

The aim of this project will be multifaceted research on the Acheulean settlement and its development in Eastern Sahara, including the territory of Sudan and southern Egypt. So far, traces of the Acheulean culture identified with the extinct human species, among others *Homo erectus* and *Homo Heidelbergensis*, have been discovered in this region. These remains of human activity were mainly related to the late development of this culture, present from the late early Pleistocene to the middle Pleistocene and dated at 500,000-200,000. Current archaeological data from the region of Eastern Sahara indicate that at the end of this period, cultural changes took place in this area - apart from the still older tradition, a new cultural tradition emerged which could be related to the appearance of a species of modern anatomical human - *Homo sapiens*.

The research in the Eastern Desert in Sudan, undertaken as part of the project "Homo erectus on the route to Eurasia" - NCN (2015/19 / B / HS3 / 03562), has ended with the discovery of remains of encampment left by the producers of the Acheulean tradition. These sites, currently located in the middle of the desert, were associated with the network of watercourses flowing in this area in the middle and late Pleistocene. In the last decade, the pedestrian survey undertaken by Polish and Italian archaeological missions ended with the discovery of new archaeological sites, where the remains of Pleistocene fauna and assemblages of stone artefacts were discovered. The morphological features of these artefacts indicate that we are probably dealing with an earlier phase in the development of the Acheulean tradition, older than 500,000 BP. These sites are located in different areas of Sudan's territory: the Eastern Desert, the Red Sea Mountains and the middle reaches of the Atbara River.

The specific objectives of the proposed project will include:

- defining the exact timeframe of the development of the Acheulean tradition in the Eastern Sahara region,
- identification of the environmental conditions prevailing in this period and the relationship between man and the microenvironment in the area of the excavated sites,
- characterisation of the methods of production, reparation and the use of stone tools
- an attempt to recognize the behavioural capabilities and skill levels of individual toolmakers; the manner and dynamics of knowledge transmission within individual groups.

The proposed research methodology will have interdisciplinary character and includes studies in the field of: geomorphology, sedimentology, geophysics, archaeozoology, physicochemical and physical analysis including dating (OSL, Ar^{40}/Ar^{39} , U/Th), and also archaeology.

Three seasons, of excavations will be carried out in four different regions of the country: the Eastern Desert the Red Sea Mountains and the middle Atbara Valley. The methodology of the work will be based on the latest methods of documentation and analysis (3D scanning, photogrammetry, GIS analyses), have not been used yet in the study of early Stone Age sites in this part of the world.

The second field of research concerns the analysis of stone materials discovered during the implementation of planned excavations. Also in this case, we plan to carry out comprehensive research: analysis of morphological and metric features of artefacts, analysis of microtraces, Scar Pattern analysis and a geometric-morphometric in 3D approach. Selected stone artefacts will be scanned and photographed, which will allow the creation of 3D models of the lithics, used in the analysis and made it available separately as a virtual collection.

The implementation of the proposed project will allow the re-evaluation of the role of the Eastern Sahara region in the dispersion of the extinct Homo species during the so-called the third wave of dispersion around 0.8Ma. The undertaking excavation works on the newly discovered sites and the complex of sites, so far only partially recognized will bring a significant increase in sources and information related to the Acheulean complex of NE Africa.