How entomology can help us interpret archaeological sites: Archaeoentomology in Greenland

By Frédéric Dussault and Allison Bain

Archaeology explores past human settlement patterns and living conditions primarily through the excavation of structures and the subsequent analysis of artefacts. Since the 1970s, new specialisations that study past climates and environments play increasingly important roles. Archaeoentomology, or the analysis of preserved insects and arachnids from sediment samples collected from archaeological sites, is one of these new specialisations. Information obtained through these studies can provide surprisingly detailed information about the local climate, environment and living conditions of the past.

Not all insects and arachnids can be used in archaeoentomology. Beetles, flies, mites and ectoparasites are commonly used with each group conveying different types of information. Coleoptera generally preserve well due to their chitinous exoskeletons, and their adaptation to specific niches and ability to rapidly colonize new environments makes them valuable proxy indicators of past climates and environments. Diptera larvae, often used in palaeoecology, may be useful indicators of past temperatures, and fly remains may furnish precise details about the presence and decay of organic material. Oribatid mites are rarely studied from archeological sites, but can be useful in palaeoenvironmental reconstructions. Lastly, ectoparasites such as lice and fleas enable archaeoentomologists to study past hygienic practices.

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While palaeoentomological research in Greenland has been used to document climatic change over time, two other studies (Böcher and Fredskild 1993; Haarløv 1967) have examined insect remains in association with human occupations predating the Norse colonisation of Greenland.

Figure 1. Map of northwestern Greenland indicating archaeological sites mentioned.

Preliminary results from the Inglefield Land Archaeological Project: A portrait of the past

During the summer of 2008, the Inglefield Land Archaeological Project (ILAP) (http://www.bowdoin.edu/arctic-museum/cape-grinnell/index.shtml) team funded by the National Science Foundation and lead by Drs. Genevieve LeMoine (Bowdoin College, Maine) and Christyann Darwent (University of California Davis) spent seven weeks investigating Greenland Inuit houses at Cape Grinnell in Northwest Greenland (Fig. 1). Associated with the research initiatives of the International Polar Year, the ILAP project hopes to better understand Inuit adaptation to this region over time.

The excavations focused on three houses (H-16, H-18 and H-20) thought to be the same structures sighted and drawn by the Kane expedition in the 1850s (Kane 1856). These are associated with the Thule Inuit who first arrived in Greenland around 1200 A.D. Samples from House 20 were taken from the front of the house near the entrance tunnel, from the entrance tunnel near the cold trap (preventing cold air from entering the house), from the sleeping platform, and from the main living area. Ten of these sediment samples were processed using kerosene flotation and then identified using identification keys and comparative reference collections. Although no coleopteran remains were identified, many ectoparasites were found, including three different species of lice. In two samples taken on the stone pavement near the cold trap, two head lice (*Pediculus humanus capitis De Geer*) were found, while a single sample from the cold trap yielded the most interesting results which included ten human body lice (*Pediculus h. humanus L.*), nineteen head lice, and one crab louse (*Pthirus pubis L.*) (Fig. 2).

Figure 2. Ectoparasites found in House 20, from left to right: *Pediculus h. humanus* L. female, *Pediculus h. humanus* L. male, *Pediculus h. capitis De Geer*, *Pthirus pubis* L.

The presence of these irritants offers a better understanding of the living conditions at the site, as they allude to the hygienic practices of Cape Grinnell's past residents. The presence of lice is generally considered an indication of poor hygiene as lice bites are easily infected and lice are, at times, vectors of disease such as typhus. However, the opposite may also be argued in this case as it appears there was specific attention paid to delousing near the entrance tunnel and not in the primary living and sleeping areas. Before the use of shampoos and other chemical treatments, manually removing lice would have been an important sanitary activity, one that was noted by the Danish explorer Knud Rasmussen (1927) who documented daily life amongst the Inuit of Greenland. Head lice were also found on mummies discovered in Qilakitsoq, in west central Greenland (Peder et al. 1991). Fabricius even claimed that Greenlanders found them delicious, which Danish archaeologists feel is substantiated by the lice remains found in one mummy's faeces (Peder et al. 1991: 161).

The study of the entomological faunas from Cape Grinnell is still in its early stage and further excavations and study are planned for the summer of 2009 at the sites of Qaqaisut and Glacier Bay. It is hoped that more ectoparasites and other insects will be found, allowing for a comparison of these across the region, along with more intimate details about Greenlandic daily life in the past.

References

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