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PROPOSED EXPLORATION 106-116- FOR 1974 FIELD SEASON REEF PROJECT

By: Peter Dean, Oct. 1973

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FOR 1974 FIELD SEASON

REEF PROJECT

By:

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October, 1973

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PROPOSED EXPLORATION
REEF PROJECT

INTRODUCTION

Exploration by various companies during 1972 and 1973 resulted in the discovery of several new lead-zinc deposits of major importance in the eastern Yukon and western District of Mackenzie. These new discoveries occur in calcareous Paleozoic rocks in two main physiographic provinces; the Mackenzie Fold Belt and the Selwyn Fold Belt (Figure 1). The Reef Project is a proposed grass-roots exploration program which would explore for similar lead-zinc deposits in the extensive north-western continuations of the favourable Paleozoic sedimentary formations.

GEOLOGY AND MINERAL DEPOSITS

Mineral deposits of potential importance occur in formations of Lower Cambrian, Ordovician-Silurian and Middle Devonian age. Some of the deposits such as the Howard's Pass and Hudson's Bay properties are strongly stratiform and conformable and appear to be sedimentary in origin. Others, such as the Godlin Lakes deposits and the Econ property of Noranda, occur in fault related breccias and as cavity fillings in reefs and appear to be secondary in origin. The Barrier Reef property on Goz Creek has both sedimentary and secondary features. The host rocks of the deposits vary from thin bedded, silty, graphitic limestone at Howard's Pass to dolomitized reefoidal carbonate at Godlin Lakes and Goz Creek. Paleozoic formations of similar ages and lithologies outcrop extensively in the northwestern parts of

the Selwyn and Mackenzie Fold Belts and in the southern part of the Northern Yukon Fold Belt.

The geologic history of the northern and eastern Yukon is summarized in detail in Appendix I. The patterns of sedimentation that occured during the Paleozoic were controlled by the basic tectonic physiographic features that are illustrated in Figure 2. Shales and cherts accumulated in the tectonically depressed areas, such as the Selwyn Basin and the Peel Basin, while adjacent uplifts, such as the Mackenzie Arch, received mainly carbonate sedimentation.

Most of the lead-zinc occurrences in the Selwyn and Mackenzie Fold Belts are located on the southwestern flank of the Mackenzie Arch. The Hudson's Bay and Howard's Pass deposits occur within formations made up predominantely of shale; the Godlin Lakes and Goz Creek showings are in formations that are mainly carbonate. All of the deposits are within the transitional zone between basin and uplift where there are facies changes from clastics to carbonates, and where there is the most evidence of shallow water depositional environments. Proximity to these transitional zones may be the most important single exploration criteria. Figures 3, 4, 5 and 6 show the general patterns of sedimentation and positions of facies changes during the Ordovician-Silurian, Lower Devonian, Mid-Devonian and Upper Devonian periods. Favourable facies change zones are widespread in the northwest Yukon in the Ordovician-Silurian period and in the Middle Devonian.

PROJECT AREA AND ACCESS

Paleozoic formations of potential interest outcrop on 10 map sheets in northern Yukon and underly about 12,000 square miles. The southern boundary of the project area is at 65^{o}N, about the latitude of Dawson City, and the northernmost

favourable rocks occur at about 67° north in the Ogilvie and Richardson Mountains. The eastern limit of the project area is set arbitrarily at 131°W, the westerly limits of the 1973 Godlin Project; the western project boundary is the Alaska border. Within these boundaries there are certain formations of Proterozoic age which have as much economic potential as the Paleozoic rocks, and if these are included in the project coverage, a total of about 15,000 square miles will require examination.

Access within this huge area is facilitated by the new Dempster Highway, which starts at Dawson City and is completed as far as the Peel River on the south side of Eagle Plains. Parts of the project area that are remote from the highway can be reached by float plane from Mayo or from Dawson City. There are several gravel airstrips within the project area, and these as well may be of use as gas cache locations or camp locations. Camp supplies can be obtained from Dawson City or from Mayo.

EXPLORATION HISTORY AND KNOWN SHOWINGS

A great variety of mineral occurrences have been discovered within the project area. Some of the more important discoveries have been the Crest Iron Deposit, the Rackla River Mines lead-zinc property, the Hart River Mines copper-zinc property, the Delores Creek copper-cobalt showings, and numerous silver-lead veins on the northern fringe of the Mayo District. Much of the Klondike placer gold fields lie within the project boundaries. The newly discovered Goz Creek zinc deposits are included in the eastern fringe of the area. All known mineral occurrences within the boundaries of the project are listed in Appendix II.

Almost all the known mineral occurrences lie within the easily-accessible southern fringe of the project area, and most were discovered many years ago during the wave of prospecting that followed the discovery of gold in the Klondike. Recent exploration activity has been light, and seems to have been concentrated mainly in the vicinity of previously known mineral showings. An upsurge in activity occurred in the eastern part of the area last fall as a result of the Goz Creek discoveries.

Previous work in the project area by Dynasty Explorations has been slight. During the 1969 Tintina Project some reconnaissance geochemical sampling was done in the southeastern part of the Dawson map sheet, the southwestern part of the Larsen Creek map sheet, and the northern part of the McQuesten map sheet. This sampling resulted in the discovery of a stratiform pyrite-arsenopyrite-chalcopyrite showing, and 2 or 3 geochemical anomalies of moderate magnitude, but no claims were staked. During September of last year Dynasty carried out a six-day reconnaissance project north and east of Bonnet Plume Lake. This brief project provided an opportunity to become familiar with the immediate geologic setting of the Goz Creek zinc deposits and with the regional geology of the Nadaleen map sheet. Some lead and zinc float occurrences and geochemical anomalies were discovered during the project.

The Reef Project area as a whole, and especially the northern part of it, seems to have escaped the intensive exploration attention that much of the Yukon has received in the past three or four years. This lack of exploration work has probably resulted more from the inaccessibility of the region than from any inherent lack of mineral potential. The access problem has been partly solved with the building of the Dempster Highway, and undoubtedly other companies, as well as Dynasty, are planning exploration programs for the area.

EXPLORATION METHODS AND PERSONNEL REQUIRED

The huge area to be covered and the short exploration season in the northern Yukon necessitates a very fast-moving flexible and strongly helicopter-supported exploration approach. The Reef Project should, therefore, rely on geochemical sampling by "chopper-hopping" as its main exploration technique. Much of the reconnaissance silt sample coverage on both the 1973 Godlin and Selwyn Projects was obtained by "chopper-hopping", and the method was found to be both cheaper and faster than traversing streams on foot. The reliability of the method has been proven by the results obtained around several known mineral occurrences, including the Goz Creek and Howard's Pass showings. At Howard's Pass every sample within a 25 square mile area around the showings is anomalous and lead values in silts are five times background 6 miles down-stream from the showings. At Goz Creek the results are not quite as spectacular, but those showings as well would easily have been found by a chopper-hopping geochemical program.

Geochemical anomalies discovered by the reconnaissance sampling would be followed up as soon as possible by more detailed sampling, prospecting and limited geologic mapping. The object of the follow-up work would be to arrive as quickly as possible at a decision to stake claims. Detailed evaluation of any claim groups that were staked would be postposed until late in the season in order to concentrate most of the exploration effort in the reconnaissance part of the program.

The project will require a crew consisting of a geologist, one senior and one junior field assistant, a prospector, a cook and a contract helicopter crew. A senior geology student could fill the prospecting position if good prospectors can not be found. The geologist in charge of the project and the senior assistant would carry out most of the chopper-hopping, the

prospector and junior field assistant would mainly be involved in following up geochemical anomalies. The prospector and field assistant would work out of fly camps most of the time.

PROPOSED BUDGET

The following budget is based on a 12,000 square mile project area; assumes a sampling density of one sample per square mile; and estimates that 150 square miles could be covered in an average day of hopping. It estimates that 3 days out of 4 would be productive days; the remaining 1 day in 4 allows for camp moves, weather, helicopter down-time, etc. If these various estimates are valid, the reconnaissance coverage could be completed in 15 weeks. The base camp could be located on the Dempster Highway for about five weeks, the remaining area would be covered from five or more base camps located on lakes or airstrips. Fuel caches could be distributed widely over the project area and would not necessarily be located at base camp sites.

SUMMARY OF PROPOSED BUDGET

(1)	Prospecting	$ 3,300
(2)	Staking	5,000
(3)	Geology	13,300
(4)	Geochemistry	33,700
(5)	Camp Operations	10,150
(6)	Freight & Transportation	99,730
(7)	Base maps, photos and drafting	13,500
		$178.680
Expediting 5%		8,900
TOTAL DIRECT COSTS		$187,580

DETAILED BUDGET

1.	Prospecting			
	(a) Salary - 1 prospector - $800/mon. x 3½ months	$ 2,800.00		
	(b) Supplies (est. $200.00)	$ 200.00		
	(c) Assays - Est. 20 @ $15.00	$ 300.00		$ 5,000.00
2.	Staking			
	100 claims @ $50/claim			$ 5,000.00
3.	Geology			
	(a) Salaries - Geologist-Project Chief - $1,500/mon. x 6 months	$9,000.00		
	- Senior Assistant $900/mon.x 4 months	$3,600.00		
	(b) Supplies (estimate $400.00)	$ 400.00		
	(c) Assays (Est. 20 @ $15.00)	$ 300.00		$13,300.00
4.	Geochemistry			
	(a) Salary - Field Assistant $800/mon.x 4 mon.	$3,200.00		
	(b) Supplies (estimate $500.00)	$ 500.00		
	(c) Analysis reconnaissance samples: 12,000 samples x $2.00 =$24,000.00			
	Follow-up samples - 3,000 samples x$2.00 =$ 6,000.00		30,000.00	$33,700.00
5.	Camp Operations			
	(a) Salary - Cook - 3½ mon. x $700/month	2,450.00		
	(b) Groceries and other supplies $10 x 110 days x 7 men	7,700.00		$10,150.00

6. Freight & Transportation

(a) Scheduled freight services -
Est. $500.00 $ 500.00

(b) Scheduled airline fares -
Est. 10 return trips from
Vancouver @$200 each
10 x $200= $ 2,000.00

(c) Helicopter - Estimate 5 hrs.
per day for 100 days
500 hrs. x $130/hr. =$65,000

Fuel required -
500 hrs. x 18 gals/hr.
x $1.00/gallon =$ 9,000 $74,000.00

(d) Fixed-Wing Support:

- Fuel haul - est. that 2/3
of total fuel requirements
is positioned on lakes and
airstrips (balance trucked
to Dempster Highway points)
Average return fuel haul
trip = 300 miles.
Costs are based on Single
Otter, 5 drums per trip.

132 drums ÷ 5= 26 trips
+ 4 (contingent) =
30 return trips x 300 mi.
x $1.35/mile = $12,150.00

- Camp moves - estimate 6
moves, total of 800 miles
per move, using Otter

6 x 800 miles x $1.35=
$ 6,480.00

- Supply trips (one every
2 seeks should be suf-
ficient since new supplies
would come in on camp moves
as well).
Using Beaver based at Mayo
or Dawson:
6 x 500 mi.x $1.00=$3,000.00 $21,630.00

(e) Truck (rental or company
vehicle) + fuel, estimate
$400.00 per month x 4 months $ 1,600.00 $99,730.00

7. Air photos, base maps, drafting etc.

(a)	140 base maps (photo enlargements to 1"= 1 mi. scale, on Cronaflex) 140 x $10.00	$ 1,400.00	
(b)	Air Photos: Approximately 10,000 @ $1.00 each	$10,000.00	
(c)	Miscellaneous maps and drafting supplies - Estimate 1,000	$ 1,000.00	
(d)	Salary of draftsman- 3 months x $700/month	$ 2,100.00	$ 13,500.00
			$178,680.00
	Expediting 5%		$ 8,900.00
	TOTAL DIRECT COSTS		$187,580.00

Figure 1

PHYSIOGRAPHIC PROVINCES OF YUKON

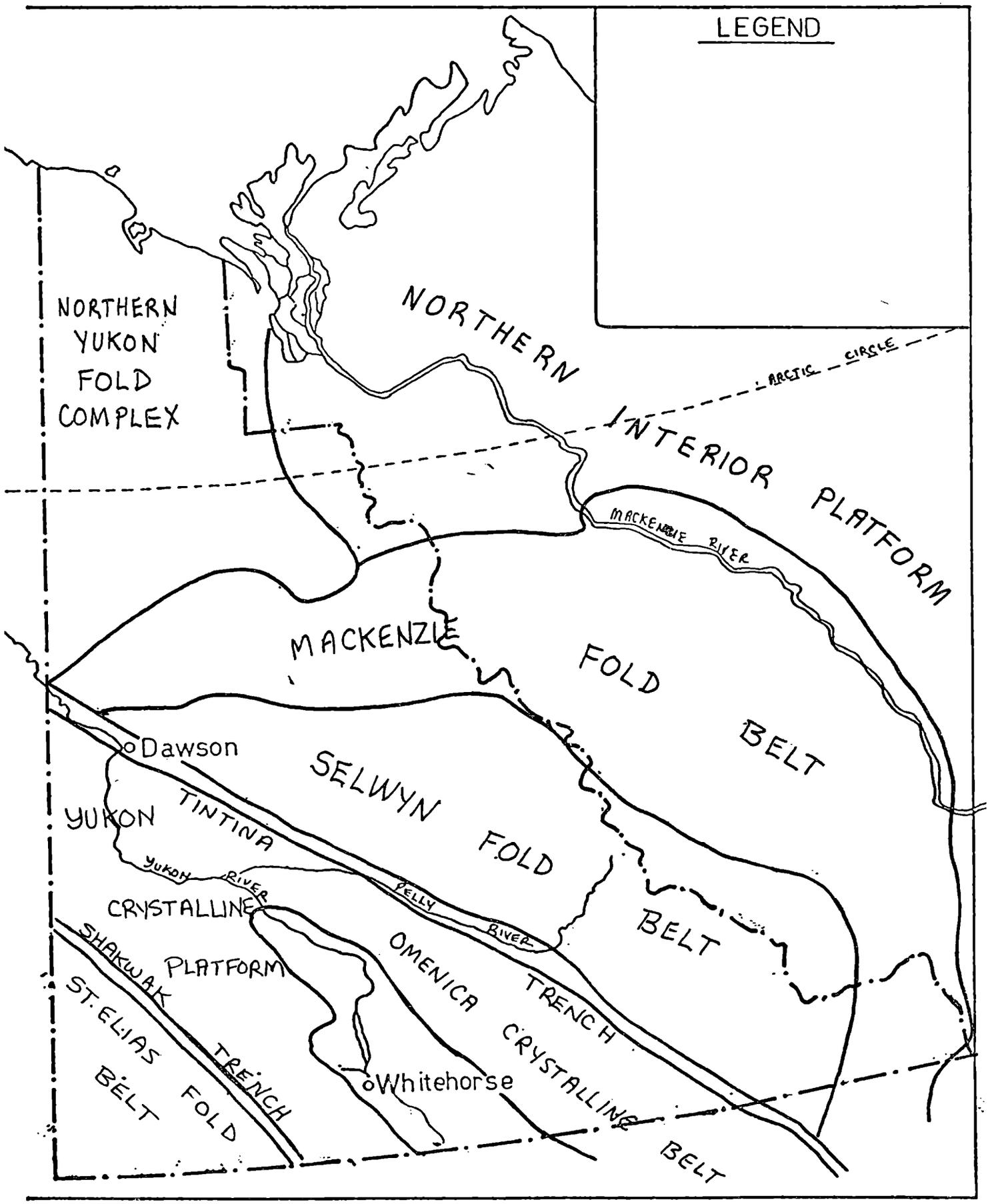


Figure 2: PALEOZOIC TECTONIC ELEMENTS

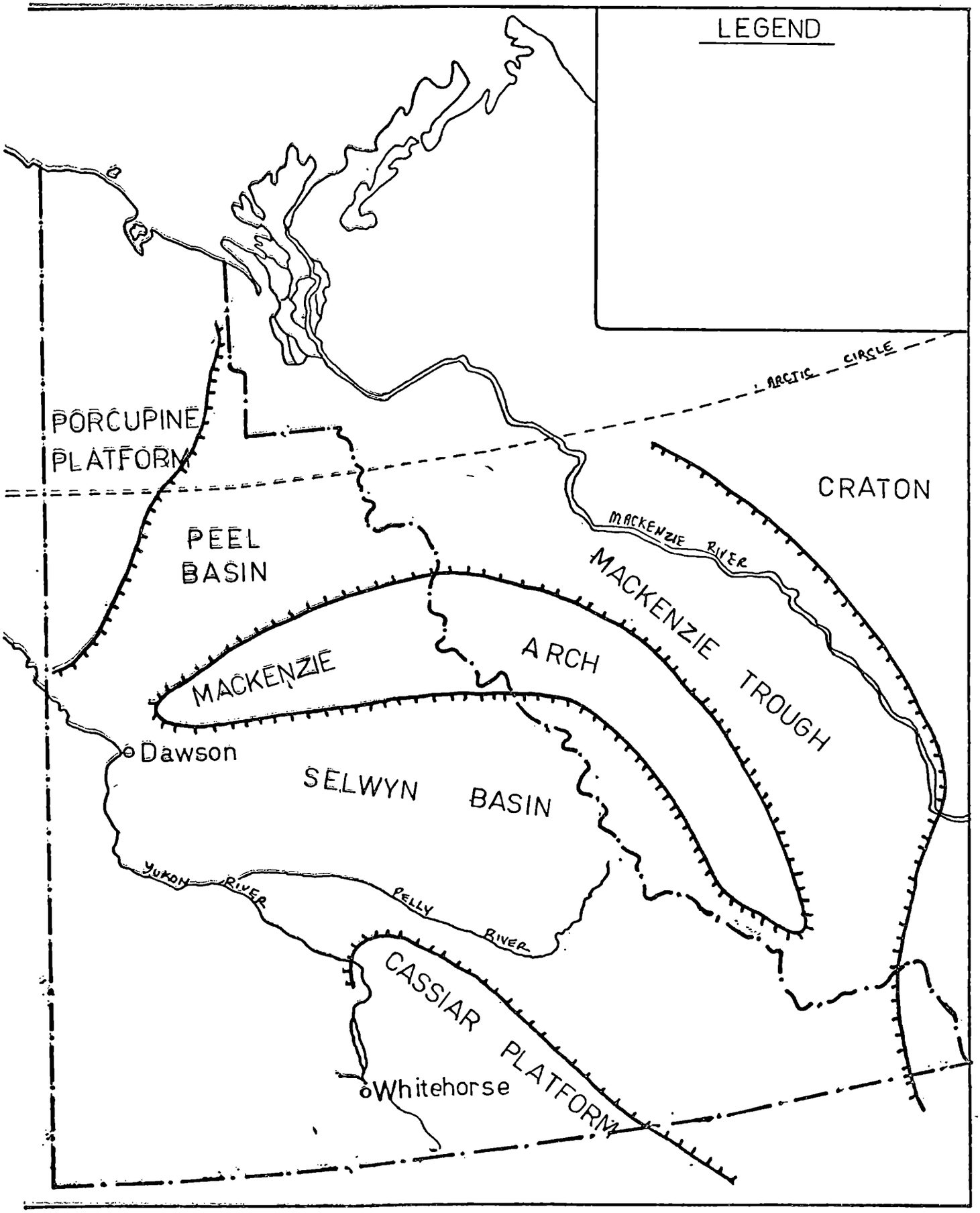


Figure 3

UPPER ORDIVICION/SILURIAN SEDIMENTATION

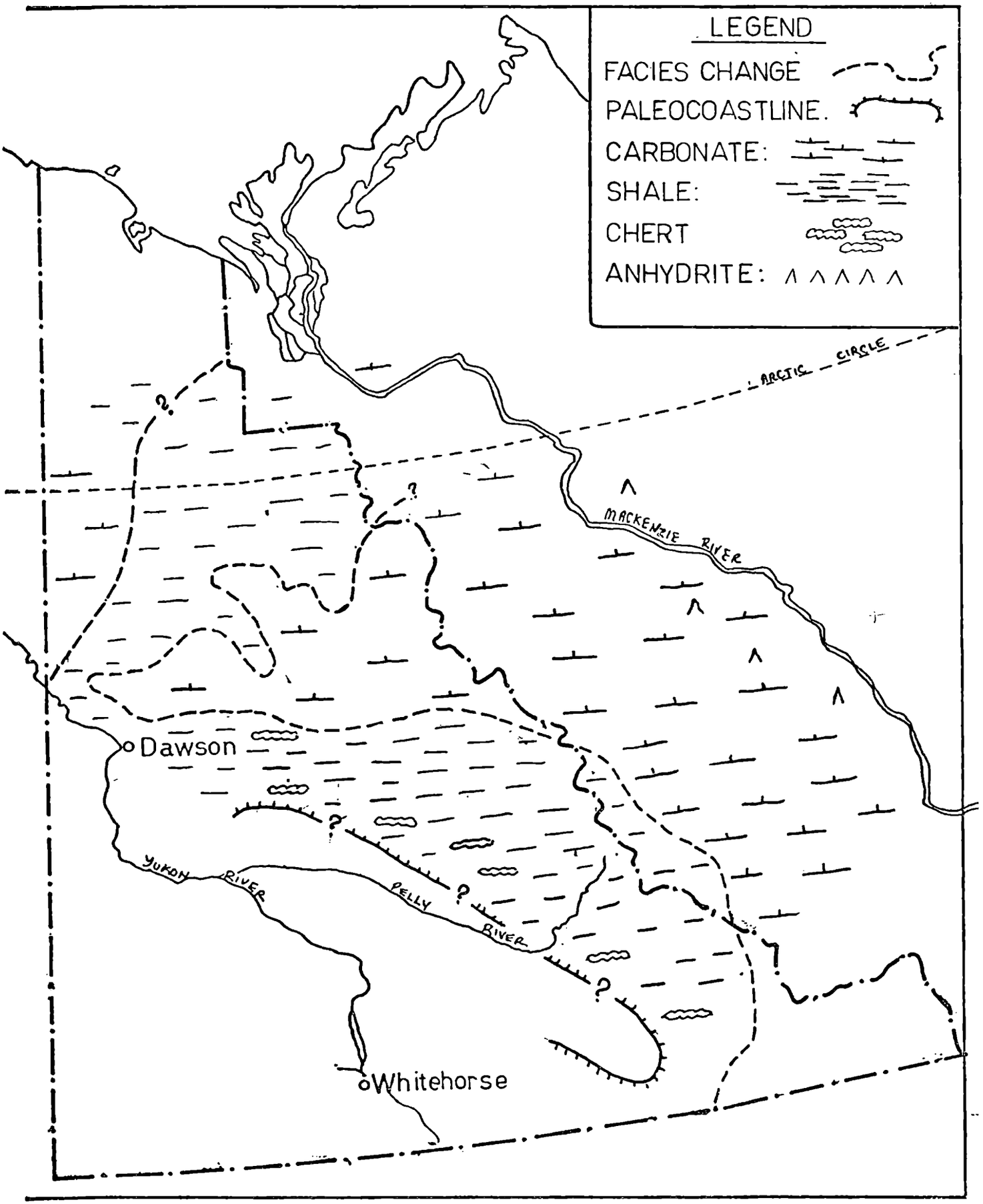


Figure 4 LOWER DEVONIAN SEDIMENTATION

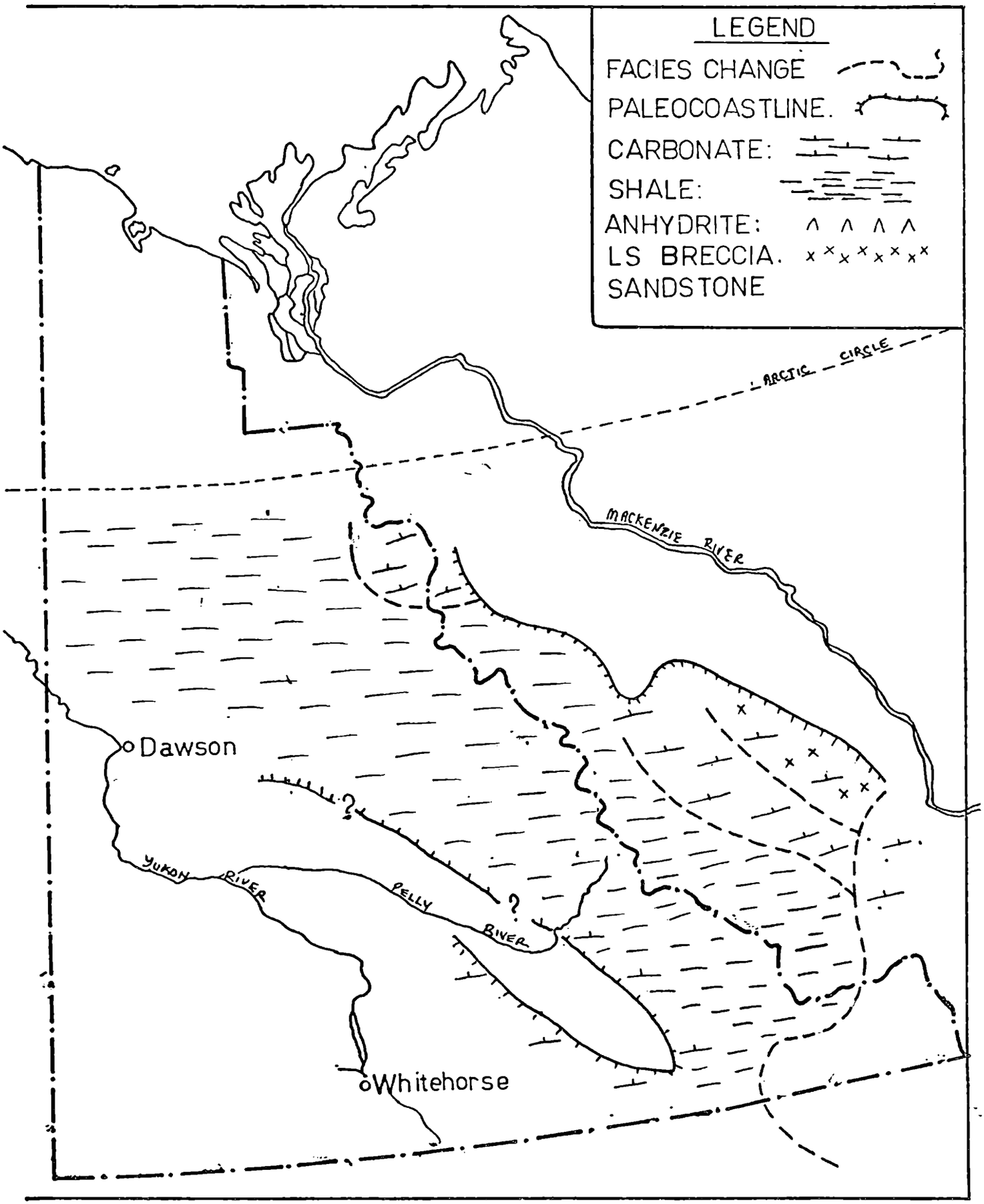


Figure 5

EARLY MID-DEVONIAN SEDIMENTATION

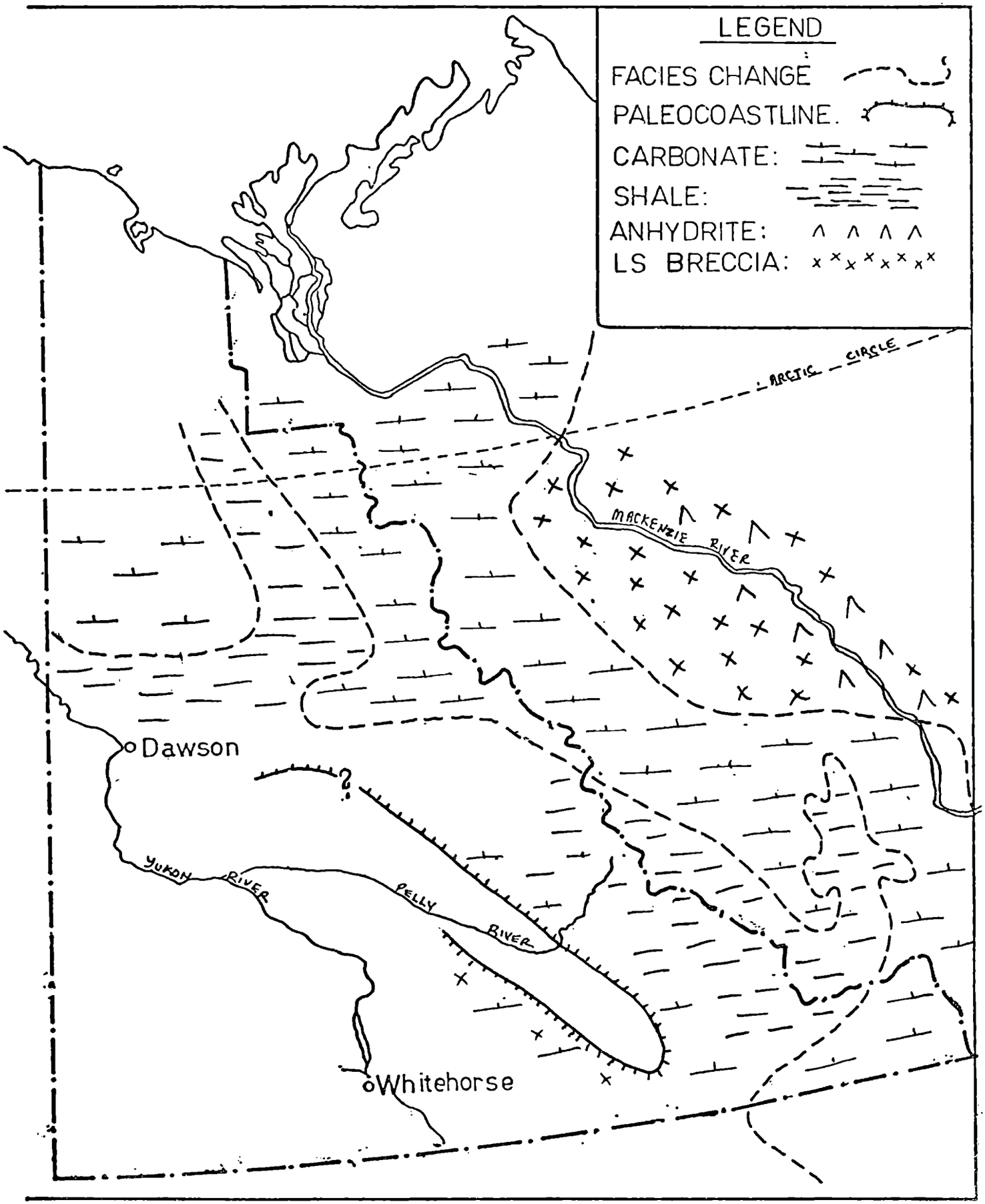


Figure 6 UPPER DEVONIAN SEDIMENTATION

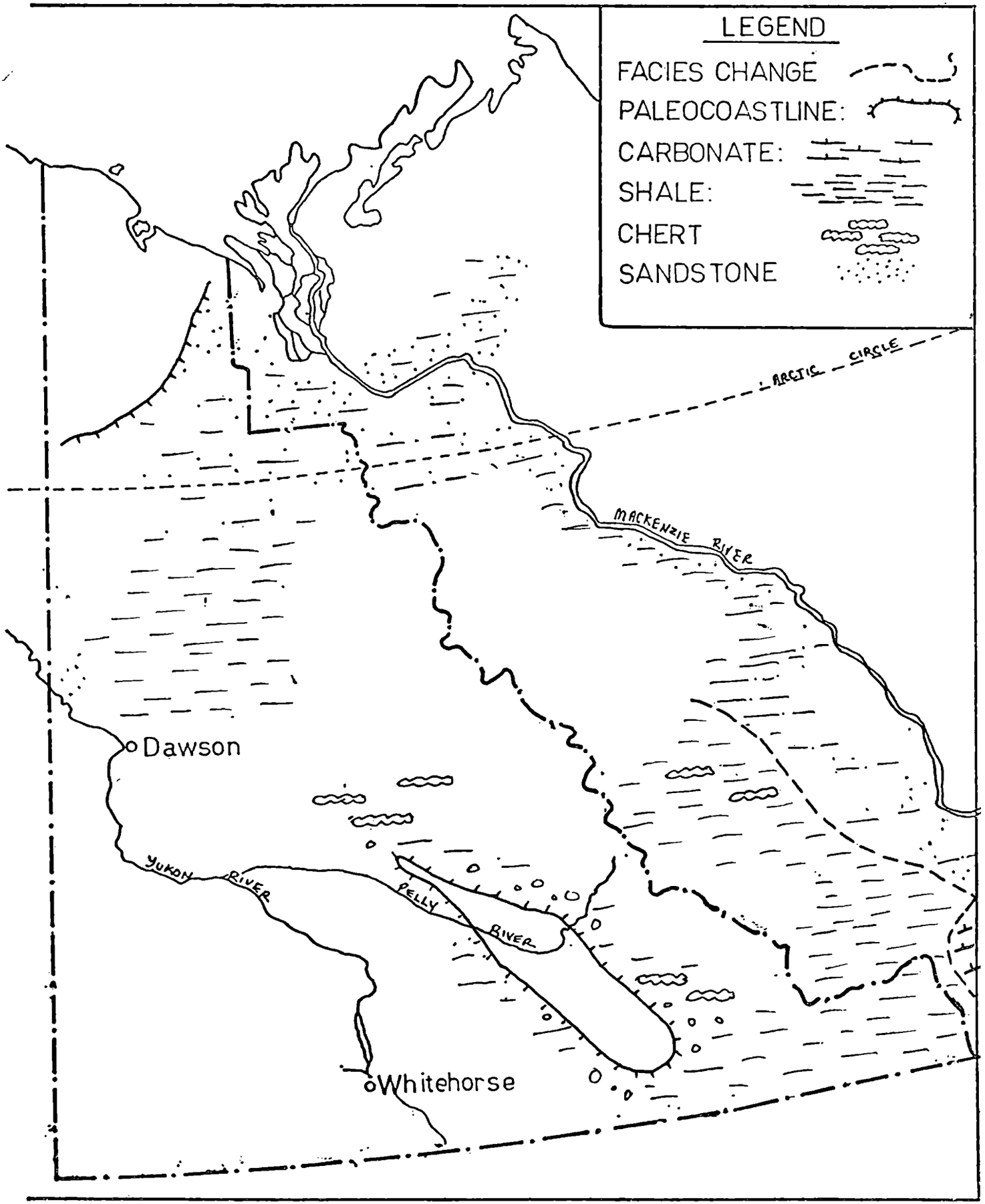
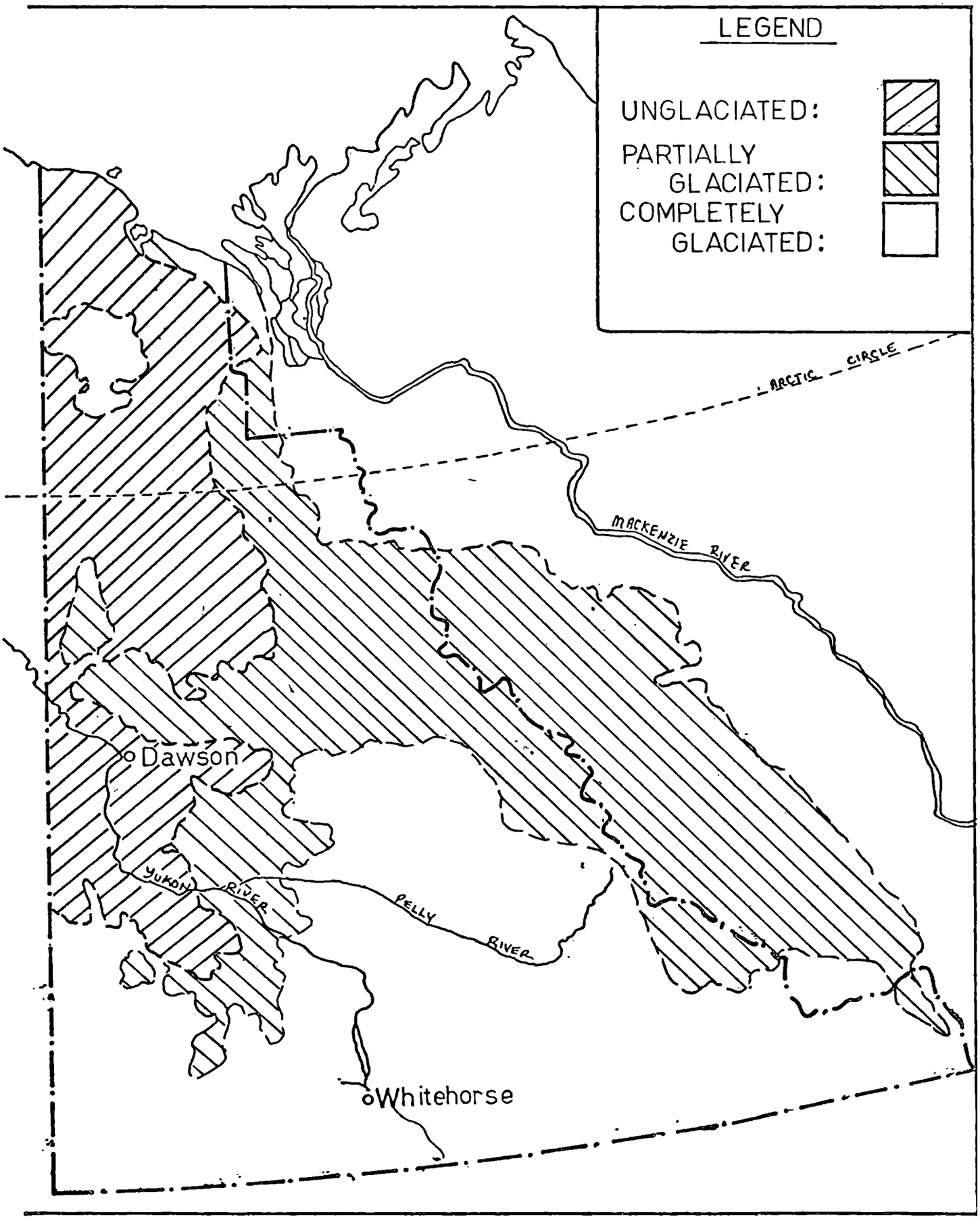


Figure 7 GLACIATION IN YUKON



SUMMARY OF GEOLOGIC HISTORY OF EASTERN AND NORTHERN YUKON TERRITORY

The oldest rocks outcropping in the northern and eastern Yukon are Helikian in age. In the Mackenzie Mountains at least 15,000 feet of conformable sediments of various lithologies accumulated in the Cordilleran geosyncline. These sediments were derived from the Archean Formations making up the craton, which was emergent and actively eroding. Helikian sedimentation was terminated by a period of folding, faulting, tilting and uplift known as the Racklan Orogeny, during which mafix flows and dikes were emplaced.

Hadrynian sediments that were deposited during the waning stages of the Racklan orogeny are characterized by very impure and poorly sorted clastic rocks which rest with strong angular unconformity on the older formations. Conglomeratic mudstones of the Rapitan Formation which were deposited during this time are of economic importance because of the beds of iron formation which they contain. Also of interest economically are the silty limestones and siltstones of the underlying Coppercap Formation, which is the host rock of the sedimentary Redstone Copper deposits. Volcanic flows and tuffaceous sediments are common within the Hadrynian sedimentary formations.

During the Cambrian, the basic pattern of positive and negative structural elements was established which influenced the pattern of sedimentation throughout the balance of the Paleozoic (Figure 2). Structural features of major significance that developed at this time include the Mackenzie Arch, an elongate uplifted belt that separated the Selwyn Basin in the west and south from the Peel Basin to the north and from the Mackenzie Trough in the east. The Mackenzie Trough was a structurally depressed area bordering the craton. The Cassiar Platform was another uplifted area which formed the south border of the Selwyn Basin, and the

Porcupine Plateau bounded the Peel Basin on its northwestern flank. All of these features persisted until the close of the Paleozoic.

Sedimentary rocks that accumulated during the Lower Cambrian are typically of miogeosynclinal facies. Clean quartz sandstones and conglomerates are overlain in the eastern part of the area by massive beds of carbonates. These grade to the southwest into deeper water calcareous shales in Selwyn Basin. Sandstones and shales accumulated east of Mackenzie Arch in Mackenzie Trough, and limestones were deposited in Peel Basin. Very thick carbonate formations were deposited on the south and west flanks of the Mackenzie Arch during the Middle Cambrian, while to the east gypsum, salt and red weathering sandy dolomites were deposited in the Mackenzie Trough. These evaporites thicken to the north and grade into argillaceous limestone and shale in Peel Basin. Silty limestones and dolomites accumulated in Selwyn Basin during the Upper Cambrian.

Lower Cambrian carbonate rocks of the Sekwi Formation contain significant showings of lead and zinc in the Godlin Lakes area and are the host rocks of important tungsten deposits at Cantung and Mactung. The Goz Creek zinc occurrences may also be in a Lower Cambrian carbonate unit, possibly older than the Sekwi Formation.

Lower and Middle Ordovician rocks overly the Upper Cambrian conformably throughout most of the area and generally similar lithologies were deposited.

Upper Ordovician and Silurian formations always overly older rocks unconformably. In Peel Basin deep water shales are interbedded with limestone turbidites. Thick carbonate reefs developed on the Porcupine Plateau and on Mackenzie Arch. Deposition in Selwyn Basin consisted mainly of bedded cherts and graptolitic shales. Minor volcanic flows occur at various places in the Ordovician-Silurian rocks. The approximate

position of the facies change between the shales of the Road River Formation and the Mackenzie Arch carbonates such as the Whittaker and Sunblood Formations is shown in Figure 3.

The Road River Formation is the host rock of the Canex-Placer zinc-lead deposits at Howard's Pass which may be sedimentary in origin. These perfectly conformable mineral showings occur in silty limestones of Ordovician age close to an unconformable contact with Lower Cambrian limestone.

General depression of the land during the later stages of the Ordovician-Silurian time period is indicated by the very widespread deposition of black graptolitic shales which occur over the Mackenzie Arch and much of the craton.

During the Devonian, the craton was high and actively eroding. Several thousand feet of shales accumulated in Selwyn Basin and thick carbonate reefs flanked the Mackenzie Arch. In Mackenzie Trough dolomite, limestone breccia and anhydrite sequences were deposited. In Peel Basin most of the clastic sediments that were deposited during the Devonian were derived from an emergent belt to the northwest which was related to the Ellesmerian Orogeny. Chert pebble conglomerates which are interbedded with shales in the Selwyn Basin were derived in part from an uplifted area on the southwest flank of the basin. The position of facies changes and lithologies during the Lower, Middle and Upper Devonian is illustrated by Figures 4, 5 and 6.

The Middle Devonian carbonate reefs on the western flank of the Mackenzie Arch are the host rocks for most of the telethermal lead-zinc occurrences in the region, inc.uding several significant showings around Godlin Lakes and the Gun claims showings southeast of O'Grady Lakes. The Hudson's Bay stratiform lead-zinc

occurrence near MacMillan Pass is thought by some to be in shales of Devonian age, but it resembles the Canex-Placer deposit and could be within the Road River Formation.

General subsidence during the Upper Devonian resulted in the deposition of black shales over wide areas. These shales abruptly overly the uppermost Middle Devonian carbonate formations on the Mackenzie Arch. Shale deposition may have continued into the Mississippian, although no undisputable fossils of Mississippian age have been recognized in this shale formation.

The Carboniferous period was characterized by a progressive westerly regression of the sea that resulted in a variety of lithologies being deposited. A widespread unconformity at the base of the Permian, frequent occurrence of conglomerates in Permian and Pennsylvanian units, and the presence of the Old Crow Intrusions of Permian age are evidence for a possible orogeny centred in the northern Yukon. By the end of the Permian period, deposition of sediments was only occurring in the northwestern part of the Selwyn Basin, in the area to the north and west of Dawson City.

Subsidence and quiescent eugeosynclinal conditions during the Triassic were followed during the Jurassic by uplift and metamorphism of the Yukon Plateau on the southwest flank of Selwyn Basin. The Columbian orogeny, which began during the Upper Jurassic and continued through most of the Cretaceous, profoundly deformed the Selwyn Basin sediments through folding and some thrust faulting.

The major Paleozoic structural features such as the Selwyn Basin and Mackenzie Arch are nearly unrecognizable in the Cretaceous. New basin areas such as the Eagle Basin and Bonnet Plume Basin

make their appearance and sedimentation only occurs in the extreme northwest corner of the former Selwyn Basin area. During the late Lower Cretaceous, a shallow sea was probably continuous from the Arctic Ocean in the north through the Peel Basin and Mackenzie Trough and as far south as the Alberta Trough.

Uplift related to the Laramide orogeny obliterated the last remnants of the Selwyn Basin during the Upper Cretaceous. This late Cretaceous and early Tertiary orogenic period was responsible for most of the deformation visible in the Mackenzie Mountain and Northern Yukon fold belts. The deformational style is generally one of open, upright folds with flat crests and troughs and steep flanks. Thrust faults are commonly present but are not as strongly developed as further south in the Rocky Mountains. Folds in the Mackenzie Mountains are often outlined by shale-limestone contacts, the valleys shale-filled and the ridges being anticlines with limestone bedding surfaces stripped of shale. The belt of small granitic stocks in the Selwyn Mountains were intruded during the Cretaceous.

The present physiographic pattern of mountains and valleys in the northern and eastern Yukon had been established by the middle of the Tertiary. By this time, the entire area was emergent and only terrestrial sediments were being deposited. Pleistocene glacial effects can be seen in some parts of the region but much of the area escaped glaciation in part or entirely (Figure 7).

MINERAL OCCURRENCES IN REEF PROJECT AREA

PART I - Mineral occurrences summary sheets for Map Sheets 106-B; 106-C; 106-D; 106-E; 106-F; 116-A; 116-B & C; 116-G & F; 116-J & K.

These summaries are derived from the Archer & Cathro Mineral Inventory and the showings are located by number on the Archer & Cathro Mineral Inventory maps. The new showings discovered last year on 106-B and 106-C are not included.

PART II - Brief geologic descriptions of the more significant mineral deposits in the area are presented. Most of these descriptions are copied from the Archer & Cathro Mineral Inventory.

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No.	CLAIMS	N.T.S.	GEOLOGY, SHOWINGS, ANOMALIES or FLOAT OCCURENCES
1	HOPE	5	
2	POP	12	cp & cobaltite in qtz vein & siderite vein in ds & phyll
3	BOB	13	
4	LAD	13	diss. ga in fractures in gossanous ds.
5	SLAB	13	Cu-Co-Mo vein stockwork in L PZ & pre€ volc, ls, & ct.
6	SHEEP	13	
7	TYANA	13	bo & cu ox in basic volcanics
8	STAR	13	
9	DOLORES	13	cp and siderite in Proterozoic qtzite & ds, also cp-ccb shear
10	KEY	14	minor cp in € sds
11	MAMMOTH	14	minor lense of cp in Kathleen Gp ds 8 FT x seu 100'
12	CIRQUE	14	Cu, Co, Ag in vein stockwork cutting slates, phyll, & ds
13	PORPHYRY	14	diss cp & py in syenitic lens in gabbro sill, € or older
14	TETRAHEDRITE	14	weak scarn zone on contact of ds w diorite sill has tet. vinlets
15	AIRSTRIP	14	minor diss cp in gabbroic volcanic rx.
16	VULCAN	14	several small cp showings in € sds & pre€ volc
17	DORRY	14	cp in narrow lenses & diss. in ls
18	KIDNEY	13	minor cp in vinlets cutting shale & ls
19	CORN	11	heavily oxidized residual ga float over sev. hundred ft. in ls

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No.	CLAIMS	N.T.S.	GEOLOGY, SHOWINGS, ANOMALIES or FLOAT OCCURENCES
1	JAB	1	Stream geochem anomaly, pyritic shales, no min. discovered
2	ARACHINA	1	pyritic shales
3	ROME	1	pyritic shales
4	ICE	1	Cu, Zn, and Pb anomaly in creek
5	CLAR	1	creek weakly anomalous in Cu & Zn
6	KATHLEEN	8	ga & sp in veins cutting € -Sil's
7	SCOUGALE	7	
8	NOW	2	stream sediment anomalies caused by blk shales
9	MARG	1	stratiform cp-sp occurence in pyritiferous phyll, qtzite, & gnstone
10	WEN	15	cp, bo, py, arsen, & sid. in qtz vein in shear
11	CLARK	2	Ag Pb Zn Cu vein & replacement in sch & Ls (Bullion Mtn.)
12	CAMGRAN	3	Ag Pb Zn Cu Sb vein in sch & Ls. sid alt^{n}
13	STAND-TO	3	Ag Pb sid vein in gnstone sill
14	FORBES	3	ga Float related to 3? veins
15	SPRING	3	lim. gossan & rumours of mineralization
16	RAMBLER	3	Ag Pb, Cu Zn veins
17	RUSTY	3	
18	ERIN	4	Ag Pb Zn Sb veins
19	GWAIHIR	4	sch in stockwork in small granite stock
20	SKATE	4	ga sp py & Jamesonite in sid vein cutting € sch & Ls
21	PESO	4	Ag Pb Zn, Sb veins in qtzite & sch
22	BARKER	4	Pb Sb veins in shears
23	MEILECKE	4	~~[illegible]~~ ga vein rumoured
24	SHEPPARD	4	cassiterite in vein or bx zone in € or older qtzite
25	DUBLIN GULCH	4	Au Ag veins in € or older sediments
26	POTATO HILLS	4	placer sch & gold & sch in qtz stockworks in granite
27	RAY GULCH	4	sch & Au in tremolite scarn bed 50 to 75 FT thick
28	ELLIS	4	Au in arsen-qtz vein
29	LYNX	4	Pb, Sb, Ag veins in shear
30	LUCKY STRIKE	4	Pb Zn Ag vein w. qtz & sid in qtzite

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No.	CLAIMS	N.T.S.	GEOLOGY, SHOWINGS, ANOMALIES or FLOAT OCCURENCES
31	DUTCH	3	
32	POINTER	3	
33	CONTACT	3	
34	STEAMBOAT	4	large fossans related to metal rich shales
35	DACE	5	transported lim. fossan
36	RED HEAD	5	
37	WHITE HILL	6	qtz vein w. ga cp & sp
38	MCKAY HILL	6	Pb Ag veins in € metaseds.
39	GREY COPPER HILL	6	tetrahedrite, pyrite & sid veins. Rumours of float w. high cu
40	CARPENTER	6	ga sid float not located in place
41	ELLIOT RIDGE	6	cp + ga in 1 FT wide qtz vein
42	SILVER HILL	6	Pb Zn Ag veins in Proterozoic Ls
43	SETTLEMIGA	6	
44	ROYAL	14	probably staked on cp-hem in Proterozoic sig & phyll
45	ZULPS	9	cp-sid vein in a dioritic plug, 8-10 FT WIDE & 1000 FT long
46	McCLUSKY	9	minor cp occurence?
47	GRAY	11	cp, az, & mal in Proterozoic Seds
48	NEW JERSEY	16	cp, az, & mal in Proterozoic seds.
49	FAGISTEEL	16	massive hem w trace of cp in Proterozoic silty ds.
50	BOND	15	cp-sid-py veinlets w trace ga in Proterozoic ds. the most known occurrence
51	FRAN	15	15 FT bed of specular hem. in Unit 2 25 m tons
52	FORD	16	minor cp & ga in veinlets in pre € Ls
53	SLATS	16	hem Fe Form in Proterozoic
54	DOUBLYOU	1	anomalous Pb Zn geochem in ~~Silt~~ silts.
55	ZED	3	
56	SUPERIOR	3	
57	QUE	3	weak Pb soil anomalies
58	JEE	3	
59	PEA	3	
60	DRESEN	9	narrow cp veins in PrZ Seds

N.T.S: 106 D

No	CLAIMS	N.T.S.	GEOLOGY, SHOWINGS, ANOMALIES or FLOAT OCCURENCES
	FUND	16	minor cp veinlets in PreE limy seds.
	FIT	16	minor cp veinlets in PreE seds
	NAT	3	Pb Ag Zn Cu vein in sch & gnstone
	FRAINE	7	minor mal stain in altered argillite or gnstone
	REEN	6&7	bo & mal in qtz in Unit 1, also mag & horn markers.

MINERAL OCCURENCE SUMMARY

WIND RIVER
N.T.S: 106 E

No.	Name	Loc	Description:
	IRENE	E/1	minor py & cp in pre€ (Kaslan?) volcanics
	QUARTET	E/1	Pb (Zn)

MINERAL OCCURENCE SUMMARY

SNAKE RIVER

N.T.S: 106 F

No.	Name	Loc	Description:
	CREST	F/3	Fe-form - reserves in excess of 10 b t @ 43% Fe

MINERAL OCCURENCE SUMMARY

LARSEN CREEK
N.T.S: 116 A

No.	Name	Loc	Description:
1	TIMBERWOLF	A/8	minor cp float in area of geochem over graph scl.
2	WORM	A/8	
3	RAMA	A/9	qtz veins w. minor cp & ga
4	MATTSON	A/9	qtz veins w. py & cp
5	SOUP	A/10	qtz veins w. cp
6	CINCH	A/10	Cu & Pb soil anomalies.
7	REINDEER	A/10	cp diss in greyls, also py & ga bearing float
8	GRACE	A/10	diss. cp in float, also Cu-Zn-Pb silt anomalies.
9	HART RIVER	A/10	mass. sulphide replacement body on contact of diorite sill / 577,445 tons: 1.45% Cu 3.6% Zn 0.4% Pb
10	BELCARRA	A/10	cp, ga & sp on contact of dio. sill
11	ZEBRA	A/10	cp & Ag in pre € sedo. intruded by dio. sills drilled: 5 holes
12	HAMILTON	A/5	qtz veins w cp & Au values up to 8 oz / ton
13	RIMROCK	A/5	qtz veins w. ga. sp. & stibnite
14	AUSTIN	A/9	float train of cp in qtz - drilling failed to locate the source

MINERAL OCCURENCE SUMMARY

DAWSON
N.T.S: 116 B & C

No.	Name	Loc	Description:
1	INDEX	B/6	Sb in qtz veins assoc w rhy dikes cutting Syenite.
2	BENSON	B/2	No float found in gravel pit
3	DITCH	B/2	no info.
4	GERMAINE	B/2	a lone Tertiary qtz porph stock, long. cass in placers
5	COLLICKY	B/2	coal
6	UNEXPECTED	B/3	-lamites in qtz porphyry plug, low Au & Ag values
7	VIRGIN	B/3	qtz-py-ga-cp veins with low Au & Ag values
8	MACLEAN	B/3	qtz veins in graph. qtzite, low Au values
9	BOYLE	B/3	strong serpentinization suggests presence of UB.
10	LEPINE	B/3	qtz veins in sc. sch on margin of qtz porph stock / no Au
11	FIBRE	B/3	short, low grade asbestos in UB body
12	MIDNIGHT DOME	B/3	short, low grade asbestos in UB.
13	MOOSEHIDE	B/3	probably staked on qtz viens
14	RELIANCE	B/3	" " " "
15	WEST DAWSON	B/3	Ag & Au showing in YG. metasediments
16	BRYANT	B/4	probably staked on qtz viens
17	McCORTES	C/1	" " " " "
18	HUNGRY	C/2	coal
19	MILLER	C/2	lo.wg qtz veins in limy Y.G., w ga, sp / cinnabar fl in placers
20	ALASKA	C/2	Cu & Zn anomaly in stream sediments
21	BRUIN	C/7	weak pyritic gossan in UG
22	SPHERE	C/7	asbestos
23	BUDINSKY	C/7	staked on UB; no asbestos found.
24	FOXY	C/7	asbestos
25	CLINTON CREEK	C/7	asbestos: 1970 reserves: 20.5 mt of ~8% fibre ore
26	ACHERON	C/7	asbestos
27	CONE HILL	C/7	ga in qtz veins cutting LS member of YG
28	MINGY	C/7	asbestos
29	SHELL CREEK	C/9	Fe-formation - 2 beds, 75 and 200 FT thick, 5 mi long
30	CLIFF	C/9	COAL

MINERAL OCCURENCE SUMMARY

DAWSON, cont'd

N.T.S.: 116 B&C

No.	Name	Loc	Description:
31	SOURDOUGH	C/8	COAL
32	FIF	B/5	COAL
33	CALEY	C/8	asbestos
34	JOLLY	C/4	Ag-Pb viens ?
35	SUBMARINE	C/8	LS lenses in YG w. streaks & blobs of ga & sp
36	REAL	B/5	" " " " " " " " " " "
37	SILVER CITY	B/5	Ag-Pb (Zn Cu Sb) showing in qtz carb. rk / several small [illegible] showings
38	FITCH	B/5	staked on aeromag, no min. found
39	OGILVIE	B/5	rumoured to be a Au-qtz vien or stockwork
40	KEYSTONE	B/5	ga occurence?
41	FRESNO	B/4	Sb occurence?
42	CHARLEMAGNE	B/	
43	ASS	B/5	asbestos
44	WOODCHUCK	B/5	asbestos
45	ETHELDA	C/8	copper occurence ?
46	BUCKBRUSH	B/5	staked on potential Au placer in Tert. cg.
47	KRAUT	B/6	staked on qtz viens?
48	RICKARD	B/6	no info.
49	HAY MEADOW	B/7	no info.
50	TEDKELL	B/7	no info.
51	HARE	B/2	no info.
52	SNYDER	B/7	no info.
53	CABLE	B/7	no info.
54	LIGHTHOUSE	B/6	no info.
55	FIREWEED	B/7	c-g mc on joint surfaces in fl. near Syenite stock
56	GRAVE	B/7	[illegible] in qtzite in roof pendant in Tombstone lithos.
57	SPOTTED FAWN	B/7	Sid-ga view cut qtzite nr. a Syenite Stock.
58	SUBTRACT	B/7	ga in fracture surfaces in syenite talus
59	ROBERT SERVICE	B/8	[illegible] ga in float boulder of [illegible]
60	MULTIPLY	C/6	[illegible] in qtzite

MINERAL OCCURENCE SUMMARY

DAWSON, Cont'd

N.T.S.: 116 B&C

No.	Name	Loc	Description:
61	CRAWFORD	1/10	[illegible] of cp in quartz and cc in qtz-sed [illegible]
62	BLACKSTONE	2/11	COAL
63	CHAPMAN	3/11	minor [illegible] (unit 8) [illegible]
64	FIFTEEN MILE	3-14 LF	minor [illegible] in sed. veins cutting [illegible] sed. 3% Cu [illegible]
65	KENTUCKY	B/3	no info
66	CHANDINDU	B/5	COAL
67	HAMMER	C/4	no info
68	SHALD	B/13	minor cp in qtz veins.

MINERAL OCCURENCE SUMMARY

OGILVIE RIVER

N.T.S.: 116 C & F

No.	Name	Loc	Description:
	DEMPSTER	C/E	claims over hot springs?
	SIT DOWN	F/15	No mineral occurence - drafting mistake!

GEOLOGIC DESCRIPTIONS OF THE MORE SIGNIFICANT MINERAL OCCURRENCES

1. Econ Claims (Noranda) 106-B-6

The Econ claims were staked during August, 1973, to cover a lead-zinc showing in Paleozoic dolomite. The main mineral showing outcrops in a creek canyon near a contact between massive, thick-bedded grey dolomite with overlying, thinner bedded black silty dolomite. Mineralization occurs over a width of 20 ft. 2 grab samples taken by Dynasty contained: Zinc - 31.1%; Pb. 3.15%; Ag. 0.29 oz/ton; and Pb. 44.6%, Ag. 1.68 oz/ton. Smaller showings occur in fractures to the east and west of the main showing.

2. Goz Creek Property (Barrier Reef) 106-C-7

The zinc showings at Goz Creek are scattered through a 150 foot thick bed of porous, vuggy dolomite within a much thicker carbonate "reef" of Paleozoic age. The main showing is a body of silicified breccia about 20 ft. or more thick and at least 200 ft. long. The matrix in the breccia consists entirely of pale yellow sphalerite, which surrounds and supports sharply angular, fine grained quartz fragments. This breccia zone probably averages about 20% zinc. Surrounding the breccia zone is a zone of "disseminated sphalerite" which consists of laminated, fine grained sphalerite distributed in layers in a dolomite. The features in this type of mineralization strongly suggest a sedimentary origin. Beyond the main showing, and scattered widely throughout the carbonate reef, are small pockets and veinlets containing sphalerite and occasionally galena. Pyrite is very rare or absent in most of the showings.

A distinctively different mineral occurrence outcrops in Harrison Creek, 12 miles to the west. At this showing abundant pyrite and minor sphalerite and galena form veins and blobs within a strongly brecciated black silty dolomite.

3. Delores Creek Area

(a) Delores Prospect 106-C-13(9)

The showing outcrops on a steep, almost inaccessible, headwall of a cirque. Chalcopyrite and, to a lesser degree, cobaltite occurs as disseminations and stringers in siderite-quartz fracture fillings cutting slates, phyllites and dolomite (Katherine Group?). The best mineralized zone located near the crest of an anticline is about 400 feet by 130 feet in size and is visually estimated to grade 1.0% copper and 0.2% cobalt with traces of silver. Basic dykes (Cambrian or older) are found in the area.

(b) Mammoth Prospect 106-C-14 (11)

Chalcopyrite and siderite occur in fine fractures cutting Proterozoic quartzite and dolomite of the Katherine Group. A large area, nearly one square mile, is mineralized. A chip sample over a length of 60 feet in a bulldozer trench in the centre of the mineralized area assayed 0.15% Cu and 0.12 oz/ton Ag. Basic dykes, probably Cambrian or older, are present but not abundant.

About 1 mile southeast, near the summit of the northwest trenching ridge, are occurrences of cobaltite and chalcopyrite in narrow discontinuous veins.

(c) Cirque Prospect 106-C-14 (12)

The showing consists of a vein or lens of chalcopyrite on the east bank of a small tributary of Dolores Creek. It cuts dolomite (Katherine Group?) and can be traced for a length of several hundred feet. A chip sample over the widest and best mineralized section assayed 14.7% Cu and 0.4 oz/ton Ag over a width of 8.0 feet.

4. Bullion Mountain (Clarke) 106-D-2 (11)

A many branching vein, striking northeast and dipping steeply southeast, cuts thin bedded schists, quartzites and a lens of limestone. The vein zone is wider in the limestone(up to 60 feet wide), possibly due to partial replacement, and has been followed about 300 feet along strike. The best surface assay reported is 20.08 oz/ton Ag, 19.8 % Pb and 6.12% Zn over a width of 31 feet. Drill assays (with the exception of four higher grade intercepts) have intersections varying from 1.5 to 91.5 feet assaying from 0.1 to 9.6 oz/ton Ag, 0.4 to 8.8% Pb & trace to 13.4% Zn. Oxidation is strong on surface and in some of the drill holes. Mineralization consists of galena (1:1 silver to lead ratio), sphalerite and minor pyrite and chalcopyrite.

Ore reserves (using uncut assays) are reported as 477,000 tons grading 10.28 oz/ton Ag, 7.97% Pb and 4.45% Zn of which 127,650 tons are said to be openpittable.

5. Dublin Gulch Area 106-D-4

(a) Sheppard Prospect 106-D-4 (24)

Resinous, yellow to brown, finely crystalline cassiterite occurs in a vein or breccia zone about 3 feet wide, which cuts quartzite of Cambrian or earlier age (unit 3). Coarse fragments of float are composed of smaller angular fragments of vein quartz, quartzite and quartz-mica schist, packed in with chlorite, tourmaline, vein quartz, limonite and a little pyrite. The mineralization shows evidence of extreme brecciation and fine green tourmaline is particularly abundant. Lenses of tourmaline up to 3 inches long and 1/2 inch wide consist of aggregates of finely crystalline hairs. Cassiterite is seldom visible to the naked eye and occurs as small patches or nests or as disseminated crystals. Three channel samples assayed 1.53% 1.53%, and 0.83% Sn. Cominco sampling averaged less than 0.3% Sn.

(b) Dublin Gulch Prospect 106-D-4 (25)

Quartz-arsenopyrite veins are common for a length of two miles along the north edge of the Potato Hills stock. Most veins strike NE and range in width from a few inches to 6 feet and occasionally wider, although the arsenopyrite-rich sections is usually restricted to widths of 4 to 20 inches near the centre. Minor amounts of pyrite occur with the arsenopyrite. Host rocks are Cambrian or older metasediments (unit 3). The vein drifted on the Victoria claims assayed 0.25 oz/ton Au and 0.4 oz/ton Ag over a width of 2 ft for the 74 ft length. Similar assays were obtained from other veins. Rio Plata conducted a Turam survey and bulldozing program which reportedly outlined a narrow silver-rich vein and more arsenopyrite veins. The presence of silver veins in the area is further suggested by the presence of siderite containing sphalerite, galena and jaimesonite in the placer gravels.

(c) Potato Hills Prospect 106-D-4 (26)

Scheelite occurs with feldspar, muscovite, pyrite and small amounts of arsenopyrite in a quartz-stockwork within the Potato Hills stock. Alteration is weak and consists of narrow argillic envelopes around the veins. Some disseminated scheelite occurs in the granite near the veins. The mineralized area is approximately 6000 feet long and 2500 feet wide and was well outlined by a soil survey. The best grade found in trenching and drilling is about 0.05% WO_3. Both copper and molybdenum are present only in trace amounts.

6. Rackla River Mines (Kathleen) 106-D-6 (8)

Galena and sphalerite occur in veins which cut Cambrian-Silurian limestone (unit 8). It seems likely that the veins are strongest and better mineralized in the limestone but extend into metasediments (unit 2) at either end. Surface sampling averages about 1 oz/ton Ag, 1% Pb, and 2-3% Zn, with the best trenches giving 20.6 oz/ton Ag, 35.6% Pb, and 6.8% Zn across 25 ft and 9.4 oz/ton Ag, 3.0% Pb, and 2.7% Zn across 27 feet. Drilling showed that the veins are lensey and narrower at depth.

New areas of mineralization were reportedly found on the Con cls in 1972.

7. Crest Snake River Deposit 106-F-3

Iron formation composed essentially of unaltered hematite and jasper occurs near the base of the Rapitan formation of late Proterozoic age. Thickness is up to 500 feet and average iron content is 43% and ranges as high as 65%. Thin layers with primary sedimentary features suggest that alternate chemical deposition of silica and hematite rich layers was interrupted by the influx of flows of conglomerate and mud, which scoured channels in the soft iron and silica sediments. Some of the fine-grained clastic beds impregnated with hematite have the appearance of tuff or volcanic ash that sealed in soft hematitic ooze. The hematite and silica are believed to have been carried in solution by fumarolic waters and precipitated on the sea floor along fault zones.

8. Hart River Mines Area 116-A-10

(a) Hart River Mines 116-A-10 (9)

The geological setting is Precambrian sediments (units 1 and 2) intruded by Cretaceous diorite sills (unit 20). The Mark zone occurs as a lens of disseminated and massive sulfides, about 50 ft. thick and 250 ft. long, replacing sediments along the contact of a diorite sill. Reserves are given as 577,445 proven tons grading 1.45% Cu, 3.6% Zn, 0.9 % Pb, 1.5 oz/ton Ag and .041 oz/ton Au with an additional 600,000 possible tons of similar grade.

Several other area of mineralization are indicated on the Mark cls. The best of these, located 2 mi. west, is a series of northeast striking veinlets from which a surface sample assayed 10.9% Pb, 7.0% Zn and 3.1 oz/ton Ag over a 5.0 ft. width.

(b) Zebra Prospect 116-A-10 (11)

The geological setting is Precambrian sediments (units 2 and 3) intruded by Cretaceous diorite sills (unit 20). Asbestos Corp. located several showings of chalcopyrite in veins and lenses, of which the best was a massive lense of chalcopyrite 1.5 ft. wide and 15 ft. long. The Hart River work located two showings, probably the same ones explored by Asbestos Corp. Zone 1 is a shear traced for a length of about 100 ft from which the best surface assay returned 7.3% Cu and 3.5 oz/ton Ag over 7.0 ft. Two packsack holes assayed 0.45% Cu and 0.1 oz/ton Ag over 15.0 ft. and 3.29% Cu and 0.2 oz/ton Ag over 6.5 ft. Zone 2 is a mineralized lens from which a surface sample returned 4.7 % Cu and 0.8 oz/ton Ag over 10 ft. and 3 drill holes returned between 0.84% to 7.4% Cu, 0.1-0.6 oz/ton Ag over lengths from 7109 ft.

9. Spotted Fawn Prospect 116-B-7 (57)

Several lensy northeast striking, siderite-galena veins cut quartzite (Unit 17) near a large stock of syenite. Geochemical work indicates that 4 or more veins might be present. Two veins have been extensively hand trenched. One is on the Galena Farm cl and the other, on which the short adit was driven, is about 1/2 mile to the south. The veins have been traced about 60 ft. along strike and seldom exceed 2 ft. in width. An average assay is about 16% Pb and 24 oz/ton Ag.

10. Silver City Mine 116-B-5 (37)

The claims cover the north flank of an E-W trending anticline. Mineralized float has been found in the lower 500 ft. of a 2000 ft. slope in an area of multiple slides caused by erosion along steep faults which strike E-W parallel to the river. Mapping of the slide material on surface and underground indicates that the lower slope is composed of a quartz-carbonate rock, interbedded with sericite-graphite schist, which is overlain by dioritic rocks, and in turn, quartzite and argillite, all included in the Yukon Group(unit D). Rhyolite porphyry is also present, probably as an intrusive. The quartz-carbonate rock is host to the mineralization, which consists of galena, tetrahedrite, sphalerite, chalcopyrite and siderite. Grab samples show average silver-lead ratios between 5:1 and 10:1, and silver assays as high as 800 oz/ton. The quartz-carbonate rock has been thought to be derived from an serpentinized ultrabasic and if this is the case, the flat aeromagnetic response suggests that it has been completely destroyed by alteration. Rost's shipment is supposed to have had a recoverable value of $80 per ton. The 1929 adit is rumoured to have cut 52 ft. of disseminated mineralization before intersecting a 3 ft. vein of galena which assayed 603 oz/ton Ag. Although some disseminated mineralization may be present, the best evidence suggests that most of the mineralization occurs in veins and may be related in origin to the rhyolite intrusion. Strong rumours persist that a 10 ton shipment was made about 1902, and that stibnite has been found uphill from the workings.

11. Shell Creek Iron Formation 116-C-7 (29)

Described by G.A. Gross of the G.S.C. as follows An occurrence of Algoma type iron-formation was examined along Shell Creek, 50 miles northwest of Dawson, Yukon. This iron-formation is composed of two principal types of material, a black slaty magnetite facies, which are interbanded. Another facies of thin banded grey chert containing pyrite and pyrrhotite occurs near the magnetite iron-formation. The iron-formation is intimately associated with quartz-chlorite and quartz-mica schists which are most probably of volcanic origin and forms part of a tightly folded group of rocks composed of various schists, argillite, slate, buff-brown gritty quartzite, and black maroon and green shales all of Precambrian and/or Cambrian age. The geological environment of the Shell Creek iron-formation is similar in many respects to that of Algoma type iron-formations in Archean rocks of the Canadian Shield which contain stratiform sulphide deposits associated with the iron-formation." The Asbestos Corp. trenching indicated two bands, 75 ft. and 200 ft. wide, of iron formation grading about 25% iron and separated by 300 ft. of phyllite. Airborne magnetic maps suggest the formation could have a strike length of five miles. Assays of a sample containing 43% Fe returned 14.5% silica, 0.21% TiO_2, 0.09% phosphorus and 0.01% sulfur.