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Magic fossils – on the use of Triassic coprolites as talismans and medicine in South East Asia

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Fossil folklore is still a largely understudied field, although pioneer studies were published a century ago (e.g. Skeat, 1912). The classical western European examples of thunderbolts (belemnites), tonguestones (shark teeth) or snakestones (ammonites) are well known, and some reports of traditions or names related to fossil footprints have been published (Mayor and Sarjeant, 2000). The explanation of myths and legends by palaeontology has been treated by Abel (1914), Mayor (2001, 2005) and several other authors. However legends or beliefs transmitted nowadays about fossils as well as some pharmacological or magical uses of fossils are rarely reported. Legends may have been collected by folklorists without a proper palaeontological interpretation and palaeontologists may report in a few words some local belief without enough information from local populations. This “palaeontological lore” belongs to what Moura and Albuquerque (2011) have called ethnopaleontology, a new discipline aimed “to study the dynamic relationship between humans and fossils, including aspects such as the cultural perception of fossils, fossil trade, and fossil use (mythical and direct).” An example was reported by Moura and Albuquerque (2011) about the use of fossil chelonians from the Araripe Basin (Santana Group) to cure hyperactive children in northeastern Brazil, an interesting case of sympathetic medicine. They comment that in northeastern Brazil, recent species that move slowly are commonly used as a sedative, this type of use by imitative or mimetic association being

common in folk medicine practices. We present here an example of ethnopaleontological field research conducted in rural northeastern Thailand.

Our interest for this topic began when our team from the Maha Sarakham University (Palaeontological Research Centre) observed many Late Triassic coprolites stored at a small temple (Wat Tum Wiman Nakin) near the village of Nong Yakong in Khon San District, Chaiyaphum Province (Fig. 1). During field work at close localities we learnt that some kinds of coprolites (especially shark’s spiral coprolites) were used by villagers to make amulets (see Laojumpon et al., in press). We eventually decided to learn more about this interesting ethnopaleontological practice.



Figure 1 Triassic coprolites stored at Wat Tum Wiman Nakin, Chaiyaphum Province, Northeastern Thailand. Figure 1 Triassic coprolites stored at Wat Tum Wiman Nakin, Chaiyaphum Province, Northeastern Thailand.

We have thus interviewed three villagers from Nong Yakong and the head of Wat Tum Wiman Nakin in February 2012. The interviews were conducted in Lao by Chalida Laojumpon. We obtained very similar answers which can be resumed as follows. The spiral coprolites are locally called Duk-Dae-Hin (ดุกแด่หิน) and are supposed to be stony insect pupae (Duk-Dae = pupa; Hin = rock). It



Figure 2. Coprolite amulets (left: *Liassocopros*; right: *Saurocopros*) from Nong Yakong, Chaiyaphum Province, Northeastern Thailand.

is widely known that the Duk-Dae-Hin can be found on the ground at a mountain called Huai Nam Aun near the village. However, for villagers, Duk-Dae-Hin were only strange and useless objects. As is often the case in Buddhist countries it seems that these unusual objects were from time to time brought to the temple where our colleagues Varavudh Suteethorn and Eric Buffetaut could already see them more than twenty years ago (pers. comm.).

About ten years ago things changed abruptly when a travelling monk came to the temple and explained to the villagers that Duk-Dae-Hin were extremely interesting for various purposes. He explained they were “fantastic objects protecting their owners from ghosts, bad events, bullets or venomous animals. When a venomous animal bites you, you just mix your Duk-Dae-Hin with lemonade and cover your scar. You must feel better only few minutes after.”

Duk-Dae-Hin are thus supposed to have both magical (as amulets protecting their owner from ghosts and bullets) and therapeutic (as an antidote to poisons) properties. This therapeutic use of coprolite powder as an antidote against poisons evokes the

use of bezoars in the Middle Age and later. It is interesting to note that, when Buckland originally coined the name coprolite in 1829, the first sentence of his famous paper was: “It has long been known to the collectors of fossils at Lyme Regis, that among the many curious remains in the lias of that shore, there are numerous bodies which have been called Bezoar stones, from their external resemblance to the concretions in the gall-bladder of the Bezoar goat, once so celebrated in medicine.” The real bezoars were indeed considered as powerful antidotes against poisons and although Buckland does not evoke any therapeutic use of the so-called “bezoar stones” from Lyme Regis, there is an intriguing similarity between the use of bezoars centuries ago in Europe and the use of coprolites in Chaiyaphum. The area contains indeed several kinds of venomous animals and villagers reported us examples of snake-bites cured by coprolite powder. However not all coprolites found around Nong Yakong are considered as powerful. only those found at a locality called Huai Pha Phueng are supposed to be efficient. According to the present head of the temple, this difference may be linked to the presence of iron in the specimens from Huai Pha Phueng. An ethnopharmacological investigation is planned.

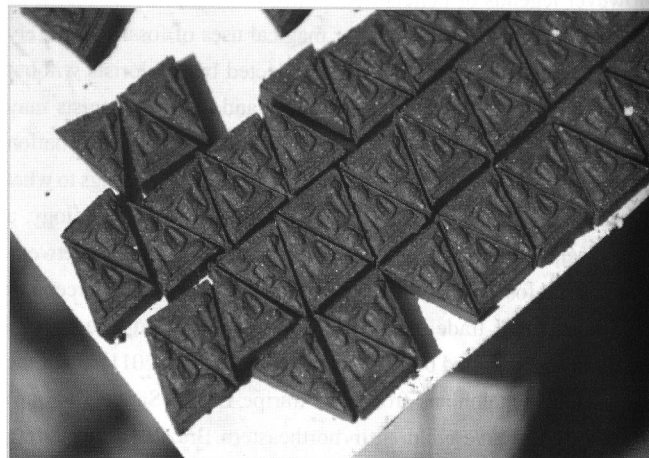


Figure 3. Buddha amulets made from coprolite powder and seeds of *Dracontomelon dao*, Nong Yakong, Chaiyaphum Province, Northeastern Thailand.

We were also told that after villagers learnt the supposed benefits of Duk-Dae-Hin, they started to look for them not only on the ground but also underground, starting excavations in the bituminous marls of the Huai Hin Lat Formation. Spiral coprolites are cleaned and sold as amulets. Duk-Dae-Hin became increasingly popular in recent years and various categories of people (such as merchants, soldiers and actors) buy them from the villagers. They are also sold on various websites, reaching sometimes very high prices. The imperfect and non-spiralled specimens are usually ground at the temple where they enter in the composition of amulets together with seeds of *Dracontomelon dao* (Fig. 3).

The use of Triassic coprolites as medicine and amulets in Chaiyaphum province is an interesting case for ethnopalaeontological research. Further fieldwork is planned in northeastern Thailand, both in Chaiyaphum and around vertebrate tracksites which are often known since a long time by villagers and the subject of many local legends. As pointed out by Van der Geer and Dermitzakis (2008) the growing market for traditional medicine especially through internet sales) forms a severe threat for the palaeontological heritage, thus beyond the interest *per se* for this use of fossils, surveying these practices may also alert on some excessive trades which may threaten this heritage.

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