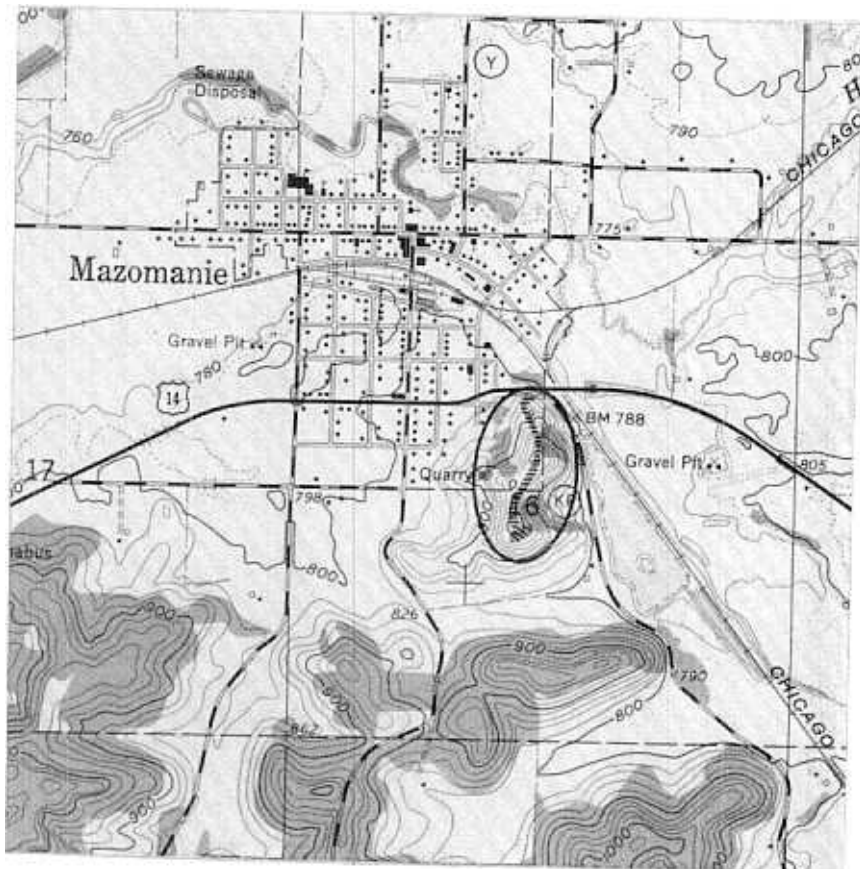


Title: Mazomanie Bluff

Location: Bluff at southwest end of bridge over Black Earth Creek in the SE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 16, T.8N., R.6E., Dane County (Mazomanie 7.5-minute topographic quadrangle, 1962).



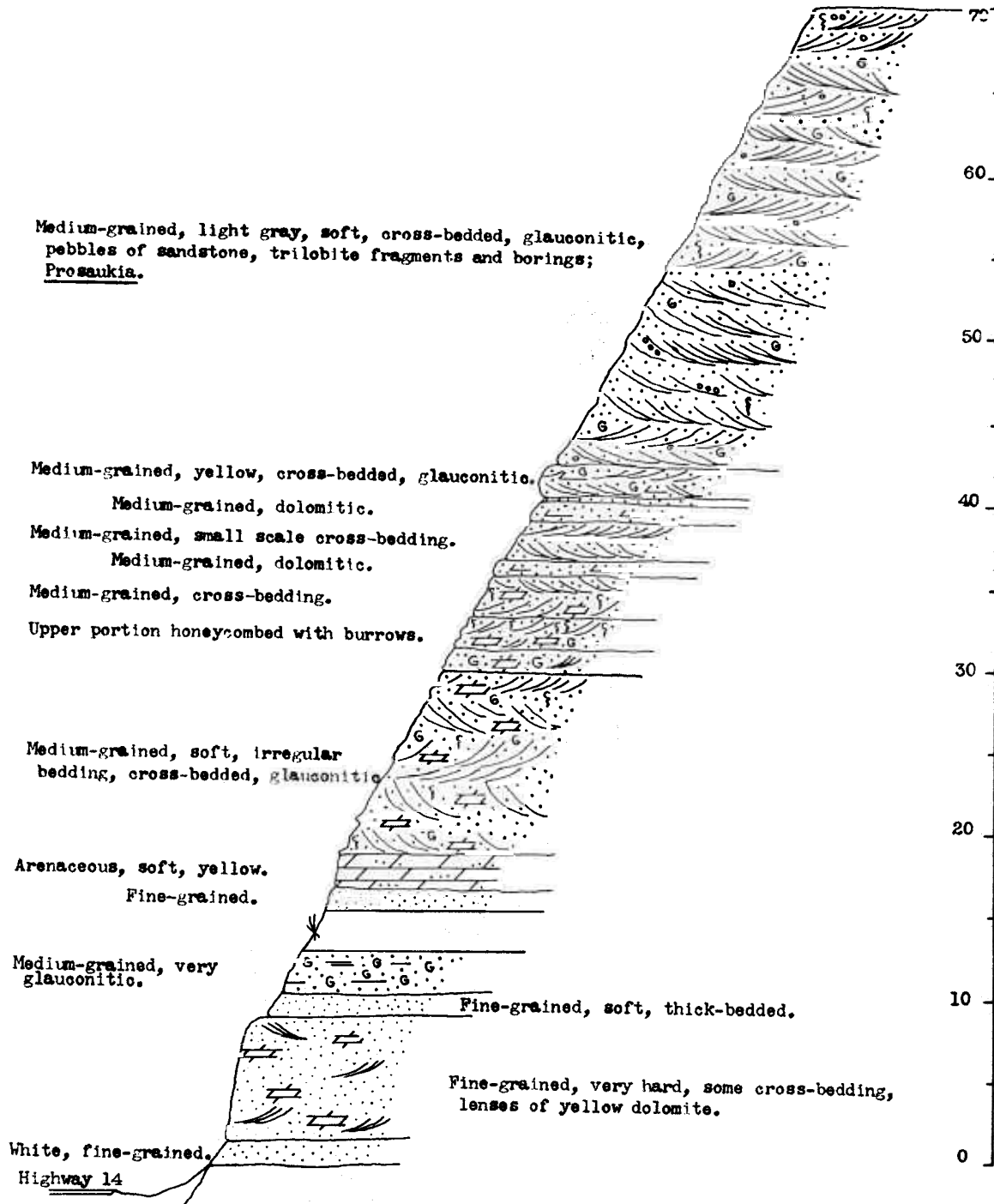
Author: M. E. Ostrom (modified from Starke, 1949, Cline, 1959 & 1960, and Ostrom and Cline, 1970).

Description: The Wisconsin Arch has been seen to exercise an influence on the lithology and thickness of various formations and members as can be seen by comparisons of outcrops located in this area and westward to the Mississippi River. The Wisconsin Arch evidently was positive throughout much of the Upper Cambrian and Lower and Middle Ordovician time as is shown by the thinning of many of the units over the arch (Starke, 1949; Ahlen, 1952; Emrich 1962; Ostrom, 1966, 1969; Melby, 1967). The Jordan Sandstone, for example, thins to 18 feet over the arch. The marked change in lithology and sharp contact between the St. Lawrence Formation and Jordan Sandstone at the Black Earth quarry could be interpreted as indicating pre-Jordan erosion as was suggested by Ostrom (1964). The Oneota rests with apparent unconformity on the Jordan on the basis of the fact that the "transition beds" of the basal Oneota are absent as was shown by Starke (1949) who ascribed the relationship to pre-Oneota erosion of the Jordan sands. However, the absence of these beds can also be accounted for by assuming that as the sea transgressed so did the lithic boundary separating

MAZOMANIE BLUFF SECTION
 SE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 16, T. 8N., R. 6E.

TUNNEL CITY GROUP

↑
Continued



CONTINUED

ST. LAWRENCE FM.

Arenaceous to shaly, red and yellow layers.

Arenaceous, thick-bedded.
Partings of red and green shale.

Dolomitic, in thin layers.

Weathers thick-bedded, but finely laminated;
dolomitic.

Fossiliferous; Westonia aurora, Dikelocephalus winona,
Tellerina crossimarginata, Bingula winona and L. mosia.

Finely laminated bed weathering massive, some sandy layers,
red clay parting at top.

Yellow-gray, dolomitic, layers $\frac{1}{4}$ to 2 inches thick.

Glauconitic, sandy, two layers exposed in old quarry.

Concealed; sandstone fragments.

ST. LAWRENCE FM.

TUNNEL CITY GRP.

Conglomeratic at top, medium-grained, glauconitic,
soft, some cross-bedding.

Medium-grained, glauconitic, white.

Medium-grained, light gray, soft, glauconitic,
cross-bedded, pebbles of sandstone, trilobite
fragments, Proseukia.

Continued

140

130

120

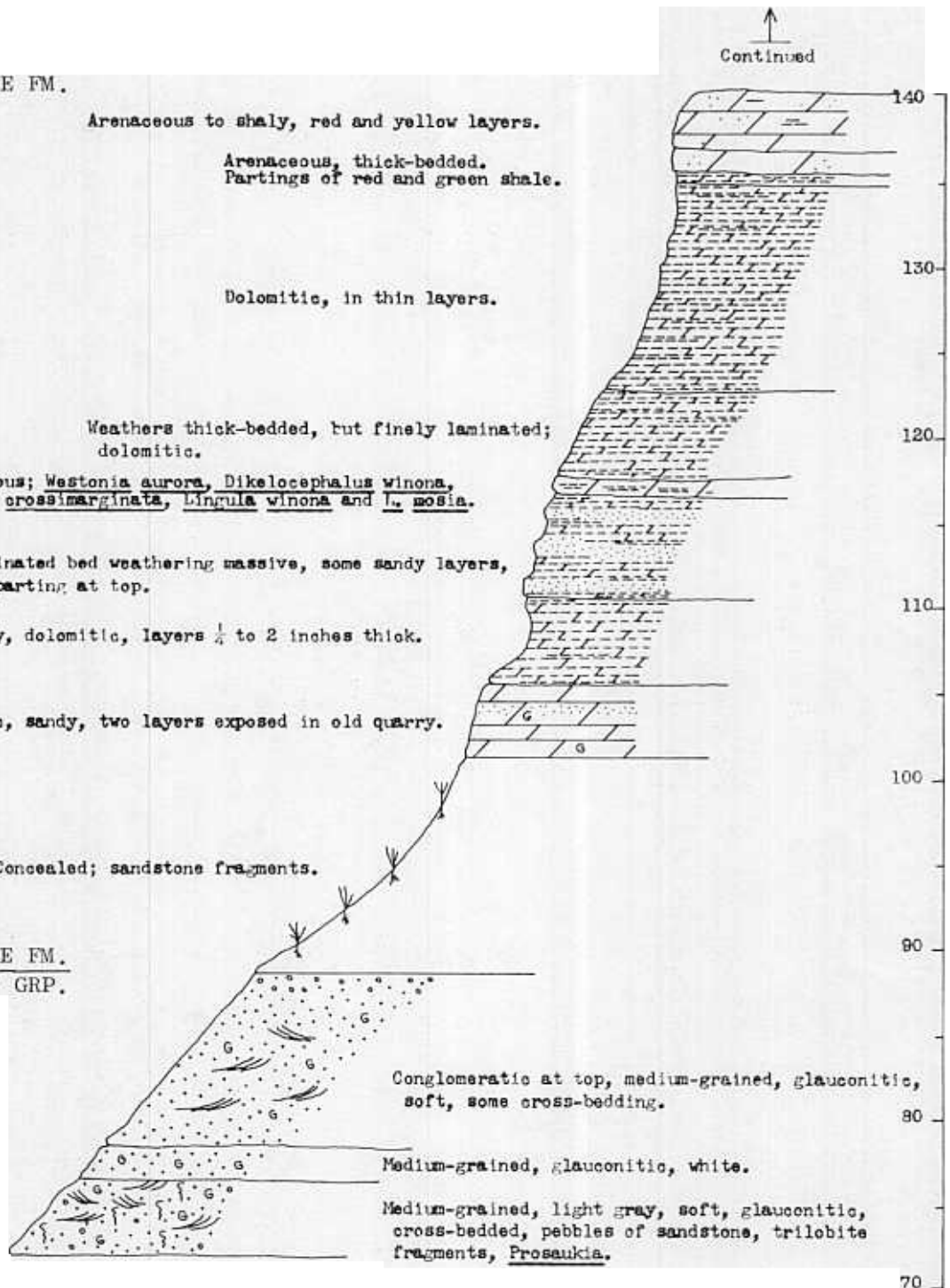
110

100

90

80

70



CONTINUED

ONEOTA FM.

Gray to buff, thick-bedded, badly weathered.

Contains algal structures.

Gray, contains fragment of chitons.

Buff, fine-grained, wavy-bedded, cherty.

Mottled, biostromal.

Gray, fine-grained.

(Old Quarry Face)

Buff, fine-grained, wavy-bedded.

Arenaceous.

Thick-bedded, wavy-bedded, lower part cherty.

Gray, thick-bedded, brecciated.

ONEOTA FM.

JORDAN FM.

Van Oser Mbr.

Light gray, fine-grained, thin firm layers.

White, soft, medium-grained, contains calcite concretions, in even beds.

JORDAN FM.

ST. LAWRENCE FM.

Coarse-grained, dolomitic, brownish-yellow, hard.

Yellowish-gray, arenaceous some red streaks.

210

200

190

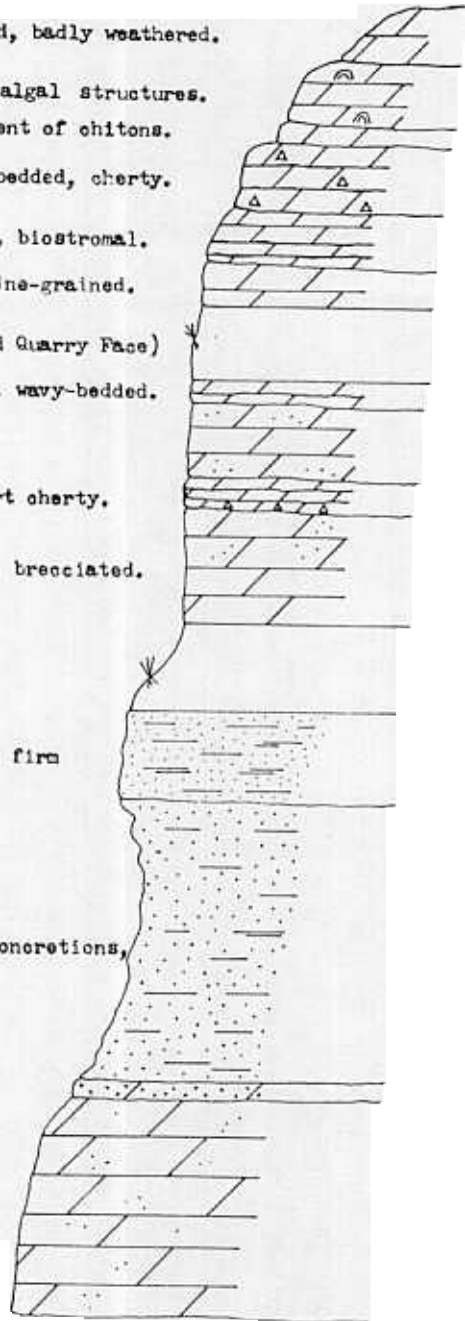
180

170

160

150

140



the "transition beds" from the underlying "sand beds". Thus, the lithic boundary would cross time boundaries. By this method individual beds among the "transition beds" would represent approximately time intervals and successively younger beds would reach further landward to form an overlapping pattern (Ostrom, 1964a).

Twenhofel, et al. (1935) assigned the upper 25 feet of the Tunnel City Sandstone at this exposure (Franconian) to the Reno Member. Ninety-three feet of the underlying section were referred to the Mazomanie and Birkmose members without attempt at differentiation. It is noteworthy that zone 24 (refer to Appendix), which is in the Lodi Siltstone 120 feet above the base of the outcrop, has yielded the world-famous Dikelocephalus fauna described by Ulrich and Resser (1916), although the genus is not restricted to the Lodi. Fossils are rare.

Black Earth Creek valley immediately above Mazomanie contains many feet of outwash sand and dolomitic gravel graded to the high sand terrace in the Wisconsin River valley.

Significance: The main purpose of this stop is to observe the effect of the Wisconsin arch on the Tunnel City Formation, St. Lawrence Dolomite, Lodi Siltstone and Jordan-Oneota contact.

How is the Tunnel City Formation here different from exposures in western Wisconsin? What is the significance in terms of history and environment of deposition? How does the St. Lawrence Formation exposed here compare with that exposed at the Arcadia stop? Significance? How does the Jordan Formation at this stop differ from that seen at previous stops? Significance? What is the historical and environmental significance of the contact of the Jordan with the Oneota? What fossil evidence can you find? What does it signify?

References: Ulrich & Resser, 1916; Twenhofel et al., 1935; Ahlen, 1952; Starke, 1949; Cline, 1959 and 1960; Emrich, 1962; Ostrom, 1964, 1966, 1969, and 1970; Melby, 1967.