NIAH CAVE

Chris O. Hunt

School of Biological and Environmental Sciences
Liverpool John Moores University
Byrom Street
Liverpool
L3 3LH

C.O.Hunt@ljmu.ac.uk

phone 0151 231 2088

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Synonyms The Great Cave of Niah

Definition

Niah Cave, more properly the Great Cave of Niah, in Sarawak, Malaysian Borneo (Fig. 1), lies in the northern side of the Gunong Subis karst massif, 11 km inland from the shore of the South China Sea and the most important of a cluster of archaeologically-significant caves at this locaity. The cave was dug in the 1950s and 1960s by Tom and Barbara Harrisson, in the 1980s by Zuriana Majid, and between 2000 and 2004 by Graeme Barker and Tim Reynolds, with geoarchaeological work coordinated by David Gilbertson. It is notable for having yielded the globally oldest evidence for fire-management of vegetation and one of the oldest known secondary burials in Asia – the Deep Skull.

Fig. 1. The West Mouth of the Great Cave of Niah in 2015. The archaeological area is to the extreme right of the cave mouth. Photo C O Hunt.

Geomorphology

The cave is one of several enormous, highly complex and extremely ancient caves in the Gunong Subis, a tower karst massif developed in Miocene patch-reef limestones. The tower karst stands in coastal alluvial lowland underlain by turbiditic mudrocks, also of Miocene age. Tectonically, the area is rising relative to sea level and the karst towers show ancient elevated basal solution notches and caves. The Great Cave displays morphological evidence for phreatic development (formation beneath the water table) followed by a long and complex history of vadose modification (above the water table). At lower levels in the Gunong Subis and in the lowest parts of the Great Cave itself, there are epiphreatic passages (caves at the intersection between the vadose and phreatic zones; Dodge-Wan et al. 2017)

Fig. 1.

The cave fill

The cave sediments are highly complex, resulting from multiple sediment deposition mechanisms and showing diagenetic processes (Gilbertson et al. 2005, 2013; Stephens et al. 2005, 2016, 2017). These are best known from the archaeological excavations in the West Mouth and reconnaissance in other entrances to the cave (Gilbertson et al. 2005, 2013, Reynolds et al. 2016; Stephens et al. 2016; Lewis 2016; McLaren et al. 2016). The longest sequence is within the archaeological reserve in the West Mouth. Here, the lowest sediments exposed are ancient, complex, highly-weathered diamicts (poorly sorted sediments with different particle sizes, resulting from mudflows, referred to as Unit 1). These are overlain by clayey diamicts, sands, and silts resulting from mudflows and ephemeral surface waters (Unit 2C and 2) dating from ~55,000–38,000 BP and containing abundant archaeological materials, including lithic artifacts, bone, shell, and charcoal. These deposits were cut and partially disrupted by a major mudflow event (Dykes 2007; 2016), which gave rise to thick diamicts now characterized by ‘spots’ of white secondary gypsum (Unit 3). From about 35,000 BP, silty diamicts with abundant occupation debris (Unit 4) were laid down, at first in a basin formed by partial collapse of older deposits, probably into a concealed sinkhole, later more widely. Unit 4 continued to accumulate episodically until late Holocene times, mostly from a combination of shallow wash, mudflows and guano accumulation. From ~35,000 BP, people cut deep pits into the cave sediments. Some of these seem to have been used for detoxifying the poisonous nuts of *Pangium edule* (Malay ‘*kepayang*’), since these are found in great quantities but one was likely used as the location for a secondary burial (Hunt and Barker 2014). During the latest Pleistocene and particularly the Holocene, the cave was used as a burial site. In the last 50 years, the deposits outside the archaeological reserve have been extensively quarried for guano. Some of the quarries expose sequences of stratified guano, replaced by gypsum, which may extend back to the Last Interglacial (e.g. the section partly sampled by Wurster et al. 2010).

Archaeology

The Great Cave first came to prominence in 1958 with the finding by Barbara Harrisson of the so-called ‘Deep Skull’, for many years the oldest morphologically-modern human skeletal material in the world. Recent re-evaluation and U-series dating suggests that the ‘Deep Skull’ is ~35,000 years old and may have been part of a secondary burial (Barker et al. 2007; Hunt & Barker 2014), but the earliest human activity in the cave is estimated to be around 52,000 BP (Hunt et al. 2012, 2016). The cave was inhabited during the Late Pleistocene, and the cave fill contains abundant evidence of the skill of the inhabitants in

exploiting the complex, difficult, and rapidly-changing ecosystems of the period including control of forest vegetation by fire from ~50,000 years ago, with animal bones, shell, macro-plant remains, pollen, phytoliths, and starch, all very well-preserved (Barker et al. 2007; Barton et al. 2009; Piper and Rabett 2009; Barker 2013). The cave was also used for ritual activity using human remains from ca. 45,000 BP (Hunt & Barker 2014), and exploitation as a place of interment became its main use during the Holocene. So far, 258 burials have been investigated, with excellent preservation of organic materials including hair, skin, basketry, and wood (Lloyd-Smith 2012).

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