“Are friends acidic?: differentiating humiferous Neolithic occupation horizons (Northern France, Belgium, Luxembourg)

Kai Fechner, Frédéric Broes, Adrien Gonnet

To cite this version:

Kai Fechner, Frédéric Broes, Adrien Gonnet. “Are friends acidic?: differentiating humiferous Neolithic occupation horizons (Northern France, Belgium, Luxembourg). Inrap; UMR CITERES-LAT. Lire le sol en archéologie : pratiques de terrain et regards croisés / Reading the soil in archaeology: field practice and interdisciplinary perspectives, Nov 2023, Tours, France. 2023, 10.34692/wd5zw68. hal-04413017

HAL Id: hal-04413017
https://inrap.hal.science/hal-04413017

Submitted on 25 Jan 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International License
The general subject of this poster is the use of field soil characteristics as a complement to other approaches of Neolithic buried surface horizons.

The field study implies the differentiation of soil forming factors and preservation conditions of the soils in the site. Field approaches are very different in acidic and calcareous soil conditions, both very present in the study area. Taking these differences into account, into the field, a large data basis including the natural soil formation, and/or recarbonatation: Marcy-sur-Seine (Aube, F), profile P16, on very calcareous silty alluvial materials.

In case of soil evolution in situ in the region, from calcareous to acid soils, and/or recarbonatation: Marcy-sur-Seine (Aube, F), profile P16, on very calcareous silty alluvial materials.

Later procedures have included thin section and palynological studies in calcareous contexts. Laboratory analyses have been used to check for particular anthropic additions including possible fertilizers. For this a reference is given by a large data basis including the natural soil evolution, grouped by soil regions. Some cases reflect the initial situations, others slight modifications (burning / addition charcoal), ploughed horizons with or without fertilizing / surface erosion (larger and smaller cultivated surfaces), finally thin activity surfaces with/without accumulation / pollution.

The main objective is the definition of sub-types of surface horizons, contributing to the recognition of specific in situ results in the present study, and/or to other excavations. A second point of this study is to compare regional or local evolutions of soils influenced by human activity or to some extent by climate (as here in South Champagne). A third, more general goal is to encourage the discovery and study of more such well-defined horizons. Finally, these results aim at the promotion of the application of field soil characteristics to buried surface horizons.

For these 9 main types of surface horizons, it was possible to separate morphologies and laboratory characteristics. They reflect in situ activities that are little known in the study area. The results of this approach proposed only for ca. twenty cases in Northern France and Belgium/

Luxembourg, may encourage more research on this topic. It seems probable that more of these can be recognized, when (geo-)archaeologists are conscious of their looks and importance.

1. Difficulty of reading surface horizons in case of ploughing / surface erosion (larger and smaller cultivated surfaces), and/or recarbonatation: Marcy-sur-Seine (Aube, F), profile P16, on very calcareous silty alluvial materials.

2. Some of the various processes that can be distinguished by the study of an old surface horizon (after Fechner et al., 1997)

3. Example of an original soil : Rebecq (Brabant wallon, B.), under an old mesolithic occupation surface, on eroded and newly sedimented decarbonated loess with a two-phased « Bt-b horizon, all affected by polygonal furrows of the Late Dryas. Hypothetical reconstitution by P. P. Sartiaux (INRAP).

Acid soils.

4. Original, fine, slightly humiferous surface horizon with very few charcoals and artefacts, cut by a Middle Neolithic ditch in Courville (Pas-de-Calais, F).

5. Early Neolithic ploughed horizon with mineral and organic fertilization: Remicourt "En Bia Flou" (prov. of Liège, B.). Hypothetical reconstitution of gardens situated down slope of the houses, by C. Populaire.


7. Final Neolithic (?) ploughed horizon on thin decalcified clay on chalk, without fertilizing: Cuperly (Marne, F).


10. Fine horizon without local erosion due to passage or polluting activities: short-term Late Neolithic occupation in Aougy (Marne, F).


From calcareous to acidic soils.

12. South Champagne: localized cases of soil evolution between Early Mesolithic and Middle Neolithic: in Nogent-sur-Seine (Aube, F), a mesolithic pit is affected by a neolithic decarbonation and clay accumulation. The complete development of these is shown by the fills of Middle Neolithic and Early Bronze age pits.

Scientific contents: Kai Fechner, with the help of Frederic Broes and Adrien Gonet, Adrien Gonnet, with the help of Frederic Broes and Adrien Gonet.

Inrap, November 2023

Inrap.fr