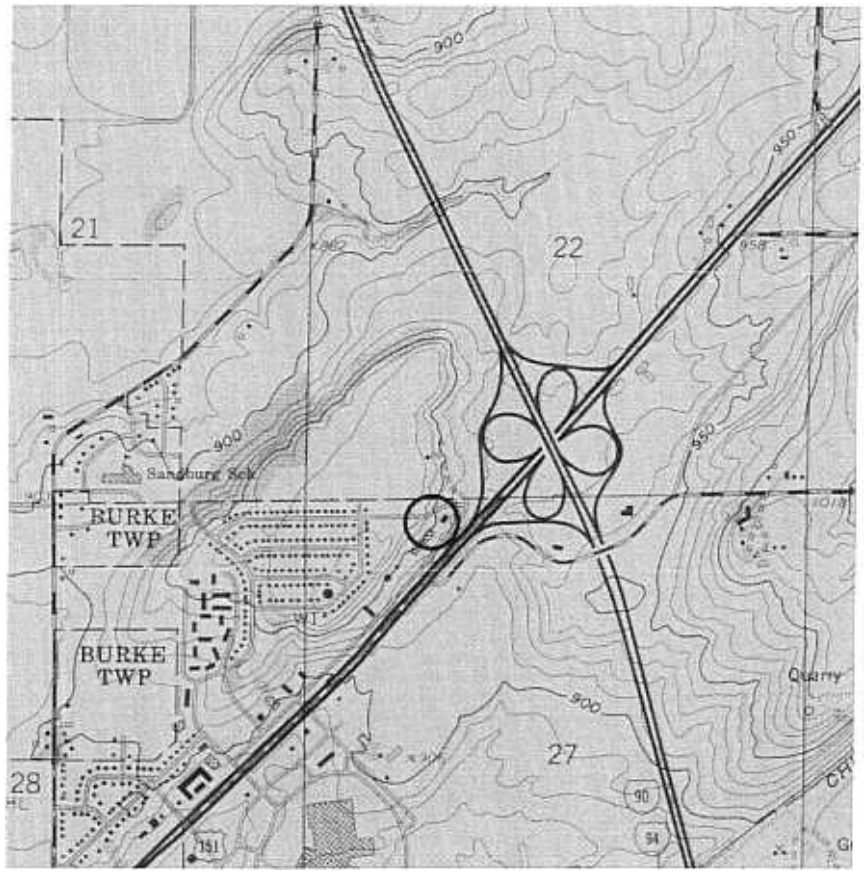
Outcrop 3

Title: Madison - Howard Johnson East

Location: Rear of Howard Johnson Motel near U.S. 151 and I-90 Interchange in the NE¼, NW¼, NW¼, Sec. 27, T. 8N., R.10E., Dane County. (DeForest 7.5 topographic quadrangle, 1974).



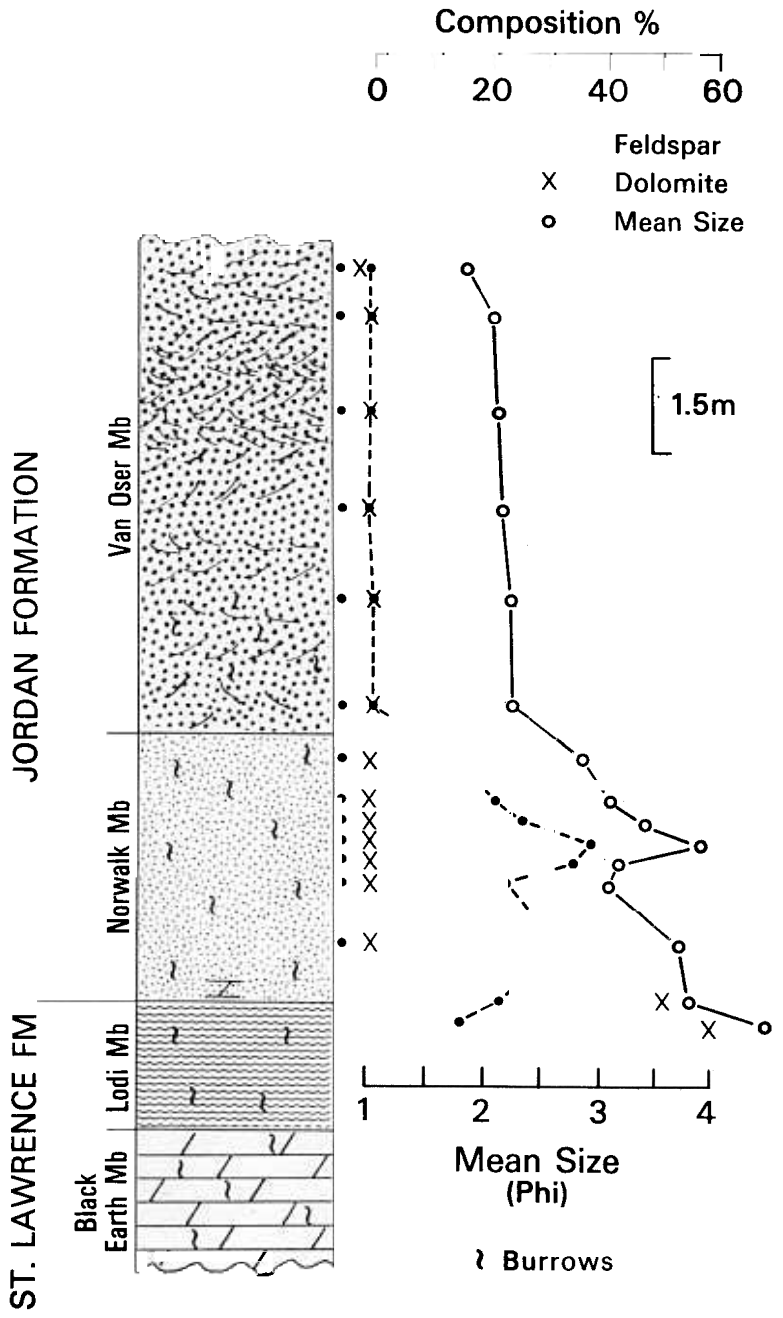
Author: E. Odom

Description: This section was measured in 1976 and is a composite of exposures at the rear of and in the driveway to the Howard Johnson Motel and at the rear of Barnaby's Restaurant. Unfortunately, the Lodi Siltstone and Norwalk Sandstone Members, once exposed behind Barnaby's, have been covered to prevent mass wasting and damage to property at the top of the cut. The upper few feet of the Norwalk Member, however, are still exposed behind the Road Star Motel a few hundred meters to the southwest. To further illustrate the bedrock succession in this area of Madison, a section is included of an exposure on Messerschmidt Road northeast of Truax Air Field (4 km - 2.5 miles to the northwest).

The bedrock exposed in the northeastern part of Madison includes the St. Lawrence, the Jordan, and the lower part of the Oneota Formations. The Norwalk,

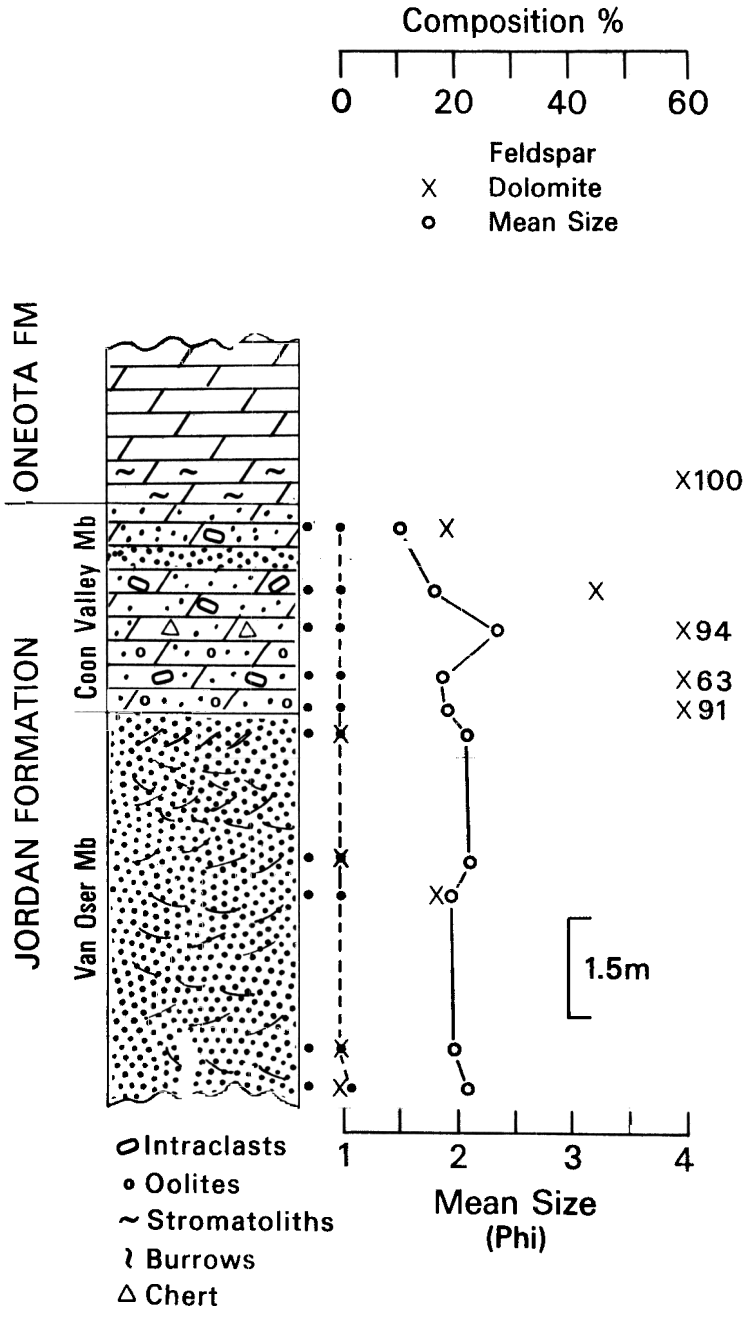
Madison, Wis.

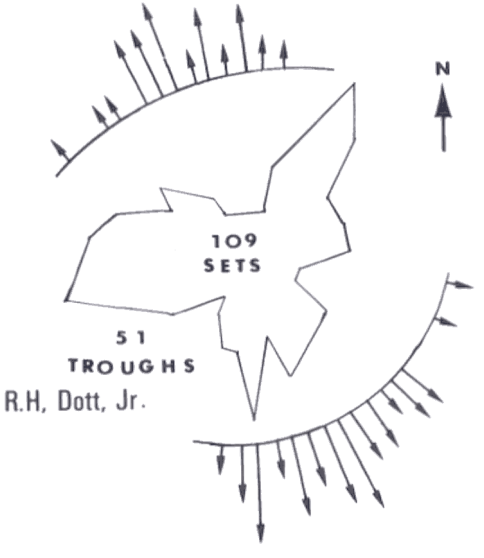
HOWARD JOHNSON MOTEL



Madison,Wis.

TRUAX AIRPORT SECTION





(Left) Current directional data based on the plunge of trough axes and dip of cross sets in the Van Oser Sandstone, Howard Johnson Motel.

(Right) Cross stratification in the Van Oser Sandstone, Howard Johnson Motel.

Van Oser and Coon Valley Members of the Jordan are represented, with the Van Oser being by far the thickest. These members and the adjacent formations are stratigraphically transitional. It is important to note that the Sunset Point Sandstone is again not present in this area.

An additional point of interest at this locality is the local highly cross-stratified nature of the Van Oser Member. Note that current directional data for this outcrop (shown on page 109 and in Fig. 28), both the plunge of trough axes and the dip of cross sets compiled by R. H. Dott, Jr., show two modes nearly 180° apart. Directional data for the Truax Section, however, show a generally southwest transport (Fig. 28).

Interpretations - Based on the regional lithic nature and occurrence of the St. Lawrence Formation, it is considered to have been deposited in an inner neritic environment immediately shoreward of a carbonate platform. Local conglomeratic beds and algal mounds (note present here) suggests very shallow water. The algal structures and conglomerates have been previously interpreted to indicate intertidal or supratidal conditions (see Outcrop 7). The Black Earth Dolostone is transitional with the feldspathic Lodi Siltstone, which is in turn transitional into the very fine-grained, highly feldspathic Norwalk Sandstone of the Jordan Formation. The very fine grain size and bioturbated nature of the Norwalk Sandstone are interpreted to be indicative of a lagoonal environment (Odom and Ostrom, this guidebook). The textural and structural properties of the Van Oser Sandstone indicate a hydrologic regime characteristic of a littoral environment referred to herein as the East Madison Bar complex. The ebb and flow of tidal currents within this bar complex is a possible explanation for the bimodal nature of the current direction indicators in the Van Oser Sandstone of this area (Fig. 28). The lithic and structural characteristics and thickness of the Coon Valley Member in this area are similar to the Coon Valley at Outcrops 1 and 2.

Remarks on Geologic Structure of the Madison Area. Disrupted bedding toward the west end of the Howard Johnson Motel cut suggests that a small fault may be present. During my studies of the bedrock of the Madison area, I identified three significant faults, and I am suspect that many others exist. Structurally, the Howard Johnson exposure is situated on a horst bounded by northeast-southwest trending faults. The northwest bounding fault passes beneath Truax Air Field, whereas the southeast bounding fault passes through the village of Burke. These faults have vertical displacements of at least 20 to 25 meters (60-80 feet) The stratigraphic relations in the East Madison area were initially confusing but became crystal clear when the presence of these faults was recognized.

The third clearly recognizable fault is located near Cross Plains, and it is discussed in the description of Outcrop 5. Open file reports and recently acquired well data in the files of the Wisconsin Geological and Natural History Survey indicate that other faults, some perhaps with displacements greater than 30 meters, occur in the area.