

1982 Luncheon Meetings

Salina, Utah.

The Flagstaff Formation is an early Tertiary (Paleocene-Eocene) sequence of primarily thick, lacustrine, freshwater limestone. Limestone of the formation forms a resistant cap over much of the central and southern Wasatch Plateau. Although limestone is the dominant lithology, fluvial and nearshore lacustrine deposits are also represented, locally, by red and orange sandstone and conglomerate and red to purple siltstone and mudstone. These terrigenous clastic rocks are major elements in locally exposed sections of Lake Flagstaff deposits.

Sections are divided into five informal divisions based on lithology. They are, from the bottom up: 1) red to green mottled mudstone and gray mudstone interbedded with fine-grained sandstone; 2) dolomitic limestone; 3) fine-grained, pale red, horizontally stratified sandstone; 4) brown to pale red, massive mudstone interbedded with siltstone and limestone; and 5) sandstone channel fills. These divisions represent the diversity of depositional environments associated with the lake including freshwater swamp and lake, delta, bay, channel fill, and crevasses.

The upper beds of the North Horn Formation are a rooted and churned freshwater-swamp mudstone deposited in low, well-drained areas surrounding the lake. Evidences of occasional crevasses from distributaries which emptied into the lake are preserved in discontinuous splay sandstone bodies that are interbedded with the freshwater-swamp mudstone beds. Shoals, produced in part by gastropods and ostracods, are evidenced by coquinas associated with other lacustrine carbonate beds that were deposited in shallow bays within the lake. Major lake infilling is reflected in fine-grained sandstone beds deposited along the shore of the lake.

The first reported bird trackways from the Flagstaff Formation, along with amphibian (frogs) and other quadruped tracks, are found in these shoreline deposits. Crocodile, fish and turtle remains occur as coprolites within lacustrine carbonate beds.

Possible hydrocarbon traps may exist in medium-grained, friable, nearshore sandstone. Although as yet untested, these beds may be found in favorable structural and/or stratigraphic positions where sourcing from lacustrine sediments and sealing by fluvial mudstone and shale may permit hydrocarbon accumulations.

SPERRY, STEVE, Union Oil Co.

An Intimate Look at a Paleocene Lake

Fluvial and nearshore lacustrine deposits of ancient Lake Flaggstaff are represented in the Flagstaff Formation (Paleocene-Eocene) and upper beds of the North Horn Formation (Paleocene). These deposits are exceptionally well exposed along Interstate Highway 70 in Salina Canyon, near