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1. UNDERWATER RESEARCH OF THE MIDDLE PALEOLITHIC IN DALMATIA, CROATIA

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In recent years, work on Middle Paleolithic sites in Dalmatia (south Croatia) has intensified. It focuses on several cave sites, an open air, and an underwater site, as well as on land and underwater survey of particular parts of the region. This research is funded by Croatian Science Foundation, Ministry of Culture of Republic of Croatia and the University of Zagreb.

Kaštel Štafilić - Resnik is Middle Paleolithic underwater site at the depth of about 4m. Small scale underwater excavation and systematic collection of surface finds at this site using a grid have been ongoing since 2008. In 2014 underwater survey of some parts of Dugi island was also carried out. The methodology and preliminary results of underwater research of the Middle Paleolithic in Dalmatia will be presented on a poster.

The site of Kaštel Štafilić - Resnik represents elements (lithics) from one or several open-air habitation sites from the time when the sea level was considerably lower than today. Stone tools, pseudo-tools and numerous naturally broken pieces of local chert were found. All artifacts belong to the Mousterian industry, and there are also indications of the Levallois technique. Although the finds are disturbed (due to the action of waves and other factors) it seems that their accumulation is mainly not a result of displacement from another locality that was far away from the present site. However, only some of the finds may have arrived to their present position through erosion from another place.

It is vitally important to continue with this research in order to get a more complete picture of the area occupied by the Paleolithic people and their mobility patterns. We hope that this will allow a comparision of the land sites with those now under water, a reconstruction of formation processes of underwater sites, and further improve methodology of research of such sites.

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2. TWENTY METRES DEEP! THE MESOLITHIC PERIOD AT THE SITE YANGTZE HARBOUR IN THE ROTTERDAM MAASVLAKTE, THE NETHERLANDS. EARLY HOLOCENE LANDSCAPE DEVELOPMENT AND HABITATION.

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In November 2011 archaeologists of City of Rotterdam Archaeological Service (BOOR) conducted underwater research in the Yangtze harbour, Rotterdam Maasvlakte, The Netherlands. The research was commissioned by the Port of Rotterdam Authority as a result of the expansion of the Rotterdam harbour area and was supervised by the Cultural Heritage Agency of the Netherlands.

The results of geological, botanical, zoological and archaeological analyses of the retrieved material generated new information on the occupation of a relatively high river dune by Mesolithic hunter-gatherers, and on the development history of the surrounding landscape ca. 9,000 years ago.

Rather than using diving techniques the underwater investigations were carried out from a board of a vessel using a wire-operated, horizontal closing grab. Three small trenches (total area ca. 375m^2) were excavated in layers in a fairly controlled manner. This kind of underwater excavations cannot achieve the same level of precision as is possible on land, but the many soil core samples

taken in the project's preliminary phase allowed detailed descriptions of the geomorphological stratigraphy. The excavation resulted in 316 bulk bags of soil. This soil was sieved on land, using sieves with mesh sizes of 10 and 2mm, after which archaeologists and volunteers carefully sorted the residues, documenting a total of ca. 46,000 finds. 68 soil sub-samples were taken from the bulk bags for archaeobotanical analysis.

Remains of Mesolithic occupation were discovered at all three grab locations, from depths ranging between 18 and 20m below modern MSL. The finds span the age range from ca. 8400 to 6500 BC, when the site transformed from dryland (an inland dune) to wetland (drowned delta subsurface). At the foot of the inland dune, the conditions allowed for excellent preservation of organic material, such as bone, charcoal and plant food remains, as well as stone and flint artefacts. As a consequence, the site has offered a major contribution to our knowledge of subsistence economy during the Early and Middle Mesolithic in temperate Europe. Furthermore, much detailed information on local environmental conditions and landscape development was to be revealed.

The landscape ecotones around the site yielded abundant food resources on and around the river dune. Under the influence of rising sea levels the Rhine/Meuse river valley gradually transformed into the mouth area of those rivers. At 6500 BC, the site was finally transgressed: drowned in an estuary and swallowed up by the sea.

The Rotterdam Yangtze Harbour research project demonstrates the preservation of Mesolithic sites along the river Rhine, at depths in nowadays coastal and offshore areas. Furthermore, it demonstrates the feasibility of archaeological investigation of such submerged sites, even at depths between 18 to 20m beneath sea, lake and harbour floors. Never before had such a submerged Mesolithic site been excavated at such a great depth. The scientific report (in English) will appear in the autumn of 2014, providing a full description of all finds as well their landscape context.

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3. THE DWELLINGS SITES OF MARANHÃO, BRAZIL

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We are developing the project "The People of the Waters: the *estearias* of north-central portion of the Baixada Maranhense". The *estearias* were dwellings sites which were built with wooden pillars that served as support for higher buildings. They are located in the lowlands of a micro-region near the island of São Luís, Maranhão, and they comprise an area of ??approximately 20 000 km2 within the Legal Amazon, being a region with over 500 thousand inhabitants (IBGE census 2006). It is a very poor area with the lowest life indices not only of the State of Maranhão, but Brazil as a whole, whose population lives from subsistence traditional agriculture, fisheries, small livestock and vegetable extraction, especially the babaçu coconut. The main cities in this area are Penalva, Viana and Santa Helena. The *estearias* are located along the many lakes that are characterized by the formation of a compound water system of rivers, floodplains and lakes of varying sizes that are defined by the seasonality of weather.

To create the archaeological letter we are conducting a systematic study of the geographical area comprised by *estearias* of the north-central portion of Baixada Maranhense. We are realizing intensive survey in the region with the aim of recording and cataloging the sites with GPS and GIS (Geographical Information System). After cataloged the sites, we will create a database to understand the process of occupation of the lakes and its expansion in the surrounding area.

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The investigation of the processes of human occupation in allied *estearias* analysis of cultural material will build a cultural landscape of these populations, their relationship with the aquatic landscape and the built environment and the dispersal area:

1 . Who were the prehistoric societies that inhabited the lake regions?
2 . Why people chose the lacustrine environment to live?
3 . What the exact area of the land occupation?
4 . Did exist long distance trade?
5 . When did collapse these people and why?