

The roundel at Nowe Objezierze is a monumental, circular structure with an outer diameter of *c.* 120 m. It consists of four concentric ditches (each around 2 m deep and of characteristic V-shaped section) separated by earthen banks, now completely levelled. Three concentric palisades stood within the circuit of ditches, and three symmetrically spaced entrances provided access to the roundel's interior. The central space measures around 50 m in diameter and was left empty.

The construction of a roundel would have required the collective effort of inhabitants from many neighbouring settlements. Only communities that were convinced they were creating an exceptionally significant structure would have exerted this effort. The roundel's monumental size and position in the landscape, as well as the form and alignment of its 'gates' are indicative of a reference to cosmic powers. The light from the sun (or indeed from the moon or stars) which poured in through the gates at specific times may have sanctified the roundel (in the eyes of its makers), validating the importance of communal celebrations. In this sense, roundels were a new institution whose invention played a key role in Central Europe in shaping a new social order after the decline of the LBK (first farmer's culture) at the beginning of the 5th millennium BC. There are many later examples of structures of a similar function, the most famous (though 1,500 years younger) being Stonehenge.

By using the roundel at Nowe Objezierze as a case study, this project aims to determine how the institution embodied by roundels operated. The project's principle tenet is that the construction of roundels did not – as is widely believed – reflect exceptional advances in Neolithic knowledge (measurement of time, astronomical observations), but rather the emergence of a new social institution, which helped overcome the disintegration of the earliest farming societies in Central Europe.

Two main topics will be examined to achieve the project's stated aim: firstly, the historical context in which the roundel at Nowe Objezierze appeared; and secondly, how the roundel functioned. The latter issue will be addressed through the following questions: (a) what could be seen through the gates of the roundel (cosmological references) and how was the roundel visible from the outside (did it serve as a monument in the landscape)?; (b) what were the cycles of time in which the roundel was used?; (c) did the communities that used the roundel demonstrate their different identities (e.g. membership of a clan) during celebrations (e.g. by occupying different positions next to the gates, eating different meals, etc.)?

Comprehensive fieldwork will have to be carried out to obtain the broad spectrum of empirical data needed to verify the mooted questions. The planned work will enable us to: (1) trace the changes in the settlement network of which the roundel was a part (remote sensing, fieldwalking, geophysical survey, trial trenching and excavation); (2) reconstruct changes in the palaeoenvironment (palynological analysis of biogenic sediments, Cladocera analysis, archaeobotanical and anthracological analysis of macroscopic plant remains recovered by flotation), (3) reconstruct the roundel's layout, structural design and setting (including a 3D visualization illustrating the roundel's visibility in the landscape); (4) accurately date the structure and define its cycles of use (analysis of stratigraphy and sedimentation processes [micromorphological analysis] as well as a series radiocarbon dates); (5) identify where activities took place within the roundel and what forms they took (3D mapping of artefacts, taphonomic analysis of animal bones, analysis of ceramic vessel function based on lipid analysis; analysis of diversity in extraction sites for clays used in pottery production, analysis of stylistic diversity in pottery, analysis of tool function based on use-wear analysis, analysis of zooarchaeological diversity of animal bone 'ritual' deposits and refuse, analysis of carbon and nitrogen isotope ratios [¹³C, ¹⁴C, ¹⁵N] in animal bones to identify diversity in grazing sites); (6) examine interregional contact networks and the possible influx of new settlers (strontium isotope analysis ⁸⁷Sr/⁸⁶Sr, comparative analysis of petrographic and chemical variations in pottery).

Half a century of discussions about the meaning and function of roundels have given rise to numerous very bold hypotheses, very few of which have been verified empirically. The results of this project can contribute to the advancement of archaeology as a discipline, which – thanks to interdisciplinary collaboration and new analytical opportunities offered by the natural sciences – can use a wealth of empirical data to successfully test even highly complex and intricate hypotheses for the interpretation of social and ritual functions of excavated structures.