Title: Tilden, Wisconsin -- contact of Mount Simon and Eau Claire Formations (Upper Cambrian)

Location: Section in roadcut on both sides of Chippewa County Highway F, 0.8 mile north of its intersection with Chippewa County Highway B in the SE corner NE1/4 NE1/4 sec. 7, T.29N., R.9W., Chippewa County (Como Creek, Wisconsin, quadrangle, 7.5-minute series, topographic, U.S. Geological Survey, 1975) (fig. 1).

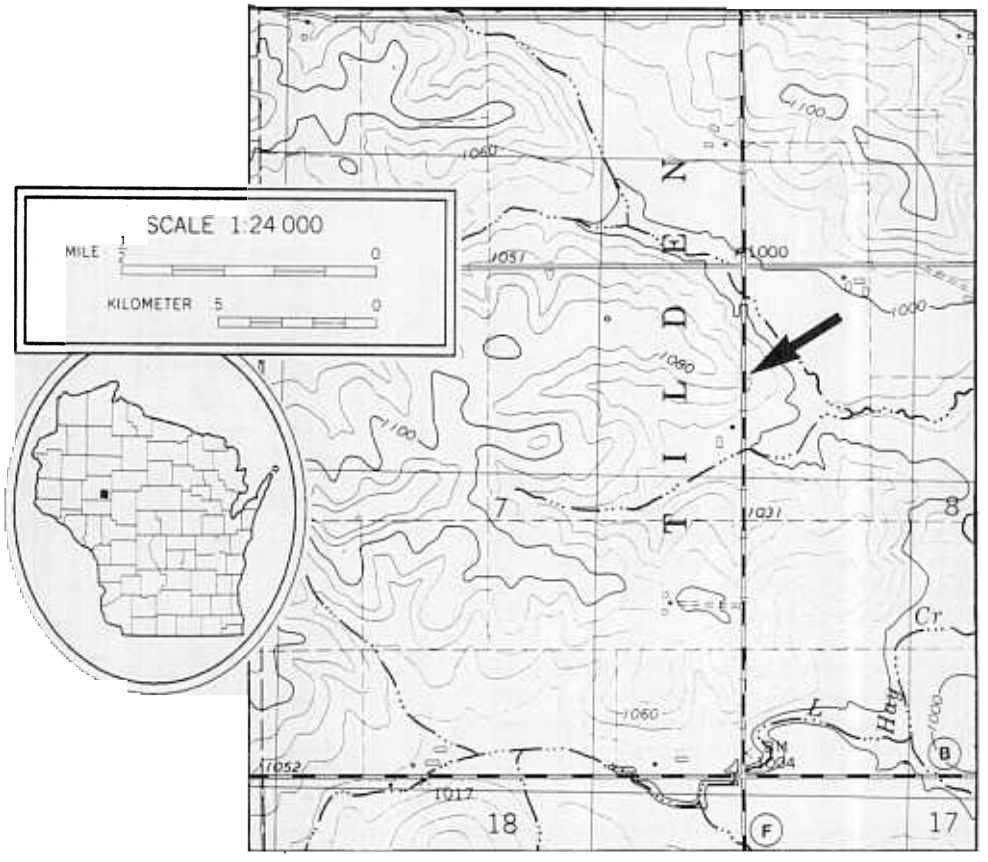

Figure 1. Location of roadcut near Tilden, Wisconsin, showing contact of Mount Simon and Eau Claire Formations.

Author: M.E. Ostrom, 1988

Significance: This exposure illustrates the contact of the Mount Simon Formation with the Eau Claire Formation. The proximity of this exposure to others of these formations in the vicinity of Chippewa Falls and Eau Claire is helpful for understanding stratigraphic and contact relationships in the area.

Description: This is one of the better exposures in Wisconsin of the contact between the Mount Simon and Eau Claire Formations. Although only 5 ft of Mount Simon is visible, its contact with the Eau Claire is exposed over a distance of 100 ft (figs. 2 and 3).

The Eau Claire Formation is distinguished from the Mount Simon by its generally finer grain size and thinner bedding and by the presence of abundant clay in thin shale beds and along partings. Glauco-

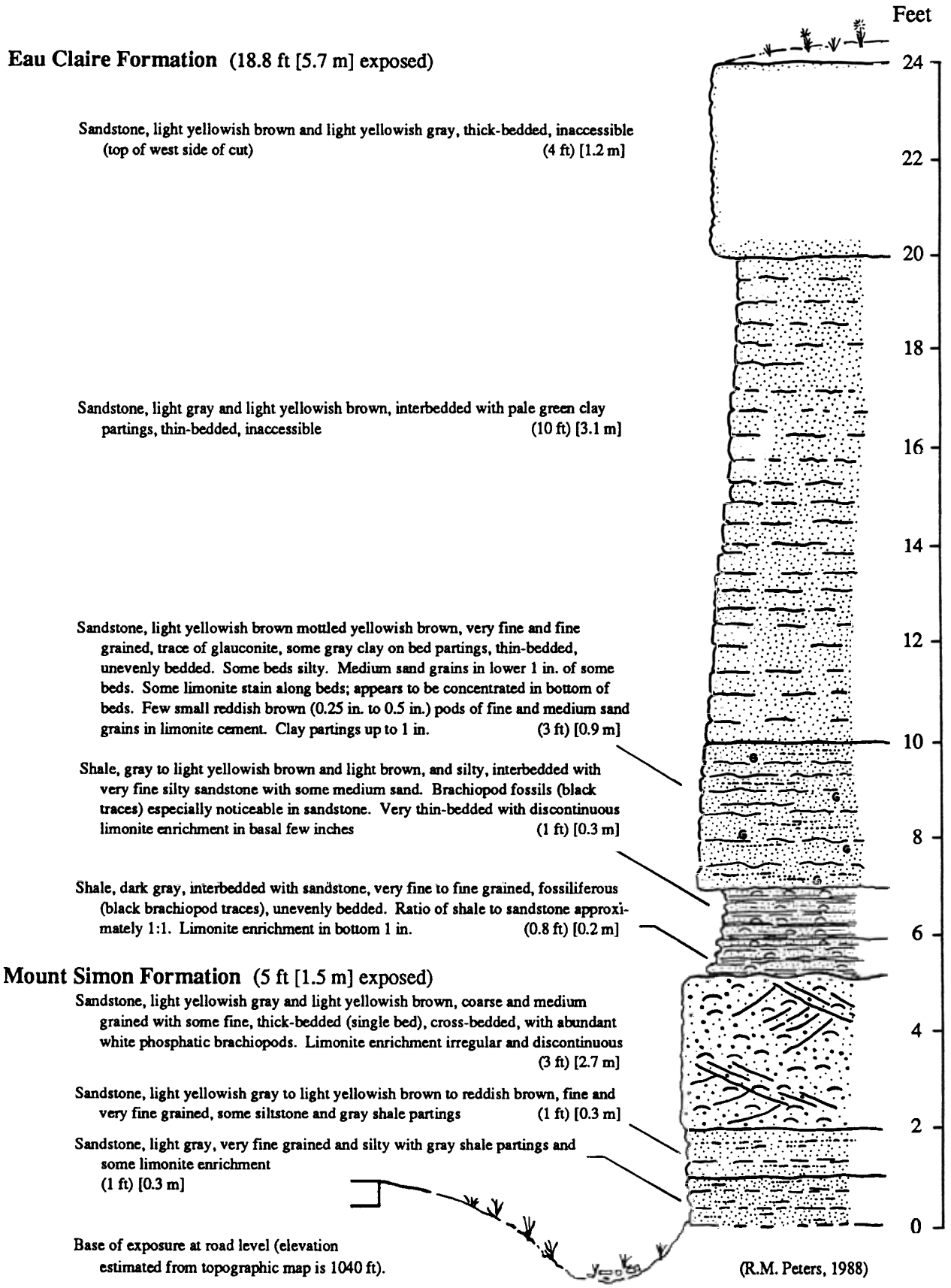

Figure 2. Stratigraphic section of Eau Claire and Mount Simon Formations.

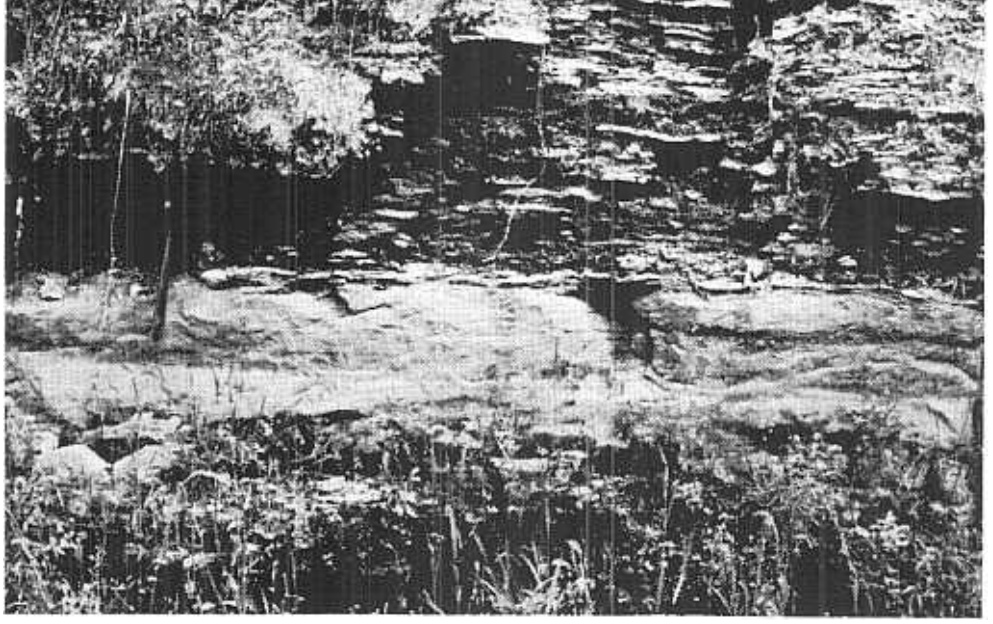

Figure 3. Contact of Mount Simon sandstone with overlying Eau Claire shaley sandstone at east side of County Highway F (hammer handle is 14 in. long).

nite and trilobites are common in places. The Eau Claire in this exposure is within the *Cedaria* faunal zone. The lower few inches to 1 ft is commonly limonite-enriched. At the contact, about 4 ft above road level, the Mount Simon consists of cross-bedded, coarse- and medium-grained sandstone in a single thick bed, with abundant phosphatic brachiopod shells. Limonite enrichment is more or less present in this bed but tends to be more prevalent in the upper 6 in. The Mount Simon is overlain by the Eau Claire Formation, which consists of about equal amounts of dark gray shale interbeddded with brownish gray silty, very fine-grained sandstone that contains abundant brachiopod fossils (black traces) and trail markings. Limonite enrichment is in the bottom few inches. Bedding is uneven.

A similar relationship can be seen at the Rest Haven Gardens exposure on Old Town Hall Road, an east-west asphalt road 0.8 mile west of the junction of Eau Claire County Highway IA with U.S. Highway 53, south of the city of Eau Claire on the north line of the NW1/4 SE1/4 sec. 2, T.26N., R.9W., Eau Claire County (Ostrom, 1978a). Although more than 20 ft of each formation is exposed here, the contact of the Mount Simon with the Eau Claire is poorly exposed.

The Eau Claire Formation at the Tilden outcrop consists of 14.8 ft of the lower "shaley beds" overlain by the "lower thin-bedded unit" of Morrison (1968). Morrison describes the shaley beds as "shaley sandstone and shale, very fine and fine-grained, and very thin-bedded, individual beds often indistinct and seldom over 3 in. thick. Abundant fossils and track markings. About 15 ft thick." The overlying lower thin-bedded unit consists of "sandstone, fine and very fine-grained, mixed thin and thick beds, thin beds regular and distinct, glauconitic, high clay content, mica common. Abundant fossils and trail markings. About 20 ft thick."

The Eau Claire Formation is exposed in other roadcuts along County Highway F both north and south of this exposure. An expecially good exposure of some of the overlying units is in a semi-active quarry located 1 mile east of this exposure at the east side of Quarry Road, 0.4 mile north of its junction with County Highway B.

Ostrom (1970) interprets the section exposed in this outcrop to represent a transgressive transition from prevailing high-energy shallow, near-shore marine deposits of the Mount Simon Formation to prevailing lower energy, more offshore marine deposits of the Eau Claire Formation. This interpretation is suggested by the change from coarse sand grains, thick beds, few to no fossils, and no to minor clay

The following exposures in this vicinity are helpful to understanding stratigraphic relationships and lithologies of the Upper Cambrian rocks:

Irving Park: Precambrian/Paleozoic unconformity at Chippewa Falls (Ostrom, 1978b; 1987a), CH 29N/08W/31;

Mount Simon: Mount Simon Formation at Eau Claire (Ostrom, 1978c; 1987b), EC 27N/09W/08;

Strum: Eau Claire Formation at Strum (Ostrom, 1978d; 1987c), TR 24N/08W/18.

References

Morrison, B.C., 1968, Stratigraphy of the Eau Claire Formation of west-central Wisconsin: Madison, University of Wisconsin, Master's thesis, 41 p.

Ostrom, M.E., 1970, Field trip guidebook for Cambrian-Ordovician geology of western Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 11, 131 p.

_____, 1978a, Rest Haven Gardens Town Road: Wisconsin Geological and Natural History Survey Outcrop Description EC 26/09W/02.

_, 1978b, Irvine Park: Precambrian/Paleozoic unconformity at Chippewa Falls, Wisconsin: Wisconsin Geological and Natural History Survey Outcrop Description CH 29N/08W/31.

_, 1978c, Mt. Simon: Mt. Simon Formation at Eau Claire, Wisconsin: Wisconsin Geological and Natural History Survey Outcrop Description EC 27N/09W/08.

_, 1978d, Strum: Eau Claire formation at Strum, Wisconsin: Wisconsin Geological and Natural History Survey Outcrop Description TR 24N/08W/18.

_, 1987a, Precambrian/Paleozoic unconformity at Chippewa Falls, Wisconsin: Geological Society of America Centennial Field Guide Volume 3, North-Central Section, Outcrop Description Number 42, p. 177-178.

_____, 1987b, The Mount Simon Formation at Eau Claire, Wisconsin: Geological Society of America Centennial Field Guide Volume 3, North-Central Section, Outcrop Description Number 43, p. 179-182.

_, 1987c, Late Cambrian Eau Claire Formation at Strum, Wisconsin: Geological Society of America Centennial Field Guide Volume 3, North-Central Section, Outcrop Description Number 44, p. 183-184.

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