuy, Colani and Patte, Fromaget, and Saurin in Indochina; and Van Es in Java. In Burma itself this research, which was always marginal to the main interests of the researchers, was continued in the 1930s by T. O. Morris, who should properly be remembered as the “Father of Burmese Archaeology.” Morris recognized the significance of the flaked stone tools eroding from the various terraces of the Irrawaddy River and sent some specimens to the British Museum where they were studied by the Keeper of the Prehistoric Department, the redoubtable Reginald Smith. This contribution led to the first piece of sustained archaeological field research by Hallam Movius and Helmut de Terra in the late 1930s, which yielded the first, and still rather lonely monograph on the early prehistory of Burma (de Terra and Movius 1943).

In his chapter, Michael Aung-Thwin summarizes the geological and chronological schema proposed by de Terra and Movius in some detail, and I will say no more about that here other than it is desperately in need of revision. Lengthy multidisciplinary fieldwork is needed with the results presented within a more modern framework of Pleistocene chronology and world climate history. This is not to criticize the work of de Terra and Movius, which was in its time a considerable achievement under difficult circumstances.

The volume by de Terra and Movius appeared after the Pacific War had burst across East Asia and subsequent wars of independence, revolutions, coups, and civil disturbance made archaeological fieldwork all but impossible—Louis Malleret’s extended research in the Mekong Delta in the 1940s was a remarkable exception. In Burma this had to wait some 20 years before Aung Thaw, trained at the School of Archaeology of the Archaeological Survey of India at Dehra Dun brought the field methods developed by Sir Mortimer Wheeler to the study of early Burma. His excavations at Beikthano and the careful and speedy publication of his discoveries remain a lonely beacon amid the rather gloomy scene of the archaeology of early Burma.

THE STATE OF ARCHAEOLOGICAL RESEARCH IN BURMA:
COMPARABLE PERSPECTIVES

In an attempt to explain how this came about, Aung-Thwin (this issue) comments that, given the situation in Burma in the years following independence, “Pre-

history was a luxury the country could ill afford." But this was not inevitable and contrasts with the situation in newly independent, and even more resource-poor North Viet Nam after 1954 (see Glover 1999*b*). There, archaeology, and especially prehistoric archaeology, was given funds and seen as a high political priority in the business of nation building. Spurred by nationalism and adopting the methods of Soviet Marxist materialist archaeology, Vietnamese scholars surveyed, recorded, excavated, and published more than in all the other newly independent countries of the region put together. It was not really shortage of funds that held back Burmese prehistoric archaeology, but a shortage of vision on the part of the politicians and the nation's emerging leaders. Aung-Thwin also, and to my mind, more reasonably, suggests that in Burma since the 1970s the priority given to conservation and restoration of the above-ground monuments, especially at Pagan following the great earthquake of July 1975, led to a neglect of the nation's earlier heritage.

Whatever the true reasons and despite the energy and initiatives of Aung Thaw, the fifty years following independence saw little effort put into prehistoric research in Burma and consequently little was achieved. Throughout this time, Vietnamese archaeologists continued to excavate and publish despite almost continuous war to 1975; they maintained the momentum after unification was achieved (Ha 1980; Pham 2000). In Thailand from the 1960s, foreign and local archaeologists have created a comprehensive framework for the country following some 30 years of active research (Glover 1993; Higham and Thosarat 1998). In Indonesia and Malaysia research has been more fitful, and has depended rather on a few key personalities such as R. P. Soejono and recently Haris Truman Simantujak in the former, and Adi Haji Taha, Leong Sau Heng, and Zuraina Majid in the latter country (Glover 1986; also see Bellwood 1997). In these countries, too, where finance was often scarce and political disturbances not unknown, much good research was undertaken and published. In the Philippines, it seems to an outsider that archaeologists, though sometimes busy in the field, seem to have achieved rather less.

Only perhaps in Cambodia and Laos has prehistoric archaeological research been so neglected as in Burma. In the former country revolution and genocidal war dominated the picture for 30 years following the 1960s. During the brief occasions when archaeological research was possible, the demands of the great monumental complex at Angkor meant that all other interests were pushed aside until very recently. Laos was barely seen to have a past worth investigating, although in recent years this has been seen to have been quite wrong and French, Italian, Swedish, and Lao archaeologists have made a significant start in creating a prehistory for the nation (Källén and Karlstrom 1999; Sayavongkhamdy and Bellwood 2000).

ON THE PAPERS

A consideration of the six articles in this volume does something to confirm the above assessment. One (by Michael Aung-Thwin) is a historian's survey of what led to the present sad situation. Another, that by Moore and Pauk Pauk, gives us something new: a short report on the second author's 1998 excavations at Nyaung-gan, a seemingly Bronze Age burial ground in central Burma. The finds made there were thought to be significant enough for the Centre for Historical

Studies of Yangon University to arrange for an international group of archaeologists (in which I was fortunate enough to be included) to visit the site in early 1999, hold a two-day workshop on the discoveries and comparative perspectives, and to publish a book on this before the end of the year (Anonymous 1999). This book is strangely missing from Moore and Pauk Pauk's bibliography, as is a recent well-researched and published account of the human biology of the site (Tayles et al. 2001).

Two articles, that by Hudson and Nyein Lwin and that by Grave and Barbetti, also present new data and new approaches to a site far too long the preserve of epigraphers, historians, and art historians. The first is broadly focused on the long-term development of the city using traditional historical and new archaeological data to link Pagan to the Pyu and demonstrate the city's existence before the rise of the medieval Burman civilization. Grave and Barbetti offer a very technical approach to a small but difficult problem, that of dating medieval building structures with radiocarbon samples. They show to their own and my satisfaction that such an approach cannot give the precision needed for this time period, and I feel that here probably an old-fashioned ceramic typology and seriation would give better results. But that will take time as the necessary data are not yet available.

John Miksic takes a different approach to the problems of urbanization in Burma and focuses first on problems of conservation, reconstruction, and "authenticity," an issue which was much discussed at a UNESCO-sponsored meeting in Hoi An, Viet Nam, in February 2001, and is well covered in a report entitled "Pagan Archaeological Heritage" by Professor Kanukazi Ueno (2000). Miksic then considers the potential value of ancient Burmese cities to the tourist economy. Here he makes a not-too-hidden criticism of government policies and the implementation of them during the reconstruction projects at Pagan and other historic sites in Burma. Inhabitants were cleared from their traditional homes with little warning or compensation while ambitious building and reconstruction work was undertaken with too few trained personnel, leading to a substantial lack of the "authenticity" that successful heritage sites require.

Finally, Miksic examines ideas concerning the origins of Southeast Asian cities and notes the over-generalizations and lack of specific criteria offered by various writers for recognizing and understanding this process. He makes the useful distinction between orthogenetic and heterogenetic types of city. Although this does not resolve the questions asked earlier, it is a useful tool for the analysis of urban forms. This leads to a suggestion that urbanization followed many pathways in Southeast Asia and that there were substantial differences between the process in mainland and insular regions. He ends by returning to the need for research on ancient cities and the contribution this could make to the appreciation of the past in Burma, heritage conservation, and, indirectly, to the tourist economy.

The final paper in this collection is that by Pamela Gutman on the history of ceramic research in southeastern Burma and especially on the Martaban trade. Although written several years ago and, as the author acknowledges, somewhat dated, such is the slow pace of archaeological research in Burma that this still reads as a valuable and original piece of work. Although other writers have drawn on Gutman's 1978 conference paper, there seems to have been remarkably little new fieldwork around the Gulf of Martaban and only a little in other regions of Burma, such as that reported here by Hudson, Nyein Lwin, and Win Maung at

Otein, Taung, Pagan, and in unpublished reports by Hein, Barbetti, and colleagues. Clearly this is a field open for research and one that would require rather little financial expenditure but considerable knowledge and skill on the part of the researcher.

THE PLACE OF BURMA IN SOUTHEAST ASIAN ARCHAEOLOGY

Leaving aside now consideration of the six articles briefly mentioned above I will try to consider how the late- and post-Pleistocene archaeology of Burma—despite the few reliable data we have—fits into the broader picture of Southeast Asian archaeology.

Hunter-Gatherers and Agriculturalists

Only the excavated collection from Padah Lin Caves and a few scattered surface finds give us some idea of the technology and cultural patterns in the late Pleistocene to mid Holocene, but this is just about enough to recognize broad similarities with contemporary lithic assemblages across a huge area from northeastern India through Thailand, Cambodia, peninsular Malaysia, Viet Nam, and into South China. There is nothing original in this observation; it was recognized long ago by Worman (1949) and Dani (1962). These archaeological materials differ quite markedly from the contemporary assemblages of much of South Asia and insular Southeast Asia (see Bellwood 1997; Glover 1973). How we interpret this is another matter; is it resource-based and due to the relative lack of fine-grained chert for flaking and the availability of bamboo and certain hardwoods for tool-making, as many have suggested? Or is this a real cultural pattern arising from the spread of genetically and linguistically related communities sharing many common ideas and patterns of life? Proto-Austroasiatic or Austric speakers come to mind, but this would run counter to the hypothesis proposed by Higham (1996), which has substantial support, that the southern Mongoloid Austric speakers expanded south from China bringing rice cultivation only from the late third millennium B.C.

A classic Neolithic pattern of settled village agriculture with ceramics, polished stone tools, domesticated cattle, dogs, and pigs can only be assumed for Burma from perhaps the third to late second millennium B.C. There is plenty of scattered evidence, as Morris (1935) long ago described but nothing excavated, dated, or carefully described as we have from, for example, the Phung Nguyen sites of northern Viet Nam, or from sites like Ban Kao and Khok Phanom Di in Thailand.

The Early Metal Age

As Aung-Thwin mentions in his review in this issue, T. O. Morris (1938) also drew our attention to a number of unprovenanced socketed copper alloy artifacts he had found in Burma and more have been collected since. These metal artifacts hint at, but far from demonstrate, the presence of a Bronze Age in Burma. However, in Indonesia, the Philippines, and Peninsular Malaysia, as van Heekeren (1958) pointed out and later archaeological work has largely confirmed, bronze and iron seem to have come into use about the same time, in the late centuries

B.C.—although, of course, some pieces may have been imported from the continent and in circulation much earlier. Now, the discoveries at Nyaung-gan (e.g., Anonymous 1999; Moore and Pauk Pauk, this issue; Tayles et al. 2001) seem to rule out that scenario. Although the site is still undated the evidence seems clear enough for a pre-iron, post-Neolithic community. Stone beads and bracelets were present, but none of the ubiquitous Southeast Asian polished stone adzes were recovered. How this material relates to Bronze Age assemblages elsewhere in Southeast Asia is still difficult to say. At the 1999 Yangon workshop, Joyce White saw clear similarities between the Nyaung-gan bronzes and those from northeast Thailand, and specifically from the site of Ban Chiang. Others rejected that connection, and personally I felt that they more closely resembled—in the presence of occasional square-shouldered socketed adzes—pieces called “Bronze Yue” that I had seen at Chengdu (Sichuan) in southwest China in an exhibition of finds of Ba Shu bronzes. But this is rather a subjective parallel, and one based on too little data. However, it does seem clear that the Nyaung-gan bronzes belong, in a general sense, to Southeast Asian types and are quite different from, say the Copper-Hoard material of northern India, or those from the Shang and Zhou Bronze Age of northern China.

In an earlier article (Glover 1999a) I commented on what I saw as the great regional diversity of archaeological cultures in Thailand from the late third to mid first millennium B.C. There is a well-developed Bronze Age, in the conventional sense, in northeast Thailand and probably in that area of the central plains east of the Chao Phraya River. However, west of the river, in Peninsular Thailand, Malaysia, and Insular Southeast Asia, there was no Bronze Age in the sense I used the term. The transition was essentially one from the almost exclusive use of stone-cutting tools in the late second millennium B.C. to iron in the mid first millennium A.D. Although there are many bronzes in archaeological assemblages (mainly burials) from this time, we cannot speak of a Bronze Age, but rather a Bronze-Iron Age, as van Heekeren (1958) long ago realized was the case in Indonesia.

The implications of the evidence from Thailand should be clear: that while some parts of Myanmar may have passed through a classic Bronze Age in late prehistory, there is no reason to believe that this will be found throughout the country. More likely it will be seen that the development of bronze metallurgy was confined to regions rather close to nonferrous metal resources—primarily in Upper Burma—the *Tampadipa* mentioned by Moore and Pauk Pauk. In the low-lying central and coastal plains of Burma, metallurgy probably came later and in the form of iron-working, introduced from India in the mid first millennium B.C.

The Transition to Historical Times

The archaeological site of Beikthano (Aung Thaw 1968) gives us a quite clear, if singular, picture of an early Indian-influenced city in Burma, with its palace, walls, religious shrines, and royal cemetery. We also see evidence for an Iron Age in Burma, with work at the site of Taungthaman (Stargardt 1990). Yet the transitional phase, from Iron Age chiefdom to Indianized city, as found, for example, at Noen U-Loke in northeastern Thailand and Dong Son in Viet Nam, is missing—as indeed it is in almost every part of Southeast Asia.

In western Thailand we go from sites such as Ban Don Ta Phet, with its hints of Indian contacts, to Indianized Dvaravati sites such as Ku Bua, Nakhon Pathom, and U-Thong, and in the northeast, from Noen U-Loke to Dvaravati Muang Fa Daed. In central Viet Nam the transition from the Sa Huynh villages to proto-Cham urban forms appears to be a sudden, almost revolutionary transformation (Glover and Yamagata 1995). Whether the occupation at Beikthano really ran from the first to fifth century A.D. as Aung Thaw (1968:61) asserted is difficult to say. Calibrating the four radiocarbon dates would push the age back somewhat, but some of the charcoal came from substantial structural timbers (a gateway at site 9) and such material, as Grave and Barbetti (this issue) show, may predate its use in building by a considerable, but unknown, time. The few coins reported give little help in dating the occupation since they are said to be stray finds collected by villagers around the site, and as (Cribb 1981) comments, they cannot be earlier than the seventh–eighth century A.D. Aung Thaw also makes the point that they are later Halin and Sriksetra coin types.

So, even from Beikthano we get no clue as to the process whereby late prehistoric society was transformed to a hierarchical Buddhist kingdom. This is an important and still problematic stage of Southeast Asian archaeology and one to which research in Burma could provide many answers. But this, as with almost all issues in Burmese archaeology, is still to come.

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Commentary



ARCHAEOLOGY IN MYANMAR: PAST, PRESENT, AND FUTURE

C.F.W. HIGHAM

IN A RECENT PAPER, Hudson (2001) has compared the present position of archaeology in Myanmar with that in Thailand 30 years ago. As one who was confronted with a *tabula rasa* in Thailand during the 1960s, the similarities are indeed intriguing. At that juncture, I wrote a brief paper entitled "Initial model formulation *in terra incognita*," in which I stressed the importance of first establishing a coherent cultural and chronological sequence before proceeding to more interesting issues thereby raised (Higham 1973). The subsequent history of research into Thai prehistory and early history has had its ups and downs, and it is important in pondering the future of archaeological enquiries in Myanmar to avoid the latter. The high points in the past three decades of research in Thailand have undoubtedly been in the intensive investigation of single sites, each one of which has added greatly to our understanding of the potential information still to be secured. It is an unusual and exciting experience to open a site with a particular model to be tested, and on virtually every occasion, to find a quite different outcome to that predicted. Moreover, at least in the earlier stages of this process, every site added considerably to our quantum of knowledge.

The low points have largely involved resolving the dating controversies that have been generated by hyperbole in a quest for the remarkable. This has been a long and tedious business, one that has taken up far too much energy and time, and one which has not been devoid of rancor (Bayard and Charoenwongsa 1983; Loofs-Wissowa 1983; Solheim 1983).

The papers presented here provide most timely summaries of some of the main issues that now make Myanmar such an exciting country in which to engage in archaeological research. Myanmar, unlike Thailand, was subject to colonization. While this period in its history undoubtedly engendered much hardship and loss of dignity on the part of its people, at least in terms of archaeology, it brought about many important discoveries. Myanmar was incorporated then within the wide reach of the Archaeological Survey of India, and annual reports of the survey regularly published information on fieldwork there. I note that none of the papers

C.F.W. Higham is a professor at the University of Otago.

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included in this volume reference the archaeological fieldwork of Charles Du-roiselle. Yet his investigations opened a major vista on the potential of excavations in early urban sites, which were particularly favored by the possibility of examining religious monuments before all were destroyed by treasure seekers.

This period of initial discovery is usefully described by Michael Aung-Thwin. For a time, Myanmar was a focus for early research on the Palaeolithic period, particularly following the fieldwork of Hallam Movius (1948). The paper begins, however, with a view that has often been expressed, that employing descriptive terms based on the European Three Age System in Southeast Asia is unwise. He links this stricture with the point that these periods, when used, imply an irrevocable conclusion that there must be change and progress within the archaeological record. No examples are given, however, of instances where prehistorians in Southeast Asia have opened their intellectual baggage to reveal that differences imply change, and change implies progress. This is an interesting situation, and one which I have addressed on several occasions. Take, for example, the period in mainland Southeast Asia between about 500 B.C. and A.D. 200, when iron forging became widespread. It has been described under many different labels, including General Period C (Bayard 1984), Mode 2 (Higham 1983), the *muang* period (Bayard 1992), the High Bronze Age (Hutterer 1991), the Late Bronze Age (von Dewall 1979), the Iron Age (Charoenwongsa 1988; Penny 1984), the High Metal Age (Ho 1992), the Late Metal Age (Bronson 1992), the late Prehistoric (Glover 1991), and the Formative (Welch 1985). The same proliferation of titles could be listed for the period when agriculture was established in small autonomous communities, or the timespan when copper-based artifacts were being cast. Aung-Thwin then casts doubt on identifying when an arbitrarily defined period, the Palaeolithic, gave way to another arbitrarily defined period, the Neolithic. These are, or should always be, rigorously defined. The former involves hunter-gatherer communities, the latter agriculturalists. I cannot see how either is arbitrary.

Dispensing with the Three Age System requires an alternative to Western names allegedly rooted in the notion of progress. This can pose difficulties. Thus, Aung-Thwin uses the name "post-Anyathian," and then defines it as corresponding to late "Hoabinhian" and the Western "Neolithic." Later, this same period is described under the heading "the Post-Anyathian Cave Culture," while he calls the period when copper-based metal was being used "The Bronze Age." In the same paragraph, we find that copper and bronze axes in Myanmar were "essentially copies of their Neolithic predecessors" (does he not mean their post-Anyathian predecessors?).

The prehistoric sequence in mainland Southeast Asia in my view does exhibit a series of cultural changes involving increasingly complex social, technological, and economic variables. I would not use the term progress with its implication of betterment but would strenuously deny that the identification of cultural change involves a circular argument. I have no qualms in employing the Three Age System under these circumstances, but in arguing this point in 1996, I added that this is only a convenient shorthand with no implications for similarities with other regions where it has been employed (Higham 1996:7). If any prehistorian working in Southeast Asia advances an alternative system that is readily understandable to a wide audience, I would be most interested. At present, I feel that the Neolithic, Bronze, and Iron Ages are useful in mainland Southeast Asia as shorthand

notations for cultural behavior that, while incorporating elements of continuity, also witnessed deep-seated changes. The question is, what do we know of the sequence in Myanmar, and to what extent does it show similarities or differences with other regions of Southeast Asia to the east, and with India to the west?

Aung-Thwin is quite correct in stressing the continuities between the Hoabinhian hunter-gatherer groups found at Padah-Lin and those identified in Thailand, Viet Nam, Cambodia, and southern China (Aung Thaw 1971). However, his review of the scattered finds of bronzes and description of just one excavated Iron Age site stress that archaeology in Myanmar is still in its early stages of development, and that these lacunae contrast with its potential importance. It is a truism that Myanmar is strategically located. The major rivers of Myanmar, with their origins in the eastern Himalayas, could have provided a conduit for the expansion of Neolithic rice farmers from the Yangzi Basin. Such movement has been suggested by Sørensen (1963) on the basis of his excavations at Ban Kao in central Thailand. Luce (1985), in an early and prescient consideration of the distribution of Austroasiatic languages of which Mon is a major group, suggested similarly that the cognate words for rice and aspects of its cultivation could only be explained by a diaspora of rice farmers. In his case, however, he wrongly cited the Red River delta as the donor area. Blust (1996) has followed this theme in his review of the implications of linking the Austroasiatic and Austronesian languages into the Austric phylum. He has suggested that the Thanlwin and Ayeyarwady rivers provided access to Myanmar from the region of the upper Yangzi, just as the Brahmaputra provided a natural route into Bengal and Orissa for speakers of proto-Munda languages, and the Mekong for those who spoke proto-Khmer. In this respect the identification of Neolithic sites in Myanmar awaits intensive investigation.

The same routes were available for the transmission of the knowledge of bronze. The Shang and Shu states in the late second millennium B.C. were keenly interested in southern products, such as cowrie shells and turtles shells, and Myanmar may well have been involved in this trade (Cook and Major 1999). Since there are rich copper deposits in the Chindwin Valley, the development of Bronze Age societies, hinted at a century ago by the discovery of a socketed bronze spear in the Shan States, may be confidently predicted.

Trade in cowrie shells and other southern goods almost certainly involved relationships with Yunnan and the Dian chiefdom in the following millennium. As with Thailand, iron forging could have been a local innovation, or the expertise could have been gained through the transmission of ideas. In the case of Myanmar, both India and China could have been a source for such knowledge. The development of the Mauryan state in the fourth century B.C. had wide repercussions in South Asia, and Asoka, the third king, was assiduous in spreading the word of Buddhism through the dispatch of missionaries to all points of the compass. This certainly involved Myanmar, which lies virtually on the eastern border of the Mauryan Empire, an area open to the exchange of people, goods, and ideas over the ensuing millennium of the Pyu state.

These geographic facts, unanimous in emphasizing the importance of Myanmar, call for a new generation of archaeological effort. It is encouraging to read in this issue that an increasing number of Western scholars, collaborating with their Myanmar counterparts, are beginning to initiate major research projects. Com-

pared with many Southeast Asian countries, the tight internal controls present in Myanmar are a deterrent to the systematic looting of major sites to satisfy the international trade in illegal antiquities. In this regard, Myanmar is much better served than Thailand and Viet Nam, and infinitely better than Cambodia. There are, however, also problems. These begin with a serious lack of skilled Myanmar archaeologists needed to advance their discipline, and are exacerbated by a policy outlined by Miksic, and experienced by the author during a tour of sites in Myanmar in January 2000, that they be used to engender tourist revenue. There is no doubt that throughout Southeast Asia, tourism brings considerable financial benefits. In Cambodia, Angkor is poised to become one of the great tourist attractions in the world. Thailand has invested considerable sums of money to create historic parks. At Ayutthaya, Sukhothai, Phimai, and Phanom Rung, major historic sites have become tourist destinations. Prehistoric settlements have also been turned into what are described as open museums. At Ban Chiang and Ban Prasat, it is possible to view prehistoric burials still in the ground, in conjunction with explanatory exhibitions and site museums.

This has also been put into practice in Myanmar. The excavation of the first major Bronze Age site at Nyaung-gan, described here by Moore and Pauk Pauk, has never been completed, because all the skeletons and most of the grave goods remain in the ground. The problem is that exposed human remains degrade. Worse, it is impossible to complete a final report, because the material cannot be properly studied. During a visit to Nyaung-gan in 2000, linked with a conference on the site by visiting archaeologists, it was unanimously stressed that removal of the finds to permit proper study and conservation was urgent and essential. Nothing was done. In Thailand, similar degradation has afflicted the remains left in the ground at Ban Prasat in Nakhon Ratchasima Province. After several years of deterioration, the material was removed and replaced with such good replicas that it is virtually impossible to distinguish them from the originals. In terms of the major city and temple sites in Thailand and Cambodia, the technique of anastylosis has on the whole been successfully applied to obtain historic authenticity. A similar skilled curatorial approach to the largely brick monuments of Pyu sites is essential if the visitor is to be given a proper insight into historic reality.

The paper by Moore and Pauk Pauk sensibly employs the term Bronze Age in the title, and provides a clear summary of the principal results from the 1998 excavations at this vital site. These permit comparisons between Nyaung-gan and related sites to the east. In terms of the environment, Nyaung-gan is located in an area that is considerably drier even than the sites in northeast Thailand, attracting only 675 mm of rainfall per annum. This poses the interesting question of subsistence agriculture, particularly if rice was involved. The location of Nyaung-gan contrasts with such sites as Ban Na Di and Ban Lum Khao in Thailand (Higham 1996; Higham and Thosarat 1998). The cemetery was placed on the elevated edge of a volcanic upland commanding vistas over the surrounding plain. In Thailand, Bronze Age cemeteries are found within lowland mounded settlements. Moreover, the stratigraphic build up, where any depth of deposit remains after land clearance and erosion, contains no obvious evidence for occupation. Like Shizhaishan and Lijiashan in Yunnan, it seems to have been a dedicated cemetery in a commanding hilltop location. It might well be that the community responsi-

ble was living below, on the floodplain. Surveys to identify such sites, as well as any copper mines and processing areas, are called for.

The excavation itself ranks with the most extensive of any Bronze Age exposure in Southeast Asia with about 400 sq m being uncovered. Unfortunately, the four squares are not contiguous, so the spatial patterning of graves is not as complete as one would wish. Given the large area, there are relatively few burials, and they are widely spaced with few disturbances. The density of burials at Nong Nor, the only other Bronze Age site in mainland Southeast Asia with as large an exposure, was over three times that number. The inhumation burials themselves follow a widespread Southeast Asian pattern of lying on the back with a range of grave goods. Pottery vessels were abundantly represented, then stone bangles or rings, and bronzes. There were also animal bones, including the remains of cattle. Some large pottery vessels have not been emptied, and might contain infant burials. As with Bronze Age sites further east, bronzes are rare, there being only 18 artifacts representing, in the main, weapons. There are no radiometric dates, but the typology of the bronzes suggests a context within the period 1000–500 B.C. If confirmed, they contrast with the other Southeast Asian assemblages, where body ornaments, particularly bangles, predominate. The form of the stone bangles also contrasts with those from Thailand and Viet Nam, but the method of repairing them was the same. The most important point to emerge from this investigation is the clear evidence for a Myanmar Bronze Age with affinities that lie to the east, and not in India.

There must be many more similar sites awaiting discovery. Indeed, according to Tayles et al. (2001), Pauk Pauk has already identified further Bronze Age sites in this region of the Chindwin Valley north of Monywa. Hudson (2001) has also reported on a series of sites in the Samon River Valley to the southeast. The most important is definitely Nyaung-gan, although the details of the finds are fugitive due to excavation by unqualified enthusiasts. Bronzes, however, are spectacular, and are said to have been found in association with inhumation burials. They comprise a series of so-called pregnant bronze goddesses, large, apparently female forms up to 55 cm high even without taking into consideration the damaged legs. These extraordinary castings incorporate breasts but lack heads and arms. In one case, there are two breasts and one pregnant stomach, but others have four or even six breasts and correspondingly, two or three accentuated bellies. Whether these were symbolic renditions of females, or a large form of body ornament is not known, but they surely herald, when proper scientific excavations are conducted, a very exciting range of bronze castings that are already known to include arrowheads and spearheads up to 30 cm long.

The Iron Age, the vital period preceding the establishment of the first cities, is proving to be immensely important to an understanding of the transition to states in northeast and central Thailand and the lower Mekong Valley in Cambodia and Viet Nam. This period is virtually unknown in Myanmar, with the exception of Taungthaman, located just above the Ayeyarwady floodplain south of Mandalay (Luce 1985). Excavations there have uncovered inhumation burials dating to about 500–100 B.C.E. The dead were laid out on their backs and accompanied by a range of offerings that include pots, beads, iron knives, short swords, and fish hooks. There is evidence for a workshop for making stone tools, and houses raised on wooden posts. Some rich graves include round, etched onyx beads as

offerings, and these may well originate in Indian workshops. Clay-lined hearths have also produced rice remains. The site is important for illuminating the late prehistoric Iron Age culture from which the Pyu state developed during the first millennium A.D. The articulation between these late prehistoric sites and the early development of cities is a major topic for future research, but the potential of archaeological excavation has already been highlighted by Moore and Pauk Pauk's reference to the discovery at the city of Halin of three inhumation burials which recall the finds from Nyaung-gan.

The early first millennium A.D. saw many maritime states emerge in mainland and island Southeast Asia, in most cases responding to a marked increase in trade along the so-called Southern Silk Route. These include the states of Champa, Funan, and Dvaravati. The Pyu or Tircul people of Myanmar were first mentioned in a mid fourth century A.D. Chinese text in a list of the tribes on the frontier of southwestern China. The author, Chang Chu, described them as the Piao. Other early Chinese records that survived in later editions describe the Piao as civilized, "where prince and minister, father and son, elder and younger, have each their order of precedence." The Chinese called them the Pyu, but the Mon people knew of them as the Tircul (Luce 1985; Stargardt 1990).

The Pyu civilization developed in the dry zone of central Myanmar between about 200 B.C. and A.D. 900. It is best known on the basis of three large walled cities, Beikthano, Sri Ksetra, and Halin. All were located in tributary valleys of the Ayeyarwady River, where it was possible to harness the local rivers or streams for irrigation purposes. There is compelling evidence at Beikthano for a pre-Buddhist mortuary tradition involving large brick and timber halls containing the cremated remains of high status individuals. By the fourth or fifth centuries A.D., however, Buddhism had taken root and many large public buildings, including stupas and monasteries, were constructed. Meanwhile, the cremated dead were interred in large ceramic mortuary jars set in brick structures outside the city walls. The Pyu spoke a Sino-Tibetan language, and employed Indian scripts in their inscriptions. They were proficient bronze casters, one set of figurines from Sri Ksetra showing richly apparelled and ornamented dancers and musicians. Skilled artisans also made silver Buddha images of great beauty.

Beikthano (the City of Vishnu) is the best known Pyu site, due to the excavations of Aung Thaw (1968). It is a walled city in the valley of the Yin River, a tributary of the Ayeyarwady, in the dry zone of central Myanmar, and was occupied from at least the first or second centuries B.C. It continued to be a major center of the Pyu civilization for a thousand years. Curiously, hardly any inscriptions or other written documents have survived, but the Pyu probably emerged locally in central Myanmar from late prehistoric Iron Age ancestors. A small clay stud recovered during excavations by Aung Thaw, which lasted from 1959–1963, bore a brief set of written characters in the Pali language and Brahmi script stylistically dated to the second century C.E. The text states "Samgha siri," probably a person's name.

Halin is a second city of the Pyu civilization. It is located in the valley of the Mu River, south of Shwebo, an area which receives only about 750 mm of rainfall per annum (Stargardt 1990). The Mu River is a major tributary of the Ayeyarwady. Tradition has it that the city was founded by an Indian prince. Of subrectangular form, the brick walls enclose an area of about 500 ha, and are sur-

rounded by a moat. There are twelve gateways demarcated by inward sloping walls. Radiocarbon dates on the charred gate posts suggest that they belong to the second or third century A.D. As at Beikthano, there is an inner walled citadel. Excavations took place in 1904–5, 1929–30, and again in 1962–67. Several square or rectangular brick structures were revealed, and found to contain burial urns for the cremated dead. It was not, however, unusual to find extended inhumation burials as well, a survival from the prehistoric past. Site 9 comprised a brick hall incorporating 84 wooden columns to support the roof. It might have been an assembly or meeting hall.

The burial rituals involved cremation and the interment of the dead in ceramic jars placed in brick buildings beyond the city walls. Grave goods include gold rings, flowers, gold and silver leaves with writing, coins, and iron artifacts. One such offering comprised a six-sided plate of iron studded with rows of nails. A series of large reservoirs are found to the east, west, and south of the city, the irrigation system which incorporated the long Muhaung canal. Stargardt (1990) has reconstructed a complex system of water distribution involving about 300 sq km of land. The city was destroyed during the ninth century A.D.

Many brick mortuary structures lie outside the city walls, as at Beikthano. The brick temples and stupas were formerly covered in plaster and presumably decorated. Many of the plans and elevations anticipate those of Bagan, and large stone images of the Buddha and Hindu deities, particularly Vishnu, make clear the religious leanings of the Pyu rulers. Small statues and precious artifacts in gold and silver have been found, while a corpus of inscriptions on gold leaves and stone written in South Indian scripts as early as the fifth century A.D. contain texts of sacred Buddhist writings. Writing is also seen on clay votive tablets, in both Sanskrit and Pyu.

Miksic brings a refreshing and timely series of vital questions to the issue of early Pyu urbanism. Early excavations by Duroiselle (1930, 1931), as has been seen, concentrated on the exploration of stupa foundations. Later work has uncovered defensive walls and gateways and explored ritual and mortuary structures. This contrasts with the early excavations in India, particularly under the direction of Sir John Marshall (1912, 1951), at Bhita and Taxila, where very large areas of the city interiors were revealed, providing some feel for the internal functioning of early Indian cities. Again, the parallels for Myanmar lie to the east, where our knowledge of the urban planning remains very slight. Consider, for example, the degree to which the walled cities of Funan, Chenla, and Angkor have been opened by excavation. The answer is hardly at all.

In this context, Miksic's paper poses a series of issues that only extensive model-oriented archaeology can clarify. He cites Angkor as a prime example of an orthogenetic city, in which monumental religious architecture and a redistributive economy dominate. Oc Eo, on the other hand, is seen as a heterogenetic city in which a market-based exchange economy and intensive craft production dominated. Miksic suggests that the Pyu cities were orthogenetic, and this is supported by the data currently available. But as he stresses, major archaeological excavations are necessary to test this hypothesis.

The same situation applies to Bagan, originally Arimaddanapura, the capital of the Burmese state from the mid ninth century until A.D. 1287 (Aung-Thwin 1985). Although the Mongols accelerated the decline of this kingdom, no evi-

dence exists that the Mongols ever reached—and sacked—the city of Bagan (Aung-Thwin 1998). The core of the site is a moated and walled city located on the eastern bank of the Ayeyarwady River in the dry zone of central Myanmar. However, the river brought many opportunities for trade, and as the power of Bagan extended over much of Myanmar, so Mon and Pyu people were absorbed and contributed to the artistic heritage of the city.

Bagan was also home to, or had access to, specialist craft workers. The temples were ornamented with most proficient images of the Buddha, including many fresco paintings. Bronze casters used the lost wax technique to produce complex bronzes, such as the lotus with petals bearing Buddhist scenes. On a larger scale, there are many bronze images of the Buddha that would have required all the skills of a master metal worker. There was also regular trade contact with India: the Nathlaung-gyaung temple was built to honor Vishnu by a resident group of Indians.

Hudson and others have opened a fresh and important new chapter in the long history of Bagan studies by examining first the temporal distribution of the available inscriptions to identify the major periods of temple construction, and through excavations, to approach the function and date of two secular mounds. The former has revealed two bursts of building activity. The first took place between A.D. 1050 and 1100 under the reign of King Anawratha (A.D. 1044–1077). He is also said to have instigated an efficient system of rice irrigation facilities. There was a second major building phase during the thirteenth century, by which period the central area was so densely built over that the city expanded considerably to the east. It was to the east that they excavated the Otein Taung mounds. Test squares have revealed a deep stratigraphic sequence that probably accumulated through the manufacture of ceramic vessels. This in itself adds to our understanding of spatial activities at this monumental site. They have furthermore obtained radio-carbon determinations that suggest initial use in the second half of the first millennium A.D. A determination from a depth of 5 m gave a date range of A.D. 880–1030, while a second date from the western of the two mounds gave a date of A.D. 650–830 from a depth of 1.5 m.

The analysis of this site suggests that Bagan may have begun as a series of specialist village communities. At Otein Taung, ceramic production continued for several centuries, and toward the later stages of its occupation, the craft specialists may have founded or patronized their own religious foundation, since temples were built in the vicinity of the mounds.

This is precisely the nature and quality of evidence needed to further our understanding of early urban types along the lines opened by Miksic. Moreover, the same sort of information is needed for the contemporary cities of India and elsewhere in Southeast Asia. It is easy to be beguiled by the dominance of temples built in permanent materials, as at Angkor, into the view that such sites were essentially religious centers with little commercial or manufacturing activity. However, the description of Angkor in 1296 by Zhou Daguan (1993) refers to a substantial urban population and many different activities. Again, the bas reliefs of the Bayon reveal Chinese merchant vessels, a market scene, and the interior of a Chinese trader's house. Excavations there, albeit in their infancy, have uncovered exotic ceramics and the cemetery at Sras Srang excavated by Groslier, and dated to the reign of the early eleventh-century king, Udayadityavarman II, also in-

cluded exotic grave goods (Corbin 1988). These sites are so huge, and the need to maintain monuments is so pressing, that archaeology is very much for the future, but research at Otein Taung at Bagan clearly indicates the path ahead.

The application of radiocarbon dating to Burmese prehistoric and historic sites is also in its infancy, and the number of available determinations can be counted virtually on the fingers of one hand. In their paper on the radiocarbon dating of Bagan, Grave and Barbetti point out the methodological problems of calibration, particularly for relatively recent sites where the calibration curve is not conducive to accuracy. Moreover, with the necessarily wide confidence levels, the results are too general to be useful. The dating of city walls is nevertheless of vital importance for the social information that it conveys. In Cambodia, for example, the city walls of Angkor Borei remain to be precisely dated and there, thermoluminescence determinations on brick are being employed. Dating the walls of Banteay Prei Nokor, putative capital of Jayavarman II prior to his move to the Angkor area, and those of Banteay Choue, where he may have settled on his arrival, would be most interesting. But whether radiocarbon dating has the right precision for this remains to be seen.

Mon-speaking people were responsible for the Dvaravati civilization of the Chao Phraya Basin in Thailand, and also for a state that developed in the lower reaches of the Salween and Sittang rivers in southeastern Myanmar (Guillon 1999). This kingdom was known as Ramannadesa, and also on occasion as the land of gold, *Suwannabhumi*. Little is known of this kingdom, although it occupied a strategic position commanding the Three Pagodas Pass that links India with Southeast Asia. The area received Buddhist influence, in the form of missionaries, during the third century B.C., and Buddhism flourished from early beginnings. The capital city is known as Thaton. It is of rectangular plan, demarcated by two laterite walls and a moat, and it covers an area of about 275 ha. A palace precinct occupies the area just north of the center of the enclosure. There are several impressive Buddhist temples. The present Shwezayan temple is thought to overlie a fifth-century foundation housing four teeth of the Buddha. Five eleventh-century inscriptions in the Mon language have been found in the temple grounds. A few of the surviving terracotta plaques that embellished the Myatheindan temple survive, and illustrate eleventh-century images of passages in the life of the Buddha. Hinduism at Thaton is seen in ninth- and tenth-century reliefs of Vishnu, Shiva, and Brahma.

Gutman's paper reminds us that our knowledge of this area during the historic period derives not only from early historic texts, but also from archaeology. Her consideration of trade in ceramics places this strategic area into its broader context relative to both the Pyu cities to the north, and the developing east-west trade. In this, the Martaban area represents a vital link in a long chain.

The papers published in this issue of *Asian Perspectives* represent an important stepping stone towards a new and exciting chapter in research on Southeast Asian prehistory and early history. The pattern that seems to be emerging points to a similar sequence to that revealed since the second world war in Viet Nam and Cambodia. However, there remain large areas without documentation. There seems to have been a similar upland hunter-gatherer tradition known as Hoabinhian, that followed a consistently patchy Pleistocene presence. In Thailand, Viet Nam, and Cambodia, there is also an emerging appreciation of the wealth of

Holocene maritime adaptation by hunter-fisher-gatherers who also made pottery vessels and used polished stone tools, but this aspect is not yet known in Myanmar.

The Neolithic, that is the establishment of rice-farming communities with domestic cattle, pigs, and dogs, is also virtually unknown in Myanmar, but if Blust's theory on the spread of Austroasiatic languages is confirmed, there should be Neolithic sites in Myanmar representing people who spoke a proto-Mon language. At last, we now have a handful of Bronze Age sites, though none has been dated. The technology and the castings look east, bearing much closer similarities to Thai than Indian material. Indeed, when the Bronze Age sites like Nyaung-gan were occupied, the Ganga Valley was already under a series of *Mahajanapadas*. The Iron Age communities of central Thailand, and in all likelihood Myanmar, were engaging in widening trade contacts incorporating South Asia from the middle of the first millennium B.C., and were the object of missionary zeal under Ashoka, the third Mauryan king. It was within this context that the states of Pyu, Dvaravati, Funan, and Champa swiftly developed, and again Myanmar seems to fit within the broader pattern.

However, these are very early days, and it can safely be predicted that every major excavation in the future will harvest its store of surprises. This has been a major factor in making the exploration of Thailand's past so invigorating over the past three decades, and history will surely repeat itself in Myanmar. Site surveys are needed to identify the prehistoric settlements in selected study areas. When excavations are then undertaken to test models of cultural behavior, it will be vital to complete them, and not leave the data in the ground to deteriorate while attracting tourists. Most importantly, a program to train Myanmarese archaeologists in the best archaeological practice and the theoretical basis to interpret what they find, is essential, just as young Thai, Khmer, and Vietnamese archaeologists received training through grants from the Ford Foundation in the 1970s. If these aims can be accomplished, then Myanmar will take its proper place in the writing of the early history of Southeast Asian cultures.

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