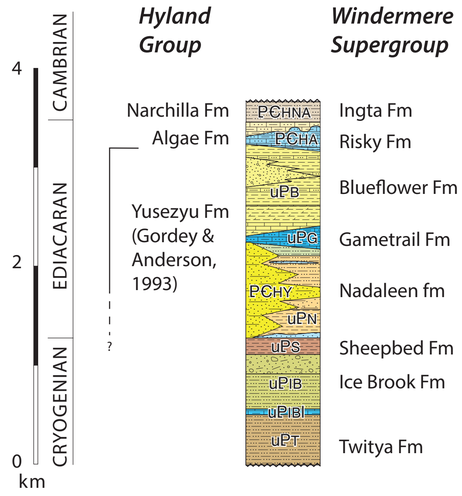

Above: Neoproterozoic-Cambrian stratigraphy of the Rackla belt. Stratigraphic relationships between the Hyland Group and Windermere Supergroup have been established in the area. Note that map unit PCHY only includes the lower part of the Yusezyu Formation (as defined by Gordey & Anderson, 1993).

Map #	Sample #	Fossil category	Fossil type	Map Unit	NTS 50k	Age	Identified by	Reference
1	12-TOA-012-1	macrofossil	solitary rugose corals, bryozoans, brachiopods and cronoid ossicles	DME	106C/02	Mississippian	R. Blodgett	
	12-TOA-012-2	microfossil (conodont)	*Mesogondolella bisselli, Sweetognathus anceps?*	DME	106C/02	Late Sakmarian (Early Permian)	C. Henderson	
2	12-TOA-047-1	microfossil (conodont)	*Lochriea commutatus, Gnathodus cf texanus, Idiognathoides minutus declinatus, I. sulcatus*	DME	106C/02	Mississippian/Pennsylvanian	C. Henderson	
3	12-MC-062-1	macrofossil	rhynchonellid, smooth spirifiroid, and ?terebratuloid brachiopods, bivalve	DMEc	106C/01	Late Devonian (Fammenian) to Mississippian	R. Blodgett	
4	12-MC-157-1	macrofossil	crinoids	CPc	106C/02	Mississippian	R. Blodgett	
	12-MC-157-2	microfossil (conodont)	*Gnathodus* cf *delicatus or pseudosemiglaber*	CPc	106C/02	Mississippian (M-U Tournaisian)	C. Henderson	
5	12-SI-015-1	macrofossil	solitary rugose coral, crinoids	CPc	106C/02	probably Mississippian	R. Blodgett	
6	12-SI-018-1	macrofossil	crinoids, spiriferoid brachiopod, bryozoans	CPc	106C/02	Mississippian	R. Blodgett	
	12-SI-018-2	microfossil (conodont)	*Bispathodus* sp.	CPc	106C/02	Probably Early Mississippian	C. Henderson	
7	12-TOA-010-1	macrofossil	brachiopods, bryozoans	CPc	106C/02	Carboniferous-Permian (?Mississippian)	R. Blodgett	
8	12-TOA-017-1	microfossil (conodont)	*Hindeodus sp., Neognathodus symmetricus, Declinognathodus marginodosus, D. donetzianus, Idiognathodus delicatus, Streptognathodus ?parvus*	CPc	106C/02	Lower Moscovian (mid-Pennsylvanian)	C. Henderson	
9	12-TOA-021-2	macrofossil	crinoids, bivalve, brachipod	CPc	106C/01	Late Paleozoic, probably Mississippian	R. Blodgett	
10	12-MC-011-1	macrofossil	crinoid ossicles, solitary rugose corals, tabulate corals, stromatoporoids?, and possible stringocephalid brachiopod	mDc	106C/02	probably Middle Devonian	R. Blodgett	
11	12-MC-053	macrofossil	two-hole crinoid	mDc	106C/02	Emsian-Eifelian	R. Blodgett	
12	12-TOA-029	macrofossil	two-hole crinoid	mDc	106C/02	Emsian-Eifelian	R. Blodgett	
13	12-SI-036	macrofossil	graptolite	ODR	106C/02	Ordovician	R. Blodgett	
14	12-SI-037-1	macrofossil	favositid coral	ODR	106C/02	Late Ordovician-Middle Devonian	R. Blodgett	
15	12-TOA-034	macrofossil	graptolite, tetragraptus	ODR	106C/02	Early Ordovician	R. Blodgett	
16	12-TOA-026-1	macrofossil	pentameroid brachiopod Tcherskidium, favositid coral Saffordophyllum, heliolitid tabulate coral Stelliporella	OSc	106C/02	Ashgill (latest Ordovician)	R. Blodgett	
	12-TOA-026-2	microfossil (conodont)	*Oulodus?*	OSc	106C/02	Early to mid-Silurian?	C. Henderson	
17	12-TOA-033-1	microfossil (conodont)	*Aspelundia?* sp., *Walliserodus?* sp.	OSc	106C/02	probably Early Silurian	C. Henderson	
18	12-MC-032	macrofossil	favositid coral	OSc	106C/01	probably Silurian	R. Blodgett	
19	12-MC-041-1	macrofossil	corals, pentamerid or atrypid brachiopods, bivalve	OSc	106C/01	Silurian (Wenlock-Ludlow)	R. Blodgett	
20	12-RQ-003-1	macrofossil	gastropod	OScs	106C/02	Middle to Late Ordovician	R. Blodgett	
21	12-TOA-007-1	microfossil (conodont)	*Mesogondolella donbassica, Gondolella laevis?, Idiognathodus delicatus, Declinognathodus donetzianus, Declinognathodus marginodosus*, one specimen that looks very similar to *Neognathodus roundyi?*	OScs	106C/02	Bashkirian/Moscovian boundary (mid-Pennsylvanian)	C. Henderson	
22	12-TOA-014-1	macrofossil	solitary rugose coral (bighornia?)	OScs	106C/02	Middle to Late Ordovician?	R. Blodgett	
23	94-RAS-1-5	trace fossil	Oldhamia curvata	ICG	105N/16	late Terreneuvian to early Cambrian Series 3	R. MacNaughton	MacNaughton et al., 2016
24	13-DMO-238	macrofossil	Archaeocyathids	ICG	106B/04	Cambrian Series 2	R. MacNaughton	
25	13-DMO-288	trace fossil	*Oldhamia antiqua, Oldhamia curvata*	ICG	105O/13	late Terreneuvian to early Cambrian Series 3	R. MacNaughton	MacNaughton et al., 2016
26	13-DMO-301	trace fossil	*Oldhamia antiqua, Oldhamia curvata*	ICG	106B/04	late Terreneuvian to early Cambrian Series 3	R. MacNaughton	MacNaughton et al., 2016
27	13-DMO-321	trace fossil	*Oldhamia flabellata*	ICG	106B/04	late Terreneuvian to early Cambrian Series 3	R. MacNaughton	MacNaughton et al., 2016
28	94-RASA-3-9	trace fossil	*Oldhamia antiqua* , *Planolites* isp., *Helminthoidichnities ?*	PCHNA	105N/16	late Terreneuvian to early Cambrian Series 3	R. MacNaughton	MacNaughton et al., 2016
29	94-RASG-1-1	trace fossil	*Oldhamia antiqua*	PCHNA	105N/16	late Terreneuvian to early Cambrian Series 3	R. MacNaughton	MacNaughton et al., 2016
30	13-DMO-097	trace fossil	*Aspidella ?*	uPN	106C/01	Ediacaran	J. Strauss	

LOWER DEVONIAN-PERMIAN

CARBONIFEROUS-PERMIAN

CPMC — **MOUNT CHRISTIE FORMATION(?):** *greenish-grey, pink and dark grey shale; light grey-green to black chert; minor sandstone, limestone*

CPMCc — **MOUNT CHRISTIE FORMATION(?):** *thin to medium bedded, greenish-grey to black chert; greenish-grey and grey shale*

CPc — **LIMESTONE:** *light to medium grey, well-bedded limestone, locally very fossiliferous; contains large crinoids; sandy limestone, sandstone*

UPPER DEVONIAN TO LOWER MISSISSIPPIAN

DME — **EARN GROUP (undivided):** *brown-weathering, dark grey to black shale, chert, minor sandstone, siltstone; minor limestone; chert-pebble conglomerate and sandstone; locally bedded barite*

DMEc — **EARN GROUP?:** *bioclastic limestone, conglomerate, common chert pebble, crinoids and coral fragments (debris flow deposit in Earn Group shale)*

QUATERNARY

Q — *unconsolidated glacial, glaciofluvial and glaciolacustrine deposits; fluviatile silt, sand, and gravel, and local volcanic ash, in part with cover of soil and organic deposits*

PLUTONIC ROCKS

MID-CRETACEOUS

mKT — **TOMBSTONE SUITE:** *hornblende ± biotite granodiorite, quartz monzonite and quartz diorite*

CAMBRIAN-ORDOVICIAN?

COg — *gabbro*

CAMBRIAN-LOWER DEVONIAN

Ogilvie platform

MIDDLE DEVONIAN (EIFELIAN)

mDc — *light grey crinoidal limestone, contains "two-hole" and "star" crinoids*

CAMBRIAN TO DEVONIAN?

ЄDB — **BOUVETTE FORMATION:** *resistant, generally well-bedded to massive, grey weathering variably dolomitized carbonate; locally fossiliferous; locally contains black diagenetic chert*

ORDOVICIAN TO LOWER DEVONIAN

ODR — **ROAD RIVER GROUP (undivided):** *black shale, locally graptolitic; black limestone*

ORDOVICIAN TO SILURIAN?

OScs — *buff weathering, medium-grained calcareous sandstone and sandy limestone/dolostone; locally gritty and very fossiliferous*

OSc — *thin to medium-bedded, grey and buff weathering, silty limestone; massive, white limestone*

CAMBRIAN SERIES 2-3

Єl — **LIMESTONE:** *recessive, dark grey, black to brown weathering, thin bedded silty limestone*

Єs — **SANDSTONE:** *moderately resistant, thin bedded, blue-grey siltstone and sandstone; brown weathering, dark grey-green, bioturbated, weakly laminated siltstone and arkose; local limestone near base of unit*

Selwyn basin

LOWER SILURIAN TO LOWER DEVONIAN

Ss — **STEELE FORMATION:** *orange weathering, dolomitic, bioturbated silty mudstone*

ORDOVICIAN

OEc — **ELMER CREEK FORMATION:** *black shale, locally graptolitic; black limestone*

CAMBRIAN-ORDOVICIAN

ЄOv — *mafic volcanic rocks, breccia ± minor intrusions*

CAMBRIAN SERIES 3 - LOWER ORDOVICIAN

ЄOOc — **OLD CABIN FORMATION:** *mafic volcanic breccia and conglomerate, interbedded with argillite, siltstone and sandstone; minor diabase intrusions*

CAMBRIAN SERIES 2-3

lЄGo — **GULL LAKE FORMATION, MOUNT ORTELL MEMBER:** *brown weathering, green lithic sandstone, siltstone*

lЄG — **GULL LAKE FORMATION:** *white, brown and orange-weathering, olive-green argillite, siltstone and fine sandstone; maroon, black and lime green shale; interbedded shale and quartz arenite; minor silty limestone and limestone-clast conglomerate*

lЄGb — **GULL LAKE FORMATION, BASAL MEMBER:** *boulder conglomerate with archaeocyathid-bearing limestone clasts; brown weathering, green lithic sandstone and conglomerate, quartz arenite*

Mackenzie platform

CAMBRIAN SERIES 2-3

lЄs — **SEKWI FORMATION:** *silty limestone, limestone, dolostone, arenaceous dolostone, calcareous shale, argillite*

NEOPROTEROZOIC-CAMBRIAN WINDERMERE SUPERGROUP

EDIACARAN-CAMBRIAN SERIES 2

PЄHNss — **NARCHILLA FORMATION:** *white-weathering sandstone, locally calcareous; quartz pebble conglomerate*

PЄHNA — **NARCHILLA FORMATION: ARROWHEAD MEMBER:** *pale brown, grey, green and maroon shale; well-cleaved, rhythmically-bedded mudstone and siltstone, locally bioturbated; white-weathering sandstone*

PЄHNs — **NARCHILLA FORMATION, SENOAH MEMBER:** *limestone-clast conglomerate; quartz arenite and grit; limestone; calcareous siltstone/sandstone; green, brown and maroon shale*

EDIACARAN

PЄHA — **ALGAE FORMATION:** *dark grey, light grey and buff-coloured limestone and dolostone; upper part is mostly dolomitized; variably silty/sandy; commonly graded, planar-bedded and cross-bedded; minor shale; limestone pebble to cobble breccia and conglomerate, calcareous sandstone in uppermost part*

uPB — **BLUEFLOWER FORMATION (Undivided):** *brown-weathering, grey mudstone and siltstone; green mudstone, siltstone and sandstone; sandstone and grit; rhythmically bedded, brown-weathering, grey limestone and shale; calcareous shale; thinly-bedded, grey limestone; conglomerate*

- uPBuf — **BLUEFLOWER FORMATION, UPPER MEMBER, FINE-GRAINED FACIES:** *mudstone, siltstone; thinly-bedded silty limestone*
- uPBum — **BLUEFLOWER FORMATION, UPPER MEMBER, MIXED FACIES:** *brown weathering mudstone, siltstone and sandstone; pale grey-pink sandstone and grit; calcareous shale; sandy limestone*
- uPBmd — **BLUEFLOWER FORMATION, MIDDLE MEMBER, DIAMICTITE:** *matrix-supported conglomerate; grey and orange carbonate boulders in orange-brown weathering, poorly sorted, variably calcareous, siltstone and sandstone matrix*
- uPBm — **BLUEFLOWER FORMATION, MIDDLE MEMBER:** *green or grey, rhythmically-bedded mudstone, siltstone, and fine sandstone*
- uPBl — **BLUEFLOWER FORMATION, LOWER MEMBER:** *buff, grey and pale yellow-weathering limestone interbedded with green-grey shale. Limestone is planar and cross-bedded*

uPG — **GAMETRAIL FORMATION:** *grey, yellow and orange weathering dolostone, dolomitic siltstone/sandstone and limestone, commonly planar and/or cross-laminated; calcareous shale and siltstone; maroon shale; carbonate-clast breccia and conglomerate*

PCHY — **YUSEZYU FORMATION:** *brownish-grey sandstone; granule and pebble conglomerate; brown and grey shale and siltstone*

?

uPN — **NADALEEN FORMATION (undivided):** *brownish-grey siltstone, mudstone, limestone; limestone conglomerate; rhythmically, thin to medium-bedded mudstone and limestone; pink-grey sandstone and quartzite; calcareous sandstone and granule-pebble conglomerate*

- uPNS — **NADALEEN FORMATION, STENBRATEN MEMBER:** *grey to greenish-brown rhythmically bedded fine-grained sandstone, siltstone, mudstone; maroon siltstone-mudstone*
- uPNbl — **NADALEEN FORMATION, BLACK LIMESTONE:** *black crystalline limestone*
- uPNss — **NADALEEN FORMATION, SANDSTONE, CONGLOMERATE:** *pink-grey, quartz arenite and grit; quartzite*
- uPNl — **NADALEEN FORMATION, LIMESTONE:** *grey, well-bedded silty limestone*
- uPNd — **NADALEEN FORMATION, CARBONATE CONGLOMERATE:** *diamictite, conglomerate; clasts of carbonate and quartzite, pebble to boulder; matrix locally sandy; grey limestone*
- uPNsc — **NADALEEN FORMATION, LOWER CARBONATE MEMBER:** *diamictite, conglomerate; clasts of carbonate and quartzite, pebble to boulder; matrix locally sandy; grey limestone; calcareous sandstone and grit*

uPS — **SHEEPBED FORMATION:** *black, chocolate-brown weathering carbonaceous shale; siltstone*

CRYOGENIAN

uPIB — **ICE BROOK FORMATION:** *orange-weathering, greenish-brown rhythmically bedded fine-grained sandstone, siltstone, mudstone and pebbly wacke; orange-weathering pebble-cobble polymictic diamictite, conglomerate. Bedding is locally convoluted, with olistoliths of sandstone and limestone (wacke member). Separated from overlying Sheepbed Fm. by 1-3 m thick, yellow-orange, laminated dolostone and minor diamictite of the Ravensthroat Fm*

- uPIBw — **ICE BROOK FORMATION, WACKE MEMBER:** *orange, brown and cream weathering, green, grey and brown mudstone, siltstone, sandstone and pebbly wacke with convoluted bedding; contains olistoliths and rafts of sandstone (Katherine Fm?) and stromatolitic limestone (Little Dal Fm?)*

uPIBl — **ICE BROOK FORMATION, LIMESTONE:** *cream, buff and pale brown weathering, grey, planar and cross-laminated, thin to medium-bedded silty limestone. Equivalent to Keele Fm?*

uPT — **TWITYA FORMATION (?):** *brown shale, sandstone, granule-pebble conglomerate*

Mineral Occurrences

SEDIMENT-HOSTED GOLD

- Realgar, orpiment, and/or cinnabar occurrences
- Carlin-type Au

VEIN/BRECCIA

- Au
- Pb, Zn

MISSISSIPPI VALLEY-TYPE

- Pb, Zn, Barite

SYMBOLS

- stratigraphic contacts (defined, approximate, inferred, covered).....
- fault; movement not known (defined, approximate, inferred, covered).....
- thrust fault (defined, approximate, inferred, covered).....
- normal fault (defined, approximate, inferred, covered).....
- strike-slip fault (sinistral) (defined, approximate, inferred, covered).....
- strike-slip movement direction (cross-section) (sinistral)
- anticline (upright, overturned).....
- syncline (upright, overturned).....
- bedding (S_0; inclined, upright, overturned, vertical).....
- penetrative cleavage (S1; inclined, vertical).....
- spaced cleavage (inclined, vertical).....
- intersection lineation (intersection of S_0 and S_1).....
- fold axis (F_1; vergence: m, s, z, unknown).....
- fold axis/crenulation (F_2).....
- fold axial plane (inclined).....
- fault plane (inclined).....
- slickenline (plunging).....
- field station (YGS mapping 2012-2014).....
- fossil locality.....
- limit of outcrop.....
- U-Pb zircon locality (MacNaughton *et al*., 2016)

REFERENCES

Cecile, M.P., 1998. Einarson Creek. Geological Survey of Canada, A series map 1944A.

Colpron, M., Moynihan, D., Israel, S. and Abbott, G., 2013. Geological map of the Rackla belt, east-central Yukon (NTS 106C/1-4, 106D/1). Yukon Geological Survey, Open File 2013-13, 1:50 000 scale, 5 maps and legend.

Gordey, S.P. and Anderson, R.G., 1993. Evolution of the northern Cordilleran miogeocline, Nahanni map area (105I), Yukon and Northwest Territories. Geological Survey of Canada, Memoir 428, 214 p.

Moynihan, D., 2014. Bedrock Geology of NTS 106B/04. Yukon Geological Survey, Open File 2014-1.

MacNaughton, R., Moynihan, D., Roots, C. and Crowley, J., 2016. New occurrences of Oldhamica in eastern Yukon: stratigraphic context and implications for Cambrian deep-marine biostratigraphy. Ichnos, in press.

Roots, C.F., Abbott, J.G., Cecile, M.P. and Gordey, S.P. 1995. Bedrock geology of the Lansing Range map area (105N) east half, Hess Mountains, Yukon. Geological Survey of Canada, Open File 3171.

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Digital cartography and drafting by David Moynihan and Maurice Colpron, Yukon Geological Survey.

Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

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Yukon Geological Survey
Energy, Mines and Resources
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Bedrock geology compilation of the eastern Rackla belt, NTS 105N/15, 105N/16, 105O/13, 106B/4, 106C/1, 106C/2, east-central Yukon

1:75 000 scale
(sheet 2 of 2)

by

David Moynihan