



Landscape development around the tell structure of Niederröblingen (Sachsen-Anhalt, Germany) reconstructed from soils, colluvial and alluvial sediments as well as from the archaeological record

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During extensive archaeological and geo-archaeological investigations accompanying the construction of a new motorway in Sachsen-Anhalt a prehistoric tell-like settlement structure and the surrounding soils and Holocene sediments were studied. The research area is situated approx. 50 km west of the City of Halle (Sachsen-Anhalt, Germany). The landscape is characterised by a hilly relief to the North intergradient into a floodplain of a small river (Helme) to the south. A layer of Loess (~ 50 cm) covers parts of the slopes. Most of it was redeposited by fluvial processes under periglacial climatic conditions during the last glaciation. In the floodplain alluvial sandy sediments ("Niederterrasse") were deposited simultaneously. In the upper part of the reworked loess chernozemic soils and their derivatives are developed. The tell-like structure adjacent to the floodplain has a dimension of approximately 500 m in diameter and is visible as a small lenticular mound, about 100 cm higher than the surrounding landscape today. Several plans and profiles through the structure attested a layered composition, with the oldest findings at the base and younger ones in the upper layers. Several 10.000 archaeological finds, like settlement pits, ground floors, wells, ditches, post-holes, stoves, furnaces, ceramic sherds, bones or other artefacts were discovered. More than 100 pottery fragments and 40 radiocarbon data enabled

the development of a detailed chronology. Human settlement started around 4.500 years BC. Subsequent settlement phases with different intensities and different cultures lasted until 240 AD. By this time the structure had finally reached a height of approximately 200 cm above the surrounding area. After the settlement ceased, agricultural use of the site during medieval and modern times allowed an erosion of the hill structure. The lower tell layers are of a dark grey colour, with higher contents of organic matter, originating probably at least partly from the A-horizon of chernozemic soils. The upper layers, with a cumulative thickness of > 100 cm contain abundant particles of burned loam, possibly originating from remnants of house constructions and herds. Ongoing geoarchaeological investigations at the site show remarkable low bulk densities of the tell layers ($< 1 \text{ g}\cdot\text{cm}^{-3}$), which might be explained by high contents in biogenic silica (originating from phytoliths and ashes). These data coincide with high contents in phosphorus and carbonate. At the surrounding hills colluvial layers deposited during Medieval (starting ~ 1000 cal AD) and Modern Times were discovered. Within the floodplain of the river Helme a red brownish loamy alluvial sediment was deposited during the same time. The composition and bulk density ($> 1.2 \text{ g}\cdot\text{cm}^{-3}$) of the sediments (colluvial, alluvial) as well as of the buried soils differed remarkably from the tell layers. These results indicate that the prehistoric agricultural farmland must have been situated in close vicinity to the tell, probably buried by the alluvial sediments. Between the settlement and the surrounding landscape intensive matter fluxes have occurred. These fluxes - associated with the land use practices of the ancestors - are in the focus of the ongoing geoarchaeological investigations.