A DEEP-TO-SHALLOW TRANSITION IN THE FORT PAYNE FORMATION (LOWER MISSISSIPPIAN), KENTUCKY HIGHWAY 61, CUMBERLAND COUNTY, KENTUCKY

INTRODUCTION

The Fort Payne Formation of the Cumberland Sauble ridge of south-central Kentucky and north-central Tennessee is part of a vast marine sedimentation system that extended over much of North America during the Early Mississippian period. The Fort Payne is a mixed, fine-grained, deltaic, and slope deposits in the upper part of the formation and a shallow-marine, shelfal, carbonate system in the lower part of the formation. The Fort Payne Formation is divided into two members: the lower member, the Cumberland Member, and the upper member, the Nolin Fork Member. The Cumberland Member is characterized by thin, sand-rich, sandstone beds, while the Nolin Fork Member is dominated by siltstone and shale. The Fort Payne Formation is important for understanding the paleo-environmental and tectonic history of the central United States.

Figure 1. Location of study area and outcrops along Kentucky Highway 61, Cumberland County, Kentucky. The shaded area represents the location of fossiliferous gray shale associations with the mounds, deep step construction and addition, and family by grading. The evidence suggests that the Fort Payne Formation was deposited in a shallow marine environment, possibly a shelfal setting, and that the mounds were built by a combination of biological and non-biological processes.