McMaster University to Devil's Punchbowl

Route of Travel

Source Data: DMTI Spatial Inc.
McMaster University 2003
From McMaster University take Main Street West towards Ancaster. Follow Main Street West by turning left at the major intersection just past the Main West Mall (travelling straight will take you onto Osler Drive, Dundas). Main Street West becomes Wilson Street as you reach the bottom of the escarpment. Follow Wilson Street up the escarpment and turn left onto Rousseaux Street. This street becomes Mohawk Road and the Lincoln M. Alexander Parkway.
Follow the Lincoln M. Alexander Parkway to its terminus where it becomes Mud Street. Continue along Mud Street to Upper Centennial Parkway (Hwy 20) and turn left at the lights. Follow Upper Centennial Parkway to Ridge Road and turn right. Follow Ridge Road along the edge of the escarpment to the Devil’s Punchbowl parking area on the left-hand side of the road.
Features at this site...

- Complete vertical profile through the Paleozoic sequence of the Niagara Escarpment. All geological units from the Lockport Formation (Fm) at the top to the Queenston Fm at the bottom are exposed.

- Lookout point provides an excellent view of East Hamilton, Hamilton Harbour, Burlington, Stoney Creek, and on a clear day, the Toronto skyline.
The area around the top of the gorge is heavily vegetated, making it difficult to view anything but the upper layers. This site features two distinct waterfalls (Upper and Lower) that are separated by a short segment of the Stoney Creek.
Schematic Section of the Devil’s Punchbowl

Highlighted formations are visible at this site.

<table>
<thead>
<tr>
<th>FORMATION</th>
<th>ROCK TYPE</th>
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<tbody>
<tr>
<td>Lockport</td>
<td>Dolostone Chert, Dolostone</td>
</tr>
<tr>
<td>Rochester</td>
<td>Shale (grey)</td>
</tr>
<tr>
<td>Irondequoit</td>
<td>Dolostone</td>
</tr>
<tr>
<td>Reynales</td>
<td>Dolostone</td>
</tr>
<tr>
<td>Thoroid</td>
<td>Sandstone and Shale (grey)</td>
</tr>
<tr>
<td>Grimsby</td>
<td>Shale (red), Siltstone</td>
</tr>
<tr>
<td></td>
<td>Sandstone</td>
</tr>
<tr>
<td>Cabot Head</td>
<td>Shale (grey), Limestone</td>
</tr>
<tr>
<td></td>
<td>Sandstone</td>
</tr>
<tr>
<td>Manitoulin</td>
<td>Dolostone</td>
</tr>
<tr>
<td>Whirlpool</td>
<td>Sandstone</td>
</tr>
<tr>
<td>Queenston</td>
<td>Shale</td>
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</tbody>
</table>
Devil’s Punchbowl Upper Falls

Upper Stratigraphy...

- Lockport Fm (Ancaster)
- Lockport Fm (Gasport)
- Rochester Fm
- Irondequoit Fm
- Reynales Fm
- Thorold Fm
- Grimsby Fm
Devil’s Punchbowl Upper Falls

Lower Stratigraphy…

- Grimsby Fm
- Cabot Head Fm
- Manitoulin Fm

(Whirlpool and Queenston Fms visible at the Lower Falls)
Lockport Formation
(Ancaster Member)

The Ancaster Member of the Lockport Fm sits at the very top of the Devil’s Punchbowl. In many areas around the rim of the gorge, this unit has been almost completely eroded away; however, in some places, it is still visible.
The Lockport Fm forms the caprock of the Niagara Escarpment. Erosion by water flowing over the escarpment has created the steep face visible at this location.
Shale of the Rochester Fm can be recognized by its dark colour.

All around the gorge, the Rochester shale has been undercut by erosion, leaving a noticeable contact between this formation and the overlying Lockport dolostone. This undercutting results in the collapse of the overlying material and gives the escarpment its steep face.
Dolostone of the Irondequoit Fm is resistant to erosion and commonly forms a prominent ledge in the exposed stratigraphy.
Reynales Formation

The Reynales Fm consists of interbedded dolostone and shale. These sedimentary rocks are extensively fractured at this location.
Thorold Formation

The Thorold Fm is easily identified at the Devil’s Punchbowl by its grey colouring and distinctive layering. Cross bedding is evident in some of the sandstone beds.
Grimsby Formation

The Grimsby shale has a characteristic red colour and its bedding is visible at this site. The shale has not been preferentially eroded here and does not form a recessive unit.

The Devil’s Punchbowl is one of the few sites in the Hamilton area where the contact between the Grimsby and Cabot Head Fms is clearly visible.
The Cabot Head Fm consists of grey fossiliferous shale interbedded with thin units of sandstone, limestone, and dolostone. Deposition of these sediments occurred in a warm shallow sea that experienced changing levels of energy and sediment supply.
The Manitoulin Fm consists of fossiliferous dolostone interbedded with shale.
The Whirlpool Fm consists of cross-bedded sandstone deposited in a fluvial environment. The contact with the overlying Manitoulin Fm is buried at the Upper Falls, but Whirlpool sandstone is exposed along the creek a short distance downstream.
The sides of the Stoney Creek gorge are almost completely covered by talus and vegetation, making the geologic units difficult to view from anywhere other than around the falls.
Downstream of the Upper Falls

This portion of Stoney Creek connects the Upper and Lower falls of the Devil’s Punchbowl. The stream bed flows along the top of the resistant sandstones of the Whirlpool Fm.
The Lower Falls

The Lower Falls have carved a steep gorge deep into the Queenston shale.
Contact between the Whirlpool and Queenston Formations

The sharp, almost horizontal contact between resistant sandstone of the Whirlpool Fm and softer shale of the Queenston Fm is clearly visible at the Lower Falls.
The Queenston Formation consists of maroon-coloured shale interbedded with limestone, siltstone, and grey-green shale. It formed in relatively quiet environments around the margins of the Queenston delta, a large delta fed by rivers flowing northwest from the Taconic mountains. The Queenston Fm forms the base of the Niagara Escarpment but is rarely visible.
Other geologic features

Grain size changes on a modern point bar in Stoney Creek between the Upper and Lower falls.
While visiting this site, it is generally wise to stay on the trails. Also, be sure to look before you step, or else...
Outlook Platform

The outlook platform is located on top of the escarpment at the northern end of the gorge and features a large illuminated cross. Excellent views of the east end of Hamilton and Lake Ontario.
Acknowledgements:

Map Source Data: DMTI Spatial Inc.

Photographs by Ben Cowie, Luisa DaSilva, Liz Kenny, and Zachary Windus

Field assistance from Mark Francisco

Based on earlier slide field trip prepared by Alvin Chan and Sandra Rolph