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IN SEARCH OF THE LARGEST PALEOZOIC GASTROPOD

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Specimens of *Maclurina manitobensis* (Whiteaves) recently discovered in Manitoba suggest that they are even larger than the previous record-holder. A specimen of *Maclurina manitobensis* from the Late Ordovician Bighorn Dolomite in Wyoming has previously been claimed as the largest Paleozoic gastropod in the world. The latter specimen, 25.5 cm in diameter, is from the thin Lander Sandstone Member of the lower part of the Bighorn Dolomite.

Maclurina manitobensis has been placed under various generic names over the years since it was originally described: *Maclurea*, *Maclurites* and *Maclurina*. *Maclurina* is common in the Upper Ordovician transgressive carbonate units of North America where it is commonly associated with mollusks, corals, and *Receptaculites*.

The specimens studied here were collected in the spoil dumps of the Gillis Quarries in Garson, southern Manitoba. The age of the Selkirk Member of the Red River Formation, from which the fossils were recovered, is Late Ordovician (Maysvillian to Richmondian).

One specimen in the present study is a slab with an embedded whorl fragment. It is the inner whorl of the shell, 23 cm in diameter, and it is cut parallel to, and near the base as indicated by the lack of an umbilicus. Found next to this in the debris piles was a large block which contains an internal mould of a whorl fragment. The fragment does not attach directly to the inner whorl, but it appears to belong to the same species, although probably not the same specimen. The outer whorl segment appears to be uncoiling from contact with the previous whorl. This uncoiling is real and is not the result of an oblique cut, because the base of the whorl is present. Uncoiling of the final whorl has not been reported in *Maclurina* or *Maclurites*. The degree of curvature of the shell fragment suggests it was part of a shell over 30 cm in diameter.

One estimate of the original diameter of the shell was made by producing a spiral with the same rate of coiling (an increase in width of 1.5 times per whorl) as the holotype of *Maclurina manitobensis*. By fitting the whorl fragment to the spiral, an estimate of 39.3 cm was produced. A second estimate of the coiling was to produce a spiral with the same rate of coiling as the interior fragment from the Gillis Quarries. This produced an estimated diameter of 31.9 cm.

Both estimates indicate a shell considerably larger than the previous record diameter of 25.5 cm for the specimen from the Big Horn Dolomite. If these estimates made from incomplete shells are accurate, the specimens of *Maclurina manitobensis* from Garson, Manitoba, are the largest known Paleozoic gastropods.

IN SEARCH OF THE LARGEST PALEOZOIC GASTROPOD

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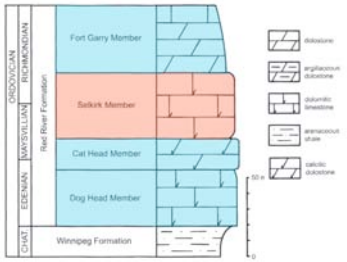
INTRODUCTION

In their Canadian Paleontology Conference - Field Trip Guidebook, Young et al. (2008) wrote about *Maclurina manitobensis* : "The largest known specimen *of M. manitobensis*, from the Bighorn Dolomite of Wyoming, is about 26 cm across (Rohr and Blodgett, 1992). The largest known specimens from Garson (quarries) are more than 20 cm across, so it is possible that a "world record" example will be found at this site". Unbeknownst, to Young et al.), two specimens were found by the senior author in the summer of 2000 and these could become the "world record(s)" sought after.

The specimens of this study were collected in the spoil dumps of the Gillis Quarry in Garson, Manitoba, on August 17th 2000 by Nathalie Daoust and Mario Cournoyer on vacation in western Canada. Their goal was to collect a sample of the fossil fauna of the Tyndal Stone for the Musée de Paléontologie et de l'Évolution located in Montréal, Québec whose specimen numbers are used here. The age of the "Tyndall Stone" (Selkirk Member of the Red River Formation) is Late Ordovician (Maysvillian to Richmondian), slightly older than the Churchill sequence (?Late Richmondian) in central Manitoba (Williams Member).

The Gillis Quarry in Garson, Manitoba



Maclurina manitobensis *occurs in the Selkirk Member of the Red River Formation (Maysvillian to Richmondian). From Young and others, 2008.*

LATE ORDOVICIAN GASTROPOD GENUS ***MACLURINA***

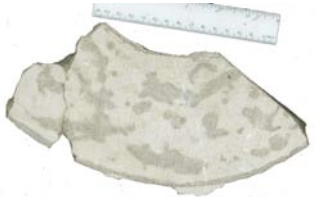
Maclurina is common in the Upper Ord carbonate units of North America. Wilson (1975) noted the lithologic similarity of the Lithosome from Sonora, Mexico, to Hudson Bay, where it is almost everywhere mottled with large dolomitized burrows. The Characteristic fauna of mollusks, corals, and *Receptaculites* is also widespread.

Shown below is the familiar fauna and lithology present in the Montoya Group in El Paso, Texas.

Maclurina *and a nautiloid cephalopod in the mottled Upham Formation of the Montoya Group, Franklin Mountains, El Paso, Texas.*

Maclurina manitobensis has been given several names over the years since it was first discovered by Whiteaves. Whiteaves (1890) assigned the species to *Maclurea* which is an invalid, but widely used name for *Maclurites*. Ulrich and Scofield (1897) placed the species in their new genus, *Maclurina*. Knight et al. placed *Maclurina* in synonomy with *Maclurites* LeSueur, 1818. Most recently Rohr and Blodgett (1992) reestablished *Maclurina* as a separate genus based on is spiral ornamentation and narrow umbilicus.

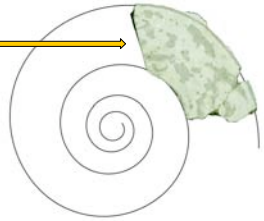
D. Rohr (right) and R. B. Blodgett display the 25 cm* Maclurina *specimen from the Bighorn Dolomite of Wyoming (USGS photo).



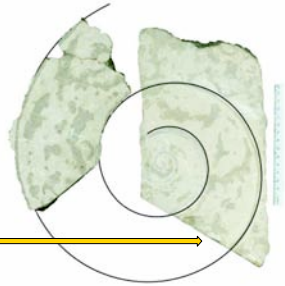
Large block (below) at the Gillis Quarry in Garson, Manitoba. Red arrow indicates where uncoiling of whorl begins. Shown above is an internal mold of the same whorl fragment (specimen MPEP109.2) after it was separated from the larger block.

Slab with an embedded whorl fragment. It is the inner whorl of the shell 23 cm in diameter (specimen MPEP109.1), and it is cut parallel to, and near the base as indicated by the lack of an umbilicus (scale in cm).

One estimate of the original diameter of the shell was made below by producing a spiral with the same rate of coiling (an increase in width of 1.5 times per whorl) as the holotype of *Maclurina manitobensis* illustrated by Knight (1941, pl. 65.3). By fitting the whorl fragment (specimen MPEP109.2) to the spiral, an estimate of 39.3 cm was produced.



A second estimate of the coiling (below) was to produce a spiral with the same rate of coiling as the interior fragment from the Gillis Quarry (specimen MPEP109.1). Only half of the outer fragment is shown, because the youngest part of the whorl appears to have a greater rate of radius expansion and is no longer in contact with the previous whorl. This produced an estimated minimum diameter of 31.9 cm.



CONCLUSIONS

Both estimates indicate a shell considerably larger than the previous record diameter of 25.5 cm from the Big Horn Dolomite. If these estimates made from incomplete shell are accurate, the specimens of *Maclurina manitobensis* from Garson, Manitoba, are the largest known Paleozoic gastropods.

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