

## News from Asia (continued)

## Archaeologists discover Southeast Asia's largest ancient kiln site at Torp Chey

Foo Shu Tieng



CAMBODIAN ARCHAEOLOGISTS recently uncovered Southeast Asia's largest kiln site to date at Torp Chey. Located on one of the major ancient Angkorian highways between Beng Mealea and Bakan, to the east of Angkor, the site is situated close to a Jayavarman VII rest house also named Torp Chey. An excavation of one mound between December 2011 and January 2012 revealed a kiln measuring a remarkable 21 meters in length and 2.8 meters in width. Many pieces of large brown-glazed jars, roof tiles, animal-shaped figurines, and sandstone chips were recovered. The Cambodian team, led by Dr. Ea Darith of APSARA, the Authority for the Protection and Management of Angkor and the Region of Siem Reap, hopes to make a formal presentation on the findings from the site, to experts at the International Coordinating Committee (ICC) for the Safeguarding and Development of the Historic Site of Angkor in June 2012.

Leaders of the Khmer empire, which once dominated much of the region known today as mainland Southeast Asia, appropriated and localized Hindu and Buddhist iconography, firstly to consolidate their power base, and secondly to legitimize their rule. Majestic examples of monumental architecture, such as those found in Angkor (including the world heritage site of Angkor Wat), speaks to the role and significance of the elite. The discovery of the Torp Chey kiln site will enlighten researchers on the extent of trade networks within the Khmer empire and provide new insight into the economic organization of the ancient Khmer. For archaeologists and anthropologists, pottery embodies the cultural and technological knowledge of the potters and the users. As pottery is one of the most common types of artifacts found in most archaeological excavations, owing to the durability of the material, the study of pottery can provide insight into rituals and practices, class hierarchy, and the stylistic preferences of a culture during a specific period of time. The Torp Chey kiln site excavation will hopefully allow researchers to pinpoint the source of some of the brown-glazed Khmer pottery that has been found elsewhere in the region, this subject being a newly burgeoning field of study.

The Torp Chey kiln complex was discovered during the course of a ground survey in 2007 along the Angkorian road between Beng Mealea and Bakan (also known as Preah Khan of Kompong Svay). M. Hendrickson, who published a report in 2008 on the finds of the survey, noted that the site is significant because it firmly establishes the fact that Khmer brown-glazed pottery (the predominant type from the 12th to 13th centuries) could have been manufactured to the east of Angkor and that the production of the brown-glazed pottery was not exclusively limited to kilns in northeast Thailand, as was previously thought. Hendrickson also suggested that careful dating of the site might give researchers a clue to patterns in pottery style changes, shedding light on the question of whether the brown-glazed ceramics were first made in the kilns in northeast Thailand or in Cambodia.

The new excavation at Torp Chey by the Cambodian team, jointly funded by APSARA Authority and the Nalanda-Sriwijaya Centre of the Institute of Southeast Asian Studies in Singapore, has unveiled a large kiln structure constructed against a natural slope. The kiln has four separate firing chambers heated by a single fire box. The firing chambers are separated by three additional firing trenches. Other features of the kiln include one gate (door) in the southern wall of a firing chamber, and an air vent toward the back of the kiln with three smoke holes. The three firing trenches located between the firing chambers may suggest side-stoke ports where additional fuel (wood) and oxygen could be added in order to manage the temperature and atmosphere inside the kiln.

When one compares the Torp Chey kiln to other known Khmer kiln sites, the difference in magnitude is quite clear. According to Pariwat Thammapreechakorn, other excavations in Cambodia, such as those at Tani, Anlong Thom, and Sarsey (belonging to what is known as the Phnom Kulen group of kilns) have revealed oval cross-draft kilns with single firing chambers built atop sloping mounds, usually measuring 1.8 to 3.6 meters in width and 6 to 8 meters in length. The Buriram kilns, which are located in northeast Thailand and also attributed to the Khmer Empire, are structurally similar to those found in Phnom Kulen, and are fairly long cross-draft kilns at 12 meters. The excavated Torp Chey No. 2 kiln mound, with a length of 21 meters, seems to suggest manufacture at an industrial scale larger and more extensive than anyone might have previously thought. Given that this kiln mound is merely a middle-sized mound among a group of twelve found within the same area, the potential to find one of an even larger size seems good.

According to Dr. Ea Darith, Mr. Robert McCarthy, who is a stone specialist working with the Japan-APSARA for Safeguarding Angkor (JASA) project, has linked the sandstone chips that formed the foundation layer on top of the natural soil of the No. 2 kiln mound to those from the Torp Chey rest house, the Jayavarman VII structure located approximately 60 meters north of the excavation dated to the late 12th to early 13th centuries. While the brown-glazed pottery found in association with the site also indicates a similar date, further radiocarbon dating may narrow down the site use period to a more precise span of time.

Some researchers who have visited the Torp Chey excavation site have remarked on how it resembles some ancient kilns found in China. Dawn Rooney, who has written several books on Khmer ceramics, has also commented on the similarity between the Chinese Yue ware and some Khmer forms in the past. According to Dr. John Miksic, a specialist in the field of Southeast Asian ceramics, the Khmers were second only to the Chinese in mastering the technique of producing stoneware (a less porous type of pottery), and in the ability to produce glaze (a coating of silica that can be used to smoothen and to decorate the surface of pottery). While researchers are looking

**Top left: Top view of the site at Torp Chey No. 2 kiln mound, which was excavated between December 2011 and January 2012. The kiln measured 21 meters long and 2.8 meters wide and is Southeast Asia's largest kiln site to date. Photo courtesy Dr. Ea Darith of APSARA Authority.**

**Top right: An animal shaped figurine unearthed during the excavation of Torp Chey Kiln No. 2. Photo by Foo Shu Tieng.**

**Bottom left: An artist impression of what the Torp Chey No. 2 kiln might have looked like when it was in use. The diagram highlights the single firebox (to the bottom left) as well as the four firing chambers, three additional firing trenches, an entrance to the southern wall of the third firing chamber, and finally, to the extreme right, an air vent at the top of the kiln with three smoke holes. Image courtesy Dr. Ea Darith of APSARA Authority.**

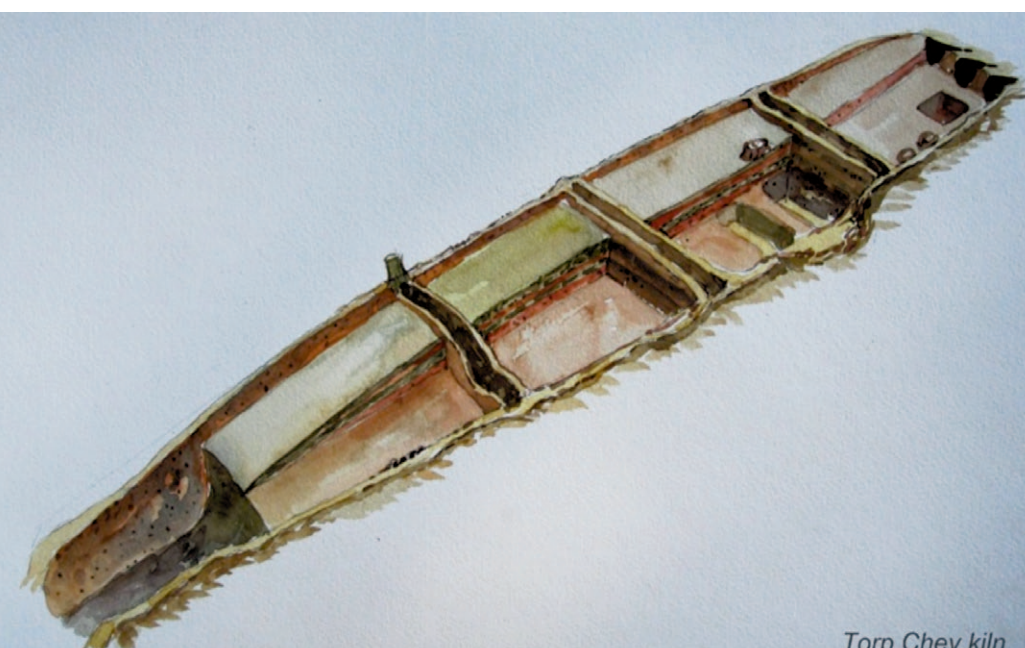
**Bottom right: Location of the Torp Chey archaeological site in relation to capital of the Khmer empire, Angkor. Map drawn by Kim Samnang, courtesy Dr. Ea Darith of APSARA Authority.**

into possible direct technological transfers between the Khmer and the Chinese potters – which have thus far been relegated to the realm of popular myths – the archaeological evidence and academic consensus so far is that Khmer potters were inspired by Chinese imports, but that they developed the techniques of kiln construction and glazing independently. As mentioned earlier, while the brown-glazed pottery associated with the Torp Chey site suggests a later date of 12th to 13th centuries and does not address earlier associations between the Chinese and Khmer (which relates to pottery with a green glaze produced as early as the 10th century), the Torp Chey site excavation does suggest that the Khmer were using fairly labor-intensive and sophisticated methods in order to maintain and control kiln firing temperatures, and were producing pottery in large quantities, which has implications for economic organization and coordination.

Dr. Ea Darith of APSARA Authority has proposed that further work be conducted at the site, including conservation, management, public outreach, as well as research. Looting is probably the biggest threat to the site; M. Hendrickson, who published the survey report in 2008, reported that the crown of kiln No. 1 was already looted and that a local villager had indicated that large complete jars had been found there. According to Chhay Visoth, who has discussed the conservation of the Thnal Mrech kiln site (located on Phnom Kulen), before the 1990s the Thnal Mrech site was protected by the law and local popular beliefs; more specifically, by the soul of a local spirit (*neak ta*). As the villagers believed that any person who destroyed or disturbed the site would cause himself and his relatives to fall gravely ill, they would not even dare to take a small piece of pottery home and this allowed the kiln sites to be fairly well-preserved. However, after the restoration of peace in Cambodia in the 1990s, treasure hunters hired impoverished local villagers (who did not know that they were destroying their heritage) to dig up such artifacts. The best pottery often entered the antiquities black market after being sold to middlemen and art dealers.

It is hoped that by educating the local residents about the significance of the Torp Chey site, by hiring locals to maintain and guard the site, and by erecting information panels in English and Khmer to explain the motives for and results of the kiln excavation, further looting can be prevented. Dr. Ea Darith hopes that it will be possible to construct a small visitor center including an exhibition of some artifacts found at the site, and to conserve and open a kiln structure for the public to visit. Dr. Ea Darith's Cambodian team also hopes to continue research along the ancient road from Beng Mealea to Bakan in order to learn more about the significance of the road in the past, in relation to other structures that have been found, particularly between the kilns, the temples, and other water structures.

**Foo Shu Tieng is a research associate at the Nalanda-Sriwijaya Centre Archaeology Unit of the Institute of Southeast Asian Studies in Singapore (stfoo@iseas.edu.sg).**



Torp Chey kiln

