

# Demography and Migration

## Population trajectories from the Neolithic to the Iron Age

Proceedings of the XVIII UISPP World Congress  
(4-9 June 2018, Paris, France)  
Volume 5

Sessions XXXII-2 and XXXIV-8

edited by

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Session XXXII-2. Transitions démographiques. Mythes et réalités du Néolithique à l'âge du Bronze.

Session XXXIV-8. Peuples, migrations, colonisations : des approches historico-culturelles aux analyses  
génétiques en archéologie protohistorique, de la néolithisation à la fin de l'âge du Fer.

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## FOREWORD TO THE XVIII UISPP CONGRESS PROCEEDINGS

UISPP has a long history, originating in 1865 in the International Congress of Prehistoric Anthropology and Archaeology (CIAAP). This organisation ran until 1931 when UISPP was founded in Bern. In 1955, UISPP became a member of the International Council of Philosophy and Human Sciences, a non-governmental organisation within UNESCO.

UISPP has a structure of more than thirty scientific commissions which form a very representative network of worldwide specialists in prehistory and protohistory. The commissions cover all archaeological specialisms: historiography; archaeological methods and theory; material culture by period (Palaeolithic, Neolithic, Bronze Age, Iron Age) and by continents (Europe, Asia, Africa, Pacific, America); palaeoenvironment and palaeoclimatology; archaeology in specific environments (mountain, desert, steppe, tropical); archaeometry; art and culture; technology and economy; biological anthropology; funerary archaeology; archaeology and society.

The UISPP XVIII World Congress of 2018 was hosted in Paris by the University Paris 1 Panthéon-Sorbonne with the strong support of all French institutions related to archaeology. It featured 122 sessions, and over 1800 papers were delivered by scientists from almost 60 countries and from all continents.

The proceedings published in this series, but also in issues of specialised scientific journals, will remain as the most important legacy of the congress.

L'UISPP a une longue histoire, à partir de 1865, avec le Congrès International d'Anthropologie et d'Archéologie Préhistorique (C.I.A.A.P.), jusqu'en 1931, date de la Fondation à Berne de l'UISPP. En 1955, l'UISPP est devenu membre du Conseil International de philosophie et de Sciences humaines, associée à l'UNESCO. L'UISPP repose sur plus de trente commissions scientifiques qui représentent un réseau représentatif des spécialistes mondiaux de la préhistoire et de la protohistoire, couvrant toutes les spécialités de l'archéologie : historiographie, théorie et méthodes de l'archéologie ; Culture matérielle par période (Paléolithique, néolithique, âge du bronze, âge du fer) et par continents (Europe, Asie, Afrique, Pacifique, Amérique), paléoenvironnement et paléoclimatologie ; Archéologie dans des environnements spécifiques (montagne, désert, steppes, zone tropicale), archéométrie ; Art et culture ; Technologie et économie ; anthropologie biologique ; archéologie funéraire ; archéologie et sociétés.

Le XVIII<sup>e</sup> Congrès mondial de l'UISPP en 2018, accueilli à Paris en France par l'université Paris 1 Panthéon-Sorbonne et avec le soutien de toutes les institutions françaises liées à l'archéologie, comportait 122 sessions, plus de 1800 communications de scientifiques venus de près de 60 pays et de tous les continents.

Les actes du congrès, édités par l'UISPP comme dans des numéros spéciaux de revues scientifiques spécialisées, constitueront un des résultats les plus importants du Congrès.

Marta Azarello

Secretary-General / Secrétaire général UISPP



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# Demography and migration: an introduction

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This book publishes two sessions of the XVIII UISPP World Congress which took place in Paris from 4 to 9 June 2018. The two sessions, Session XXXII-2: Demographic Transitions. Myths and Realities from the Neolithic to the Bronze Age, and Session XXXIV-8: Peoples, Migrations, Colonization: Historical-Cultural Approaches to Genetic Analysis in Protohistoric Archeology, from Neolithization to the Late Iron Age, seemed quite complementary and suitable to be included in this publication. Since they were initially conceived individually, we propose an introduction in two distinct parts.

## **Session XXXII-2: *Transitions démographiques. Mythes et réalités du Néolithique à l'âge du Bronze***

As a consequence of the move to an agricultural economy, the Neolithic period is one of the major demographic transitions in the history of humanity, as highlighted by the works of Jean-Pierre Bocquet-Appel (2002; 2008). This massive population growth, linked to an increase in individual female fertility, has been highlighted in particular by the frequency index of immature in necropolises. But other work resulting from this has also shown that archaeological data can reflect demographic change as well through variation in their densities (e. g. Bocquet-Appel and Dubouloz, 2003; Dubouloz *et al.*, 2017; Zimmermann *et al.*, 2009). What about the successive developments of these first rural societies, from the beginning of the Neolithic to the end of the Bronze Age? Have they also experienced break-up phenomena, which may have a demographic explanation? It appears that certain periods have a large number of domestic and/or funeral sites in a given region and much less in the following period. Some transitions from one period to another or from one culture to another supposedly successive are thus marked by significant increases or decreases in the number of sites. These phenomena have most often been interpreted in terms of demographics (crises or developments, hold or loss of control over a territory), habitat organization (grouped or dispersed) or land use. They are sometimes linked to climatic and environmental crises or historical events, such as population displacements. This session aimed to identify these demographic variations, to question their causes, while avoiding the potential taphonomic and chronological biases affecting the documentation.

Among the indicators allowing a paleo-demographic assessment, the archaeological data was requested in most of the articles resulting from this session, they are thus more in line with an 'archaeodemographic' approach (Isoardi, 2010). The analyses are based on an estimate of site densities (C. MARCIGNY *et al.*, V. RIQUIER and G. DANDURAND, L. KRAMER and M. MAUVILLY), sometimes weighted by an estimate of the number of houses and tombs that were present (A. ZIMMERMANN, S. SCHARL and I. SCHMIDT). These assessments benefit from a significant enrichment of information due in particular to the development of preventive archaeology. Their compilation in large databases makes it possible to propose new scenarios on the evolution of early stands, at a regional or supra-regional scale (Bradley *et al.*, 2016).

The contribution of L. KRAMER and M. MAUVILLY exploits the archaeological map of the canton of Fribourg (Switzerland) in order to analyse the dynamics of land use, habitat densification or land abandonment in this territory. This has led to a criticism of lake tropism, inviting us to redefine the role of pile-dwellings in the organization of the settlement pattern. The articles by C. MARCIGNY

and his collaborators as well as V. RIQUIER and G. DANDURAND are based on large databases, resulting from the work carried out as part of the *Enquête Bronze* (Bronze Survey) conducted by the *Institut National de Recherches en Archéologiques Préventives* (Inrap). They thus propose a long-term reading of land use patterns in certain well-documented areas, with growth and decline phases varying in duration and amplitude.

These phenomena of crises or developments can be interpreted in various ways. In the case of an assumed population increase, endemic development, due to success and economic and political stability favouring an increase in fertility and life expectancy, may be proposed. But the arrival of human groups from outside regions can also be the source of this increase. In western Switzerland, L. KRAMER and M. MAUVILLY show, by examining dendrochronological dates, that a progressive colonization of the lake shores is significant in the 29th and 11th centuries BCE. The arrival of a new population is possible here, in the same way as was proposed for the Combe d'Ain (French Jura) at the end of the 3rd millennium B.C. (Pétrequin *et al.*, 1998). The study of human remains, in particular through the analysis of strontium isotopes, can also identify individual or collective mobility, as suggested by a poster presented during the session, but for which the paper was not submitted.

On the other hand, the reasons for a sudden decline in a territory's demography have been explained by Jared Diamond (2005). Environmental degradation, climate change, hostile neighbours and the loss of trading partners are all causes that, combined or not, can lead to a society's collapse. In the case of western Germany, the demographic decline identified at the end of the Early Neolithic is thus interpreted by A. ZIMMERMANN, S. SCHARL and I. SCHMIDT as a consequence of an interruption in trade of certain raw materials leading to a deterioration of matrimonial networks. In Central Sicily, E. GIANNITRAPANI and F. IANNI see at least two causes for the significant decrease in the number of sites of the Early Bronze Age compared to the Late Neolithic: a climate crisis linked to the 4,200 BP event and an interruption in contact with Eastern Mediterranean societies.

This session also wanted to address the biases and methodological obstacles inherent in this type of site density analysis and its interpretation in demographic terms, which are reviewed in O. LEMERCIER's paper. In particular, taphonomic problems must be taken into account, as proposed in V. RIQUIER and G. DANDURAND's approach. The synthesis of geomorphological dynamics (phases of landfill, erosion or stabilization of the environment) allowing to weight trends provided by site densities by periods.

Among other indicators used as a paleo-demographic tool, the summed calibrated radiocarbon date probability distribution (SCDPD) has been the subject of numerous developments as well as criticisms (for a bibliography, see O. LEMERCIER's article). While its comparison with other types of proxies sometimes seems to validate its use, documentary biases can be considerable. Only one paper explored this method within the session, but the article was not sent.

In the past few years, the increase in large-scale palaeogenetic analyses concerning late prehistory and protohistory has also led to the interpretation of genomic modifications as the result of population movements leading to demographic transformations (Olalde *et al.*, 2018). Among the many challenges generated by the integration of these new data into historical and archaeological interpretations, there is naturally their articulation with palaeo- and archaeodemographic reconstructions. It therefore seemed useful to us to bring together in the same volume the proceedings of this session devoted to 'Demographic transitions. Myths and realities from the Neolithic to the Bronze Age' with those concerning 'People, migrations, colonization: from historical-cultural approaches to genetics in protohistoric archaeology, from the Neolithic to Iron Age'.

#### **Session XXXIV-8: *Peuples, migrations, colonisations : des approches historico-culturelles aux analyses génétiques en archéologie protohistorique, de la néolithisation à la fin de l'âge du Fer***

Historiography demonstrate how ideas come and go and come again, in a circle or pendular movement. Migrations is one of these ideas: born with the rise of prehistoric and protohistoric archaeology;

developed in the first part of the 20th century, then abandoned for more social and economic analysis – the reign of trade, exchanges and networks – the idea of migration recently reinvested the field of ancient people with the increase of isotopic and ancient DNA analysis, that have reactivated and renew the debates. But those new analysis have to be discussed, as the old theories had been; their results offer new data, but not definitive answers. Those new data have to be integrated by archaeologist among all the data they deal with, as others layers in order to try to understand ancient societies. When we thought to propose that session about ‘People, migrations, colonizations: from historico-cultural approaches to paleogenetics analysis in protohistoric archaeology, since Neolithization to the end of the Iron Age’, we chose two different ways to deal with this issue:

- an historiographical and critical perspective on archaeology of populations and their mobilities,
- a new reflexion on ancient pattern (about migrations) now sustain by external analysis that we have to deal with, and take care of the issues and the solutions they are carrying.

In the first part of the 20th century, most of the interpretations about cultural changes and breakings during the Neolithic and the Bronze or Iron Ages were thought as migrations of groups or populations, according to what we call now ‘historic and cultural archaeology’ (Gustav Kossina, Gordon Childe, belong to this movement for example). This period was dominated by distribution maps, which were read as migrations maps. Since the 1960s and 1970s, the raise of scientific approaches in archaeology – called processual archaeology – drove to left away the old thesis about migrations because nothing could proof them and start to propose alternative models, based on social and/or economic causes to explain changes. Trade and exchanges explain everything then: new objects, new practices, new buildings, all came from circulation of ideas and artefacts but not people. Only some kind of people, like craftsmen, or traders, were able to move away and disseminate their knowledge or their products. Archaeologist have counted hundreds and hundreds of potteries, of tools, and showed chronological graphs and distribution maps – not interpreted as migrations reflection anymore, but as networks images. However, social and economic process cannot explain every archaeological observations, even if all the hypothesis linked to historico-cultural synopsis – still defended by some archaeologists attached to that old concepts – had been totally black listed, driving sometimes to dead end.

In the last decade the development of isotopic and genetic analysis – and some others – put in light again the matters of individual, groups and populations moving. If those analysis are not able to answer all the issues, they clearly demonstrate that since the Neolithic, people moved – often; everywhere; in small groups, as in large groups. Paleogenetic analysis also showed that cultural patterns used by archaeologist are founded: with the only tools of cultural archaeology – distribution maps, chronological data, artefacts and ecofacts studies – archaeologists had drawn the story of the Neolithization in two channels from Anatolia, the Mediterranean one and the Balkanish one. The ancient DNA analysis confirm that synopsis: applo-groups known only in Anatolia in the Mesolithic, appears in West Europa in Neolithic contexts, where only ‘hunthers-gathers’ DNA was present before.

But all history is not that simple. Since at least the Bronze Age, people move so often in Europa that genetic diversity increase to a turning point. When a Paleogenetic analysis indicates that some people belong to this or these groups, mainly attested in another part of Europa, we cannot know if this DNA came with the ones who has been analysed or with his/her mother or grandmother, or some further ancestor. However, some genetic labs used the results of less than fifty samples to propose a complete story of human mobility worldwide. That is why some archaeologists refuse to give bones they had found in archaeological sites to do that kind of analysis, because they do not want those samples could be integrate in that kind of large restitution.

These two attitudes – genetician who wants only a well dated bones and archaeologist who refuse to work with – reveal the urgent necessity to develop the dialog between all the people – a real

dialog and not only a common paper. On one hand, Isotopic and Genetic analysis bring new data that archaeologists have to integrate to their own reflexions and to add to their formal information. On the other hand, geneticists must take into account the archaeological context of the sample – not only the datation, but also the type of archaeological site.

During the session, all the field of archaeological data and isotopic and genetic analysis had been covered, however for this publication, only archaeological perspective are presented – for some other communications will be published in journal of the field. The three papers deals with migrations from archaeological and historical perspective: a large view of the Bell Beaker phenomenon, the South Italy at the time of the first contacts between native populations and Greek people, the installation of new population in Switzerland at the end of the Iron Age.

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