



Geoarchaeological Investigations at the Hallstatt-Period Settlement of Vix / Mont Lassois (Burgundy)

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Today the Hallstatt period settlement of Vix in northern Burgundy is primarily famous for a rich burial mound excavated in 1953. A huge Greek bronze vessel found into this burial indicates far trading contacts along the rivers Rhône, Saône, and Seine, at the end of the 6th century BC. Since 2004 an international team investigates the settlement and the hinterland of Vix. Actual geoarchaeological research illustrates the relations of neotectonics, river dynamics, and settlement patterns, around the archaeological site.

From a geomorphological perspective the Mont Lassois can be defined as an escarpment outlier on the middle course of the river Seine controlling a fertile plain north of the district capital of Châtillon sur Seine. Geological investigations around the hill and the surrounding plains indicate that the present-day landscape is the result of tectonic processes during the Neogene and Quaternary. As measurements of cleavages and faults show, roughly NNW-SSE oriented compression has produced a sinistral strike slip system dissecting the nappes of Jurassic limestones and marls. Therefore, the Mont Lassois is a horst structure in the middle of a subsided basin delimited by NNE-SSW oriented Riedel shears. Strong springs on the foot of the plateaus are caused by the offset of an ample karst aquifer along Riedel shears and normal faults. The course of the river Seine follows the orientation of these faults and offsets. As a consequence of this, the situation of settlements, fortifications, and roads, is related to uplifted and subsided areas respectively, the river course, and the extent of the flood plain. Also the availability of iron ores can be seen as a result of tectonics and landscape change. Crystals of pyrite and marcasite formed originally in extension gaps were chemically transformed to limonite. As product of erosion processes many limonite lumps can be found especially on the surface of depressions and in river deposits. Probably, this limonite was the most important ore during the early Iron Age.

Archaeological and geomorphologic records indicate a substantial shift in the river dynamic after the Gallo-roman period. Parts of the populated areas were flooded and the ramparts near to the river were removed completely by heavy floods. After the antiquity the floods reached frequently levels about 2 meters higher compared to the Hallstatt period and today's inundations. Reasons for such destructive floods and maybe also for the decline of the settlement could be either climate-induced or anthropogenic.