CAUGHT BETWEEN THE TEETH. A REVIEW OF DUTCH FINDS OF ARCHAEOLOGICAL REMAINS OF ECTOPARASITES IN COMBS.

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Over 95% of the c. 1850 species of fleas (*Siphonaptera*) are parasites of mammals. This is also true for the 54 species occurring in the Benelux countries. The flea with the highest affinity for human blood is *Pulex irritans*. Before World War Two this species was common in the Netherlands but nowadays it is only rarely found on humans. Fleas are of great medical importance because all species are potential vectors of infectious diseases. The best-known examples are probably the role of the rat flea *Nosopsyllus fasciatus* in the spread of the plague in Medieval Europe and the role of the rabbit flea *Spinopsyllus cuniculi* in the spread of *Myxomatosis*. Remains of fleas have so far been found only rarely in Dutch archaeology (Hakbijl, 1989).

Sucking lice (*Anoplura*) parasitize on many species of birds and mammals. Humans can be troubled by the headlouse (*Pediculus humanus*) and the crab-lice (*Pthirius pubis*). These are not only irritating but also potentially dangerous as vectors of diseases such as typhoid. It is well documented that in Medieval times *pediculosis* was common among all classes of the society. Until recently this was not substantiated by archaeological evidence. Current research on Medieval combs has, however, produced the first Dutch archaeological finds of lice and nits (Schelvis, 1991).

During the 1990 excavation at the site of the former Wolters-Noordhoff Complex in the town centre of Groningen a study was made of the ectoparasites found in Medieval combs (Schelvis, 1992). In this case 14 (unwashed!) combs, most of which were dated to the 11th - 14th century, were studied. Each comb was measured (thickness at the base of the teeth, mean distance between the teeth etc.), the raw material from which it was made was identified (horn, bone, antler or combinations) and all organic remains were extracted from between the teeth. This latter process was carried out by soaking the comb in IMS for half an hour and subsequently removing the debris between the teeth with a fine (insect)pin under a low power (6-12x) stereo-microscope.
In 5 out of the 14 combs I found the remains of human ectoparasites. In each of these 5 combs *P. humanus* was found, both lice (N = 14) and nits (N = 6). Two of the combs containing *P. humanus* also yielded remains of the flea *P. irritans*. This constitutes the first archaeological finds of this species in combs. Why are the remains of fleas, as compared to lice, so scarce in combs? I suggest that apart from the fact that lice are much slower creatures than fleas (and therefore easier to catch) the differences in breeding biology of the two orders are the main cause. Fleas reproduce in their hosts ‘nest’, and only the adults feed on the host. Lice, on the other hand, actually breed on their host. Usually, the eggs are deposited in the hosts fur and all developmental stages feed on the host. This implies that the lice also moult on their host. Shortly before, during and some time after moulting the lice are vulnerable. Their mobility is restricted and their exoskeleton is easily damaged. It is noteworthy that I have found several archaeological remains of lice which were caught during the process of moulting.

So far, *P. humanus* and *P. irritans* are the only ectoparasites of humans found. Their remains have now been found in 11 of the 34 studied Medieval Dutch combs. The crab-louse (*Phthirus pubis*) which has been recorded archaeologically on Iceland (13th century) and in 18th century London (Buckland *et al.*, 1992) has not yet been found in a Dutch archaeological context. What has been found, however, in a nit-comb were the remains of the cat-flea *Ctenocephalides felis*. The comb made out of horn was found aboard the wreck of an 18th century ship found in the reclaimed Flevoland area. Although the remains of the ships cat were also found, the identification of the hair remains from the comb proved that it had been used for human hair.

The remains of the rat flea *Nosopsyllus fasciatus* are unlikely to be found in combs. My search for this vector of the plague will therefore concentrate on deposits in Medieval cesspits which also contain the remains of the Black Rat, *Rattus rattus*, its primary host.

REFERENCES


