CARBONIZED SEEDS IN POSTHOLES — A REFLECTION OF HUMAN ACTIVITY

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Introduction

Archaeological excavations of Iron Age long houses normally produce carbonized seeds, provided the houses were burnt and if a flotation technique is used often in quantities. Postholes and pits are the most frequently used features since there preservation conditions are ideal and contaminations from the surface are not probable.

In northern Sweden a number of long houses from the first half of the first millenium have been excavated and the posthole fillings have regularly been flotated for seeds. Except from giving information on arable weeds and fodder production the seed composition has been used to divide the houses into activity areas or rooms (Ramqvist 1981, Wennberg 1984). Normally one sample from each posthole has been considered sufficient. There has been some criticism of this application and suggestions that seeds end up in a posthole by chance (cf. Reynolds 1981).

To test the seed distribution within postholes some were excavated more in detail and cut both horizontally and vertically and the fill sampled for seed flotation. The excavated house foundation (House C, Trogsta, Forsa parish) is situated in Hälsingland, Central Sweden. The house is dated to ca 200 AD and excavated under the direction of Lars Liedgren, Umeå university (Liedgren 1984).

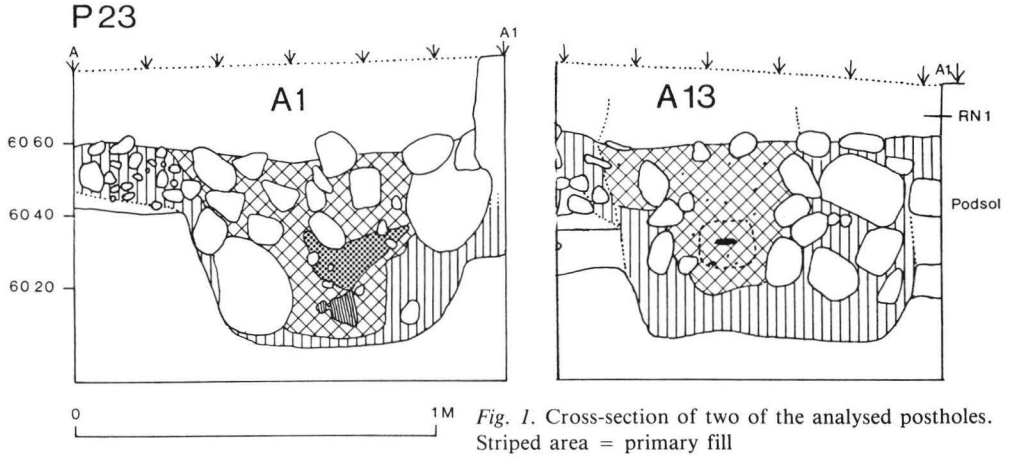

Fig. 1. Cross-section of two of the analysed postholes.
Striped area = primary fill
Chequered area = secondary fill

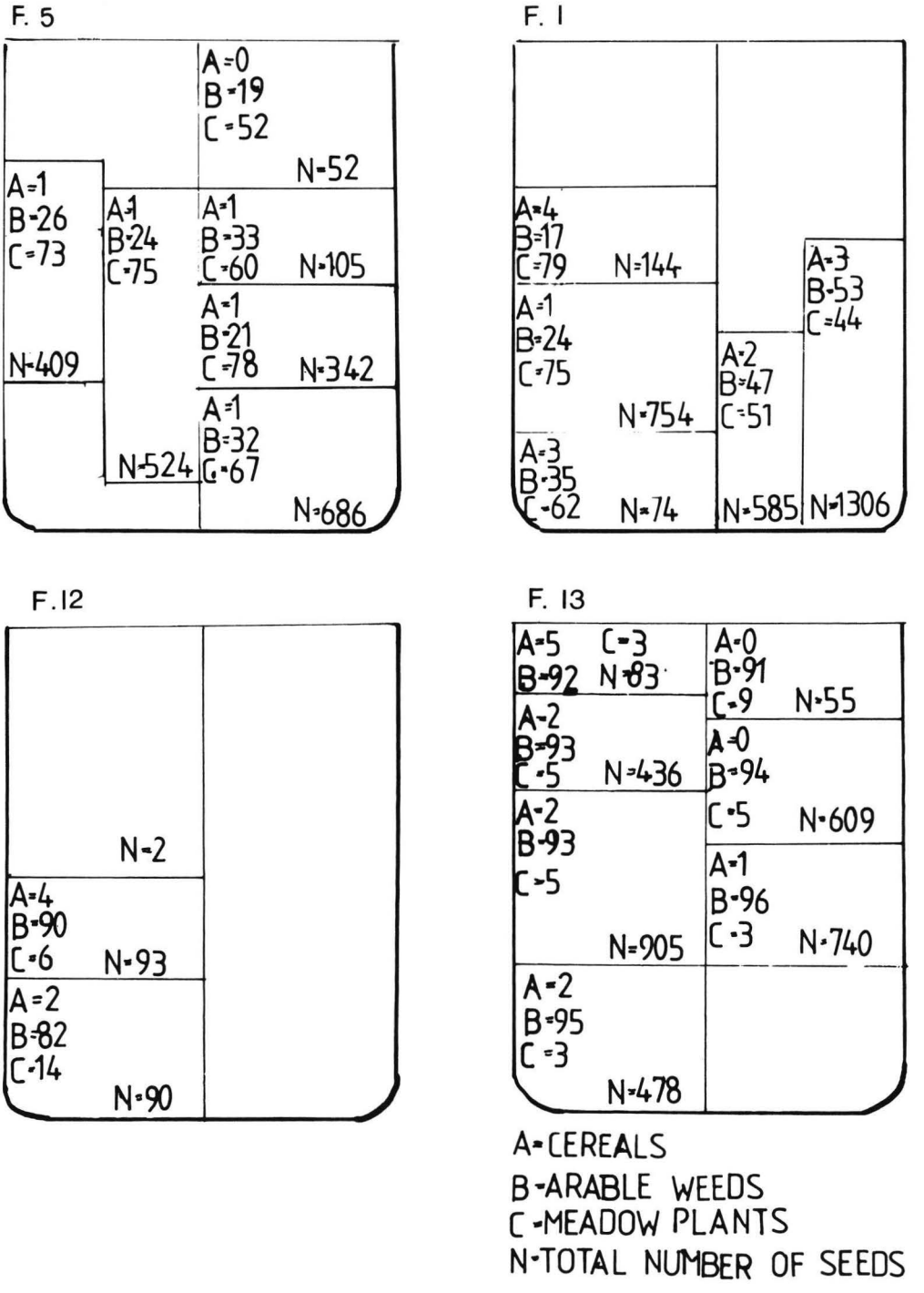

Fig. 2. The percentage composition of samples from four postholes.

The postholes

There are two types of soil fillings within a posthole. One is the primary fill, put there to stabilize the wooden post, consisting of soil and a stone packing supporting the post. When the post is destroyed by fire parts of the primary fill will fall in, to what extent depends on the stability of the stone packing. The remaining pit is then filled with a secondary fill of surrounding floor material containing charcoal and organic matter including carbonized seeds. The primary fill normally contains no carbonized seeds but may do so if older cultural soils are used (fig. 1).

The uppermost part of a posthole may have been filled in much later. This is indicated by underlying bleached soil horizons. This part is not analysed.

If possible eight samples were extracted from each posthole. The numerous stones from the stone packing often put that out of question. Since only one half of the house was well burnt only some postholes had a sufficient number of carbonized seeds. The seed compositions of four postholes are presented (fig. 2).

Seed distribution within the postholes

The seeds are counted and grouped into different categories of which three are used for calculations, cereals, arable weeds and meadow plants. The percentage of each group is based on the total number of carbonized seeds in the sample. The results are presented for each sample in its approximate position in a schematic posthole.

The issue is encouraging, since the seed composition is roughly constant within a posthole. Consequently, one sample is representative, provided the seed amount is sufficient. Small differences both in composition and frequency of seeds should be expected. When a house is burning, local differences in heat and oxygen supply may give separate conditions for carbonization. The ideal carbonization temperature varies among different seed types (cf. Wilson 1984). This is not crucial in this case, however, since both weed seeds and meadow plant seeds include several seed types. The frequency of cereals, on the other hand, may be more dependent on differing temperatures.

Also the immersion of seeds into the floors must be selective, depending on seed type and floor construction. The floors, however, seem to be uniform all over the houses of this type so that should not bias the results.

The fact that postholes in pairs have a similar seed composition is a good indication that seeds really reflect the activity since both posts were in the same room. In this investigation only one pair has been analysed but in other contexts (cf. Engelmark 1981) accordance between pairs of postholes has been demonstrated.

Weed seed deposition in Iron Age houses

Arable weed seeds are distributed in all parts of the Iron Age houses. The assumed activities causing the weed seeds' spreading are summarized in a model based on traditional N. Scandinavian crop processing and information from archaeological contexts. Only steps resulting in weed seed deposition are noted (fig. 3).

Despite the fact that many weed species shed seeds in the fields, more than half of the total weed seed production is brought indoors with the harvest. The occurrence of low growing weed seeds indicate that the straw was cut quite low when reaping the cereals. Drying the crop in the fields did probably not affect the seed composition very much since weeds and cereals were tightly bundled together in sheaves.

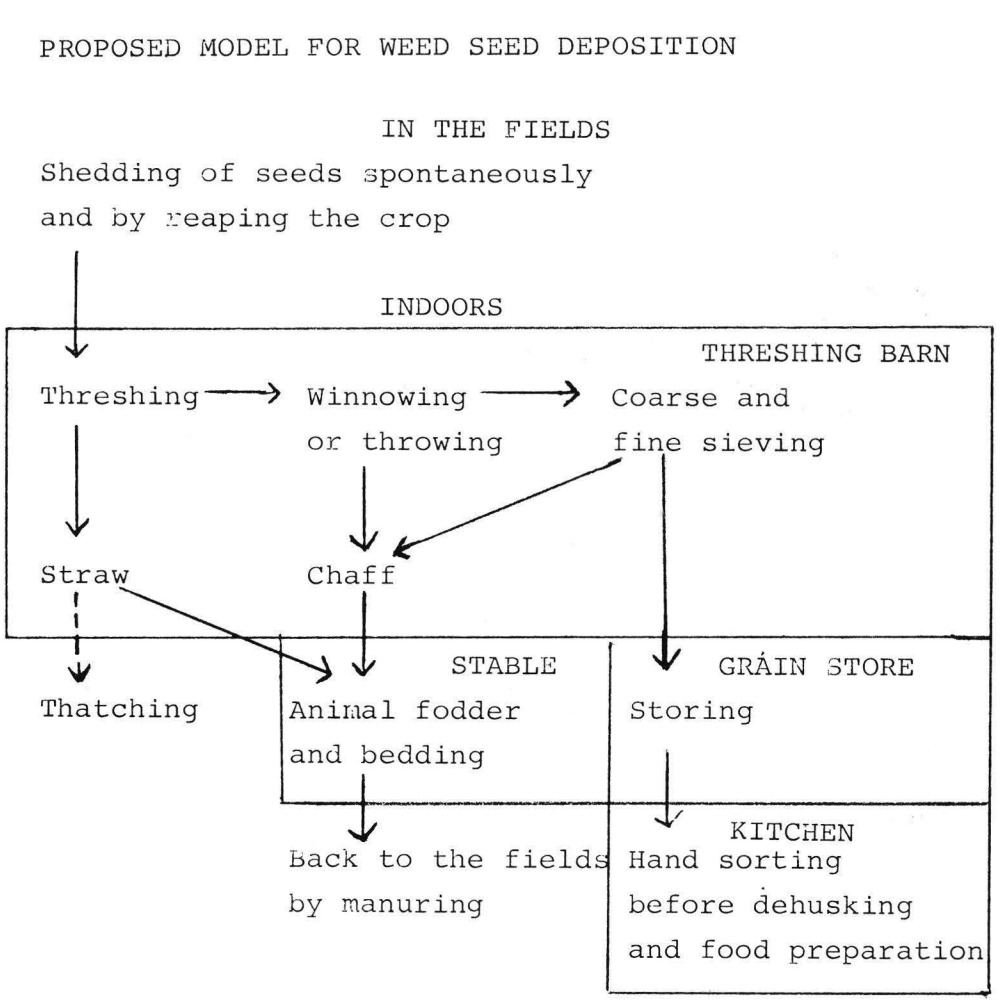

Fig. 3. A proposed model of activities causing weed seed deposition.

Threshing must have been carried out indoors in the Scandinavian type of climate. Further processing in the threshing barn includes throwing the seeds with a showel towards the through-draught and cleaning the grains using sieves and fans. The by-products straw, chaff and weed seeds were all necessary supplementary fodder for the animals since the winter fodder was normally in shortage. The straw was certainly not used for thatching since the straw of barley, the main crop, is too short to be functional.

Unfortunately no grain store has been found with certainty. They may have had such an exposed position in the houses that all was destroyed by a fire. The dampness and frost actions of the soils exclude subterranean granaries. The further processing for food preparation includes hand sorting, dehusking and grinding. That was certainly a day to day activity in the living rooms resulting in weed seed spreading also in that part of the house.

It has been proposed that crop processing could be more accurately followed techni-

cally and spatially by studying the distribution of the by-products (Dennell 1974, Hillman 1984, Jones 1984).

Moreover, these products are all used for various purposes and consequently spread to other parts of the house, thus blurring the crop processing pattern. Chaff is rarely found since most of its is combustible and normally destroyed at the temperatures necessary to char weed seeds and cereal grains. Nevertheless, carbonized seeds are emphasized as a reliable source of information for interpreting the basic activity areas in the houses. The N Swedish Iron Age houses so far investigated show a rather similar layout with a tripartion of the houses; The living room in the middle between the threshing barn and the stable with hay barn.

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