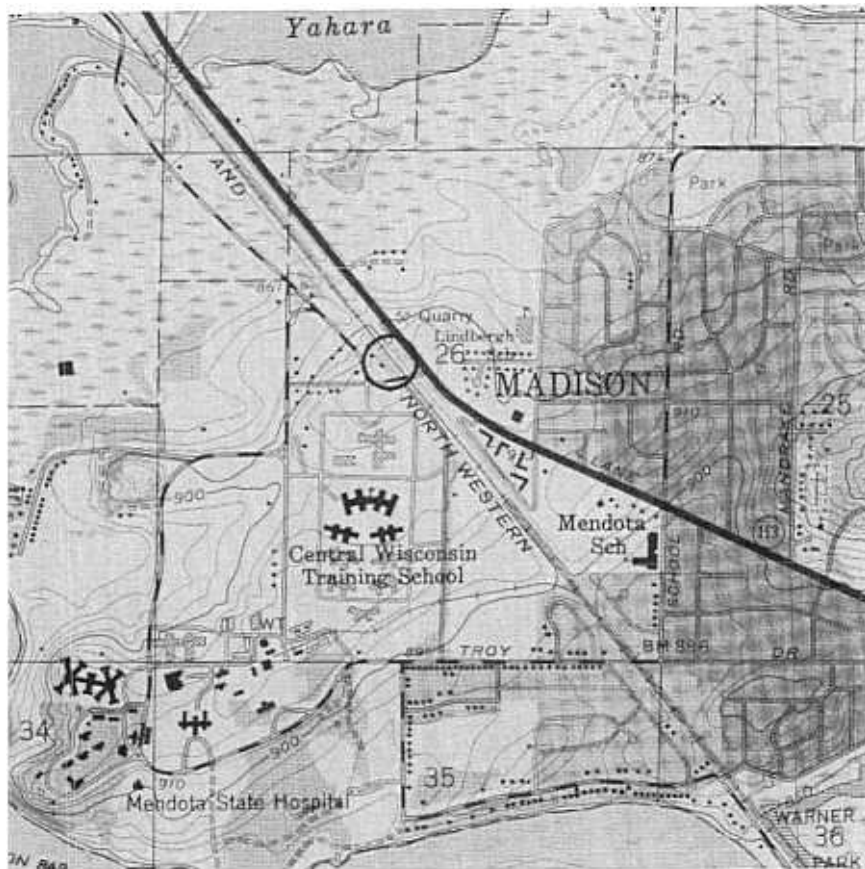


OUTCROP 4

Title: Madison-Mendota Station

Location: Chicago and Northwestern Railroad Cut at Mendota Station in the SE $\frac{1}{4}$, SE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 26, T.8N., R.9E., Dane County (Waunakee 7.5 minute topographic quadrangle, 1974).



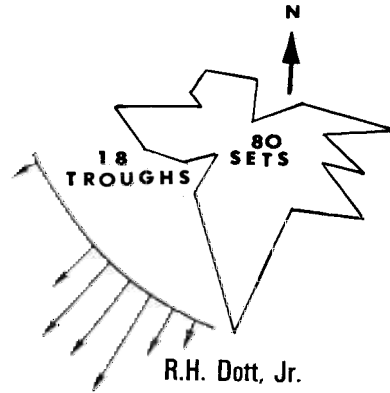
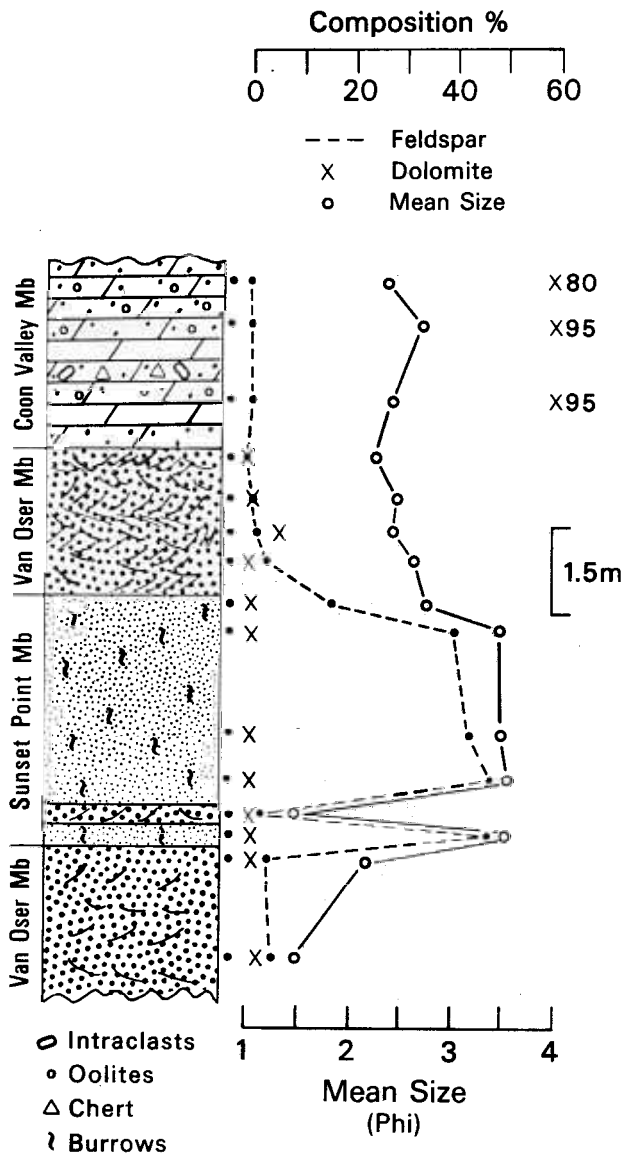
Author: I. E. Odom

Description: The Mendota Station section is highly important relative to the stratigraphic position of the Sunset Point Member, and to the physical nature of sedimentation during the time that the Jordan Formation was deposited in central Wisconsin. This section has figured prominently in past controversy regarding the stratigraphy and sedimentology of the St. Lawrence and Jordan Formations since E. O. Ulrich first described it in 1911, yet the lithic succession prior to 1976 was poorly understood. Past literature records this section as containing only the Van Oser Sandstone (at the base), the Sunset Point Sandstone and the Oneota Dolomite.

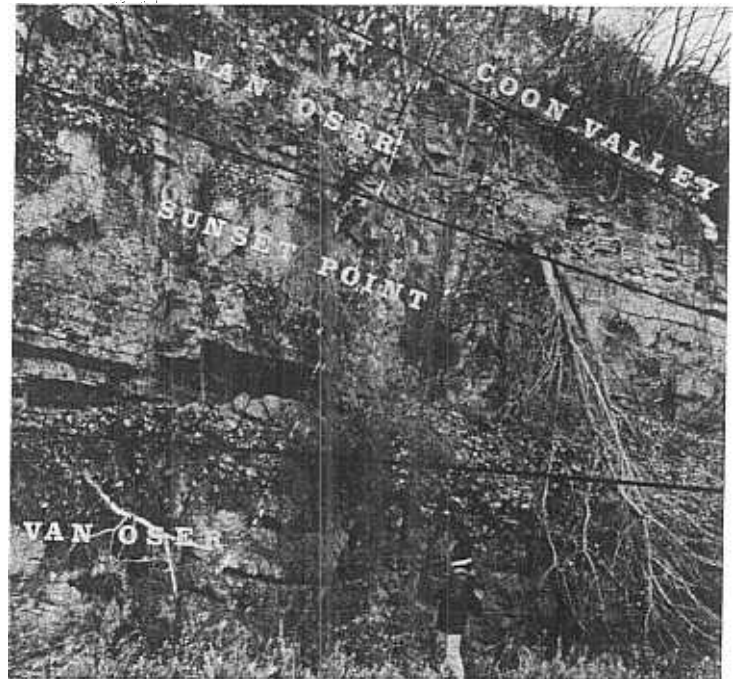
Recent studies of the lithology and sedimentary structures of this section, especially the texture and mineralogy, show that the very fine-grained, feldspathic

MENDOTA STATION SECTION

JORDAN FORMATION



Orientation of cross sets and plunge direction of trough axes in upper unit of the Van Oser Sandstone.



Stratigraphic relations in the Mendota Station Railroad cut.

Sunset Point Sandstone is both overlain and underlain by fine- to medium-grained, quartzose Van Oser Sandstone. The upper unit of the Van Oser Sandstone is in turn overlain by sandy dolostones and dolomitic sandstones (Coon Valley Member). The Sunset Point Sandstone is somewhat thinner, more massive and less dolomitic than at its type section. Between the lower Van Oser Sandstone and the Sunset Point Sandstone is a mixed zone of very fine-grained, feldspathic sandstone and medium-grained, quartzose sandstone. The contact of this zone with the underlying Van Oser Member rises in the section from the south toward the north end of the cut, but this is not considered to indicate an unconformable relationship. The Sunset Point Sandstone is gradational into the upper unit of the Van Oser Sandstone.

While the lower unit of the Van Oser Sandstone is only moderately cross stratified, the upper unit is highly cross stratified, especially on the east side of the cut. Dott shows a southwest current direction for the upper Van Oser unit based on the plunge of trough axes, while cross sets show more divergent current directions.

The Coon Valley Member crops out sporadically in the brushy area at the top of the outcrop and directly overlies the Van Oser. The sandy, "oolitic" dolostones and dolomitic sandstones contain reddish, conglomeratic, chert bands identical to those in the Coon Valley Member at the Sunset Point type section. The basal conglomeratic algal bed present at the base of the Coon Valley at the Sunset Point type section has not been observed in this outcrop.

Interpretations: The stratigraphic relations in this exposure and the fact that the Sunset Point Sandstone is not traceable beyond a local area in and north of Madison are the primary evidence for the interpretation that the Sunset Point Sandstone is a local lithic facies of the Van Oser Sandstone. This interpretation is further supported by the regional occurrence and the physical sedimentology of the Van Oser Sandstone.

Based on the fact that the Sunset Point Sandstone is absent only a few miles east of this outcrop, it is concluded that this area was near the eastern side (south side in Cambrian time) of the lagoon in which the Sunset Point Sandstone was deposited (Fig. 22). The lower unit of the Van Oser Sandstone represents a littoral environment existing prior to the development of the Sunset Point lagoon. The upper unit of the Van Oser Sandstone records a shift of the East Madison Bar complex (Fig. 22) into the margin of the Sunset Point lagoon. At this location, the sandy, "oolitic" dolomites of the Coon Valley Member were deposited on the Van Oser Sandstone rather than on the Sunset Point Sandstone. This stratigraphic relation does not imply that deposition of the Coon Valley Member necessarily began earlier at the Sunset Point type section.