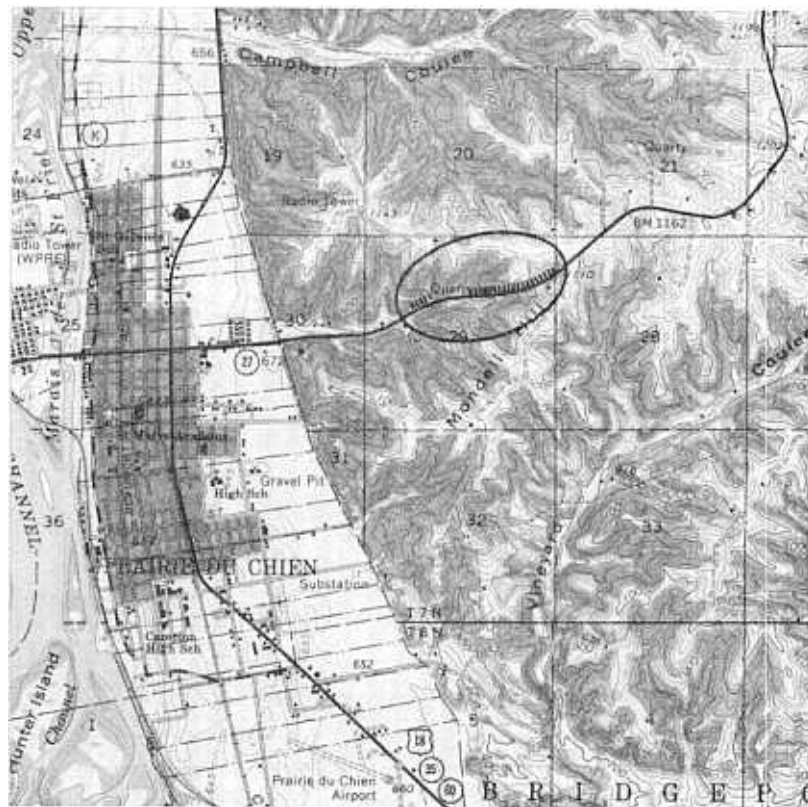


Title: Prairie du Chien

Location: Exposure in roadcut and quarry at north side of Wisconsin Highway 27 in the NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , NE $\frac{1}{4}$ , Sec. 29, T.7N., R.6W., Crawford County (Prairie du Chien 15-minute topographic quadrangle, 1967).



Author: M. E. Ostrom (modified from L. M. Cline, 1970)

Description: Unconformity at base of St. Peter Sandstone and sections of Shakopee and Platteville Formations are exposed. A well-developed U-shaped channel of St. Peter Sandstone cuts out several feet of Shakopee Dolomite and sandstone in a cutbank on the north side of the road. Just east of the channel the sheet phase of the St. Peter rests disconformably on several feet of dolomite in the upper part of the Shakopee. Below the dolomite member, but also in the Shakopee Formation, are several thick beds of sandstone. As these horizontal beds of Shakopee are traced westward toward the St. Peter channel, the upper dolomite disappears and the sandstone in the Shakopee curves downward toward the channel. The dips in the Shakopee are believed to be secondary, being due, in part, to pre-St. Peter solution of carbonate in the Shakopee with a corresponding reduction in volume and collapse toward the channel. Insoluble argillaceous residues of the Shakopee carbonate beds may be seen just east of the channel. The same relationship may be seen just west of the channel where sandstones in the Shakopee dip eastward toward the channel; the latter dips have been accentuated by some small-scale post-St. Peter faulting. There

is strong possibility that pre-St. Peter solution of Shakopee carbonate below road level is partly responsible for some of the dips. The possibility should not be overlooked that ground water, moving freely along the permeable channel phase of the St. Peter, may have accomplished additional solution of the Shakopee at a much later geologic date; this is suggested by the small scale faulting along the west wall of the St. Peter channel.

The New Richmond Sandstone occurs at a lower stratigraphic position in a quarry about 200 yards west and on the north side of the road. In this quarry well-bedded sandstones and dolomites of the New Richmond may be seen about midway in the west face where they rest on the more massive, cavernous and biostromal dolomites of the Oneota. Note here the thin green shaly bed which marks the top of the New Richmond.

Upslope from the St. Peter channel and just out of sight around the bend in the road, the Platteville Formation is nicely exposed in a cutbank on the north side of the highway. Thick-bedded, blue-gray, buff-weathering dolomites of the Pecatonic Member of the Platteville constitute the lower few feet of the cut. The overlying argillaceous, nodular calcitic limestones belong to the McGregor Member. The McGregor offers very good fossil collecting in contrast to the relatively barren Pecatonica Dolomite.

A description of the section follows

ORDOVICIAN  
Champlainian series  
Chazyan stage

St. Peter Sandstone (26.3 feet)

240.5' - 265.5'	25.0'	Sandstone, white, massive, well-sorted, grains rounded and frosted, bedding not apparent, thickness varies for the sandstone fills a channel which is 20-25 feet deep into the underlying dolomite.
239.2' - 240.5'	1.3'	Sandstone, mostly, of varying character, poorly sorted, includes red residual clays at the base.

Canadian series

Lookmantown stage

Prairie du Chien Formation

Shakopee Dolomite Member (62.5 feet)

238.7' - 239.2'	0.5'	Sandstone, white, friable, medium-grained, medium-sorted, grains rounded.
238.2' - 238.7'	0.5'	Dolomite, fine-grained, buff to gray
237.7' - 238.2'	0.5'	Dolomite, fine-grained, buff, vuggy.
234.7' - 237.7'	3.0'	Dolomite, fine-grained, buff, with green shale partings.

231.7' - 234.7'	3.0'	Dolomite, red to gray, medium-grained, massive vuggy.
229.7' - 231.7'	2.0'	Dolomite, fine to coarse-grained, brown to gray
226.7' - 229.7'	3.0'	Sandstone, grains rounded and frosted, each grain coated with layers of brown dolomite.
221.7' - 226.7'	5.0'	Sandstone, brown to white, thin to thick bedded cross-bedded, poorly-sorted.
218.7' - 221.7'	3.0'	Dolomite, very sandy, brown to gray, medium-grained.
217.7' - 218.7'	1.0'	Dolomite, reddish gray, medium-grained, thin-bedded.
212.7' - 217.7'	5.0'	Covered interval, approximately.
187.7' - 212.7'	25.0'	Dolomite, poorly exposed, mostly thin-bedded, reddish gray, medium-grained, sandy in part, approximately.
182.7' - 187.7'	5.0'	Dolomite, brown to gray, medium-grained, bedding irregular, large <u>Cryptozoans</u> .
179.7' - 182.7'	3.0'	Dolomite, thin-bedded, fine-grained, buff.
178.7' - 179.7'	1.0'	Dolomite, brown, finely-crystalline, large Cryptozoans, very irregular in thickness, much secondary calcite.
176.7' - 178.7'	2.0'	Dolomite, brown, medium-grained, bedding irregular, Cryptozoans.

#### Prairie du Chien Formation

##### New Richmond Sandstone Member (18.5 feet)

172.7' - 176.7'	4.0'	Conglomerate, sandy, dolomitic with green shale partings, some cherty colites in nodules, rounded flat pebbles of buff fine-grained dolomite.
170.7' - 172.7'	2.0'	Dolomite, brown, medium-grained, 'wavy' bedded
170.4' - 170.7'	0.3'	Shale, green soft
169.9' - 170.4'	0.5'	Sandstone, white, friable, poorly-sorted, large grains rounded and frosted.
165.4' - 169.9'	4.5'	Dolomite, very sandy, brown, brecciated, some beds of soft green shale.
163.6' - 165.4'	1.8'	Sandstone, white, friable with green shale partings and zones of dense, dark brown dolomite.

162.6' - 163.6'	1.0'	Dolomite, sandy, buff and fine-grained
160.1' - 162.6'	2.5'	Dolomite, buff and fine-grained, thin-bedded.
159.6' - 160.1'	0.5'	Sandstone, white, friable, with thin dolomite beds throughout, a green shale bed near the top.
158.1' - 159.6'	1.5'	Sandstone, white, some friable, some well cemented, medium-sorted, grains rounded and frosted.
158.0' - 158.1'	0.1'	Shale, persistent, green, soft.

Prairie du Chien Formation

Oneota Dolomite Member (158.0 feet)

115.0' - 158.0'	43.0'	Dolomite, massive, cherty, vuggy, bedding irregular medium-grained, some thin beds toward the base, approximately.
50.0' - 115.0'	65.0'	Dolomite, poorly exposed, brown to gray, medium-grained, approximately.
0.0' - 50.0'	50.0'	Dolomite, brown to gray, mostly massive and coarsely crystalline, some thin-bedded and fine-grained, approximately.

BASE OF EXPOSURE

Significance: This is an excellent exposure at which to examine the pre-St Peter unconformity.

What is your interpretation of the contact relationship between the St. Peter Sandstone and older rocks? What is the evidence? Explain the shale in the base of the St. Peter. What is the relative age of the unconformity? of the base of the St. Peter?

References: Shea, 1949; Cline, 1959; Ostrom, 1970