Palaeoentomology, Methods and Applicability in Archaeology

Abstract

After a short introduction on the applicability of insect remains in archaeology, the lecture will concentrate upon sampling, preservation and analysis. Finds of insect remains can give insight in the mode of life and environment of prehistoric man in the same way as evidence obtained from seeds, pollen and invertebrate/vertebrate macrofossils.

Insect analysis has, however, the special advantage that it yields significantly more precise and detailed information about the subenvironments than any other known method.

This is due to two facts :

1. The immense number of species ; approximately 20.000 species in Denmark alone. For comparison it can be mentioned that the total number of plant species is about 1.500 in the same area.
2. Their high degree of specialization to certain, well-defined combinations of temperature, humidity and food.

Sorting and determination of the insect remains to family, genus and species is, however, a difficult and time-consuming task. Due to the fragmentary nature of the material, published determination keys cannot be used, identification is undertaken by comparative studies using a reference collection.

A few examples of the nature and application of insect analysis will be given here.

Insect analysis is commonly useful in :

1. establishing the succession of events ;
2. establishing the season of one or more events ;
3. indicating changes in as well macro- and micro- as local climate ;
4. giving information of the subenvironment (was there a midden on this place ? Was the house thatched ? Was there a growth of fruit trees in the neighbourhood ? etc.) ;
5. giving information of the type of functions that has been undertaken on the location of butchering, tanning, grain preparation etc.

Insect analysis is rarely useful in direct biostratigraphical dating or in quantitative studies.

Sampling of palaeoentomological material

Samples have to be collected as follows:

1. determine the stratigraphical position;
2. sample in well defined, undisturbed strata (important for chrono-stratigraphical reasons);
3. sample in strata which are related to archaeological problems;
4. preferably in strata *not* contaminated by recent material (roots, earthworm activity, etc.);
5. preferably in connection with other scientific sampling (microfossils/pollen, seeds and other macrofossils, bones, molluscs);
6. from horizontal (square) or vertical (section) surface, which must be well cleaned. Recommended volume of a sample is 0,5-1,5 litre;
7. if distinct remains of insects are visible on the soil surface or in the section wall, collect the remains together with the surrounding soil, to avoid evaporation;
8. twigs, wood and pieces of bark with tooth marks of insects should not be cleaned or conserved but treated as soil samples (see below).

Conservation

1. Samples must be kept in plastic bags, which are closed by heating or in two bags, one in the other, properly sealed;
2. samples must be marked with information on coordinates, altitude, date, year, locality and number. The labels are attached to the bags;
3. samples ought to be kept deep frozen.

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