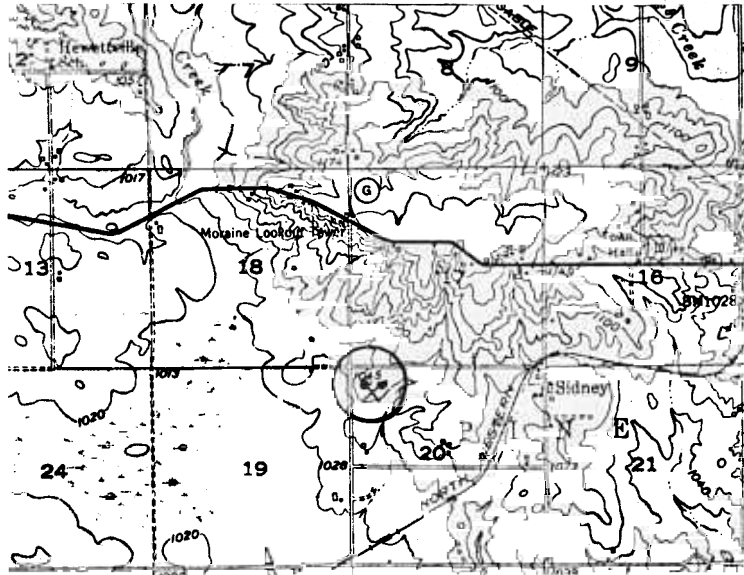


TITLE: Age of Spheroidal Weathering in Precambrian "Granite"

LOCATION NW 1/4, NW 1/4, Sec. 20, T 24 N, R 2 W, Neillsville 15' quadrangle



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SUMMARY OF FEATURES:

Sheared and spheroidally weathered "granite" containing xenolithic sheets and lenses of biotite-chlorite schist is overlain by Late Cambrian Mt. Simon Sandstone and then by red-brown boulder till in a small quarry. The unconformity is unique in displaying depositional features indicating that the Mt. Simon Sandstone was deposited on a granitic surface which was already spheroidal weathered. Some geologists argue that weathering at the Precambrian-Cambrian interface has occurred in much more recent time as groundwaters tend to flow along it.

The "granite" (probably adamellite or trondhjemite) is composed of feldspar, quartz and biotite, most of which has been chloritized. Schlieren and lenticular xenoliths of chloritized mica schist are strongly folded: they probably represent fragments of older Precambrian (archean?) metasediments which were rafted up during "granite" intrusion. The fresh "granite" is gray: the pervasive pink color of its weathered counterpart was produced by chemical weathering of abundant pyrite.

Basal Mt. Simon Sandstone here consists of a thin, discontinuous layer of coarse sand overlain by 0.5 meter bed of sandy shale, which was probably derived locally from clays formed on the weathered "granite" and deposited in slack waters between exposed spheroids during Late Cambrian transgression. Overlying sandstone is of more "normal" Mt. Simon lithology. (See Figure 1 and 2)

The glacial deposits overlying Mt. Simon Sandstone at this locality is a red-brown sandy boulder till with a maximum exposed thickness of 7 meters. It is interesting that this till sheet lies 1.2 kilometers south of the moraine along U.S. 10. What is the significance of this spatial relationship?

Observe the "granite" closely: take careful notes, make sketches, take samples for comparison with granitic rocks elsewhere in the Neillsville area. How does the "granite" here compare with the "Neillsville granite"?

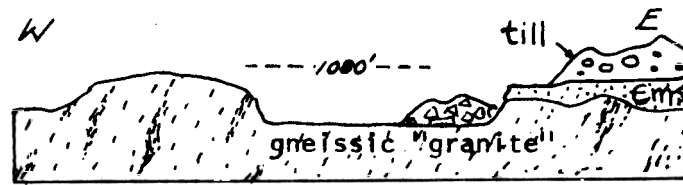


Figure 1 -- Cross-section of pit showing unconformity between Precambrian gneissic "granite" and Late Cambrian Mt. Simon Sandstone (Cms). These are overlain by Pleistocene till.

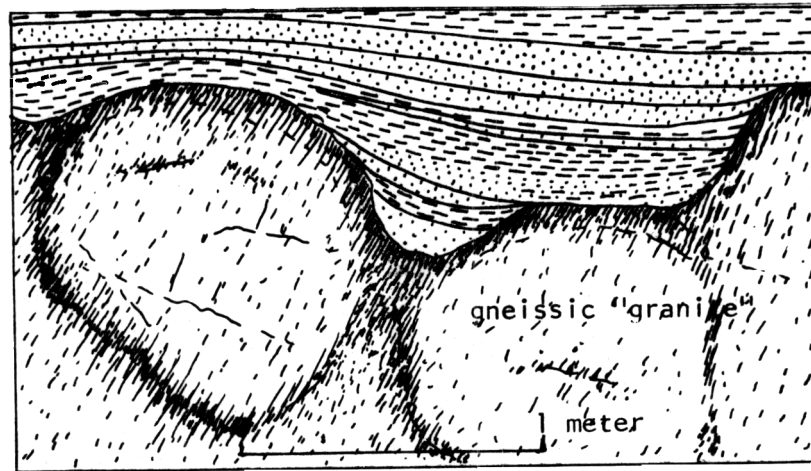


Figure 2 -- Gneissic "granite" was spheroidally weathered and then overlain by Mt. Simon Sandstone as shown above (Sketch made July 18, 1974.)