

BOOK REVIEW

*Unearthing Prehistory: The Archaeology of
Northeastern Luzon, Philippine Islands*
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Armand Salvador Mijares
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Review by Julien Corny
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The book *Unearthing Prehistory: The Archaeology of Northeastern Luzon, Philippine Islands* tells the story of 50 years of archaeology in Northeastern Luzon. It discusses known archaeological information as well as it investigates different hypotheses and other important unresolved questions in the region.

This study is cutting edge archaeological research because Mijares excavated the sites himself and is still excavating the sites that he analysed in the book, opening up space for new discoveries. He interpreted the sites by using several points of view and different theories. The comprehension of ancient cultures, technologies, and subsistence strategies is understood through different ways such as lithic studies, paleoenvironment (botanical and climatic), anthropology, stratigraphy, geology, physics (with methods of dating), archaeology, ceramic analysis, and genetics.

I chose to focus on two points – the close attention paid to the stratigraphic context of each site and the methods he used to explain the important and partially unresolved archaeological questions relevant to his study.

Stratigraphy

In this book, we will notice the consistent attention given to the stratigraphic contexts of the archaeological sites most especially for the caves, which were recently excavated. The understanding of the descriptions and analyses of each layer can be tedious but the artefacts have to be understood in their contexts to have hard scientific value.

Geomorphological analysis

In analysing the stratigraphic context, there is a whole chapter (Chapter 5: *Understanding site formation in Peñablanca Cave Sites*) on the methods used to understand the caves sites in Peñablanca.

The first part of this chapter deals with the geomorphology of the caves. In geomorphology, the archaeologist tries to understand the shapes and reliefs of a region or a site in reference to tectonic analysis and composition of the rocks. This method also tries to figure out the evolution of the forms and reliefs, the dynamism, the process of change such as erosion, and depositional processes of sediments. To do this, different techniques such as sedimentology and soil micromorphology are employed. In Chapter 5, there is a general description of the phenomenon of the karstic context and descriptions of general features of caves in this area.

The soil micromorphological approach is the main method that was used to understand the geomorphology of the caves. This is quite a new technique, just developed within the last 20 years. This technique uses thin sections of soil that are then analysed under a microscope. The method makes it possible to distinguish natural from anthropic factors, as well as separate geological and biological components.

Chapter 5 also gives three examples of cave sites that were analysed by using geomorphology, wherein each soil layer was described including colour, texture, size, nature and history of depositional processes.

Geology and stratigraphy

Throughout the book, we can see the importance of the geological context of the studies of the archaeological sites. In Chapter 3 entitled *The Archaeology of Northeastern Luzon*, there is a long discussion on the geology of Cagayan Valley and its formation, enabling us to understand its present condition. An important tool in answering archaeological questions is an accurate attention to the stratigraphic levels. In the same chapter, we can see that the investigation of the presence or absence of *Homo erectus* in Luzon during the Middle Pleistocene could be resolved by the association of pebble tools and extinct megafauna in the same layer.

In Chapter 4, *The Archaeological excavation of the Peñablanca Cave Sites*, Mijares describes the cave in detail including its features, sediment layers, and the cultural remains.

Mijares' work made it possible to make a general observation of the features of the Peñablanca Cave site formation that is discussed in Chapter 5. It is interesting to note that these are the same features that I observed during my participation in the Tabon Cave excavation from March to April 2007.

Stratigraphic control

The accurate analyses of the geologic contexts of the sites, especially from excavations in recent years, give a solid basis from which to obtain more data on the faunal and plant remains, and more importantly, on the dating of cultural materials. Usually, organic remains are poorly preserved in tropical areas because of the acidity of the soil. In the case of the Peñablanca caves, acidity comes from the bat and guano deposits. To understand the taphonomy of the fossils of the fauna and plants, it is important to analyse the depositional and post-depositional processes of the sediment in the sites. Analysis of organic remains can also give information about the geology of the site because of bioturbation.

In Chapter 6 entitled *The excavated bone and plant remains*, the author gives the results of the excavations. We can see clearly in this work the importance of a good understanding of the stratigraphy of the sites. Indeed, it is possible to compare the contents of different layers in one site. For example, Mijares compared the mammal remains in the ceramic and preceramic layers.

Importance to dating

Good control of the stratigraphy is very important to be able to make a good chronology. The method used to date the sites is the Carbon-14 method using the organic remains found in the layers.

Dates can give different kinds of information. First, of course, it is possible to date the remains itself. If the excavation is controlled, the dating of an object could give a date for the whole layer. Then, it is possible for the archaeologists to compare similar layers with different sites, and also to correlate the date of a layer with the content of this layer.

Many examples of dating the organic remains from charcoal are presented in this book. In Chapter 4, we see that most of the layers in the Peñablanca cave sites were dated using the radiocarbon method. Layers 4 and 8 of Callao Cave were subjected to Accelerated Mass Spectrometry (AMS) radiocarbon dating on charcoal. Layer 8 was dated to 16,000 BP, making it one of the oldest sites in the Philippines.

Method in presenting the important questions

It is interesting that the book focused on the important archaeological questions on prehistoric population movements in the area. Examples include the unchanging flakes during the Late Pleistocene until the Neolithic Period, the presence or absence on *Homo erectus* in Luzon during the Middle Pleistocene, and also the debate about the origins and spread of the Austronesian people.

Northeastern Luzon is a very important archaeological place when investigating Austronesian origins and dispersal especially in the context of the "Out of Taiwan" hypothesis. Neolithic sites in this region concern the arrival of the Austronesian people. Therefore, understanding the hypothesis on the movements of these people is important to understand most of the excavations detailed in this book. The structure of this book illustrates how Mijares answers this question.

In the first chapter, the author explains previous works and hypotheses about the Austronesians. First, he discusses who the Austronesians are as well as the dominant model on the origin of the Austronesians, which is the "Out of Taiwan" hypothesis. He also presented linguistic evidence by looking at the origin and spread of Austronesian languages in order to find the origin of the Austronesian people. He then deals with the way of life, the origin of the Austronesian people, and the cultural materials found in the sites. These archaeological remains are described and correlated with the discoveries in Taiwan. The genetic analysis is quite detailed and technical which may be difficult to understand for those who are not specialists in that area. This approach using different disciplines that merge new and traditional methods is well represented in this book. This is illustrated in Chapter 5 wherein the author discussed the geology of the Peñablanca cave sites.

Mijares also presented different views on the proposed model by Peter Bellwood about the origin and spread of Austronesians, and explains each theory without judgement. He just describes the facts and lets the reader

form his own opinion. For example, he explains why Stephen Oppenheimer thinks that the “origin for the Austronesians is somewhere in Wallacea” and which methods he used to conclude this. The book also ends still on the topic of Austronesians.

I think that Mijares’ study on the Austronesians is a significant contribution to Philippine archaeology. First, he introduces the readers to the basics and more general data in order for them to understand the following chapters. He then explains the theories and works of past scholars. Next, he talked about the data, recent discoveries, and the methodology of these researches. Often, scientific methods are difficult to understand and explain which Mijares successfully delivers to readers through his discussion.

To conclude, *Unearthing Prehistory* provides a very useful synthesis of the archaeology of this region written for a specific audience such as archaeology students, particularly those interested in Austronesian origins. Indeed, the explanation of complex techniques or theories and discussions are interesting and easy to understand even for non-specialists. At the same time, descriptions of sites and data, as well as illustrations and pictures of methods used, are interesting for specialists of different disciplines. The study, however, is not a just mere synthesis. It re-examines older works and hypotheses. The latest data on his excavations were revealed, presenting new data that answer important archaeological questions.

Review by Clément Zanolli
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The study of prehistory in the Philippines is in constant evolution and is very important to the Prehistory of all Southeast Asia. Above all, Northern Luzon is a key region because it was the route to access the Philippines from the mainland by Taiwan and Batanes Islands, following the Out of Taiwan hypothesis. To understand the behaviour and the kind of life people in the past had, there are no other choices than excavating and trying to correlate all the remains found. Because it is new and interesting to explore if the Austronesians came through this route and to know if they were related to Taiwanese people at that time, Mijares’ book entitled *Unearthing Prehistory*:

The Archaeology of Northeastern Luzon, Philippine Islands also gives an opportunity to test Bellwood's hypothesis concerning the Austronesians' origin.

The study of Prehistory in the Philippine Islands

The study of the prehistory of the Philippines is very recent compared to Europe but in this last decade, there were many developments, especially with the formation of the Archaeological Studies Program in the University of the Philippines, which trains a lot of students in archaeology where Mijares is now a professor. Until now in the Philippines, the oldest archaeological site known is Tabon Cave in Quezon, Palawan and is dated at around 35,000 BP, in which a lot of flake and core tools have been found. In some open-air sites of Cagayan Valley, Northern Luzon, there are some lithic industries found on the surface with very old bone fragments of Pleistocene animals. However, it is impossible to tell if there is a possible association or if it is just a simple reworking of the layers.

Around 4500-4000 BP, a new population came in the Philippines, the Austronesians, bringing with them pottery and new lithic technology. According to Peter Bellwood, the Cagayan Valley in Northern Luzon could be their entrance point to the Philippine Islands, coming from China via Taiwan, because a lot of archaeological sites have been found and some have been excavated recently showing evidence of their arrival in this region around 4500 BP.

However, another theory by Wilhelm Solheim II suggests that the Austronesians (which he termed the *Nusantao*) came from the south of the Philippines. In fact, there are some theories about the Austronesians and their migration which are still debated. There are still a lot of discoveries waiting to be done, especially concerning the arrival of new inhabitants in the archipelago during the Palaeolithic, the settling of the Austronesians, and their Neolithic culture.

The excavation of Callao Cave and its discoveries

In *Unearthing Prehistory* the author speaks not only about the excavation but also how he managed to reconstruct the past and human life of prehistoric people. The last excavation of Callao Cave conducted by the author himself since 2003 is made in two contiguous 2x2 square metres.

The excavation team worked by “removing natural layer in sequence, by 5 centimetre spits” (p. 37). They described the stratigraphy, collected soil samples for analyses, and recorded the artefacts found.

To date, the stratigraphy of Callao Cave reached ten stratigraphic layers, which correspond to a depth of around 165 centimetres. The method of excavation and of recovery for the remains is very strict; everything is taken into account to avoid losing anything because all excavations are destructive.

All the samples were collected carefully and are analysed in laboratories by professionals. Soil samples and the stratigraphy are really detailed. There are also some microbotanical analyses completing the study. Moreover, all the remains (i.e., pottery, lithic tools, and bones) are analysed and compared with some from another sites in the Philippines and in Taiwan.

The references used for this work are very complete, varied, and updated. All the work was made scientifically, using all modern methods needed to obtain answers from the excavation.

After the team reached Layer 8, some fragmentary burnt bones were recovered and an AMS radiocarbon date on charcoal gave an age of 25968 ± 373 uncal. BP for this layer. It makes this site the second oldest archaeological site in the Philippines, after Tabon Cave.

Furthermore, this discovery comes from a region very far from Palawan. In this layer, some chert artefacts were also found, and the study of a thin section shows a lot of bioturbation, probably because of vermiform animals and roots of plants with evidences seen in the soil micromorphology analysis. The presence of burnt plant residues made of charcoal and ash nodules show the presence of a probable hearth.

The function of the site at that time is still uncertain but during recent periods in the Neolithic, it could have been used for burial because some potteries were found in association with funerary remains and stone artefacts.

Those discoveries are very important and could be unique in all of the Philippines, although there are a lot of unexplored caves in the archipelago.

Now it has to be carried on to find other remains and evidences to learn more about the function and time of occupation of this site.

Criticism about the contents of this book

Concerning the organisation of the content, the book is well illustrated with lots of diagrams and outlines. The appendix is rich, well documented, and nicely explained. The content of this book is good for beginners because there is a good summary before each part and the style of writing is very clear and understandable even if the reader is not an expert.

This book talks about the prehistory of Northern Luzon, and it is a complete work of data compilation about the prehistory of this region. However, even if the plan chosen by the author is clear and detailed, all the topics are treated separately, such as past behaviours, lithic technology, study of pottery, and sites descriptions; all could be linked just by moving some parts and reworking the global plan of the book to give it more cohesion.

Concerning the work plan of the excavation, the author tried to reach the deepest layer that can be reached but maybe, an extension of the excavation should be made, to try to better know this new layer dated as around 25,000 BP. It could give a lot of information concerning the people who were in this cave at that time because there are still a few remains found in this layer and they are too fragmentary to be exploited. The choice to try to discover older remains is also very interesting but by proceeding by archaeological layers, it could be easier to correlate and to analyse.

The work made here is very important for the archaeology of the Philippines, and also for the archaeology of Southeast Asia, to understand and better know the migrations and behaviours of humans in the past.

What is most interesting is that the Callao Cave is located in the northern part of Luzon Island. If humans came here at around 25,000 BP, did they come from the north by boat or did they come from the south of the Philippines, passing maybe from Palawan to Luzon, also by boat? Maybe those people were already in the Philippines before and they were just more concentrated in the South. Maybe they were in the plains and they decided to come into the caves. Their culture is also unknown and there are very few

remains of their lithic industries to infer their behaviours or to answer the question why this cave was used.

Moreover, if no one came here before, it is interesting to understand why these people came to the north of the Philippines. Was it to follow animal migrations or just to discover other regions to enlarge their territory? Even if some questions are difficult to answer, some of them may be solved by excavating more of Layer 8.

Concerning the Austronesians, there is no doubt that they came in this cave because a lot of characteristic materials have been found and the similar technique of production between Taiwan and the North of the Philippines shows a contact between those people. However, did the Austronesians come from Taiwan bringing with them their culture or did they come from Southern Luzon and they quickly learned and integrated the culture of those who originated from Taiwan, being always in contact with them in this region?

Conclusion

The results of the excavation in Callao Cave, Northern Philippines are quite interesting. It gives more evidences concerning the hypothesis of the arrival of the Austronesians from Taiwan. Bellwood's theory is well supported by the author even if there is nothing yet that can prove it.

The new discovery at Layer 8 of human occupation 25,000 years ago in this region is very important and it shows that the Callao Cave is a key site in the archaeology of the Philippines, at the same rank as Tabon Cave. There are a few sites that are old in Southeast Asia (except in Indonesia), and there is little information concerning the arrival of modern human in this region. That is why Callao Cave is so important and needs to be continuously studied.

Some questions are now pending and further investigations should give more answers.

Review by Boris Villier
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Introduction

This study concerns the Peñablanca cave sites: Callao Cave, Eme Cave, and Dalan Serkot Cave. You can find in this book all the details on the stratigraphy and the content of each layer, and the debate on dating with the methodology. There has been a continuous deposit from the late Pleistocene to the recent Holocene. Occupation layers of hunter-gatherer and Neolithic populations are present; subsistence and the transition between these cultures are attempted to be understood. Lithic industry, faunal and botanical remains, and pottery are studied and compared with the results of other studies in the Philippines and Southeast Asia during that period.

Excavation context

Archaeology in Southeast Asia

The oldest archeological remains in Southeast Asia have been dated to around 40,000 years BP during the Upper Pleistocene. The oldest discoveries were in Niah Cave and Tabon Cave where human remains have been dated to around this time. Palaeolithic and Neolithic sites are also present in Thailand, Vietnam, Peninsular Malaysia, Borneo, Indonesia, Timor, Philippines, and Formosa (Taiwan and southern China), with middle Holocene deposits associated with the Austronesian Culture.

Southeast Asia reflects a mosaic of adaptation for different ecological areas. During the Pleistocene, the lithic industry is composed of a large diversity of flake tools, hand axes, and cobble tools. After the last glaciation we can observe a difference between insular and continental technologies. While on the islands, there is still a flake industry, cobble tools dominated continental lithic assemblages (Hoabinhian lithic industry). This is the result of different subsistence economies.

The first evidence of domestication of animals and plants come from China at around 9,000 BP. Potteries are also found, marking the beginning of the Neolithic and of the Austronesian culture.

Geomorphology
Of North Luzon

Cagayan valley is a large sedimentary basin in Northern Luzon. It is surrounded by mountain ranges: the Central Cordillera to the west and the Sierra Madre to the east.

The Sierra Madre was first uplifted during the Mesozoic; it is a part of the volcanic arc resulting from the subduction of the Philippine plate beneath the Asian plate. During the late Oligocene, the subduction of the South China Sea floor below the Philippine plate resulted in the formation of the Central Cordillera. At this period, Cagayan Valley was an inter-arc sedimentary basin.

During the Pliocene the continual pressure from South China Sea's expansion uplifted Cagayan Valley. Sedimentation also changed from marine carbonate to fluvial. By the Pleistocene, asymmetrical synclines and anticlines in Cagayan Valley were formed.

Of caves

These karstic caves are formed by the weathering of the limestone of Cagayan valley. The archaeological work focused on the cave entrances and rockshelters because rarely do prehistoric people inhabit the deep and dark interior of caves and archaeological materials are rarely preserved in cave interiors because of chemical alterations and carbonate cementing.

The soil micromorphology analyses are used to determine geogenic, biogenic, and anthropogenic agencies involved in depositional and post-depositional process. The microscopic analyses of the cave's soils revealed the sedimentary processes, volcanic crystals maybe from ash falls, bat and bird guano, and lithic and ceramic artefacts from cultural activities.

Peñablanca cave sites

The excavations took place in three of the 43 caves and rock shelters of Peñablanca: Callao Cave, Eme Cave, and Dalan Serkot Cave. The exact locations of these sites are presented in a map in this book. They have all the same archaeological sequences of preceramic and ceramic horizons and have yielded the same kind of materials. Only the occupation time varies; the oldest deposit in Luzon is found in Callao with an occupation layer dated at around 25,000 BP.

Callao Cave

This is the largest cave in Peñablanca in surface area and has also yielded many important discoveries. Callao is so large that a church was set up inside.

The excavations, started in 2003, reveal several occupation layers from the Neolithic and Palaeolithic periods. The Neolithic remains are represented by red and black potteries, flakes, and some human bones.

Dalan Serkot Cave

Dalan Serkot Cave is about 20 minutes from Rabel Cave, which was excavated by Wilfredo P. Ronquillo in 1970s. The first layers contained black and red pottery sherds, andesite flakes, and some human remains. Under these layers, there was an increase in number of chert and andesite flakes but no sherds.

Eme Cave

Eme Cave is actually a complex of three caves, which was discovered in 1977. It revealed a continuity of occupation from the latest Palaeolithic dated around 3,800 years BP, to the Neolithic, and later ceramic period. The lower layers are characterised by lithic tools, riverine shells, and some deer and pig teeth but without potteries. Sherds are present in the upper layer; black pottery replaced the red ones, in the succession.

Paleolithic

Middle Pleistocene in Luzon

Fossils of extinct fauna from the mid-Pleistocene and pebble and cobble tools from the Cabalwanian industry were collected on the surface of the Awidon Mesa Formation, a middle Pleistocene tuffaceous layer. However, association between fossils and lithic industry were never proven. Nevertheless this stimulated questions such as is there *Homo erectus* in the Philippines, and is there a lower Palaeolithic lithic industry?

Lithic industries and organic tools

In the Philippines, the industries are dominated by lithic flakes during the late Pleistocene and the early Holocene. They used chert, volcanic rocks, or crystals as raw materials. These industries remained at the simple stage (simple flakes without retouch and simple hard-hammer percussion) similar to throughout Southeast Asia, compared to other industries elsewhere in the world. There are no identifiable changes between the preceramic and upper

ceramic horizons. The simplicity of the industries can be explained by the utilisation of bamboo and rattan as tools, which cannot be found in tropical archaeology.

Microwear analyses show that half of the tools exhibit use wear caused by utilisation on hard material such as wood, so the lithic industry may be used for working wood. All these results may explain the simplicity of the lithic tools.

Blade-like flakes are also found in some localities.

We cannot observe a real difference in the utilisation and manufacturing techniques of flakes through time even during the ceramic period.

Subsistence economy

Due to the acidity of the soil resulting from the large quantity of guano, it is difficult to find long bones. Therefore, the behaviour of hunter-gatherers are hard to understand. There are still questions on the selection of animal parts. Through the teeth found we know the kind of animals hunted, so we know that wild pigs and deer were the most exploited. Shellfish are also present. Riverine mollusc shells and land snails were found in huge quantity at Eme cave, and Dalan Serkot, but absent in Callao cave.

Palaeolithic people used all the resources of the forest.

Neolithic

The Neolithic is divided into three stages (early, middle and late) based on adze typologies. According to Bellwood, the Neolithic culture came from Taiwan with a package of new technologies, such as polished adzes, pottery, agriculture and domesticated animals.

The Austronesians

They are the artisans of Neolithic culture. The first evidence of Austronesian cultures appears in the Formosan region at around 9,000 BP. According to Bellwood, who combined genetic, linguistic, and archaeological evidences, the Austronesian culture expansion to Southeast Asia and the Pacific islands began with the movement from Taiwan into the Philippines,

with the earliest evidence from the Batanes Islands dating to around 4,000 B.P.

Prehistory in Batanes islands

Situated between Taiwan and Luzon and where the China Sea and the Philippine Sea meet, creating a turbulent sea, these islands were used as a bridge by the Austronesians to cross from Taiwan to Luzon. We do not have preceramic and Palaeolithic remains in Batanes at the moment. The Austronesians seem to be the first occupants of the island. The archaeological remains from this period such as Taiwan nephrite, red-slipped potteries, jade axe, spindle whorl, and jade ring and pendants confirm the migration from Taiwan.

Subsistence economy

There were less faunal remains found during the ceramic period, and there is no evidence for eventual domestication. Shells are still present, which mean molluscs were still being collected by Neolithic people.

The analyses of the parenchymatous tissues of macrobotanical remains and of phytoliths reveal a utilisation of wood from the tropical forest during the ceramic period, particularly, a wild ramie maybe exploited for fibres.

There is no evidence of rice or other cereals in the diet but it is clear that they were consuming wild roots. There was no evidence as well of arboriculture even if tropical trees are used and largely present in macro- and microbotanical remains.

Earthenware ceramics

In Peñablanca caves, three kinds of pottery were found, which principally differed in colour: red, black, and brown. The studies concern the form, surface treatment, decoration, and petrographic composition.

Large brown restricted vessels are attributed to burial jars; they dominated largely in Callao cave and Dalan Serkot, but are absent in Eme cave where black sherds dominate. Eme is considered a habitation site.

Petrographic analyses were used for comparing the composition of black and red sherds between different sites. Igneous alluvial deposit from the flood plains and river banks are used for raw materials. There are a lot of affinities in composition between the sites.

Red and black potteries occurred together at the beginning of ceramic phase in Callao cave and Dalan Serkot at around 3,900-3,470 BP. Red sherds disappeared after, and in Eme, only black pottery sherds were found dating at around 2,010-1,690 BP.

Another ceramic materials found was a spindle whorl excavated in Callao. All the forms of potteries found in three caves are discussed in this book.

Review

Northern Luzon is an important area for understanding and reconstructing the prehistory of the Southeast Asia region. From archaeological works undertaken in the 1970s, we can see the potential of the area in contributing to our understanding of the peopling of the Philippine Islands, from the Pleistocene foragers to the migration of the early Austronesians.

This book is an important synthesis of the scientific work done in Northern Luzon. It puts this work in Southeast Asian context and summarises all the precedent works in archaeology. It tackles the geologic aspect with the geomorphology of the Philippines, the formation of the caves, and soil microanalyses (pictures of fine plates are in the appendix). The cultural aspect is also tackled with the story of Austronesians and different lithic industries. The archaeological context is described; we can find inside a synthesised description and the localisation of all the important sites and discoveries in Southeast Asia.

**Burial or Not:
The Case of Pamayugan 2
Stone Boat-Shaped Markers**

*Eusebio Z. Dizon, Edwin A. Valientes, Andrea Malaya
M. Ragragio, and Armand Salvador B. Mijares*

**The Peñablanca Flake Tools:
An Unchanging Technology?**

Armand Salvador B. Mijares

**Preliminary Results of Speleothem Dating
from Tabon Cave, Palawan, Philippines:
Moisture increase at the Last Glacial Maximum**

Helen Lewis, Kathleen Johnson, and Wilfredo Ronquillo



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