



Figure 5. Exposure of fine-grained, mostly massive, porous sandstone in the road cut on the north side of State Highway 77S at Stop 1. The arrow (upper right) points to the axis of the fold of what appears to be an asymmetrical anticline; the more gently dipping (west) limb is on the left in the photograph.

grayish red shale, is poorly exposed on the west flank of the structure in the north road ditch and again on the east flank. According to our interpretation, the base of the Rod Club and, therefore, of the Springer Formation is not exposed at this location.

Note the massive character of some of the sandstone beds, the channeling, and the facies changes in the outcrop. Also note the calcarenite layers and the abundance of trace fossils in shale Units 3–8 overlying the sandstone (Fig. 6). These features can be examined best in the cut south of the highway.

We interpret the depositional environment of the Springer sandstone at Stop 1 as that of a midfan turbidite channel deposit. The sandstone thickness differentiates it from lower turbidite facies, which often have more numerous, but thinner, sandstone beds. Sedimentary structures consisting of basal scouring, massive bedding, and soft-sediment deformation are very characteristic of the sandstone at Stop 1 and are typical of rapid deposition in a channel environment. However, there are no indicators of an interstratified delta-plain environment—such as coal, lagoonal or marsh deposits, or splays—nor is there any indication of a subaqueous delta front, which would have underlain a distributary channel. We do not interpret this Springer sandstone as an incised-channel or flood-plain sandstone because it is not known to be bounded stratigraphically or spatially with terrestrial sediments or to correlate with a basinward delta front; thus, its depositional environment was not a subaerial coastal plain. Exposures of the Springer sandstone in the woods south of the highway at Stop 1 reveal the persistent lateral extent of this sandstone, which is not characteristic of most channel deposits of a coastal or delta plain.

MEASURED SECTION, STOP 1 Rod Club (?) Sandstone Member of the Springer Formation (Overbrook Measured Section)

SW¼SE¼SW¼ sec. 31, T. 5 S., R. 2 E., Carter County, and N½NE¼NW¼ sec. 6, T. 6 S., R. 2 E., Love County (Overbrook 7.5' quadrangle). Measured by LeRoy A. Hemish in the road cut, north and south of State Highway 77S, from ~250 yds east of the railroad tracks to the field driveway at the east end of the cut. Beds strike N. 5° W. and dip N. 85° E. at 55°.

Thickness
(feet)

SPRINGER FORMATION

UNNAMED SHALE

- | | |
|---|-------|
| 9. Shale, medium dark gray (N4) to dark yellowish brown (10YR4/2) with dark yellowish orange (10YR6/6) mottling; noncalcareous; contains numerous moderate reddish brown (10R4/6) to light brown (5YR5/6) ironstone layers 0.5–2.0 in. thick; in places, a 0.25-in.-thick pale yellowish orange (10YR8/6), bioturbated limestone occurs in abundance as float chips on the outcrop (not observed in situ) | 80.0 |
| 8. Shale, medium gray (N5) to dark yellowish brown (10YR4/2) with dark yellowish orange (10YR6/6) mottling; noncalcareous; includes some 0.5-in.-thick light brown (5YR5/6) ironstone layers; contains beds of very light gray (N8) to yellowish gray (5Y7/2) calcarenite 0.5–2.5 in. thick that contain abundant trace fossils | 20.0 |
| 7. Shale, grayish red (10R4/2); contains a pale red (5R6/2) limestone layer 2.5 in. thick, numerous 0.5–1.0-in.-thick moderate reddish brown (10R4/6) ironstone layers, and several 0.5–1.5-in.-thick yellowish gray (5Y7/2) calcarenite layers with abundant trace fossils | 15.0 |
| 6. Shale, grayish orange (10YR7/4), very sandy, calcareous; includes abundant 0.5–2.0-in.-thick layers of grayish orange (10YR7/4) calcarenite with abundant trace fossils | 6.5 |
| 5. Calcarenite, very pale orange (10YR8/2) to grayish orange (10YR7/4), very fine grained, very thin bedded, wavy-bedded, trace fossils abundant; upper contact gradational; lower contact sharp .. | 3.8 |
| 4. Shale, mostly grayish red (10R4/2); contains abundant 0.5–1.5-in.-thick, light brown (5YR5/6) ironstone layers; noncalcareous | ~94.0 |
| 3. Calcarenite, dark yellowish orange (10YR6/6) to moderate brown (5YR4/4), very fine grained, very thin bedded; wavy-, parallel-bedded with abundant trace fossils; some load casts | 3.0 |
| 2. Shale, grayish red (10R4/2) with sparse moderate reddish brown (10R4/6) ironstone concretions; grades downward to dark yellowish brown (10YR4/2) shale; upper and lower contacts sharp; poorly exposed | 48.0 |

ROD CLUB (?) MEMBER

1. Sandstone, grayish orange (10YR7/4) to dark yellowish orange (10YR6/6) to very pale orange (10YR8/2), fine-grained, thin- to medium-bedded in upper 3 ft and very limonitic; noncalcar-