

## **ANNEX 3 – RESEARCH PROJECT**

**Technical Identities and Social, Economic and Cultural Dynamics  
at the beginning of the Neolithic in North-Western Europe.**

***The lithic industries of agro-pastoral populations  
of the first third of the fifth millenium.***

## 1. Introduction

This research project is part of the study of the new technical, economic and cultural dynamics induced by the Neolithisation of North-Western Europe. A key period in the Prehistory of Europe, the Neolithisation marked the shift of societies towards the production economy. At that time, the relationship to community space and environment changed. One of the challenges faced by research is to understand the interactions between migrant farmers and indigenous hunter-gatherers, which disappeared with the Neolithisation, albeit slower in some regions than in others, depending on the region, with the Neolithisation.

The Neolithic developed in temperate Europe with the so-called *Rubané* Culture or Linear Pottery Culture (LPC). This large entity spread from Transdanubia (Hungary) to the Paris Basin (France). In Central-Western Europe, it was characterized by its great homogeneity (architecture, ceramic styles, funerary practices, etc.). Over about six centuries – between 5600 and 5000 BCE, Neolithic lifestyles gained most of the North-Western regions of Europe. **A historical break in this movement of colonization** is palpable at the turn of the sixth and fifth millennium BC: the Linear Pottery Culture was fragmented into a mosaic of cultural entities. Between 4950 and 4650 BCE, most of the North of France and Belgium was occupied by Neolithic villages of a Danubian culture called Blicquy/Villeneuve-Saint-Germain (BQY/VSG). In West Germany, the Hinkelstein and Grossgartach cultures and then Planig-Friedberg / Rössen cultures succeeded to the LPC and were contemporary to the BQY/VSG. In Lower Belgium, Mesolithic occupations persisted until the end of the fifth millennium BCE (Crombé *et al.*, 2005). These occupations belonged to the Swifterbant culture, which extended to the valley of the Scheldt (Crombé *et al.*, 2002, Crombé and Vanmontfort, 2007). Less than 80 km separated these sites from those of the group of Blicquy of Hainaut. Direct evidence testifies to contacts between these three entities (Constantin and Ilett, 1998, Crombé, 2008, Spatz, 1991, Vanmontfort, 2008, for example). What caused this dissolution of Linear Pottery Culture? What role, if any, did the indigenous hunter-gatherers play in this cultural restructuring? **The lithic equipment is the only common technical feature preserved** between Mesolithic and Neolithic societies, therefore this technical sphere is **the most relevant documentary vector** to understand the unprecedented socio-historical phenomena involved in this post-LPC cultural restructuring.

## 2. Objectives

Our project will focus on the lithic system of this North-Western area of Europe, at the crossroads of multiple influences, between 5000 and 4650 BCE. It is anticipated that the technological analysis of lithic materials, focused on searching technical identity and raw material diffusion, will provide new insights into social, economic and cultural dynamics. That is why this project will be structured in two lines.

### ***LINE 1 – Laminar Productions and technical traditions : learning networks and cultural identities***

The territory of any social group is delineated through the analysis of learning networks, based on the definition of technical traditions (Latour and Lemonnier, 1994, Roux, 2010). Mechanisms for the evolution of technical traditions seem to follow two main processes: an "endogenous" evolution, by innovations (Shennan, 2002) or copy (Boyd and Richerson 1985, O'Brien and Bentley, 2011, Shennan, 2009); an evolution called "exogenous", by borrowing or contributions of foreign traits to the tradition of origin (direct or indirect contacts, migration, travels ...) (Gosselain, 2010, Roux, 2010).

The detailed study of the laminar production of the BQY/VSG populations revealed that two technical traditions coexisted, drawing a border between Hainaut and Hesbaye. Vaux-et-Borset (Hesbaye) has proved to be a key site, since the study of diffusion of raw materials showed that knappers moved from Hainaut to settle rather perennially on this site (Denis, 2014). Thus, the two distinct social groups met at Vaux-et-Borset. We will therefore focus a part of our study on that site in order to better understand and

define these technical traditions and the relations between both entities. Besides, we use the terms “technical tradition” because there is a real filiation with the LPC where these two ways of knapping had already been identified (Allard, 2005). However, the mapping of these traditions varies between the LPC period and the post-LPC period. P. Allard (2005) suggests, from the literature, that the style of Hesbaye *debitage* is probably present in the LPC for the adjacent regions, namely Dutch Limburg (de Grooth, 1987) or the Aldenhoven plateau in Germany (Boelicke *et al.*, 1988, Lüning and Stehli 1994). Our current post-doctoral study on the post-LPC sites of the Aldenhoven Plateau shows that this Hesbaye tradition is actually present in the Grossgartach and Planig-Friedberg sites. However, a third technical tradition, completely new, systematically coexists with the latter. Is it a hybridization following the meeting of the two traditions in Vaux-et-Borset? Does that third tradition reflect the presence of a third social group? Was this social group already present at the LPC or did it come from the south (Rhine/Main region), where the sites attributed to the beginning of the post-LPC chronological sequence (Hinkelstein and first stage of Grossgartach) were discovered?

This component of the research will therefore aim at establishing a dynamic "cartography" of these different technical traditions. By making comparisons with Linear Pottery Culture, **we will track the mobility of these social groups in time and space**. In this way, the objective will also be to search for the geographical origin of the appearance of these two or even three learning networks at the LPC. To **highlight the sociocultural mechanisms** of this phenomenon, the technological data of the Mesolithic lithic industries, whose impact on Danubian cultures is still being debated, will be used.

## ***LINE 2 – Complex modalities of raw materials diffusion: mobility, social dynamics and socio-economic relationships***

It is possible to understand the mobility of people and goods by studying the circulation of raw materials. That study will have two objectives. On the one hand, in perfect complementarity with the study of technical traditions, it will offer valuable interpretative keys to trace the social dynamics underlying the evolution of these technical traditions. On the other hand, it will shed light on intra-community and inter-community socio-economic relationships.

The techno-economic analysis helps to diagnose the form in which raw materials are introduced into the sites. Sometimes, the materials are introduced as untreated blocks, preforms or cores in the process of exploitation, the *debitage* then taking place locally. By analysing the technical traditions, we could identify the knappers of these exogenous materials. At other times, only finished or semi-finished exogenous products are found on the sites. In this case, the acquisition of these products doesn't necessarily implies direct contact between the groups. Moreover, the nature of the products in circulation (either common goods or specifically designed to circulate) will highlight the nature and the socio-economic motivations of the circulation.

We will focus on the modalities of the circulation of raw materials between cultural groups and between social groups. Our current postdoctoral position allows us to reaffirm and clarify the extent and modalities of circulation between the Blicquian populations and the Grossgartach, Planig-Friedberg and Rössen populations of the Aldenhoven Plateau. We now wish to develop this aspect for the post-LPC sites of the Rhine/Main confluence, where the beginning of the post-Linear Pottery Culture sequence is well documented, especially by large funerary sites for which a study of the kind we propose has never been made. On these Hinkelstein and early Grossgartach sites, exchanges with the VSG groups relating to bracelets have already been identified by C. Constantin and M. Ilett (1998). Conducting this analysis in funerary contexts will help to shed light on the motivations for circulation, since the funerary data reflect the social, ideological, symbolic and even aesthetic organization of the populations in question.

The analysis of learning networks and circulation networks is **particularly complementary**. The comparison of the data obtained will illuminate a part of the **evolutionary dynamics of the socio-economic system and the mobility of these first agro-pastoral populations**.

### **3. Methodology**

The method consists of a techno-economic study of the lithic industries, taking place in three main stages.

**3.1. Raw material classification.** The nature of the raw materials and the state under which they are introduced on the sites will lead to the acquisition systems (Perlès, 1980). This heuristic classification (Binder and Perles, 1990; Perlès, 1980 and 1990) also helps to clarify the modalities of circulation of these siliceous materials. They are identified through a **macroscopic observation** whose relevance is intimately linked to comparisons with existing lithothecas and to our experience. Having successively worked on VSG series of the North of France (Master and contracts), on the Belgian Blicquians series (PhD) and on German sites of the Aldenhoven Plateau (post-doctoral study), I have a **rare experience of the cross-border identification of raw materials**. Presently, raw materials from the Mons Basin are the most problematic to discriminate because the lithotheca is still under construction. From this perspective, my attachment to LIATEC is fundamental. Indeed, I will have the unique opportunity to benefit from the work in progress of Jean-Philippe Collin (doctoral student, FNRS aspirant, Unamur, LIATEC / Paris 1, UMR8215) which undoubtedly contributes to the development of knowledge about the materials of the Mons Basin.

**3.2. Technological analysis of the chaîne opératoire.** My technological study consists of the fine analysis of the different stages of the *chaînes opératoires* of production, **especially of the technical processes of preparation for detachment and the techniques of percussion**. I was trained in a laboratory that contributed greatly to the construction of this original method of expertise (CNRS-UMR 7055 "Prehistory and Technology"), which has already been tested and proven effective for the contexts in question (Denis, 2014). The study of technical traditions is centered on a precise study of the blades in addition to a fine description of their butt, dimensions, section, regularity and operating code.

**3.3. Study of the tools.** This intersecting view of the post-LPC lithic industries will also integrate the study of the tools, which are the purpose of lithic productions. My morpho-technological analysis will be coupled with the results of the innovative traceological studies carried out by Jean-Paul Caspar in Vaux-et-Borset (Caspar and Burnez-Lanotte, 2008). Moreover, it would be useful to compare the ways in which certain tools are used between social groups and between cultural groups to test if the morphological differences seen are linked to different way of using the tools. We wish to develop new traceological studies, in collaboration with the laboratory Traceolab (Liège, waiting answer).

With this method, we will develop a dynamic mapping of the post-LPC technical traditions. We will propose **scenarios relating to the evolution of these technical traditions** by integrating the pre-existing data on the Linear Pottery Culture (Allard, 2005 especially). These scenarios will also be enriched by the **confrontation with data from technological analyzes of the ceramics technical sphere**, particularly about the technical traditions. **The site of Vaux-et-Borset will therefore be the pivotal point of this project.** Not only has it delivered two villages, one LPC and one Blicquian, but it has also delivered an abundance of collected material and a wealth of studies have already been carried out for 30 years, in a network of international collaborations (UMR 8215, UMR 7055, University of Liège, Royal Belgian Institute of Natural Sciences, ULB, Public Service of Wallonia). These focus on the typology and technology of ceramics (BQY/VSG), lithic tools (BQY/VSG and LPC) and schist technology and its related tools (BQY / VSG). Finally, the most recent works by Barbara van Doosselaere in a Move-In-Louvain project (2013-2015) entitled "*Society, Technology and Pottery Traditions in the Early Neolithic: a multi-proxy analytical approach to the Blicquy/VSG ceramic assemblage from Vaux-et-Borset (5100-4700 BCE, Liège Hesbaye)*", will constitute a **unique basis** for making fine comparisons between the lithic and ceramic technical spheres. **The objective will be to follow the circulation currents of human groups, goods and ideas in time and space**, with a focus on Hainaut, Hesbaye and the Aldenhoven Plateau.

## 4. Research Calendar

This project will take place over 24 months.

**4.1. 1st September 2017 to 1st August 2018** - LIATEC, Unamur. Study of Vaux-et-Borset: better definition of BQY technical traditions, spatial distribution and comparisons with the LPC lithic industry. Confrontation with the results obtained for the ceramic technical system and the schist technology.

**4.2. 2nd August 2018 to 1st March 2019** - Research visit in Germany. Two months at the Institut für Ur- und Frühgeschichte, University of Cologne, to study a central LPC site, the one of Langweiler 8, in order to diagnose whether the third technical tradition identified in the post-LPC did pre-exist or not in this geographical area. Then, five months to study the lithic funeral deposits of the Hinkelstein and Grossgartach sites of Trebur, Worms "Rheingewann" and Rheindürkheim (south of the Rhine/Main confluence). From the funeral deposits, we can characterize the raw materials and the technical traditions from the blades, frequently constitutive of these deposits.

**4.3. 2nd March 2019 to 1st June 2019** - Department of Archeology, University of Ghent. In collaboration with P. Crombé and his students, in particular Liesbeth Messiaen, who has just started a PhD on the lithic traditions of the 6th and 5th millennia (final and late Mesolithic of the Swifterbant type), I wish to determine whether the interactions between Mesolithic and LPC populations could not have led to a differentiation of the learning networks. Are the technical identities of these hunter-gatherer populations similar to one of the Neolithic traditions?

**4.4. 1st June 2019 to 1st September 2019** - Continuation of comparisons with other technical systems, data synthesis and preparation of **further collaborative publications to be submitted in international, high-ranked journals.**

## 5. Expected outcome

Understanding the societal factors linked to the disappearance of the Linear Pottery Culture and the birth of post-LPC cultures through an anthropological reading of lithic assemblages is an innovative approach. The theoretical framework linking technical traditions and social groups (Latour and Lemonnier, 1994; Roux, 2010) will make it possible to **identify transmission networks**. The social interactions involved in these transmission phenomena will be further highlighted by the comparison with the data obtained for communities of potters. These key elements will contribute to an **understanding of the socio-cultural identities and mobility patterns of the first agro-pastoral communities** in North-Western Europe. Moreover, the **impact of the indigenous Mesolithic** populations on the Neolithisation of this part of Europe, still disputed, will be evaluated through an original vector, that of technical identities.

The chronological framework available and the reliability offered by good discovery contexts will be a powerful asset to **trace the socio-cognitive mechanisms underlying the learning and transmission of knowledge** within the lithic production of a key period of the European history: the establishment of an agro-pastoral economy.

## BIBLIOGRAPHY

- ALLARD P. (2005) – *L'industrie lithique des populations rubanées du Nord-Est de la France et de la Belgique*, Espelkamp, Marie Leidorf (Internationale Archäologie 86), 242 p.
- BINDER D., PERLES C. avec la collaboration de INIZAN M.-L., LECHEVALLIER M. (1990) – Stratégies de gestion des outillages au Néolithique, *Paléo*, 2, p. 257-283.
- BOELICKE U., von BRANDT D., LÜNING J., STEHLI P. et ZIMMERMANN A. 1988 - *Der bandkeramische Siedlungsplatz Langweiler 8, Gemeinde Aldenhoven, Kreis Düren, Rheinische Ausgrabungen*, n° 28, Köln, 1 vol.
- BOYD R. and RICHERSON P. J. (1985) - *Culture and the evolutionary process*. Chicago: University of Chicago Press.
- CASPAR J.-P., BURNEZ-LANOTTE L. (2008) – Les industries lithiques des cultures du Rubané et du Blicquy-Villeneuve-Saint-Germain : mises en convergences d'analyses croisées, in L. Burnez-Lanotte, M. Ilett et P. Allard dir., *Fin des traditions danubiennes dans le Néolithique du Bassin parisien et de la Belgique (5100-4700 av. J.-C). Autour des recherches de Claude Constantin*, mémoire XLIV de la SPF, éd PUN, Namur et SPF, Paris, p. 245-268.
- CONSTANTIN C., ILETT M. (1998) – Culture Blicquy-Villeneuve-Saint-Germain, rapports chronologiques avec les cultures rhénanes, in N. Cauwe et P.-L. Van Berg (dir.), Actes du 23<sup>e</sup> colloque interrégional sur le Néolithique (Bruxelles, 1997), *Anthropologie et Préhistoire*, 109, p. 207-216.
- CROMBE P. (2008) – Contacts et échanges entre chasseurs-cueilleurs et agriculteurs durant les VI<sup>e</sup> et V<sup>e</sup> millénaires av. J.-C. dans l'Ouest de la Belgique, in L. Burnez-Lanotte, M. Ilett et P. Allard (dir.), *Fin des traditions danubiennes dans le Néolithique du Bassin parisien (5100-4700 av. J.-C). Autour des recherches de Claude Constantin*, Namur, éd. PUN et Paris, SPF (mémoire 44), p. 59-74.
- CROMBE P., PERDAEN Y., SERGANT J., van ROEYEN J.-P., van STRYDONCK M. (2002) – The Mesolithic-Neolithic transition in the sandy lowlands of Belgium : new evidence, *Antiquity*, 76, p. 699-706.
- CROMBE P., PERDAEN Y., SERGANT J. (2005) – La néolithisation de la Belgique : quelques réflexions, in G. Marchand et A. Tresset (dir.), *Unité et diversité des processus de néolithisation sur la façade atlantique de l'Europe (IV<sup>e</sup>-IV<sup>e</sup> millénaires avant J.-C.)*, table ronde (Nantes, 26-27 avril 2002), Paris, SPF (mémoire 36), p. 47-66.
- CROMBE P., VANMONTFORT B. (2007) – The neolithisation of the Scheldt basin in western Belgium, in A. Whittle et V. Cummings (dir.), *Going over: the Mesolithic-Neolithic Transition in North-west Europe* (Cardiff, 16-18 mai 2005), Oxford, Oxford University Press (Proceedings of the British Academy Press 144), p. 261-283.
- DENIS S. (2014) - *L'Industrie Lithique du Groupe de Blicquy (Néolithique ancien, Belgique): Organisation des Productions et Réseaux de Circulation*. Unpublished PhD thesis, Université Paris Ouest Nanterre la Défense.
- GOSELAIN O. (2010) - De l'art d'accommoder les pâtes et de s'accommoder d'autrui au sud du Niger. Espaces sociaux et échelles d'analyse au Niger, in C. Manen, F. Convertini, D. Binder, et I. Sénépart (dir.), *Premières sociétés paysannes de Méditerranée occidentale : structures des productions céramiques. Séance de la Société Préhistorique Française, Toulouse, 11-12 mai 2007*, Société préhistorique française (mémoire 51), p. 249-263.
- GROOTH M.E.TH. (de) 1987 - The organisation of flint tool manufacture in the dutch Bandkeramik. *Analecta Praehistorica Leidensia*, n°20, p. 27-52.
- LATOUR B., LEMONNIER P. dir (1994) – *De la préhistoire aux missiles balistiques*. L'intelligence sociale des techniques, Editions La découverte, Paris, 344 p.
- LÜNING J., STEHLI P. (eds.) 1994 - *Die Bandkeramik im Merzbachtal auf der Aldenhovener Platte*. Beitr. Neolith. Besiedlung Aldenhovener Platte. V. Rheinische Ausgrabungen, 36.

O'BRIEN M.J. and BENTLEY R.A. (2011) - Stimulated variation and cascades: two processes in the evolution of complex technological systems, *Journal of Archaeological Method and Theory*, 18, 309–337.

PERLES C. (1980) – Economie de la matière première et économie du débitage : deux exemples grecs, in J. Tixier (éd.), *Préhistoire et Technologie lithique*, Paris, CNRS (URA 28, n° 1), p. 37-41.

PERLES C. (1990) – L'outillage de pierre taillée néolithique en Grèce : approvisionnement et exploitation des matières premières, *Bulletin de correspondance hellénique*, vol. 14, livraison 1, p. 1-42.

ROUX V. (2010) – Lecture anthropologique des assemblages céramiques : fondements et mise en œuvre de l'analyse technologique, in F. Giligny et S. Méry (dir.), *Approches de la chaîne opératoire de la céramique : le façonnage*, Paris, éd. de la Maison des Sciences de l'Homme (Les nouvelles de l'Archéologie 119), p. 4-9.

SHENNAN S.J. (2002) - *Genes, memes and human history: Darwinian archaeology and cultural evolution*, London, Thames Hudson.

SHENNAN S.J. (Ed.) (2009) - *Pattern and process in cultural evolution*, Berkeley, University of California.

SPATZ H. (1991) – Der « Langweiler Typus ». Ein Nachweis des Gruppe Blicquy im Rheinland, *Germania*, 69, p. 155-162.

VANMONTFORT B. (2008) – A southern view on north-south interaction during the Mesolithic-Neolithic transition in the Lower Rhine Area, in H. Fokkens, B. J. Voles, A. L. van Gijn, J. P. Kleijne, H. H. Ponjee et C. G. Slappendel (éd.), *Between foraging and farming: an extended broad spectrum of papers presented to Leendert Louwe Kooijmans*, Leiden, Leiden University Press (Analecta Praehistorica Leidensia 40), p. 85-97.