



HAL
open science

The funeral cave of Laang Spean

Valéry Zeitoun, Sophady Heng, Hubert Forestier

► **To cite this version:**

Valéry Zeitoun, Sophady Heng, Hubert Forestier. The funeral cave of Laang Spean. SEAMEO SPAFA International Conference on Southeast Asian Archaeology and Fine Arts, 13-17 December 2021, Dec 2021, Bangkok, Thailand. 10.26721/spafa.pqcnu8815a-14 . hal-03814404

HAL Id: hal-03814404

<https://hal.science/hal-03814404>

Submitted on 13 Oct 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

The funeral cave of Laang Spean

Valéry Zeitoun¹, Heng Sophady², Hubert Forestier³

1. UMR7207, CR2P-CNRS-UPMC-MNHN, Paris, France. pythecanthro@gmail.com

2. Ministry of Culture and Fine Arts, Phnom Penh, Cambodia. hsophady@yahoo.com.

3. UMR7194 MNHN-CNRS-UPVD, Paris, France. hubforestier@gmail.com

DOI: <https://doi.org/10.26721/spafa.pqcnu8815a-14>

SPAFACON 2021: Papers from the SEAMEO SPAFA International Conference on Southeast Asian Archaeology and Fine Arts, 13-17 December 2021

Extended abstracts from the SPAFACON2021, the SEAMEO SPAFA International Conference on Southeast Asian Archaeology and Fine Arts, 13-17 December 2021.

eISBN: 978-616-7961-54-5

The funeral cave of Laang Spean

ល្អាងបញ្ចុះសពនៃស្ថានីយល្អាងស្ពាន

10792/xxxx

Valéry Zeitoun

UMR7207, CR2P-CNRS-UPMC-MNHN, Paris, France

pythecanthro@gmail.com

Heng Sophady

Ministry of Culture and Fine Arts, Phnom Penh, Cambodia

hsophady@yahoo.com.

Hubert Forestier

UMR7194 MNHN-CNRS-UPVD, Paris, France

hubforestier@gmail.com

Abstract

Discovered in 1965 by Cécile and Roland Mourer in the limestone massifs of the Battambang region in Cambodia, the Lang Spean cave is a karstic cavity with three main chambers with a floor area of about 1000 m² and a vault height of thirty metres. The archaeological sequence of Laang Spean now includes several meters thick level of ancient activity dated between 71,000 and 26,000 years ago surmounted by a Hoabinhian occupation (11,000-5,000 BP), with a third summit level characterized by Neolithic tombs. Cemeteries and funeral spaces are major sites in Southeast Asia still used to reconstruct the chrono-cultural sequence of the region. However, their studies present a failure to take into account the funerary nature of the studied sites. Archeoanthatology, although partly known by colleagues working in Southeast Asian has not been developed sufficiently leading to numerous problems linked to the real nature of the sites. A burial site where individuals chosen by a community have been placed presents an altered vision of the population, whereas a study of funerary gestures and recruitment makes possible to understand these choices. Thus, the discovery of Neolithic burials at Laang Spean was the opportunity to implement an excavation protocol that follows the principles of archeoanthatology including to determine the positioning of the defunct at the time of burial in order to illustrate the funerary practice carried out by its original population. Despite the fragility of the bones we carried out observations and measurements useful for determining the biological characteristics, including sex, age, stature or pathologies of the individuals uncovered and, direct dating were successful. Finally, the Laang Spean cave appears to be a Neolithic funerary cave according to its dating but showing some characteristics found in the Metal age on the nearby Khorat plateau.

Cécile and Roland Mourer គឺជាបុរាណវិទូបារាំងដែលបានរកឃើញស្ថានីយល្អាងស្ថាននៅ តំបន់ភ្នំថ្មកំបោរ ស្ថិតនៅក្នុងខេត្តបាត់ដំបងនៃប្រទេសកម្ពុជា កាលពីឆ្នាំ១៩៦៥។ ល្អាងនេះ ចែកចេញជាបីផ្នែកសំខាន់ៗគឺខាងមុខ កណ្តាល និងផ្នែកខាងក្រោយ ដែលមានផ្ទៃដីសរុបប្រហែល១ ០០០ម៉ែត្រ ក្រឡា។ រីឯកម្ពស់ពីផ្ទៃដីក្នុងទៅដំបូលល្អាងគឺមានប្រវែងប្រហែល៣០ម៉ែត្រ។ តាម រយៈលទ្ធផលនៃការធ្វើកំណាយថ្មីៗនេះ អ្នកស្រាវជ្រាវបានពិនិត្យឃើញថាស្រទាប់ដីបុរាណវិទ្យានៅ ល្អាងស្ថាននេះ មានជម្រៅពីបួនទៅប្រាំម៉ែត្រ ដែលបង្ហាញអំពីវត្តមានសកម្មភាពរបស់មនុស្សសម័យបុ រាណ មានអាយុកាលចន្លោះពី៧១០០០ទៅ២៦០០០ឆ្នាំមុន។ នៅពីលើស្រទាប់នេះ គឺភស្តុតាងនៃការ តាំងទីលំនៅរបស់សហគមន៍មនុស្សនៃវប្បធម៌ហាវប៊ឺនញៀណដែលមានអាយុកាលចន្លោះពី១១០០០ ឆ្នាំទៅ៥០០០ឆ្នាំមុន។ ចំណែក ស្រទាប់ទី៣ ដែលស្ថិតលើបង្អស់គឺជាទីបញ្ចុះសពស្ថិតក្នុងយុគថ្មរំលីង ។

ស្ថានីយបញ្ចុះសពផ្លូវសពជាច្រើននៅក្នុងតំបន់អាស៊ីអាគ្នេយ៍ ត្រូវបានគេសិក្សាស្រាវជ្រាវក្នុងការបង្កើ តឡើងវិញនូវកាលប្បវត្តិនៃវប្បធម៌នៅក្នុងតំបន់។ ការសិក្សារបស់បុរាណវិទូមួយចំនួននៅតាមទីបញ្ចុះ សព គឺពុំបានបង្ហាញនូវភាពមិនច្បាស់លាស់ ដើម្បីយល់ដឹងអំពីលក្ខណៈដើមនៃកិច្ចបញ្ចុះនៅលើស្ថានី យទាំងនោះទេ។ យ៉ាងណាក៏ដោយ ការសិក្សាតាមបែបបុរាណវិទ្យាអំពីការប្រែប្រួលស្ថានភាពដើមរប ស្ថានីយសាកសពក្រោយពេលបញ្ចុះ គឺមានអ្នកស្រាវជ្រាវនៅក្នុងតំបន់អាស៊ីអាគ្នេយ៍មួយចំនួនតូចប៉ុណ្ណោះ បានយល់ដឹងខ្លះៗ ប៉ុន្តែមិនទាន់នៅបានធ្វើទំនើបកម្មឱ្យបានច្បាស់លាស់ ដើម្បីដោះស្រាយបញ្ហាជាច្រើ នដែលជាប់ទាក់ទងជាមួយនឹងស្ថានភាពដើមនៃស្ថានីយមុនពេលក្លាយជាកន្លែងបញ្ចុះសព។ ទីតាំងនីមួយៗដែលបានជ្រើសរើសដោយសហគមន៍សម្រាប់ជាកន្លែងបញ្ចុះសព គឺបានឆ្លុះបញ្ចាំងអំពី ការផ្លាស់ប្តូរទស្សនៈវិស័យរបស់មនុស្សនៅក្នុងសហគមន៍នោះ។ ម៉្លោះហើយការសិក្សាអំពីឥរិយាបថរប ស្ថានីយ និងកន្លែងបញ្ចុះសព គឺអាចជួយឱ្យអ្នកស្រាវជ្រាវមានការយល់ដឹងកាន់តែប្រសើរថែមទៀត អំពី ការជ្រើសរើសទីតាំងសម្រាប់បញ្ចុះសពនាសម័យនោះ។

ហេតុដូច្នេះ ការរកឃើញផ្លូវសពសម័យថ្មរំលីងនៅស្ថានីយល្អាងស្ថាន គឺបានផ្តល់ឱកាសក្នុងការ អនុវត្ត ការធ្វើកំណាយដោយអនុឡោមតាមគោលការណ៍នៃបុរាណវិទ្យាសិក្សាអំពីរបៀបកប់សព រួមទាំងការវិ ភាគអំពីស្ថានភាពរបស់សពនៅពេលដែលគេបញ្ចុះលើកដំបូង ដើម្បីបង្ហាញអំពីពិធីបញ្ចុះសពដែលប្រ តិបត្តិដោយសហគមន៍មនុស្សរស់នៅតំបន់ល្អាងស្ថាន។ គ្រោងឆ្លឹងសពដែលបានរកឃើញនៅល្អាងសុ ពានមានសភាពពុករលួយខ្លាំងម៉្លោះហើយទើបអ្នកជំនាញសម្រេចធ្វើការសិក្សាវិភាគនិងវាស់វែងដោយផ្ទាល់នៅលើទីតាំងផ្លូវសពតែម្តង ដើម្បីកំណត់អំពីលក្ខណៈជីវសាស្ត្រសំខាន់ៗដូចជា ភេទ អាយុ កម្ពស់ និងរោគសាស្ត្រ របស់សពនីមួយៗ ព្រមទាំងកំណត់កាលបរិច្ឆេទទៅលើឆ្លឹងដោយផ្ទាល់ទទួលបាន លទ្ធផលគួរជាទីទុកចិត្ត។

យោងទៅលើលទ្ធផលនៃកាលបរិច្ឆេទទៅលើឆ្លឹងសព រួមជាមួយវត្ថុផ្សេងៗកប់ជាមួយសព ដែលអ្នកស្រាវជ្រាវបានរកឃើញ អាចឱ្យពួកគេសន្និដ្ឋានបានថា ស្ថានីយល្អាងស្ថានគឺជាទីបញ្ចុះសពស្ថិត ក្នុងសម័យថ្មរំលីង។ ក៏ប៉ុន្តែទន្ទឹមនឹងនោះ គេក៏បានសង្កេតឃើញមានលក្ខណៈមួយចំនួនស្រដៀងគ្នា ទៅនឹងការបញ្ចុះសពស្ថិតក្នុងសម័យលោហៈ ដែលគេបានរកឃើញនៅក្បែរតំបន់ខ្ពង់រាបក្បាត់។

Keywords

Cambodia; Archaeoanatology; Neolithic; Burial កម្ពុជា; បុរាណវិទ្យាសិក្សាអំពីសាកសព និងកិច្ចបញ្ចុះសព; យុគថ្មរំលីង; ផ្លូវសព

Introduction

Discovered in 1965 by Cécile and Roland Mourer the Lang Spean cave is a karstic cavity with three main chambers with a whole floor area of about 1000 m² and a vault height of thirty meters which was excavated from 1965 to 1971 (Mourer & Mourer 1977) (Figure 1).



Fig. 1 Location of Laang Spean's cave. Source: Zeitoun et al. 2012.

The excavation at Laang Spean was interrupted during 50 years because of the dramatic Red Khmer events of which occurred in the country and could be resumed only in 2009 by a new team called French-Cambodian Prehistoric Project. The archaeological sequence of Laang Spean now includes 13 meters thick level of ancient activity dated between 71,000 to 3000 years ago which represent 12 000 archeological items including Hoabinhian occupation (11,000-5,000 BP) and around 3000 faunal and lithic remains for a third summit level characterized by Neolithic tombs (Figure 2) (Forestier et al. 2015). We describe here the typology of the tombs according to the archaeothanatological approach which allows us to reconstruct the initial position of the bodies when they were buried. Indeed, it is this initial position that is the most direct reflection of the funeral practices desired by the population that buried its dead according to the norm of the society of the time.



Fig. 2 Excavation of Laang Spean's cave in 2009. Source: H. Forestier.

Main section

Isolated human remains had been found during the initial excavations made by Cécile and Roland Mourer (Mourer 1994). In 2009 our research revealed new fragments of human bones, which once collected and analysed in terms of nature, ages and different apparel, showed that at least five different individuals had been interred in the second Laang Spean chamber (Sophady 2016). Moreover, in the first year of renewed excavations on the site, a first sepulture was identified. This one was relatively disturbed but, thanks to the analysis of the anatomical connections of the individual which was made directly on the field, it was possible to restore what had been the initial position of the individual buried surrounded by ceramic pots (Figure 3).



Fig. 3 Burial I31 from Laang Spean's cave. Source: H. Forestier.

The first burial discovered in 2009 was dug along a north-south axis, with the head of the deceased placed towards the south (Zeitoun et al 2012). The edges of the tomb were only clearly visible for the bottom 45 cm of the burial. Given these anatomical observations and following an excavation protocol that follows the principles of Archaeoethanatology (Duday 2009; Duday and Guillon, 2006; Duday et al., 1990), it is possible to establish the initial positioning of the body before the anatomical elements were disturbed.

It would appear that this individual was initially lying supine with the arms extended and the hands touching the upper part of the lower limbs. The tomb was disturbed at some point. Indeed, the discovery of an upturned pot, several broken pots on a large limestone

block located on the thorax of the buried individual, and the scattering of pieces of bone and pottery on the block itself suggests that the grave was opened and closed at some point following the decomposition of the body. Because the position of several anatomical parts and joints (distal parts of the hands, patellas, tibias, tarsi, metatarsi and phalanges, etc.) remained in their original position or were moved together after the decomposition of the flesh, it was possible to reconstruct where and how the grave robbers had moved the various anatomical remains and pieces of pottery. The skull was not found and only the left part of the mandible was discovered on the limestone block that was secondary placed on the body of the individual. Several objects associated with the burial can thus be interpreted as funerary offerings: a large globular jar placed on the lower part of the legs, just below the knees, an ochre pencil and a tortoise shell had been placed between the legs under the jar. Five other pieces of pottery were also placed around the body, around the head and up to the left upper limb. These pottery objects were of two main types: jars and bowl-shaped bowls with ring-shaped bases (Fig. 4). In addition, a pierced lower left canine belonging to a Suid was found at the plexus, suggesting the presence of a necklace. A preform of a green adze made of fine sandstone was also found in the grave, while the skull of a large bovid, broken in situ, was found on the limestone blocks in the pit associated with the mandible fragment, the only cranial remnant of the recovered individual. Radiocarbon dating performed on the bone collagen of the deceased yielded a calibrated date of 3310 ± 29 BP (Wk 30118).



Fig. 4 Ceramic material from the burial I31 at Laang Spean's cave. Source: Sophady 2016.

In the following years, 5 tombs uncovered confirmed the restitution of the initial burial position of this first individual, lying supine with the lower limbs extended, the knees in an elevated position in relation to the hips and the feet, which can be observed in tombs B27, D27, S33 and tomb P31, which presents no offering. Burial Aa26 is the burial of a woman buried on her right side, surrounded by pottery.

The individual of the burial B27-28 (Fig. 5) had been laid in supine position along the axis of the cavity SE-NW, the head to the SE, the lower limbs in extension with the knees in elevation. The individual is in association with three pots placed on either side of the body of the deceased. One pot was placed to the left of the skull, another between the wrist and the left femur, a third to the right of the right knee. Archaeothanatological analysis of all the movements of the anatomical elements during the decomposition of the body indicates that some spaces have remained empty since the initial arrangement of the tomb.



Fig. 5 Burial B27. Source: H. Forestier.

Burial D26-28 (Figure 6) is that of an adult individual whose body had been laid in supine position along the axis of elongation of the cavity SE-NW, the head SE, the lower limbs in extension with the knees in elevation. Numerous biconical beads are distributed in a sling from the right elbow to the left of the pelvis. Five potteries were placed around the body of the deceased. Two pots have been placed between the knees. One vase is located to the right of the right knee and a ring footed pot to the outside of the right shin. Another pot is located at the top of the right femur. Two bangles were worn on the left hand and one bangle was worn on the right hand.



Fig. 6 Burial D26-28. Source: H. Forestier.

Burial S32-S33 (Fig. 7) is the grave of an adult individual who had been laid in supine position in a north-south direction, with his head to the north. The lower limbs are extended while the upper limbs are bent, the hands at shoulder level. The burial is located in a natural alcove in the cave wall and a metric block of limestone limits the burial to the north.

A ring-shaped vase rested on the feet, a jar to the right of the right knee. A small jar and a complete simple adze made of hornfels are at the left elbow.



Fig. 7 Burial S32-S33. Source: H. Forestier.

Burial P 31-32 (Fig. 8) is that of an adult individual buried had been laid in supine position in the axis of elongation of the cavity SE-NW, the head to the SE. The individual is buried without any associated material apart from limestone blocks, some of which may have constituted wedging elements: one under the skull and two others at knee level. However, as the latter two blocks are vertical, it is also possible that they were part of the filling material of the grave without the intention of wedging the knees.



Fig. 8 Burial P 31-32. Source: H. Forestier.

The left lower limb is in the elongation of the body, with the knee raised and the foot pointing towards the ground, visible from its upper side. The left patella is in an anatomical position, preserved in a position of equilibrium, which implies a rapid filling of the pit. A decimetric limestone block is interposed between the lateral part of the left femur and the wall of the fossa. The right lower limb is elevated at the knee with the patella also in an anatomical position.



Fig. 9 Burial A24-A26. Source: H. Forestier.

Burial Aa24-A26 (Figure 9) is that of an adult individual whose body appears to be lying on its right side in a north-south direction, with the head to the south with her right upper limb bent and her hand under his face. The skull lay on its right side. The lower limbs were bent at an angle, with the knees and feet together.

Four pots were arranged along the body. Two items were arranged stacked on top of each other next to the chest at the right elbow. Two other vessels, one large and one small, were arranged behind the pelvis on the left side of the individual.

If there are some variations in the arrangement of the bodies or in the richness of the offerings between the different tombs, the dates obtained on the mineral fraction (Zazzo 2014) of the bone of each individual confirm the age initially found.

Discussion

Cemeteries and funeral spaces are major sites in Southeast Asia still used to reconstruct the chrono-cultural sequence of the region. However, their studies present a failure to take into account the funerary nature of the studied sites. Archaeoethanatology, although partly known by colleagues working in Southeast Asia, has not been developed sufficiently leading to numerous problems linked to the real nature of the sites. A burial site where individuals chosen by a community have been placed presents an altered vision of the

population, whereas a study of funerary gestures and recruitment makes it possible to understand these choices. Thus, the discovery of Neolithic burials at Laang Spean (Fig. 10) was the opportunity to implement an excavation protocol that follows the principles of archeoanthology including to determine the positioning of the defunct at the time of burial in order to illustrate the funerary practice carried out by its original population.

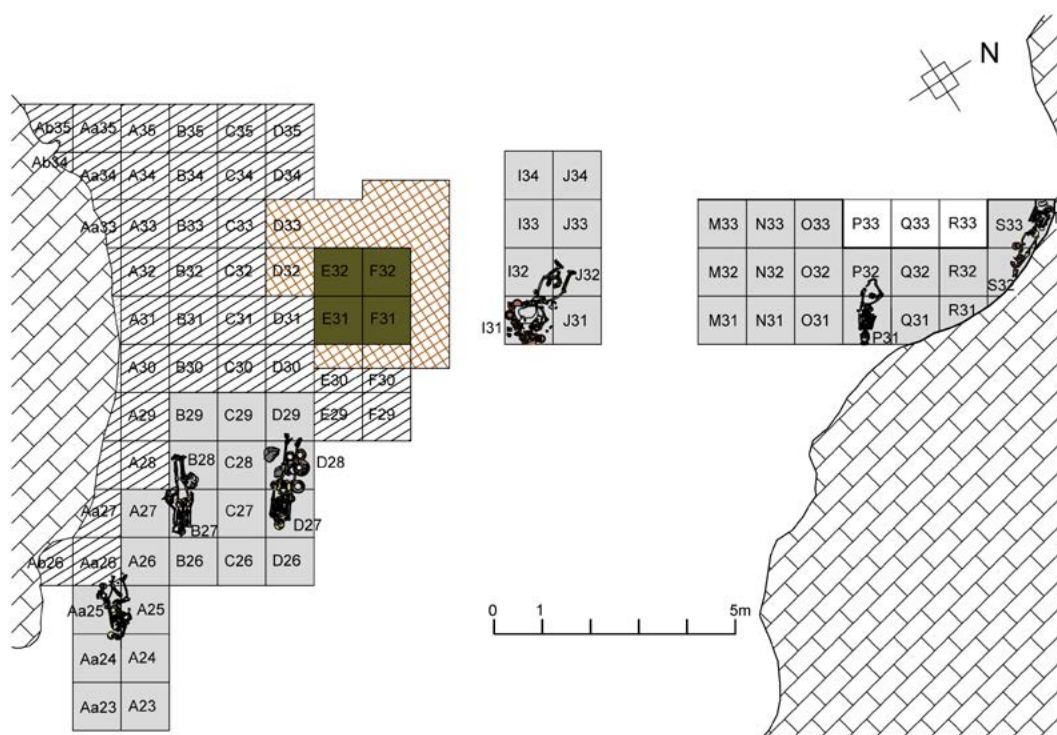


Fig 10. Fig. 10 Map of the burials at Laang Spean's cave. Source: H. Forestier.

The Neolithic and the Metal Ages, whose definitions come from Western archaeology, telescope when one looks at Southeast Asia. The chrono-cultural sequence found at the Ban Chiang site in Thailand (White 2008) shows an 'Early Bronze Age' that is contemporary with 'still' Neolithic regional sites as is the case from the dating series at Khok Phanom Di (Higham and Bananurang 1990) or Ban Non Wat (Higham 2008). The northeast and the maritime strip of Central Thailand, which are the regions closest to the province of Battambang where the Laang Spean cave is located, have seen the development of burials very similar to those of Laang Spean but with metal objects found in the funeral offerings. These neighbouring areas of Thailand, where sites are numerous and the best archaeologically documented for the region (Higham, 2002), seem to indicate

the development of cemeteries and a clear separation between collective burials and dwellings (Higham, 2004). The question arises for burial caves such as Laang Spean.

More broadly, there is the question of the generalisation of the practice of using burials with the deceased laid in supine position (“extended” burial) as opposed to the former “flexed burials”. This extended position” is considered to be an innovation originating in China and spreading southwards (Rispoli 2007). Before validating this hypothesis, it is probably necessary to first clearly describe, in the most detailed way possible, the different burial modes following the method recommended by archaeoanthatology as initiated in the South-East (by some authors (Coupey et al, 2010; Harris, 2010; Pautreau et al, 2010; Willis and Tayles, 2009; Zeitoun et al. 2013) in order to be able to describe what are the real interregional influences. Several cases of “extended” burials could appear, with different significances according to the way of burying the dead with this or that device: garment, coffin, shroud or other... Direct dating (Higham and Higham 2009) is also useful to highlight the contemporaneity of possibly different practices.

References

- A-S, C, J-P, P and Kyaw, AA (2010) Second field season at Ywa Gon Gyi burial site (Upper Burma). *Bioarchaeology in Southeast Asia and the Pacific Newsletter*: 17-18.
- Duday, H (2009) *The archaeology of the dead: lectures in archaeoanthatology*. Oxford: Oxbow Books.
- Duday, H, Courtaud, P, Crubézy, E, Sellier, P and Tillier, A-M (1990) L’anthropologie de terrain reconnaissance et interprétation des gestes funéraires. *Bulletins et Mémoires de la Société d’Anthropologie de Paris*, 2: 29-50.
- Duday, H and Guillon, M (2006) Understanding the circumstances of decomposition when the body is skeletonised. In: A Schmitt, E Cunha and J Pinheiro (eds.) *Forensic Anthropology and Medicine Complementary Sciences from Recovery to Cause of Death*. Totowa, New Jersey: Human Press, 117–157.
- Forestier, H, Heng, S, Paud, S, Celiberti, V, Frère, S, Zeitoun, V, Mourer-Chauviré, C, Mourer, R, Than, H and Billault, L (2015) The Hoabinhian from Laang Spean Cave in its stratigraphic, chronological, typo-technological and environmental context (Cambodia, Battambang province). *Journal of Archaeological Science: Reports*, 3: 194-206.
- Harris, N (2010) Disposing of dead: An investigation into prehistoric mortuary practices during the Neolithic and Bronze Ages at Ban Non Wat. Master of Science thesis, University of Otago, Dunedin.

- Higham, C (2002) *Early Cultures of Mainland Southeast Asia*. Bangkok: River Books.
- Higham, C (2004) The opposed human figure at Khok Phanom Di. *Journal of the Siam Society*, 92(15-36)
- Higham, C (2008) Ban Non Wat: the first five seasons. In: J-P Pautreau, A-S Coupey, V Zeitoun and E Rambault (eds.) *From Homo Erectus to the Living Traditions: Choice of Papers from the 11th International Conference of the European Association of Southeast Asian Archaeologists*. Bougon: 11th International Conference of the European Association of Southeast Asian Archaeologists, 83-90.
- Higham, C and Bannanurag, R (1990) *The excavation of Khok Phanom Di*. London: The Society of Antiquaries of London.
- Higham, C and Higham, T (2009) A new chronological framework for prehistoric Southeast Asia, based on a Bayesian model from Ban Non Wat. *Antiquity*, 83: 125-144.
- Mourer, R (1977) Laang Spean and the prehistory of Cambodia. *Modern Quaternary Research in Southeast Asia*, 3(29-56)
- Mourer, R (1994) Contribution à la l'étude la préhistoire du Cambodge. In: F Bizot (ed.) *Études thématiques I. Recherches nouvelles sur le Cambodge*. Paris: École française d'Extrême-Orient, 143-195.
- Pautreau, J-P, Coupey, A-S, Kyaw, AA, Dupont, C, Gratuze, B, Lankton, J, Le Bannier, J-C, Maitay, C, Médard, F and Rambault, E (2010) *Excavations in the Samon valley. Iron Age burials in Myanmar*. Chiang Mai: Siam Ratana.
- Heng, S (2016) Archaeo-stratigraphy of Laang Spean prehistoric site (Battambang Province): A contribution to Cambodian prehistory. PhD thesis, Muséum National d'Histoire Naturelle, Paris.
- White, JC (2008) Dating Early Bronze at Ban Chiang, Thailand. In: J-P Pautreau, A-S Coupey, V Zeitoun and E Rambault (eds.) *From Homo Erectus to the Living Traditions: Choice of Papers from the 11th International Conference of the European Association of Southeast Asian Archaeologists*. Bougon: 11th International Conference of the European Association of Southeast Asian Archaeologists, 91-104.
- Willis, A and Tayles, N (2009) Field anthropology: application to burial contexts in prehistoric Southeast Asia. *Journal of Archaeological Science*, 36: 547-554.
- Zazzo, A (2014) Bone and enamel carbonate diagenesis: A radiocarbon prospective. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 416: 168-178.

- Zeitoun, V, Forestier, H, Sophady, H, Puaud, S and Billault, L (2012) Direct dating of a Neolithic burial in the Laang Spean cave (Battambang Province, Cambodia): First regional chrono-cultural implications. *Comptes Rendus Palevol*, 11: 529–537.
- Zeitoun, V, Auetrakulvit, P, Forestier, H, Zazzo, A, Davtian, G, Nakbunlung, S and Tiamtinkritg, C (2013) Discovery of a Mesolithic burial near the painted rock-shelter of Ban Tha Si (Lampang province, Northern Thailand): Implications for regional mortuary practices. *Comptes Rendus Palevol*, 12: 127–136.

Introduction

Discovered in 1965 by Cécile and Roland Mourer the Lang Spean cave is a karstic cavity with three main chambers with a whole floor area of about 1000 m² and a vault height of thirty meters which was excavated from 1965 to 1971 (Mourer & Mourer 1977) (Fig 1.).

The



excavation at Laang Spean was interrupted during 50 years because of the dramatic Red Khmer events of which occurred in the country and could be resumed only in 2009 by a new team called French-Cambodian Prehistoric Project. The archaeological sequence of Laang Spean now includes 13 meters thick level of ancient activity dated between 71,000 to 3000 years ago which represent 12 000 archeological items including Hoabinhian occupation (11,000-5,000 BP) and around 3000 faunal and lithic remains for a third summit level characterized by Neolithic tombs (Fig 2.) (Forestier et al. 2015). We describe here the typology of the tombs according to the archaeo-anatomical approach which allows us to reconstruct the initial position of the bodies when they were buried. Indeed, it is this initial position that is the most direct reflection of the funeral practices desired by the population that buried its deads according to the norm of the society of the time.

Fig 1. Location of Laang Spean's cave. Source: according to Zeitoun et al 2012.

Fig 2.
Laang Spean's
Source: H.

Main section

Isolated remains had during the excavations Cécile and Mourer 1994). In research fragments of which once analysed in nature, ages apparel, at least five



Excavation of
cave in 2009.
Forestier.

human
been found
initial
made by
Roland
(Mourer
2009 our
revealed new
human bones,
collected and
terms of
and different
showed that
different

individuals had been interred in the second Laang Spean chamber (Sophady 2016). Moreover, in the first year of renewed excavations on the site, a first sepulture was identified. This one was relatively

disturbed but, thanks to the analysis of the anatomical connections of the individual which was made directly on the field, it was possible to restore what had been the initial position of the individual buried surrounded by ceramic pots (Fig 3.).



Fig 3. Burial I31 from Laang Spean 's cave. Source: H. Forestier.

The first burial discovered in 2009 was dug along a north-south axis, with the head of the deceased placed towards the south (Zeitoun et al 2012). The edges of the tomb were only clearly visible for the bottom 45 cm of the burial. Given these anatomical observations and following an excavation protocol that follows the principles of Archaeoanatology (Duday 2009; Duday and Guillon, 2006; Duday et al., 1990), it is possible to establish the initial positioning of the body before the anatomical elements were disturbed.

It would appear that this individual was initially lying supine with the arms extended and the hands touching the upper part of the lower limbs. The tomb was disturbed at some point. Indeed, the discovery of an upturned pot, several broken pots on a large limestone block located on the thorax of the buried individual, and the scattering of pieces of bone and pottery on the block itself suggests that the grave was opened and closed at some point following the decomposition of the body. Because the position of several anatomical parts and joints (distal parts of the hands, patellas, tibias, tarsi, metatarsi and phalanges, etc.) remained in their original position or were moved together after the decomposition of the flesh, it was possible to reconstruct where and how the grave robbers had moved the various anatomical remains and pieces of pottery. The skull was not found and only the left part of the mandible was discovered on the limestone block that was secondary placed on the body of the individual. Several objects associated with the burial can thus be interpreted as funerary offerings: a large globular jar placed on the lower part of the legs, just below the knees, an ochre pencil and a tortoise shell had been placed between the legs under the jar. Five other pieces of pottery were also placed around the body, around the head and up to the left upper limb. These pottery objects were of two main types: jars and bowl-shaped bowls with ring-shaped bases (Fig. 4). In addition, a pierced lower left canine belonging to a Suid was found at the plexus, suggesting the presence of a necklace. A preform of a green adze made of fine sandstone was also found in the grave, while the skull of a

large bovid, broken in situ, was found on the limestone blocks in the pit associated with the mandible fragment, the only cranial remnant of the recovered individual. Radiocarbon dating performed on the bone collagen of the deceased yielded a calibrated date of 3310±29 BP (Wk 30118).



Fig 4.

Ceramic material from the burial I31 at Laang Spean's cave . Source: Sophady 2016.

In the following years, 5 tombs uncovered confirmed the restitution of the initial burial position of this first individual, lying supine with the lower limbs extended, the knees in an elevated position in relation to the hips and the feet, which can be observed in tombs B27, D27, S33 and tomb P31, which presents no offering. Burial Aa26 is the burial of a woman buried on her right side, surrounded by pottery.

The individual of the burial B27-28 (Fig. 5) had been laid in supine position along the axis of the cavity SE-NW, the head to the SE, the lower limbs in extension with the knees in elevation. The individual is in association with three pots placed on either side of the body of the deceased. One pot was placed to the left of the skull, another between the wrist and the left femur, a third to the right of the right knee. Archaeothanatological analysis of all the movements of the anatomical elements during the decomposition of the body indicates that some spaces have remained empty since the initial arrangement of the tomb.



Fig 5. Burial B27 . Source: H. Forestier

Burial D26-28 (Fig. 6) is that of an adult individual whose body had been laid in supine position along the axis of elongation of the cavity SE-NW, the head SE, the lower limbs in extension with the knees in elevation. Numerous biconical beads are distributed in a sling from the right elbow to the left of the pelvis. Five potteries were placed around the body of the deceased. Two pots have been placed between the knees. One vase is located to the right of the right knee and a ring footed pot to the outside of the right shin. Another pot is located at the top of the right femur. Two bangles were worn on the left hand and one bangle was worn on the right hand.



Fig 6. Burial D26-28 . Source: H. Forestier

Burial S32-S33 (Fig. 7) is the grave of an adult individual had been laid in supine position in a north-south direction, with his head to the north. The lower limbs are extended while the upper limbs are bent, the hands at shoulder level. The burial is located in a natural alcove in the cave wall and a metric block of limestone limits the burial to the north.

A ring-shaped vase rested on the feet, a jar to the right of the right knee. A small jar and a complete simple adze made of hornfels are at the left elbow.



Fig 7. Burial S32-S33 . Source: H. Forestier

Burial P 31-32 (Fig. 8) is that of an adult individual buried had been laid in supine position in the axis of elongation of the cavity SE-NW, the head to the SE. The individual is buried without any associated material apart from limestone blocks, some of which may have constituted wedging elements: one under the skull and two others at knee level. However, as the latter two blocks are vertical, it is also possible that they were part of the filling material of the grave without the intention of wedging the knees.

The left lower limb is in the elongation of the body, with the knee raised and the foot pointing towards the ground, visible from its upper side. The left patella is in an anatomical position, preserved in a position of equilibrium, which implies a rapid filling of the pit. A decimetric limestone block is interposed between the lateral part of the left femur and the wall of the fossa. The right lower limb is elevated at the knee with the patella also in an anatomical position.



Fig 8. Burial P 31-32 . Source: H. Forestier

Burial Aa24-A26 (**Fig. 9**) is that of an adult individual whose body appears to be lying on its right side in a north-south direction, with the head to the south with her right upper limb bent and her hand under his face. The skull lay on its right side. The lower limbs were bent at an angle, with the knees and feet together.

Four pots were arranged along the body. Two items were arranged stacked on top of each other next to the chest at the right elbow. Two other vessels, one large and one small, were arranged behind the pelvis on the left side of the individual.



Fig 9. Burial Aa24-A26 . Source: H. Forestier

If there are some variations in the arrangement of the bodies or in the richness of the offerings between the different tombs, the dates obtained on the mineral fraction (Zazzo 2014) of the bone of each individual confirm the age initially found.

Discussion

Cemeteries and funeral spaces are major sites in Southeast Asia still used to reconstruct the chronological sequence of the region. However, their studies present a failure to take into account the funerary nature of the studied sites. Archaeothanatology, although partly known by colleagues working in Southeast Asian has not been developed sufficiently leading to numerous problems linked to the real nature of the sites. A burial site where individuals chosen by a community have been placed presents an altered vision of the population, whereas a study of funerary gestures and recruitment makes possible to understand these choices. Thus, the discovery of Neolithic burials at Laang Spean (Fig. 10) was the opportunity to implement an excavation protocol that follows the principles of archeothanatology including to determine the positioning of the defunct at the time of burial in order to illustrate the funerary practice carried out by its original population.

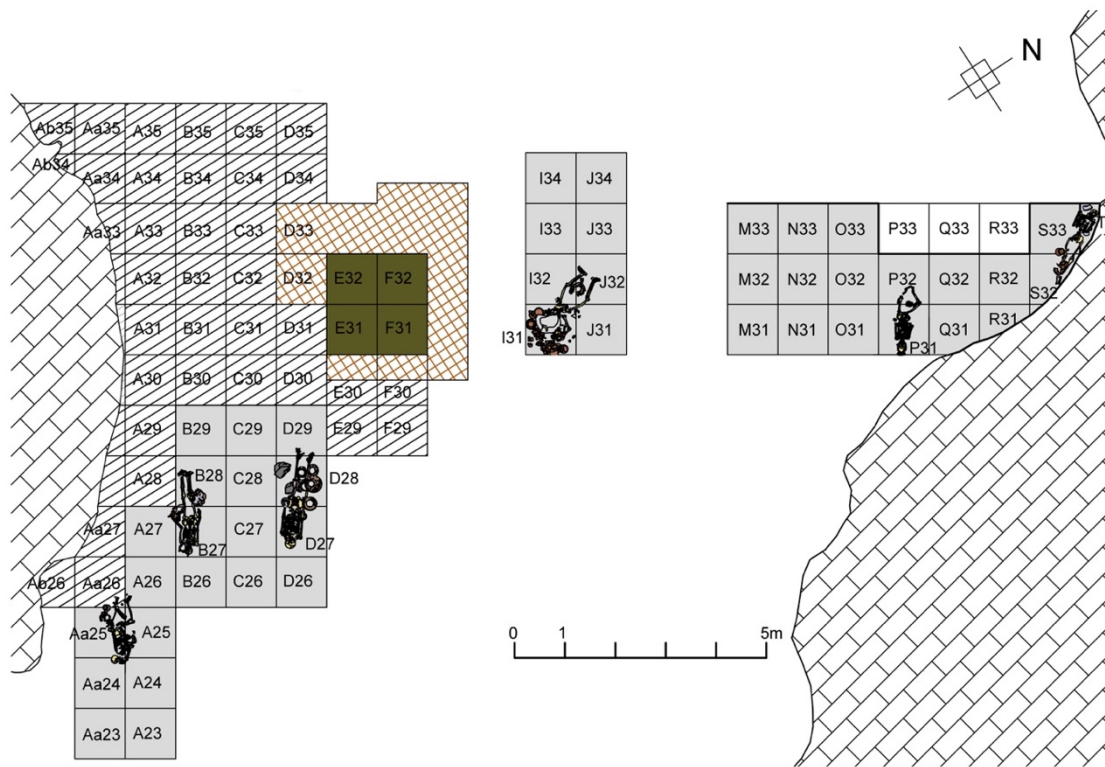


Fig 10. Map of the burials at Laang Spean's cave . Source: H. Forestier

The Neolithic and the Metal Ages, whose definitions come from Western archaeology, telescope when one looks at Southeast Asia. The chrono-cultural sequence found at the Ban Chiang site in Thailand (White 2008) shows an 'Early Bronze Age' that is contemporary with 'still' Neolithic regional sites as is the case from the dating series at Khok Phanom Di (Higham and Bananurang 1990) or Ban Non Wat (Higham 2008). The northeast and the maritime strip of Central Thailand, which are the regions closest to the province of Battambang where the Laang Spean cave is located, have seen the development of burials very similar to those of Laang Spean but with metal objects found in the funeral offerings. These neighbouring areas of Thailand, where sites are numerous and the best archaeologically documented for the region (Higham, 2002), seem to indicate the development of cemeteries and a clear separation between collective burials and dwellings (Higham, 2004). The question arises for burial caves such as Laang Spean.

More broadly, there is the question of the generalisation of the practice of using burials with the deceased in laid in supine position ("extended" burial) as opposed to the former "flexed burials". This "extended position" is considered to be an innovation originating in China and spreading southwards (Rispoli 2007). Before validating this hypothesis, it is probably necessary to first clearly describe, in the most detailed way possible, the different burial modes following the method recommended by archaeoethanatology as initiated in the South-East (by some authors (Coupey et al, 2010; Harris, 2010; Pautreau et al, 2010; Willis and Tayles, 2009; Zeitoun et al. 2013) in order to be able to describe what are the real interregional influences. Several cases of "extended" burials could appear, with different significances according to the way of burying the dead with this or that device: garment, coffin, shroud or other... Direct dating (Higham and Higham 2009) is also useful to highlight the contemporaneity of possibly different practices.

References

- Coupey A-S., Pautreau J-P., Kyaw A.A. (2010). Second field season at Ywa Gon Gyi burial site (Upper Burma). *Bioarchaeology in Southeast Asia and the Pacific : Newsletter*, 17-18.
- Duday H. (2009). *The archaeology of the death : lectures in archaeoethanatology*. Oxbow book, Oxford.
- Duday H., Courtaud P., Crubézy E., Sellier P., Tillier A-M. (1990). L'anthropologie de terrain reconnaissance et interprétation des gestes funéraires. *Bulletins et Mémoires de la Société d'Anthropologie de Paris* 2, 29-50.
- Duday H., Guillon M. (2006). Understanding the circumstances of decomposition when the body is skeletonised. In: Schmitt, A., Cunha, E., Pinheiro, J. (Eds.), *Forensic Anthropology and Medicine Complementary Sciences from Recovery to Cause of Death*. Human Press, Totowa, New Jersey, pp. 117–57.
- Forestier H., Sophady H., Puaud S., Celiberti V., Frère S., Zeitoun V., Mourer-Chauviré C., Mourer R., Than H., Billault L. (2015) The Hoabinhian from Laang Spean Cave in its stratigraphic, chronological, typo-technological and environmental context (Cambodia, Battambang province). *Journal of Archaeological Science Report* 3, 194-206
- Harris N. (2010). *Disposing of dead: An investigation into prehistoric mortuary practices during the Neolithic and Bronze Ages at Ban Non Wat, Thesis of Master of Science, university of Otago, Dunedin New Zeland.*
- Higham C. (2002). *Early cultures of Mainland southeast Asia*. River books, Bangkok.
- Higham C. (2004). The opposed human figure at Khok Phanom Di. *Journal of the Siam Society* 92, 15-36.
- Higham C. (2008.) Ban Non Wat : the first five seasons. In Pautreau J.-P., Coupey A.-S., Zeitoun V., Rambault E. (Eds.), *From Homo erectus to the living traditions*, pp. 83-90.
- Higham C., Bannanurag R. (1990). The excavation of Khok Phanom Di. *The society of Antiquaries of London, Thames and Hudson Ltd*, 372 p.
- Higham C., Higham T. (2009). A new chronological framework for prehistoric Southeast Asia, based on a Bayesian model from Ban Non Wat. *Antiquity* 83, 125–44.
- Mourer R. (1977). Laang Spean and the prehistory of Cambodia. *Modern Quaternary Research in Southeast Asia* 3, 29-56.
- Mourer R. (1994). Contribution à la l'étude la préhistoire du Cambodge. In Bizot, F. (Ed.), *Etudes thématiques I. Recherches nouvelles sur le Cambodge, Ecole française d'Extrême-Orient*, pp. 143-95.
- Pautreau J-P., Coupey A-S., Kyaw A. A., Dupont C., Gratuze B., Lankton J., Le Bannier J-C., Maitay

C., Médard F., Rambault E. 2010. Excavations in the Samon valley. Iron Age burials in Myanmar. Chiang Mai, Siam Ratana, Chiang Mai, 447 p.

Sophady H. (2016) Archaeo-stratigraphy of Laang Spean prehistoric site (Battambang Province) : A contribution to Cambodian prehistory. PhD Dissertation. Mnhn, Paris. 474 p.

White J. (2008). Dating early Bronze at Ban Chiang, Thailand. In Pautreau J.-P., Coupey A.-S., Zeitoun V., Rambault E. (Eds.), *From Homo erectus to the living traditions*, pp.91-104.

Willis A., Tayles, N. (2009). Field anthropology: application to burial contexts in prehistoric Southeast Asia. *Journal of Archaeological Science* 36, 547–54.

Zazzo A. (2014) Bone and enamel carbonate diagenesis: A radiocarbon prospective. *Palaeogeography, Palaeoclimatology, Palaeoecology* 416, 168-178

Zeitoun V., Forestier H., Sophady H., Puaud S., Billault L. (2012). Direct Dating of a Neolithic Burial in the Laang Spean cave (Battambang Province, Cambodia): first regional chrono-cultural implications. *PalEvol* 11, 529-537

Zeitoun V., Auetrakulvit P., Forestier H., Zazzo A., Davtian G., Nakbunlung S., Tiamtinkrit C. (2013). Discovery of a Mesolithic burial near the painted rock-shelter of Ban Tha Si (Lampang province, Northern Thailand): implications for regional mortuary practices. *PalEvol* 12, 127-36