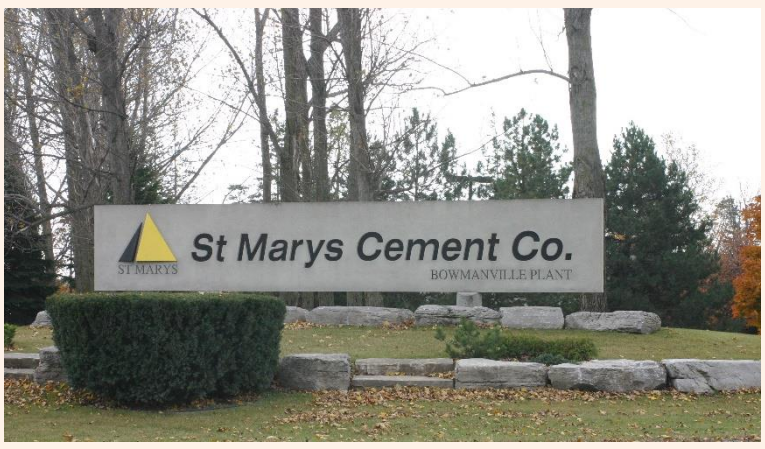
CCFMS

The Central Canadian Federation of Mineralogical Societies

Serving Clubs in Central Canada Since 1969

Pictures by P Anderson 2009, G Gevaert 2015, P Lee 2014



Votorantim Cimentos - Bowmanville Cement Plant
St Marys Cement - Bowmanville Quarry

400 Waverly Road South, Bowmanville, Ontario

Sundays usually May/June (spring) & Oct (fall) trips

Field Trip Leader: Kevin Kidd

Please arrive by 8:30 am for Safety Talk.
Entry to the quarry approx 9:00 am.
Sign-in & Sign-out procedures, tags for cars, and ***FULL SAFETY GEAR*** *(this is a working quarry).*

Original document link: http://www.ccfms.ca/Events/Bowmanville.html
Latitude & Longitude (Decimal Degrees): 43.884503, -78.699519

Dating

Middle to Upper Ordovician Period minerals and fossils:

- *Dapingian - Middle Ordovician - 470.0±1.4 - 467.3±1.1 Ma*
- *Darriwilian - Middle Ordovician - 467.3±1.1 - 458.4±0.9 Ma*
- *Sandbian - Upper Ordovician - 458.4±0.9 - 453.0±0.7 Ma*

Strata

Lindsay Formation - Collingwood Member (Unit 5) + Lower Member (Units 1 thru 4).

Geology

http://www.geologyontario.mndm.gov.on.ca/mndmfiles/MDI/data/records/MDI30M15NE00002.html

Bowmanville Quarry is the only active quarry in Ontario that exposes the contact between the Middle Ordovician Lower Member (Units 1 thru 4) as well as the Upper Ordovician Collingwood Member - all 5 units - of the Lindsay Formation.

- The quarry exposes Middle-Upper Ordovician Lindsay Formation.
- The uppermost strata consists of the Collingwood Member.
  - this is the only operating quarry in southern Ontario where the Collingwood member is exposed
  - consists of a calcareous, petroliferous, black shale & profusely fossiliferous
  - quarry is well known for its excellent trilobite fossils
  - vertical joints are well developed in the upper lift of the quarry
- The lower strata (units 1 thru 4) expose 46.0 m of the Lower Member
  - which, in this quarry, consists of interbedded bioclastic calcarenites, microcrystalline limestones, and grey-green calcareous mudstones
  - and with the upper part being primarily a microcrystalline limestone

Limestone Industries of Ontario Volume III Limestone Industries and Resources of Central and Southwestern Ontario Prepared for the Aggregate Resources Section, Land Management Branch, Ontario Ministry of Natural Resources; Derry Michener Booth and Wahl & Staff of the Engineering and Terrain Geology Section, Ontario Geological Survey, Ministry of Northern Development and Mines; 1989

Geological Section *Thickness*

UNIT 5 Lindsay Formation, Collingwood Member *4.3 m*

Calcareous shale: black, weathers light grey; very fissile and platy when weathered, thick bedded, blocky appearance on fresh surfaces; some coarser grained laminae with fossil debris; strong petroliferous odor; prominent jointing (near vertical) occurring approximately every metre; rare iron staining; very fossiliferous, with trilobites most abundant; lower contact of unit sharp and irregular at top of third lift.

UNIT 4 Lindsay Formation, lower member *5.9 m*

Limestone: medium to dark brown, weathers light grey; microcrystalline to very fine crystalline; medium to thick (20-60 cm) bedded, becomes thinner at top of unit, sharp, very irregular, undulatory contacts; very nodular appearance due to rubbly weathering; upper half of unit contains seven prominent shale beds (2 to 10 cm thick); rare, thin, coarser grained beds, usually with fossil de bris; fossiliferous including trilobites and brachiopods, rare rugose corals; lower contact of unit sharp.

UNIT 3 Lindsay Formation, lower member *10.0 m*

Limestone: dark grey, weathers light grey; microcrystalline, with irregular patches of coarse-grained calcarenites; medium to thick bedded (10 to 70 cm), sharp, slightly irregular contacts with some minor shale partings; nodular texture throughout unit, commonly

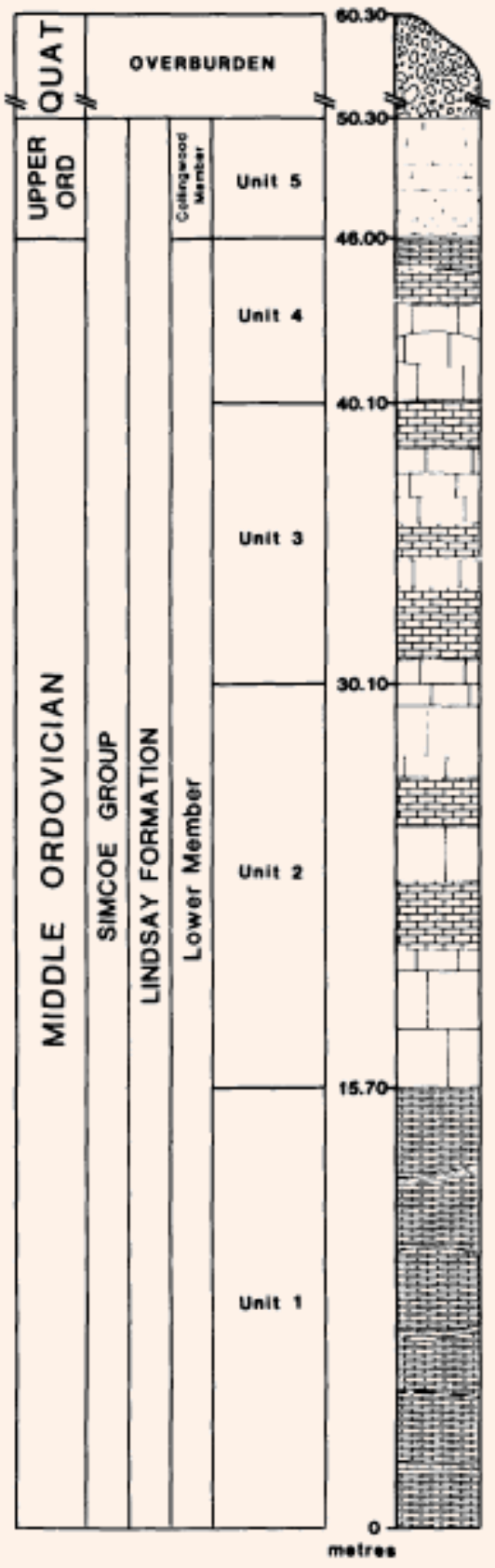
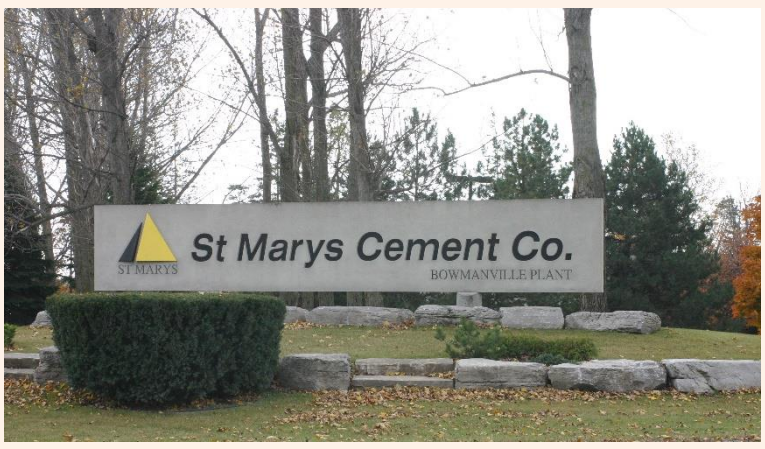


Figure I.-1-2. STRATIGRAPHIC COLUMN FOR BOWMANVILLE QUARRY.

CCFMS

Serving Clubs in Central Canada Since 1969

Pictures by P Anderson 2009, G Gevaert 2015, P Lee 2014



Votorantim Cimentos - Bowmanville Cement Plant
St Marys Cement - Bowmanville Quarry

400 Waverly Road South, Bowmanville, Ontario

Sundays usually May/June (spring) & Oct (fall) trips

Field Trip Leader: Kevin Kidd

Please arrive by 8:30 am for Safety Talk.
Entry to the quarry approx 9:00 am.
Sign-in & Sign-out procedures, tags for cars, and
FULL SAFETY GEAR *(this is a working quarry).*

associated with patches of calcite crystals; shale beds are more abundant upwards and two very prominent shale beds occur at the top of unit; very fossiliferous with abundant trilobites and brachiopods; lower contact of unit gradational, at top of 2nd lift.

UNIT 2 Lindsay Formation, lower member *14.4 m*

Limestone: medium to dark brown, weathers mottled light grey and green, and grey-brown; microcrystalline lime stone and coarse-grained calcarenites; medium to thick bedded (10-100 cm), sharp, slightly irregular contacts, rarely welded contacts; most beds in unit weather into nodules; fossiliferous with abundant brachiopods, trilo bites, and rugose corals on bedding planes of the microcrystalline limestones, and abundant fossil frag ments in calcarenites; lower contact sharp, at top of 1st (lowest) lift.

UNIT 1 Lindsay Formation, lower member *15.7 m*

Interbedded limestone and mudstones: calcareous mudstones - grey, weathers green-grey; thin bed ded (3-6 cm), contacts are irregular and undulatory; nodular appearance due to draping of mudstones over coarser calcarenite beds; fossils present on bedding planes; bioclastic limestones - medium to dark brown, weathers greybrown; coarse to very coarse crystalline; thin bedded (3-6 cm), in beds that pinch and swell, sharp irregular contacts; very fossiliferous (brachiopods and trilobites, some crinoidal debris); microcrystalline limestones - dark grey, weathers light grey; thin bedded (about 5 cm); barren of fossils; in upper part of unit, mudstones decrease in abundance and the unit becomes mainly interbedded calcarenites and microcrystalline limestones; calcite mineralization pre sent along vertical fractures.

Total thickness *50.3 m*

https://www.mindat.org/loc-236099.html

clay	'mud-grade limestone'	shale
limestone	'sand-grade limestone'	'till'

St Marys Cement (Bowmanville) – Fossil collecting field trip Oct 20,2013 – Randy Ernst:

On the Saturday, it poured rain and I thought the worst for the next day. Even weather forecasts did not look good but given their accuracy, got everyone up early for the drive. It was actually clear and sunny but a bit on the cool (cold) side. After signi ng in, we had a safety talk with the quarry manager Ernie Hamilton who explained a bit about the place and reminded us there was some (little) equipment working and be careful. Then after putting a flag on our vehicle to show I was the trip leader, off went 35 eager collectors….into mud. With the rains the day before, you could, and would, step into inches of the stuff. If you wond ered if your safety boots were waterproof, you found out very quickly.

Paleontica Fossiel.net

Short report on the Bowmanville Quarry; 2012 - lists some trilobite names

Some Ordovician Rocks; James St. John; OSU-Newark: Geology

Collingwood Member of the Lindsay Formation - black shale (Upper Ordovician) with *Pseudogygites latimarginatus* and *Triarthrus eatoni* trilobite sclerites from St. Mary's Cement Company Quarry at Bowmanville, Ontario, Canada.

Sources:

Hewitt, D.F., Vos, M.A. (1972) The Limestone Industries of Ontario. Ontario Division of Mines, Industrial Mineral Report 39, 76 pages plus map.

Sabina, Ann P - Rocks and Minerals for the Collector, Bancroft-Parry Sound area and southern Ontario, Geological Survey of Canada (1986)

Additional Information

Bowmanville Quarry - Aggregate Resources (commercial website)