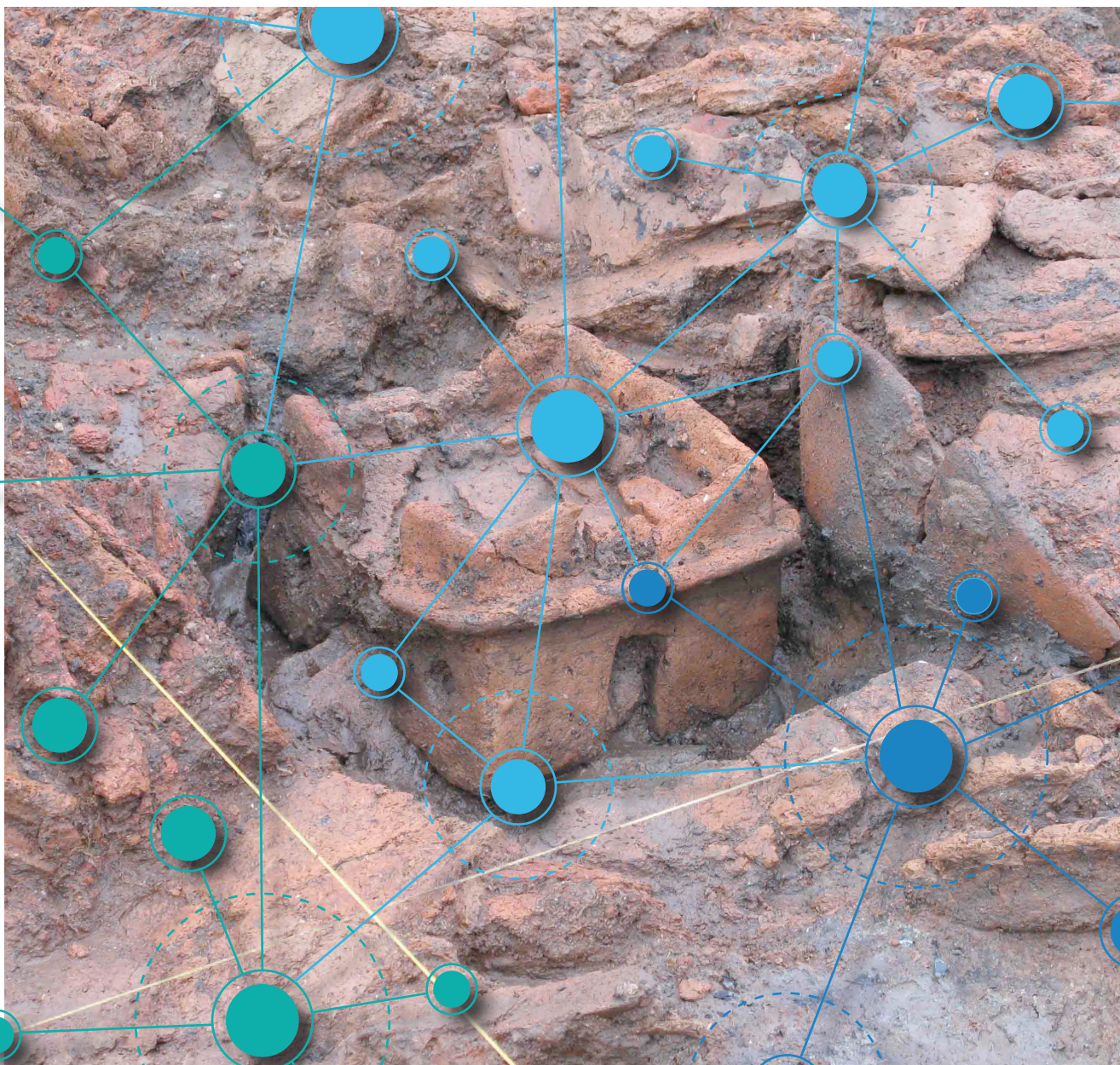


# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern



Clay house model from the prehistoric lakeside settlement Limnochori II, Western Macedonia, Greece. Photo credits : Ephorate of Antiquities of Florina, Greece.

**u<sup>b</sup>**

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# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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Dear colleagues

We would like to welcome you all in Bern and to thank you for your positive response to participate to the workshop entitled: "Southeast European and Swiss Network in Wetland Archaeology", supported by the Early Researchers Promotion Fund and the Committee for Research and Postgraduate Academics Support (Faculty of Humanities, University of Bern).

Our idea to organize this meeting emerged by the realization that, in two European regions several initiatives in wetland archaeology are developing, which may differ significantly in various terms, but still share many common aims and visions. On one side, the maturity of the 150-years' experience accumulated mostly by Swiss experts and on the other side the dynamic of the new, growing research sector in Balkans, could be combined creatively for bridging the gap between the two regions and the operating scientific groups, especially those consisting of young researchers.

The introductory papers of the workshop can serve as a medium to get in touch with the nascence, history and current development of wetland archaeology in both regions. Then, through a variety of topics related to the state-of-art interdisciplinary methods, techniques, interpretive approaches of different aspects of material culture from prehistoric wetlands, we expect a fruitful broadening of the spectrum of our research interests.

Since we believe that the scientific discourse is the key-factor for the promotion of collaboration between researchers, we consider as quite important the conclusive round table aiming to form a strong basis for the creation of a young researchers' network in wetland archaeology. We hope that together we can set an agenda of such a discussion, posing some common feasible objectives that could enrich our future research potentials within a sustainable scientific network.

Christoforos Arampatzis

Tryfon Giagkoulis

Stella Papadopoulou

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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## PROGRAM



Posts and view of the stratigraphy of the prehistoric lakeside settlement Anarghiri IXb, Western Macedonia, Greece. Photo credits : Ephorate of Antiquities of Florina, Greece.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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## PROGRAM

Wednesday, 02.05.2018

09.00-09.30

Reception/Registration

09.30-09.45

**Albert Hafner**

General introduction

09.45-10.00

**Stella Papadopoulou**

Southeast European and Swiss Network in Wetland Archaeology workshop: scopes and aims.

## SESSION 1

### WETLAND ARCHAEOLOGY IN SOUTHEAST EUROPE AND ALPINE AREA: PAST AND PRESENT

Chair:

**Stella Papadopoulou**

10.00-10.30

**Tryfon Giagkoulis**

"...Upon lofty piles stood in the middle of the water of the lake..." A review of Greek wetland archaeology from Herodotus until today.

10.30-11.00

**Goce Naumov**

Wetlands and Tells of Pelagonia in Multidisciplinary and Multiregional Context.

11.00-11.30

**Valentina Todoroska**

Wetland sites around the Ohrid Lake.

11.30-11.45

**Coffee break**

11.45-12.15

**Pavel Georgiev**, Submerged settlements on the West coast of the Black Sea: from Prehistory to Late Antiquity.

12.15-12.45

**Boban Tripkovic**

Life in a Wetland project: Western Serbia in the fifth millennium BC.

12.45-13.15

**Maja Cuka, Ida Koncani Uhač & Katarina Jerbić**

Zambratija Cove – underwater prehistoric site.

Discussion

13.15-15.00

**Lunch break**

## SESSION 2 (PART 1)

### STATE-OF-ART METHODOLOGIES AND TECHNIQUES FOR RESEARCH AND STUDY OF PREHISTORIC WETLANDS

Chair:

**Christoforos Arampatzis**

15.00-15.30

**Fabian Rey**

Synchronous vegetational and agricultural dynamics during the Neolithic (5000-2200 BC) on the Swiss Plateau.

15.30-16.00

**Sylvie Gassner, Erika Gobet, Christoph Schwörer, Jaqueline van Leeuwen, Hendrik Vogel, Stamatina Makri, Martin Grosjean, Tryfon Giagkoulis, Albert Hafner, Sampson Panagiotidis, Willy Tinner**

20'000 years of interactions between climate, vegetation and land use in Northern Greece.

16.00-16.30

**Lea Emmenegger, Marco Hostettler, Johannes Reich, Corinne Stäheli**

Diving into research. A talk about the NEENAWA Scientific Diving course and a resulting new archaeological project at Lake Ohrid.

16.30-16.45

**Coffee break**

17.00-17.30

Visit of LARA AMS-Radiocarbon dating laboratory, University of Bern.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

## PROGRAM

Thursday, 03.05.2018

### SESSION 2 (PART 2)

#### STATE-OF-ART METHODOLOGIES AND TECHNIQUES FOR RESEARCH AND STUDY OF PREHISTORIC WETLANDS

Chair:

09.30 - 10.00

**Tryfon Giagkoulis**

**John Francuz**

Dendrochronology of subfossil woods from underwater excavations at Lake Biel Switzerland: Development, Methods, Results.

10.00 - 10.30

**Niels Bleicher**

Mind-boggling but necessary: Taphonomic studies in wetland sites.

10.30 - 11.00

**Helmut Schlichtherle**

Monumental paintings in late Neolithic lake-dwellings of SW-Germany and their connections to the danubian world

11.00 - 11.30

**Albert Hafner**

Joint research in Austria, Germany and Switzerland. International archaeological-palaeoecological collaboration within the Beyond Lakes Villages project 2015-2018.

11.30 - 11.45

**Coffee break**

### SESSION 3

#### STUDYING AND INTERPRETING THE MATERIAL CULTURE FROM PREHISTORIC WETLANDS

11.45 - 12.15

**Jürgen Fischer**

Neolithic settlements in Nidau, lake Bienne. Archaeological investigations 2010 to 2016 in the urban expansion area «Agglolac»

12.15 - 12.45

**Tobias Krapf**

The prehistoric wetland site of Sovjan in Southeast Albania

12.45 - 13.15

**Manar Kerdy & Dorota Wojtcak**

Local Innovation or Cultural Influence? Shifts in Neolithic bone and antler tool industries in the pile dwellings of Sutz-Lattrigen, Switzerland.

13.15 - 13.45

**Dorota Wojtcak**

An application of the microwear analysis on the lithic assemblage associated with Neolithic lake dwelling of Arbon Bleiche 3, Switzerland.

13.45 - 14.00

**Discussion**

14.00 - 15.30

**Lunch break**

Chair:

15.30 - 16.00

**Albert Hafner**

**Tryfon Giagkoulis**

"...Approached from the land by a single narrow bridge..."

The layout of the prehistoric lakeside settlement Anarghiri IXb: facts, figures and missing puzzle pieces.

16.00 - 16.30

**Christoforos Arampatzis**

Bone and Antler Exploitation in the Prehistoric Lakeside Settlements of Western Macedonia, Greece: First data from the settlement Anarghiri IXb.

16.30 - 17.00

**Stella Papadopoulou**

Strategies of raw material acquisition and stone tool production in the prehistoric lakeside settlement of Anarghiri IXb, Western Macedonia, Greece.

17.00 - 17.15

**Coffee break**

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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## ROUND TABLE

## BUILDING A SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

17.15-17.30

### **Christoforos Arampatzis**

Wetlands, connecting people. Building a Southeast European and Swiss Network in Wetland Archaeology.  
Potentials and Future actions.

17.30-18.15

### **Round table**

Open discussion - propositions

18.15-18.30

### **Conclusions**

19.00

### **Apéro**

## Program

## Friday, 04.05.2018

10.00 – 15.00

Excursion to Lake Biel and Neuchatel (Laténium)

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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## WORKSHOP ABSTRACTS



*Row of posts from the prehistoric lakeside settlement Anarghiri IXb, Western Macedonia, Greece. Photo credits : Ephorate of Antiquities of Florina, Greece*

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Pavel Georgiev**

Center of Underwater Archaeology

Sozopol, Bulgaria

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## Submerged settlements on the West coast of the Black Sea: from Prehistory to Late Antiquity.

**Keywords:** Black Sea settlements, Ropotamo bay, Nessebar, submerged fortification, paleoenvironment

In this presentation I will try to concisely present to you the 2017 season of the Center for Underwater Archaeology in Sozopol, Bulgaria. With two settlements both being submerged at one point in time and have become a source for invaluable information.

The first is the multi-period site at bay of Ropotamo river's mouth. With material from the Early Bronze age, Late Iron age, Late Antiquity, Medieval Ages and Ottoman period nearly undisturbed by later intrusions. The excavations were part of the Black Sea Maritime Archaeology Project (MAP) with main collaborators the Center for Underwater Archaeology, Sozopol and the Centre for Maritime Archaeology at the University of Southampton. With the leading goal to relate the deep water investigation with the information gathered from the Ropotamo excavations and to confirm the results of the previous researches done on the site from 1976 to 1989. Thus, to better understand the ancient paleoenvironment.

The second site is the submerged structures of the ancient town of Nessebar which is also a UNESCO World Heritage site. The archaeological researches were carried out in 1960 to 1984 and renewed in 2015 and 2017 with rediscovering and better documenting the structures found in the 20th century. The structures on site are mostly from the fortification system, but range from Thracian times to the Early Byzantine age.



# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Christoforos Arampatzis**

Ph.D. Candidate, Institute of Archaeological Sciences,  
University of Bern, Switzerland

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**Bone and antler Exploitation in the Prehistoric Lakeside Settlements of Western Macedonia, Greece: First data from the settlement Anarghiri IXb.**

**Keywords:** Bone, Antler, artifacts, Lakeside Settlement, Amindeon Western Macedonia, Greece

The last fifteen years the Ephorate of Antiquities of Florina has conducted extensive surface surveys and large scale excavations in the Prefecture of Florina. According to recent data, it seems that a lot of prehistoric settlements were established between the four lakes of the area (Lake Chimaditis, Lake Zazari, Lake Vegoritida and Lake Petron) and many of them were lakeside settlements and date back from Greek Early Neolithic (6700/6500-5800/5600 BC) to the Late Bronze Age (1700/1500-1100 BC).

One of the biggest settlements of the area is the lakeside settlement Anarghiri IXb that was situated at the northereastern shore of the lake Chimaditis. The four rescue excavation campaigns (2013-2016) unearthed a settlement that was inhabited from the late 6th millenium BC ( Greek Late Neolithic I ) to the late 3rd millenium BC ( Greek Late Bronze Age ).The extensive investigation so far yielded thousands of wooden piles, thermal structures and thousands of figurines, chipped stone tools and osseous artifacts.

So far there have been found almost 5000 bone and antler artifacts, making this assemblage the biggest worked bone assemblage in prehistoric Greece. The study of the assemblage showed that these artifacts played a great role in the everyday activities inside and outside of the settlement. The assemblage can be characterized by great variability as there have been found pointed tools, chisels, scrapers, picks, bevel ended tools, intermediate tools, axes, projectile points, harpoons, maceheads, shaft straightners, ornaments and some other categories

In this short presentation there will be an attempt to present the preliminary results of the ongoing study of these artifacts, which is related with the raw material preferences, the typology, the manufacture and use.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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**Institute of Archaeological Sciences, University of Bern**

**Christoforos Arampatzis**

Ph.D. Candidate, Institute of Archaeological Sciences,  
University of Bern, Switzerland

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**Wetlands, connecting people. Building a Southeast European and Swiss Network in Wetland Archaeology. Potentials and Future actions.**

**Keywords:** Wetlands, archaeology, network, SE Europe, Switzerland

Wetland archaeology has a long tradition in Switzerland as more than 150 years have passed since the first investigations of Ferdinand Keller in the lake Zurich. Since then, Swiss wetland archaeology has been advanced increasingly with a lot of excavations in very important wetland sites and publications with interdisciplinary approaches. On the other hand, in the Southeastern Europe the archaeological research in wetland settlements is in its infancy having only a few decades of research history and so far only a handful of excavations.

One of the biggest aims of this workshop is to create a network of researchers who are studying wetland settlements in these two areas and face different challenges in their efforts to understand the past human behavior and the environmental dynamics in such settlements. In this short concluding presentation we are looking at the potentials of such a network and at the future actions that can be taken by all interested parties. The participation of all invited speakers in a round table discussion about the creation of such a network is highly welcomed.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

Niels Bleicher

Underwater Archaeology/Dendrochronology

Stadt Zürich, Switzerland

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**Mind-boggling but necessary: Taphonomic studies in wetland sites.**

**Keywords:** Lakeside settlements, organic preservation, water transport, find distributions, taphonomy

When we try and interpret find distributions, we need to be aware of possible filters and biases. Have all materials been equally preserved? Can we be sure that none of the different materials have been selectively moved or even destroyed?

Were the objects deposited on the spot where they were used? And supposed that we have an idea of the exact locations of the different buildings: can we assume that all the finds from the area of a given building were deposited by the inhabitants of the very same house? If the answer to any of these questions is 'no', then we would have to interpret find distributions differently than if all the answers were 'yes'.

The problem is to answer all these questions. This talk will give an overview of the chemical processes that lead to organic preservation, the mechanics of secondary transport and the methods to identify all the processes that actually took place in a site.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Ida Koncani Uhač**, Archaeological Museum of Istria, Pula, Croatia,

**Maja Čuka**, Archaeological Museum of Istria, Pula, Croatia,

**Katarina Jerbić**, PhD Candidate, Flinders University, Adelaide SA Department of Archaeology, College of Humanities, Arts and Social Science

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## Zambratija Cove – underwater prehistoric site.

**Keywords:** Croatia, Zambratija Cove, underwater site, prehistoric settlement

Zambratija Cove is located on the low lying north-western coast of the Istrian peninsula in Croatia. The seabed of Zambratija Cove holds archaeological remains dating from as far back as the Copper age, the Roman period to the Late Middle Ages.

This paper will focus on one of the oldest archaeological remains found under the sea in Zambratija, which appears to be an undated prehistoric site at approximately 3 m below MSL. Situated in a natural depression in an area covering approximately 10,000 sq. m., it so far consists of more than 120 vertically placed wooden piles protruding from the seabed, indicating an architecturally complex and well preserved site. A peat platform (30x60m) was also found in the central part of what appears to be a settlement. A single wooden sample revealed a date between 4,230 and 3,980 cal BC, which corresponds to the relative typological dating of some of the ceramics found at the site, more specifically the Nakovana style pottery. Named after the cave on the Adriatic coast where it was first found and identified, Nakovana style pottery is a Copper Age phenomenon covering a large territory starting from Montenegro on the south to Trieste on the north, which includes the Istrian peninsula.

The natural depression as well as the presence of wooden piles and peat imply that this is a pile-dwelling settlement, similar to those found around the Alpine lakes. The recent investigations in 2017 performed on the underwater site were geological coring, geo – referencing and mapping a part of the site.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Lea Emmenegger, Marco Hostettler,**

**Johannes Reich, Corinne Staeheli**

Institute of Archaeological Sciences, University of Bern, Switzerland

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**Diving into research. A talk about the NEENAWA Scientific Diving course and a resulting new archaeological project at Lake Ohrid.**

**Keywords:** SCOPES, Bay of Bones, NEENAWA, scientific diving, Lake Ohrid

A central part of the Institutional Partnership (SCOPES) "Network in Eastern European Neolithic and Wetland Archaeology" (NEENAWA, 2015–2018) was a European Scientific Diver (ESD) course, realized in summer 2017. Together with participants from Russia, the Ukraine and the FY Republic of Macedonia we, four Bernese students, successfully absolved the examination which was held under the conditions of the German commission for Scientific Diving (KFT).

The first part of this presentation will show what it means to be trained as a scientific diver under European law, to give an idea of what we did during our course and what the advantages of an education within the framework of the European Scientific Diving Panel are. The course has been conducted at the Bay of Bones, a Bronze Age pile dwelling settlement on the shore of Lake Ohrid, FY Republic of Macedonia.

The second part gives an outlook on the new prospects that the ESD course opened for us. With colleagues we met during this course and NEENAWA project, we have started to plan new research activities. The aim was to apply scientific diving as a method to bring forward dendrochronology where it has not been used so far. We chose the Bay of Bones at Lake Ohrid as research site. During the ESD-course a small survey was carried out which already raised several questions we want to explore further. In about 5 m depth lie well-preserved cultural layers with thousands of piles and artifacts. Until now the chronology of this site is mainly based on ceramic typology.

The goal of the project is to change this by applying combined dendrochronology and radiocarbon dating. As a method, photogrammetry together with a combination of a standard grid on the lake floor and DGPS will be used. This allows systematic, fast documentation resulting in a georeferenced map of the sampled piles.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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**Institute of Archaeological Sciences, University of Bern**

**Jürgen Fischer**

Archaeological Service of the Canton of Bern, Switzerland

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**Neolithic settlements in Nidau, lake Biemme. Archaeological investigations 2010 to 2016 in the urban expansion area «Agglolac».**

**Keywords:** Nidau, Canton Bern, Switzerland, Cortaillod

An urban expansion project on the shores of lake Biemme resulted in preliminary investigations by the Archaeological Service of the Canton of Berne. They took place in the years 2010 to 2016 on an area of 80.000 square meters. A large number of test pits made by excavator allowed to collect data concerning dimension and character of the prehistoric settlements at acceptable expenses. The implementation of the «Agglolac» project will bring about major archaeological excavations.

The lecture presents the methods used during the preliminary evaluations and their results. They indicate the vast potential of the site comprising several settlement phases between 4300 and 2700 BC. Amongst them, a well stratified and dated assembly of finds may well be considered a new point of reference for the classic Cortaillod of the 39th century in western Switzerland.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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**Institute of Archaeological Sciences, University of Bern**

**John Francuz**

Institute of Archaeological Sciences, University of Bern, Switzerland

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## **Dendrochronology of subfossil woods from underwater excavations at Lake Biel Switzerland: Development, Methods, Results.**

**Keywords:** Dendrochronology, dendrotypology, cross-dating, subfossil wood, Pile Dwellings, Lake Biel, Bielersee

Due to the large amounts of construction wood, mostly subfossil oak piles, collected from the excavation of Twann Bahnhof (1974-76), the Archaeological Services of the Canton of Bern decided to introduce dendrochronology as a dating method.

In the mid-1970s it was generally considered that only wood containing a minimum of 50 growth-rings could be reliably used for Tree Ring Dating. However, the wood from Twann, as also other subsequently excavated submerged settlements from around Lake Biel (Bielersee), showed that over 80% of the collected construction timbers contained less than 50 rings, and almost 50% less than 30 growth-rings. To neglect utilizing these woods would mean a loss of over 80% of the potential Dendro information from the settlement plans. To rectify this situation, strategies were introduced and developed that would also allow accurate cross-matching and dating of younger wood samples. These will be explained.

This presentation also outlines methods that have been introduced and developed for the large-scale excavating of erosion endangered submerged Neolithic and Bronze Age Pile Dwelling settlements at Lake Biel in Canton Bern. It shows how the remains of settlement construction piles are documented, sampled and prepared for dendro analysis. It explains how wood-growth is measured, graphically plotted onto ring-width series and used to cross-match with dendrotypologically similar series, and averaged to produce synchronized 'floating' reference mean-curves. These are then cross-dated with standard (dated) Reference Chronologies and anchored into calendar time.

A summary of site-chronologies from Lake Biel and local surroundings is shown and it is discussed how we can fill the chronological gaps between chronologies. Examples of some of the dated Lake Biel settlements, and outlined architecture of buildings and palisades indicate the potential, as also the limitations, of dendrochronological methods.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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Sylvia Gaßner<sup>1,2</sup>, Erika Gobet<sup>1,2</sup>, Christoph Schwörer<sup>1,2</sup>, Jaqueline van Leeuwen<sup>1,2</sup>, Hendrik Vogel<sup>2,3</sup>,  
Stamatina Makri<sup>2,4</sup>, Martin Grosjean<sup>2,4</sup>, Tryfon Giagkoulis<sup>5</sup>, Albert Hafner<sup>5</sup>, Sampson Panagiotidis<sup>6</sup>, Willy Tinner<sup>1,2</sup>

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<sup>6</sup> Faculty of Forestry and Natural environment, Aristotle University of Thessaloniki, 541 24 Thessaloniki, Greece

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## 20'000 years of interactions between climate, vegetation and land use in Northern Greece.

**Keywords:** Lake Zazari, Macedonia, Northern Greece, vegetation, land use.

The spread of Neolithisation from the Fertile Crescent via Anatolia to the Balkans and across Europe had dramatic impacts on ecosystems and vegetation. The dynamics and processes of the Neolithisation in the Southern Balkans are of special interest, since they provide the basis for the expansion into Central, Western and Northern Europe. The focus of palaeoecological and archaeological research has been mainly on the large lakes Ohrid and Prespa located at the border of Albania and Macedonia that provide exceptionally long records of regional environmental changes. Here we present a new pollen, macrofossil and charcoal record from Zazari, a small lake located in the Eordea basin in Northern Greece, which provides new local insights into vegetation and land use responses to disturbance (e.g. fire).

Our results complement archaeological evidence in the region and provide additional information on the Neolithisation process in Europe, for instance on humanization of vegetation and the use of fire as a primary tool to shape landscapes in prehistorical periods. We reconstruct the natural vegetation of the area before the onset of large-scale farming activities and briefly discuss the relevance of our results for nature protection, ecosystem management and in regard to future ecosystem trajectories.



# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

Tryfon Giagkoulis

Institute of Archaeological Sciences, University of Bern, Switzerland

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***“...Upon lofty piles stood in the middle of the water of the lake...”*. A review of Greek wetland archaeology from Herodotus until today.**

**Keywords:** Herodotus, nascence of wetland archaeology, Dispilio lakeside settlement, Four Lakes region, Rescue Excavations Project, Amindeon prehistoric wetlands

Herodotus, while narrating in his Histories the invasion of the Persians in the early 5th century B.C. in northern Greece, gives a snapshot of the dwellings and the life of the settlers around Lake Prasias. Although the reliability of his descriptions is often questioned, it is generally accepted that the specific passage is the first documented historical reference to a lakeside settlement and could be considered *mutatis mutandis* as the nascence of wetland archaeology not only in Greece, but also worldwide.

The actual starting point of research in a Greek wetland are the probing excavations conducted by Prof. A. Keramopoulos in the 1930's in Dispilio (Lake Kastoria, Western Macedonia), where several wooden posts and prehistoric artifacts became visible on the lakeshore after some periodic water level's falling. After a gap of nearly sixty years lacking any relevant activity, Prof. G. Hourmouziadis from the Aristotle University of Thessaloniki took over in 1992 the organization and implementation of a multi-level excavation and research plan in Dispilio, a still on-going project that has already led to the realization of several studies, publications, educations' activities, as well as to the construction of Dispilio Eco-Museum. During the last six years, the Rescue Excavations Project of Florina Ephorate of Antiquities at the Lignite Mining Zone of Amindeon constitutes the largest endeavor regarding wetland archaeology in Greece, since among numerous prehistoric sites discovered in the region of Four Lakes, a considerable number of lakeside settlements were documented and partially excavated.

The extraordinary extend of the investigated anthropogenic layers, together with the relative good preservation of the wooden structural elements and other organic materials, potentially form some promising conditions for the development and further growth of wetland archaeology in Greece, with the adoption of international state-of-art methodologies and research trends.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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Institute of Archaeological Sciences, University of Bern

Tryfon Giagkoulis

Institute of Archaeological Sciences, University of Bern, Switzerland

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***“...Approached from the land by a single narrow bridge...”. The layout of the prehistoric lakeside settlement Anarghiri IXb: facts, figures and missing puzzle pieces.***

**Keywords:** Anarghiri IXb, structural wood, trackways, fences, settlement's layout, interpretations' potentials, dendroarchaeology/chronology.

Anarghiri IXb is a prehistoric lakeside settlement with successive habitation layers dating from Late Neolithic I up to Early Bronze Age (late 6th- late 3rd mil. BC), located in a plain, that until the 1960's was in the northeastern marshy shore of Lake Chimaditis.

The rescue excavation of the site lasted from 2013 to 2016 and covered 12.000 m<sup>2</sup> on the periphery of the settlement, as well as 8.000 m<sup>2</sup> in the central habitation zone. Apart from the numerous movable finds representing various aspects of the socio-economic and ideological activities of the prehistoric community, the dominant findings of the lowest anthropogenic layers are more than 3.500 wooden structural elements of diverse types.

The analysis of the pile-field has led to the identification of at least three wooden trackways and parts of the settlement's enclosing works (fences), the structural form of which, their correlation to the neighboring activity areas and their possible function(s) at the margins of the occupation's main residential space and beyond are some of the issues to be discussed. Some general conclusions regarding the settlement's layout are drawn, together with actual limitations to the interpretative approaches posed by stratigraphic complexities, discontinuities in spatial distribution of the material and depositional/post-depositional layers' formation processes detected in the archaeological record of Anarghiri IXb.

Nevertheless, the systematic examination of structural wood sampled during the last excavation's campaigns could not only bring forth other alternatives for approaching the spatial organization of the settlement but could also open new potentials for the introduction of dendroarchaeology/chronology as a state-of-art methodology in Greek, as well as southern Balkans' wetland archaeology.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Albert Hafner**

Institute of Archaeological Sciences, University of Bern, Switzerland

Oeschger Centre for Climate Change Research, Switzerland

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**Joint research in Austria, Germany and Switzerland. International archaeological-palaeoecological collaboration within the Beyond Lakes Villages project 2015-2018.**

**Keywords:** Small Alpine lakes, Neolithic, human impact, paleoecology

The prehistoric lakeside settlements in the area of present-day Switzerland, Germany and Austria have been known for more than 150 years.

Neolithic and Bronze Ages sites North of the Alps cover a time-span between 4300 and 800 BC. More than one hundred of them were declared UNESCO World Heritage Sites in 2011. Up to now, research has focused almost exclusively on the classical sites on the larger pre-alpine lakes (Lake Constance, Lake Zurich, Three-Lakes-region, Lake Geneva).

The focus of the project „Beyond lake villages: Studying Neolithic environmental changes and human impact at small lakes in Switzerland, Germany and Austria „, on the other hand, is located on small lakes (Lakes Burgäschi and Moossee in the Swiss Plateau, lakes Degersee/Schleinsee in the German Allgäu and Mondsee lake in the Austrian Salzkammergut) and its immediate surroundings in order to gain new insights into the human influence on the landscape and the interaction between prehistoric societies and their environment.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

Manar Kerdy and Dorota Wojtczak

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## Local Innovation or Cultural Influence? Shifts in Neolithic bone and antler tool industries in the pile dwellings of Sutz-Lattrigen, Switzerland

**Keywords:** Lake Biemme, Sutz-Lattrigen, bone and antler tools, use wear analysis

This paper deals with the bone and antler tools in Neolithic settlements on the southern shores of Lake Biemme. During excavations, numerous bone and antler artefacts as well as waste products of manufacturing activities came to light from the two sites: Sutz-Lattrigen Hafen and Sutz-Lattrigen Aussen.

Tool production not only consists of the manufacturing activity aimed at particular tasks, but also comprises traditions of manufacturing, know-how in production techniques for exploiting the available faunal material. The good preservation of the bone/antler tools and the presence of manufacturing waste products on the site, helps to understand how these tools were produced and used. The method by which the inhabitants of Sutz-Lattrigen choose their raw materials, manufactured and used objects made from bone, antler material may have both a general and culturally distinctive origins. The forms of tools would be restricted by the natural properties of the raw material, in fact, each tool assemblage brings its own characteristics. The choices made with respect to manufacturing and use, represent both culturally influenced traditions and individual decisions. As explicitly cultural artefacts, bone/antler tools reflect attitudes towards the tasks in which they were utilized as well as attitudes towards the animals which provided the raw materials and finally, offer glimpses into the daily lives of the inhabitants of the wetland community

One of the goals was to check the potential for use-wear analysis on the bone and antler tools, therefore a wide range of tool types have been sampled. However, this makes it impossible to give a detailed analysis of the functional uniformity of the tool types and the results presented here should only be seen as preliminary. The data describes the development of manufacturing and use-wear traces on experimentally produced bone and antler tools for comparison with the artefacts from Sutz-Lattrigen, Aussen. Yet, the technological, traceological and experimental studies of archaeological material are complementary and are very important in filling the gaps in our knowledge concerning the subsistence strategies of Neolithic societies in Europe.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

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## The prehistoric wetland site of Sovjan in Southeast Albania.

**Keywords:** Bronze and Early Iron Age, lakeside settlement, Albania, pottery sequence, C14, dendrochronology

The Southeast of Albania is characterised by mountain chains, high plateaus and a fair number of lakes. Prehistoric settlements, from the Early Neolithic to the Early Iron Age, have been discovered on the coasts of all these lakes. The richest in physical remains among them are situated on the perimeter of the now dried lake Maliq, in the Korçë plain. The site of Maliq was first excavated in the 1960s, exposing a large field of wooden habitation remains of the Neolithic period. Only 3.5 km from the latter, a second prehistoric site, revealing an important stratigraphic sequence – albeit interrupted – from the Early Neolithic to the Early Iron Age, was excavated at Sovjan by a French-Albanian mission between 1993 and 2006. The most prominent architectural features of the site are a well preserved Early Bronze Age house built in wattle and daub technique, as well as a wooden causeway and remains of a second house. Piles and floors dating to the Late Bronze Age were equally uncovered. In the 8th c. BC the lakeside settlements in the Korçë plain were abandoned due to the raising water level and a shift to the preference of hilltop locations can be documented, marking the end of the wetland sites.

Not only wooden architecture, but also small finds in organic material and food remains have been documented, allowing the use C14 dating and dendrochronology, applied for the first time in a systematic manner in Albania. The intensive and extensive survey, as well as geomorphological and palynological studies and analysis of local clay sources create a multifaceted picture of Sovjan's position in the Korçë plain. My research project encompasses the study of the LBA to EIA pottery of the site, allowing the exploration of the site's networks with neighboring regions and especially the Ohrid and Prespa lakes, Western Macedonia and Epirus.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

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## Wetlands and Tells of Pelagonia in Multidisciplinary and Multiregional Context.

**Keywords:** Pelagonia, Republic of Macedonia, wetlands, Vrbjanska Čuka

Until few years ago the wetland archaeology was absolutely absent in the Republic of Macedonia. The societies that were dwelling next to marshes and on the lakesides were explored with the methodology of 'dryland' archaeology and understood as such. The research was focused mainly on architecture and material culture without consideration of environmental studies and the wetland features of the settlements surrounding. Therefore a novel approach was initiated in 2013 in Pelagonia that intended to employ current methods in more thorough understanding of the first farming societies in this valley. More detailed excavation and focus on geological layers was the first step that progressed with geophysical scanning and incorporation of GIS in order to determine the disposition of prehistoric tells and spatial organization of sites in relation to wetlands that were systematically dried in 1950's.

Due to exceptionally fruitful results a case study has been started with particular focus on the tell site of Vrbjanska Čuka. A large international team was established that incorporates various specialists in fields that are not familiar in the archaeology of the Republic of Macedonia. Thus, besides the excavation with Harris Matrix, also sampling, drilling, laboratory analysis and detailed studies of finds were initiated. As result to such multidisciplinary approach the site has been thoroughly excavated, entirely scanned with magnetometer, radiocarbon dating is performed, as well as the zooarchaeological, archaeobotanical, isotope, lipid and use-were analysis. It is so far the only site in the Republic Macedonia studied in such multidisciplinary context that consequently provide remarkable data and give absolutely new understanding of this tell, as well as the perspectives for transboundary research of Pelagonia that is also consisting part of Greece and has cultural relationship with Korça area in Albania.

The paper will present the recent methods and knowledge within the multidisciplinary research of Pelagonia and its environment in prehistory and will put emphasis on more broader study of Pelagonian tells and its relationship with the pile-dwelling societies in the region of Lake Ohrid, that are currently part of new research project between the University of Bern and Center for Prehistoric Research.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Stella Papadopoulou**

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## **Strategies of raw material acquisition and stone tool production in the prehistoric lakeside settlement of Anarghiri IXb, Western Macedonia, Greece**

**Keywords:** Chipped stone artefacts, raw materials, tool production, lakeside settlement, Western Macedonia, Greece

The study of chipped stone industries deriving from prehistoric sites of Northern Greece has opened a whole new area of exploration for prehistoric research in the last decades. Thus, recent studies have focused on raw material exploitation and exchange networks, technological and typological analysis, functional analysis and contextual approaches. However, despite these noticeable advances in lithic studies, a serious gap in our knowledge regarding the area of Western Macedonia (Greece) is noticed, while few in number preliminary reports are the only sources of information concerning lithic assemblages.

This presentation is focused on the chipped stone artefacts from the prehistoric lakeside settlement of Anarghiri IXb in the Amindeon basin, North Western Macedonia, Greece. The settlement is one of the extensively excavated sites in the area, where many prehistoric settlements had been recovered between the four lakes that occur in the landscape of the region. Anarghiri IXb, located in the marshy shore of Lake Chimaditis, had been inhabited from Late Neolithic I to Late Bronze Age.

Among other finds, a rich body of chipped stone artefacts (comprising of more than 10000 products) has been recovered. Despite the fact that the study of the material is still in progress, some preliminary remarks can be outlined. Focus will be laid on raw material procurement, technology and typology, in an attempt to demonstrate the strategies and choices employed by the prehistoric inhabitants of the settlement.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

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**Institute of Archaeological Sciences, University of Bern**

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**South-East European and Swiss Network in Wetland Archaeology workshop: scopes and aims.**

**Keywords:** Workshop, wetland archaeology, know-how, network

The research of prehistoric wetland sites in Central Europe started more than 150 years ago. Since then, Swiss and Central European experts through the excavation of numerous prehistoric sites have formed specific methodologies for the study of wetlands. On the contrary, this research field in Southern Balkans is in its first steps, though the last few years is gradually developing with several on-going research projects.

Considering the abovementioned dynamics in Southeastern Europe and the highly-developed wetland archaeology in the Alpine region, the basic aims of the workshop are dealing with the contribution and know how exchange from leading experts, the promotion of multidisciplinary through the contribution of different research fields and most important, the establishment of a South- East European and Swiss network in Wetland Archaeology, in order to promote the collaboration between young researchers.



# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

Fabian Rey<sup>1,2</sup>

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## Synchronous vegetational and agricultural dynamics during the Neolithic (5000-2200 BC) on the Swiss Plateau

**Keywords:** varved lake sediment, palaeoecology, high resolution multiproxy analyses, human impact, forest succession

Regional land use phases and natural forest succession during the Neolithic (5000-2200 BC) on the Swiss Plateau are only poorly understood. New palaeoecological results from two lakes with partly varved (= annually laminated) sediments that cover the Neolithic are presented. The two small lakes are Burgäschisee (465 m a.s.l., 21 ha) and Moossee (521 m a.s.l., 31 ha). For both lakes, Neolithic pile dwellings are known.

One settlement at Burgäschisee ("Burgäschi Ost") is part of the UNESCO World Heritage (Prehistoric Pile Dwellings around the Alps). Mostly, these settlement phases were rather short-lived (less than 20 years). However, the high precision of the sediment chronologies together with a c. 10-year resolution sampling allows identifying these short-term land use phases. Cultural indicator pollen such as *Cerealia-t.* (t. = type), *Plantago lanceolata-t.*, *Linum usitatissimum-t.*, *Papaver rhoeas-t.* and others, pollen from light-loving shrubs such as *Corylus avellana* and *Juniperus* (indicators for more openness of the landscape), macroscopic charcoal particles (indicator for local fires), green algae such as *Tetraedron minimum*, *Coelastrum* and *Botryococcus* as well as akinetes of cyanobacteria such as *Anabaena* and *Aphanizomenon* (indicators for eutrophication) point to several local occupation periods throughout the Neolithic. The results show that land use phases and the subsequent forest succession were synchronous at both lakes. Furthermore, the data is used to thoroughly check the Central European succession theory by analyzing post-disturbance patterns at subdecadal to millennial time scales. Afforestation usually starts with shrubs (e.g. *Corylus avellana*) and tree *Betula* as a pioneer tree.

The climax forest was a mixed beech forest with mainly *Fagus sylvatica* and other deciduous together with coniferous *Abies alba*. The presented multiproxy analysis of Neolithic human impact and vegetation responses shows a precision and resolution that has never been reached before in Central Europe. The new data provide ample evidence of marked fire regime shifts in response to human impact and regionally synchronous succession trajectories after land use phases.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

**Workshop: 02.05 - 04.05.2018**

**Institute of Archaeological Sciences, University of Bern**

**Valentina Todoroska**

NU.Museum d-r Nikola Nezlobinski Struga, Republic of Macedonia

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## Wetland Sites around the Ohrid Lake

**Keywords:** Lake Ohrid, Republic of Macedonia, wetlands, movable findings

Lake Ohrid, one of the oldest lake in Europe, with the continuous existence of settlements makes it a hotspot of evolution from the prehistory until these days.

Aim of this presentation is to present the situation of the wetlands around the lake through the results from survey and excavation that has been done in this region from all over the years. Besides the results from the excavations, we will look at the archaeological material and movable findings (loom weight, harpoon, axe, pottery) which are similar but different in their shapes, material and use.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

Helmut Schlichtherle

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## Monumental paintings in late Neolithic lake-dwellings of SW-Germany and their connections to the Danubian world

**Keywords:** Lake Constance, Germany, Pfyn Culture, wall paintings, ritual

Numerous fragments of wall paintings, dating to the early Pfyn Culture (ca. 3850 B.C.) have been excavated in the lake dwellings of Bodman-Ludwigshafen and Sipplingen at Lake Constance. The fragments of Ludwigshafen are in astonishing fresh condition. Their close examination brought the reconstruction of a frieze with seven to nine female figurations, painted with white lime colour and additional modeled breasts in natural size. In between the personages there are dendroid symbols which can be identified as genealogic patterns. Some ornamentations on Neolithic pots show similarities with the wall decorations and such vessels give further information about the significance of the signs and the spread of their knowledge.

For the first time we get a deeper insight into socio-religious conditions within the lake-dwelling communities north of the Alps, which seem to have been organized in matrilinear lineages, deeply engaged in ancestor worship. The results are important for the understanding of the ritual sphere of the Chalcolithic period not only around the Alps but also for larger areas in central Europe and in the Danubian basin, whereas western Europe followed other symbolic concepts.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

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## Life in a Wetland project: Western Serbia in the fifth millennium BC

**Keywords:** Serbia, Mačva district, Late Neolithic, Early Eneolithic

The topic of our contribution is a particular type of Late Neolithic/Early Eneolithic sites of western Serbia (Mačva district), discovered and described for the first time some fifty years ago. The sites share similar physical appearance: all of them are small tell-like mounds, up to 40 m in diameter, encircled by a wide ditch. Based on material culture the sites are attributed to the final Late Neolithic and Early Eneolithic period, that is the fifth millennium BC in the terms of regional chronology. Early researchers (Trbuhović and Vasiljević 1975) supposed that small settlement mounds were inhabited by isolated social groups, consisted of one to two households only, that were adapted for living in marshy areas of western Serbia. It was only J. Chapman (1981) who discussed these sites again. He emphasized the low agricultural potential of the area and suggested a seasonal occupation for this particular type of sites. Both hypotheses were strongly influenced by distinctive local geography.

The area of modern Mačva represents a complex system of permanent or temporary wetlands, oxbow lakes, ponds, old river channels and meanders, which also illustrate how the regional landscape may have looked in the past.

The old assumptions on small tell-like mounds of Mačva marshlands were never discussed in the scholarly community again and the sites mostly remained unexplored. The project Life in a Wetland: microregional adaptations in northwestern Serbia was established with the aim to explore these small sites surrounded by a ditch and to bring a new light on this forgotten prehistoric phenomenon. In this paper we present our ongoing research and preliminary results of the project.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

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An application of the microwear analysis on the lithic assemblage associated with Neolithic lake dwelling of Arbon Bleiche 3 (Switzerland).

**Keywords:** Stone tools, traceology, Arbon Bleiche 3, Switzerland

The main aim of the study was to reconstruct the technique of work, which are the origins of economic production and consequently of social organisation using traceological analysis to identify and interpret traces of use, wear and manufacture from the lithic assemblage.

Observational standards are required to make inferences about function from patterns of wear. They have resulted from the comparison between patterns observed on archaeological lithic artefacts and patterns established through experimentation on stone implements. For this study, a series of experiments were conducted with a goal of building a reference collection for current and future use-wear analysis. The experiments included working a variety of contact materials such as hide, antler, and bone, ceramic and wood in a controlled laboratory setting as well as outdoors. Additionally, few harvesting experiments and chemical analysis on birch tar were also conducted.

AB 3, the site on the southern shore of Lake Constance (Canton Thurgau) represents a transitional period between Pfyn and Horgen cultures. The multi-disciplinary research allowed not only the reconstruction of the palaeoenvironmental characteristics of the site and its surroundings, but also detailed seasonal subsistence strategies. Alongside a variety of organic materials, 1786 lithic artefacts were also collected. For traceological analysis a selection of typological end scrapers was taken. Almost all of analysed end-scarpers are attributed to hide processing, some showing traces of resharpening. A few items showed traces of working more than one material. Furthermore, it seems that many of end scrapers were hafted with the help of birch tar.

Although there are some published results mainly based on a typological approach of Neolithic lake-dwellings lithic industry, it is only with the additional help of traceological analysis to those from other archaeological disciplines and dating methods we will enlarge our knowledge of, and add fine detail to the everyday life of these ancient people.

# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

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# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05 - 04.05.2018

Institute of Archaeological Sciences, University of Bern

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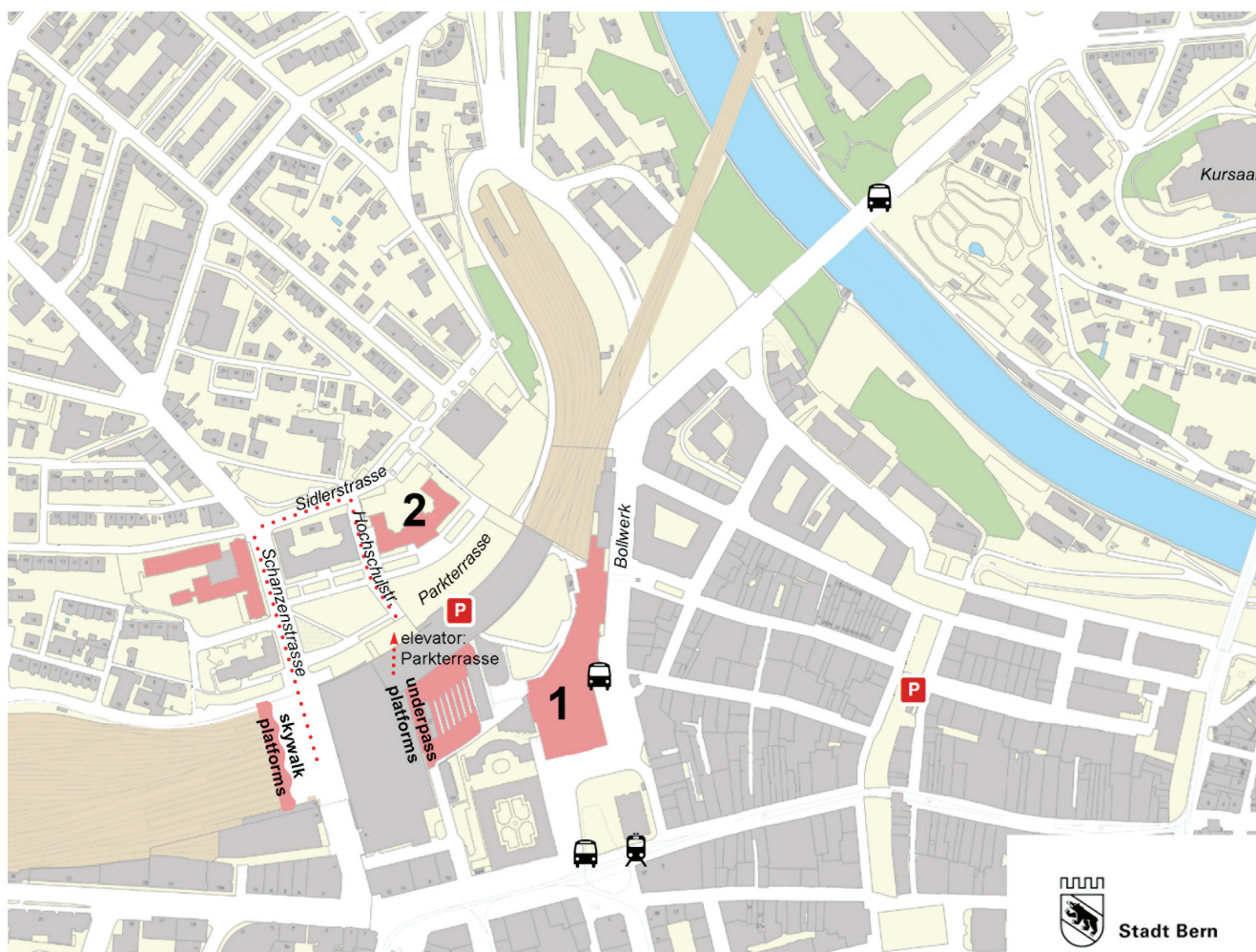
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# SOUTHEAST EUROPEAN AND SWISS NETWORK IN WETLAND ARCHAEOLOGY

Workshop: 02.05-04.05.2018

Institute of Archaeological Sciences, University of Bern



## 1 Railway station (Bern Hauptbahnhof)

Access to venue:

Leave platforms via skywalk, walk Schanzenstrasse uphill.

Leave platforms via underpass, walk in direction of „University“, take elevator to „Parkterrasse“, keep to the left, take Hochschulstrasse.

## 2 Venue of Workshop (University of Bern, Main Building)

Hochschulstrasse 4, 3012 Bern

2.5.2018: Raum 304, 3<sup>rd</sup> floor

3.5.2018: Raum 215, 2<sup>nd</sup> floor

**Car Parking in the city:** Blue parking zone with clock disc: from 18.00–08.00h free.

Tickets for longer parking times in blue zone are available at ticket machines of public transport (Bernmobil), or at hotel reception.