**Structural Geology**

The Mt. Pleasant Quadrangle is located in the southern margin of the Illinois Basin, on the upthrust edge of the Mississippian Illinois Group. The Illinois Group consists of two parts, the Mississippian and the Devonian. The Illinois Group is underlain by the Mississippian Illinois Group, which is divided into two parts, the Mississippian and the Devonian. The Illinois Group is underlain by the Mississippian Illinois Group, which is divided into two parts, the Mississippian and the Devonian.

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**Quaternary Mississippian System**

- Glen Dean Limestone and Tar Springs Formation southeast of Buck Run

- A northeast-trending fault is inferred to underlie Quaternary alluvium

- No indication that any north-south faults have been active since late Paleocene

- T12S, R1E, sandstone of the Waltersburg Formation exposed in a roadbed on the south side of the Cache River along the border of Sections 14 and 23

- The quadrangle (SE¼, Sec. 1, T12S, R1E)

**Microfacies**

- The unit commonly comprises two upward-coarsening sequences of roughly equal thickness. A stromatolite-graded unit, towards the top, is dominated by fine to medium-grained sandstone. The lower contact is gradational and intertonguing.

- Limestone and shale: Limestones and shales are common along with diverse brachiopods and bryozoans. The limestone forms wavy beds a few inches to a few feet thick. The shale is dark gray, calcareous, and fossiliferous; it contains trepostome and fenestrate bryozoans, echinoderm fragments, and other marine fossils. The limestone is dark gray, argillaceous lime mudstone (Dunham 1962) in hummocky cross-stratified beds. Two limestone beds 2 to 4 feet thick are separated by 4 to 5 feet of dolostone. The lower contact is sharp. The unit commonly comprises two upward-coarsening sequences of roughly equal thickness. A stromatolite-graded unit, towards the top, is dominated by fine to medium-grained sandstone. The lower contact is gradational and intertonguing.

- Sandstone is gray, fine to very fine grained, and siltstone is gray, fine to very fine grained.

- **References**

  - Bristow, C.J., 1990, Descriptions and correlations of the Mississippian formations of southern Kentucky: Kentucky Geological Survey, 1 p., 1 fig.
  - Butts, C., 1917, Descriptions and correlations of the Mississippian formations of southern Kentucky: Kentucky Geological Survey, 1 p., 1 fig.
  - Leschen No. 1 Schenker test, in the NE¼ NW¼ NW¼, Sec. 14, T12S, R2E. The well site was 25 feet with little shale or chert and could support small quarries. The limestone forms wavy beds a few inches to a few feet thick. The shale is dark gray, calcareous, and fossiliferous; it contains trepostome and fenestrate bryozoans, echinoderm fragments, and other marine fossils. The limestone is dark gray, argillaceous lime mudstone (Dunham 1962) in hummocky cross-stratified beds. Two limestone beds 2 to 4 feet thick are separated by 4 to 5 feet of dolostone. The lower contact is sharp. The unit commonly comprises two upward-coarsening sequences of roughly equal thickness. A stromatolite-graded unit, towards the top, is dominated by fine to medium-grained sandstone. The lower contact is gradational and intertonguing.

- **Figure captions**

  - **Figure 1**: A northeast-trending fault is inferred to underlie Quaternary alluvium. The feature is located in the southern margin of the Illinois Basin, on the upthrust edge of the Mississippian Illinois Group.

- **Figure 2**: A northeast-trending fault is inferred to underlie Quaternary alluvium. The feature is located in the southern margin of the Illinois Basin, on the upthrust edge of the Mississippian Illinois Group.

- **Figure 3**: A northeast-trending fault is inferred to underlie Quaternary alluvium. The feature is located in the southern margin of the Illinois Basin, on the upthrust edge of the Mississippian Illinois Group.

- **Figure 4**: A northeast-trending fault is inferred to underlie Quaternary alluvium. The feature is located in the southern margin of the Illinois Basin, on the upthrust edge of the Mississippian Illinois Group.

- **Figure 5**: A northeast-trending fault is inferred to underlie Quaternary alluvium. The feature is located in the southern margin of the Illinois Basin, on the upthrust edge of the Mississippian Illinois Group.