



Post-doctoral profile - 2019 campaign

Research framework
Work-Package: "Environmental change and societies in the past"
Heads: <ul style="list-style-type: none">• Catherine KUZUCUOGLU (LGP: Laboratory of Physical Geography - UMR 8591)• Zoi TSIRTSONI (ArScAn: Archeology and Sciences of Antiquity - UMR 7041)
Position description
" Innovations and strategies for adjusting to a new environment: the emergence of work with vegetable matter and its impact on the economic and territorial organization of societies in the late Upper Paleolithic."
Research proposal: <p>After 20 millennia of relative stability during which human groups evolved in Europe in periglacial environments, the climate warming of the Bølling-Allerød interstadial (12,500-10,700 Cal-BC) corresponds to a major transformation of the environment and in strategies for using it. The milder climate led to a fresh expansion of forest growth and the replacement of step faunas by species from tempered environments. These far-reaching changes coincided with a major cultural transition, namely the extinction of the Magdalenian "civilization" (17,000-12,500 Cal-BC) and the emergence of the Azilian (12,500-10,700 Cal-BC). The cultural transition is reflected in archeological terms by a substantial simplification of stone tools and a considerable reduction in human groups' mobility, all in a context of increased segmentation of activities at site and territory level. The spread of the plant cover, easing access to new ligneous and herbaceous resources, would account for these rapid, deep-seated socio-economic changes. However the pace and mechanisms of these environmental and archeological changes has largely yet to be described and analyzed.</p> <p>The objective of this post-doctoral contract will accordingly be to study the ranges of activities represented at two Azilian deposits currently among the best conserved sites in north-west Europe (Le Closeau in Rueil-Malmaison, Hauts-de-Seine, and Saleux, Somme, both in France) to gain an understanding of how this major environmental transition and the attraction of new plant resources were able to profoundly modify the way the sites worked and the forms of occupation of the area at this pivotal period (forms of mobility, preference for certain geographic zones, specialization or complementarity of the habitats). These debates currently structure European research into this major climatic and cultural transition.</p>



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+33 (0)1 53 55 28 24

contact@labex-dynamite.com

By referring to the traceology of the stone tools - now a tried-and-tested method - on a well thought-out sample within each of the deposits studied, the objective will be **(1)** to provide fresh data for understanding the anthropogenic responses to the environmental upheavals of the time, **(2)** to perceive the variability of the plant resources present and used in the local environments, **(3)** to examine the spatial organization within and between sites to more effectively account for the changes in the territories' structure by comparison with earlier periods (Upper Magdalenian) and later periods (Mesolithic). Regarding this point, the post-doctoral fellow will be able to make comparisons by performing analytical tests on certain categories of tools from dated levels of the early Mesolithic on the two benchmark deposits.

The project will be broken down into three components.

Traceology is a discipline that analyzes microscopic wear and residues generated by the use of tools and in particular stone tools, with the help of experimental reference bases. For the particular deposits studied, it can precisely describe the type of activities (their function, how the tools were used) and their organization.

The first, experimental component will be carried out using local paleoenvironmental data (given that palynological sequences of excellent quality are available in the vicinity of both deposits) and the rare plant technology data available in northern Europe for the Late Paleolithic and the Mesolithic. For each of the deposits concerned, anthracological analyzes were used to establish the spectrum of species present in the contemporary environments. This reference base will focus on the main plants presents in this period. More specifically, it will endeavor to distinguish between work on ligneous materials (plant wood) and work on rigid herbaceous plants (carex, typha) with a view to specifying the traceological criteria necessary for analyzing each type of activity (kinematics, materials worked on, etc.).

The second component will consist in studying a very large body of unworked objects, retouched tools and arrowheads at low optical magnification. At these optical scales, it will be possible to rapidly detect the instruments used to work on plants. For each site, we intend to closely examine several concentrations displaying a variety of techno-typological or spatial characteristics, in order to fathom the intra-site variability of the Azilian tool sets used to work on plants.

To conclude, the final component of the analysis will examine any extant residues of adhesives, particularly on arrowheads. These amorphous organic materials can provide interesting techno-economic and environmental information. However, they are very often overlooked, since they not easily seen with the naked eye, mainly because only minute quantities are usually conserved. Advances in traceological methods mean there are now more efficient tools for revealing these residues and analyzing their characteristics. A final angle of approach in this investigation of plant use during the Allerød will consist in a physicochemical analysis (optics, mass spectroscopy, infrared spectroscopy) of these substances, which are generally composed of resins or plant tars.

The post-doctoral fellow should strive to combine these three components to build a clearer understanding of the Azilian plant economy, detect the continuities and disruptions in technical practices over a protracted diachrony (around 1,200 years) and understand how they affected the societies' territorial organization over this major transitional period, which is marked by a radical transformation in the hydrosystems and environments frequented and used by human populations.



Planned collaborations

These issues lie within the research topics of the **Prehistoric Ethnology team (ArScAn, UMR 7041)**. The post-doctoral fellow will therefore be able to draw on the expertise of its members, who are heavily involved in these issues. This project continues the long tradition of paleo-ethnological research conducted by this team for over 50 years. The post-doctoral fellow will also be able to draw on the team's research network in France and abroad.

The post-doctoral fellow will also be attached to the **UMR 8215 Trajectoires**, more specifically for carrying out the experimental component on vegetable matters. Work in collaboration with a macro-tool traceologist (C. Hamon) will broaden the post-doctoral fellow's perception of the use of plants in these period, in both the food domain (grinding tools) and woodworking (abraders for arrow shafts).

He/she will have access to the scanning electron microscope for residue analyses. This equipment is managed by the **SIMO (imaging and light microscopy) department of the USR 3225** (headed by A. LEGRAND-PINEAU).

He/she will join the **collective research project "The Late Paleolithic and Mesolithic in the Paris basin"** (headed by L. MEVEL and S. GRISELIN), which leads research on the last hunter-gatherer societies in the north of France.

He/she will work **with a number of the Prehistoric Ethnology team's partner laboratories** in Europe (cf. research seminars supported by the WP "**Environmental change and societies in the past**"), which lead the field on these issues:

- Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany (headed by B.V. ERIKSEN)
- Adam Mickiewicz University, Poznan, Poland (K. PYŻEWICZ, team member)
- Cardinal Stefan Wyszyński University, Warsaw, Poland (W. GRUŹDŹ, team member)

Required skills and abilities

The post-doctoral fellow should hold a PhD in Prehistory and have developed skills in lithic traceology. He/she should be thoroughly acquainted with the technical systems, paleoenvironments and the issues associated with societies' evolution in the late Paleolithic. He/she should have the skills required to lead studies of furnishings, set up targeted testing programs and publish these findings in the form of papers and publications in peer-reviewed journals and/or books.

Additional information

Contract start date	Choice of 02/09/2019 or 02/12/2019
Length of contract	1 year



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Post-doctoral fellow's supervisor(s) (member(s) of the WP requesting the appointment)	Ludovic MEVEL (CNRS, UMR 7041, ArScAn, Prehistoric ethnology) Caroline HAMON (CNRS, UMR 8215, Trajectoires)
Host laboratory	Laboratory name: UMR 7041, ArScAn, Prehistoric ethnology Address: MAE - 21 allée de l'Université - 92023 Nanterre cedex
Net monthly remuneration	Approx. €2,324

Recommendations for the candidates:

Recruitment procedure and schedule:

The application must be submitted electronically by application form (<http://www.form-labex-dynamite.com/postdoc/en/>). It must demonstrate that the candidate fulfils the requirements indicated in the post-doctoral profile (specified tasks and skills). The application will include:

- a description of the research project (5 pages maximum, if more the application will be refused) specifying the research-related issues, the methodology to be used, a feasibility report and project schedule ;
- a covering letter;
- a curriculum vitae;
- a list of publications with internet links (if available);
- the doctoral thesis (PDF version);
- the doctoral thesis defence report (not required for candidates having defended their thesis in a foreign country and for candidates having defended their thesis too recently. The latter will include a **letter confirming the forthcoming oral defence of the candidate's research thesis prior to 24 June 2019**);
- a copy of the doctoral degree (or certificate).¹

The deadline for the submission of applications is Tuesday, May 8 2019 (inclusive).

For your information: when the deadline has passed, the LabEx Dynamite will contact the director(s) of the host unit(s) and will add one letter of invitation to the application.

The successful candidates following the assessment of the applications and interviews (which will take place during the week of 24 June 2019) will be informed of the results from 28 June 2019.

¹ The thesis must have been defended fewer than five years ago.