Saskatchewan Energy and Mines
Saskatchewan Geological Survey

Map 237A. COMPILATION BEDROCK GEOLOGY SERIES

CREE LAKE, NTS AREA 74G

SASKATCHEWAN

Scale 1:250,000

FIRST EDITION, 1985

LEGEND

NEOHELIKIAN

dd — **Diabase dyke:** dark green, medium to coarse grained, subophitic texture; pyroxene + plagioclase + magnetite ± olivine ± quartz; local xenoliths of Athabasca Group arenites and basement metamorphic rocks

PALEOHELIKIAN

ATHABASCA GROUP

LL — **Locker Lake Formation:** mainly pebbly sandstone of marine origin

WP — **Wolverine Point Formation:** marine sandstone and siltstone

WPb: mainly siltstone and clay-rich sandstone, phosphoritic, tuffaceous
WPa: mainly sandstone, minor siltstone

LzL — **Lazenby Lake Formation:** pebbly sandstone containing sparsely disseminated clasts; probably of marine origin

MF — **Manitou Falls Formation:** mainly fluviatile sandstone and conglomerate

MFd: intraclast-rich sandstone (fluviatile)
MFc: sandstone (fluviatile)
MFb: interbedded conglomerate and sandstone (fluviatile)
MFa: sandstone, minor pebbly sandstone, minor conglomerate, minor intraclast-rich sandstone (marine, interbedded fluviatile)

AGE UNCERTAIN; CATACLASIS PROBABLY LATE HUDSONIAN[1]

VIRGIN RIVER SHEAR ZONE

n — **Hornblende-biotite augen gneiss:** mylonitic, containing up to 50 percent microcline and plagioclase megacrysts

x / xn — **Cataclastic rocks:** grey to pink mylonites derived from gneisses of the Western Granulite Domain and from the 'Central Gneiss Complex' of the Virgin River Domain

xn: pink micro-augen mylonite derived from the 'Central Gneiss Complex'

VIRGIN RIVER DOMAIN

AGE UNCERTAIN

Vcg — **'Central Gneiss Complex':** heterogeneous grey to pink felsic gneisses with subordinate concordant mafic gneiss layers, injected by unfoliated metadiabase (possibly similar to mafic sheets of the 'Chipman sill swarm' at Black Lake, NTS 74P; see Macdonald and Broughton, 1980)

Vcgm: migmatized 'Central Gneiss Complex'

Vu — **Ultramafic rock:** dark green, coarse grained, massive to foliated

PROBABLY LATE APHEBIAN (HUDSONIAN)

Vga — **Leucogranite:** pink, medium to coarse grained; 5 to 10 percent biotite, massive to poorly foliated

PROBABLY EARLY TO MIDDLE APHEBIAN

Vn — **Undifferentiated gneiss:** pelitic, psammopelitic, psammitic gneiss intermixed with amphibolite (unit Vmn), felsic gneiss (unit Vfn) amd 'Central Gneiss Complex' (unit Vcg), subcropping beneath Athabasca Group

'Virgin Schist Group'

Vif — **Banded iron-formation:** metaquartzite bands with 40 percent or more magnetite, 1 cm to 1 m thick; interlayered amphibolite and pelitic gneiss

Vq — **Metaquartzite:** dark grey to brown, coarse grained, massive to weakly laminated with thin biotite films

Vpsn — **Pelitic, psammopelitic and psammitic schist/gneiss:** fine to medium grained, ± biotite ± garnet ± sillimanite (andalusite in westernmost exposures) ± muscovite ± staurolite ± cordierite; subordinate amphibolitic bands and calc-silicate rock

Vmn — **Amphibole-rich schist and gneiss:** possibly volcanogenic, with subordinate metasedimentary bands; actinolitic varieties are fine grained and schistose

~~~~~~~~~~ ? UNCONFORMITY ? ~~~~~~~~~~

POSSIBLY ARCHEAN, DEFORMED AND METAMORPHOSED WITH APHEBIAN SUPRACRUSTAL ROCKS DURING THE HUDSONIAN OROGENY

Vfn — **Felsic gneiss:** inhomogeneous, white to pink, massive to foliated to banded, granite, granodiorite, tonalite; locally recrystallized and transformed into leucogranite (unit Vga); banded tonalitic varieties enclose amphibolitic blocks up to 5 m across

MUDJATIK DOMAIN

PROBABLY LATE APHEBIAN (HUDSONIAN)

Mga — **Leucogranite:** pink, medium to coarse grained, massive to poorly foliated; less than 5 percent biotite

Mgm — **Metamonzogranite:** pale pink, coarse grained, well foliated; 5 to 10 percent biotite ± ferrohastingsite; abundant microcline megacrysts up to 4 cm long

Mgt — **Metatrondhjemite, metatonalite and metagranodiorite:** white to pink, medium to coarse grained, well foliated to massive; 5 to 20 percent biotite ± hornblende; regionally homogeneous with possible xenolithic mafic patches on detailed scale

PROBABLY EARLY TO MIDDLE APHEBIAN (probably largely correlative with the Wollaston Group)

Mn — **Undifferentiated paragneiss:** pelite, psammopelite, metaquartzite, meta-arkose, calc-silicate rock, intermixed with felsic gneiss (unit Mfn), subcropping beneath Athabasca Group

Mif — **Banded iron-formation:** waxy

Mq — **Metaquartzite:** generally containing biotite and muscovite

Mpsn — **Pelitic, psammopelitic and psammitic gneisses:** biotite ± cordierite ± garnet ± graphite ± sillimanite ± hercynite

Mmh — **Amphibole gneiss:** 30 to 70 percent hornblende ± hypersthene ± diopside

~~~~~~~~~~ ? UNCONFORMITY ? ~~~~~~~~~~

PROBABLY MAINLY ARCHEAN, DEFORMED AND METAMORPHOSED WITH APHEBIAN SUPRACRUSTAL ROCKS DURING THE HUDSONIAN OROGENY

Mfn — **Felsic gneiss:** pink, well foliated, locally banded, medium to coarse grained syenogranite, monzogranite, granodiorite and tonalite; 5 to 10 percent biotite ± hornblende ± hypersthene; texturally and compositionally inhomogeneous on a regional scale

WOLLASTON DOMAIN

LATE APHEBIAN (HUDSONIAN)

Wg — **Granite:** pale pink, medium grained, massive to schistose

EARLY TO MIDDLE APHEBIAN

Wollaston Group

Wrn — **Psammitic gneiss:** mainly fine to medium grained meta-arkose, commonly tourmaline-bearing; locally calcareous with lenses of medium to coarse grained calc-silicate rock

Wpsn — **Pelitic, psammopelitic gneiss:** generally medium grained, biotite ± cordierite ± garnet ± graphite ± hornblende ± tourmaline

~~~~~~~~~~ UNCONFORMITY ~~~~~~~~~~

ARCHEAN, DEFORMED AND METAMORPHOSED WITH APHEBIAN SUPRACRUSTAL ROCKS DURING THE HUDSONIAN OROGENY

Wfn — **Biotite and biotite-hornblende granite:** dark pink to red, medium to coarse grained, well foliated, homogeneous with scattered K-feldspar megacrysts; 5 percent mafic minerals

WESTERN GRANULITE DOMAIN

PROBABLY MAINLY ARCHEAN

WGn — **Undifferentiated gneisses:** predominantly mafelsic to felsic gneiss with intermixed supracrustal material, including biotite and amphibole gneiss, subcropping beneath Athabasca Group

WGxn — **Hornblende-biotite augen gneiss:** commonly mylonitic and chloritized, up to 50 percent microcline and plagioclase megacrysts; cataclasis possibly related to Virgin River Shear Zone

WGm — **Amphibole gneiss:** medium to coarse grained, greenish-grey, massive to weakly foliated; hornblende + plagioclase + pyrite ± cummingtonite ± biotite

WGd — **Mafelsic gneiss:** hypersthene-bearing blue-quartz gneisses, ranging from a grey, medium grained, granulose, poorly foliated variety to a pink, medium to coarse grained, well foliated variety associated with abundant pegmatite (possibly the cataclastic equivalent of the grey variety)

WGdg: pink to grey, coarse grained, garnetiferous mafelsic gneiss

WGf — **Felsic gneiss:** blue-quartz gneiss, hypersthene-bearing

[1]The term 'Hudsonian' has been used by most authors in Saskatchewan to indicate the tectonometamorphic activity or orogeny which affected Aphebian rocks and older basement during the interval approximately 1900 to 1650 Ma ago (see Douglas, 1980; Bell and Macdonald, 1982)

SYMBOLS

Bedrock exposure; approximate area of abundant bedrock exposure

Geological contact; defined to approximate, inferred

Sub-Athabasca Group geological contact; inferred

Structural lineament, possible to probable fault, as interpreted from geological, geophysical and/or airphoto evidence

Shear zone

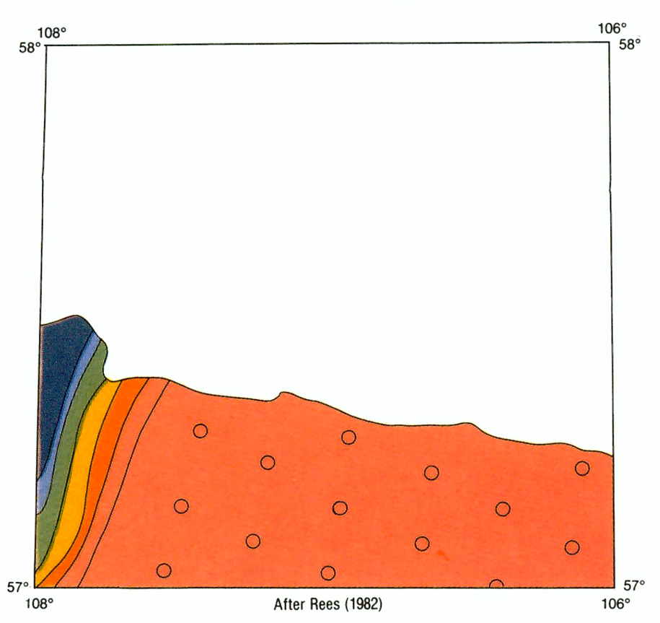
Trend and approximate dip of dominant foliation surface: dip shallow (0-29°), moderate (30-59°), steep (60-84°), subvertical (85-90°)

Approximate to inferred Mudjatik Domain/Wollaston Domain junction

Mineral prospect, deposit:
1. Nyberg Lakes VH prospect, Fe (Harper, 1983)

Sample location (geochronology):
1. 1230 Ma, K-Ar hornblende (Burwash et al., 1962)
2. 1308 ± 74 Ma, Rb-Sr internal isochron (whole rock and mineral fractions) (Armstrong and Ramaekers, in prep.)
3. 1164 ± 38 Ma, Rb-Sr internal isochron (whole rock and mineral fractions) (Armstrong and Ramaekers, in prep.)
4. 2900 Ma, Rb-Sr whole rock scatterchron (Gilboy, in press); location is approximate centre of collecting area

METAMORPHIC MAP



After Rees (1982)

HUDSONIAN METAMORPHISM

Metamorphic facies — Isograds

Upper amphibolite and granulite (undivided) — hypersthene

Upper amphibolite — cordierite/garnet (muscovite out)

Middle amphibolite — sillimanite

Lower amphibolite — staurolite-cordierite-diopside

Lower amphibolite and upper greenschist (undivided)

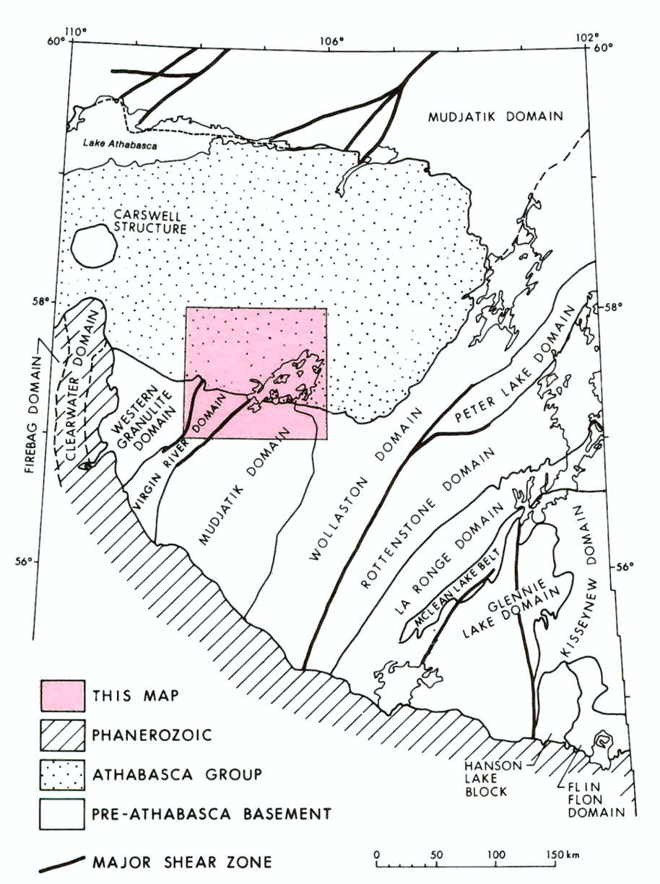
ARCHEAN (KENORAN ?) METAMORPHISM

Granulite facies (weakly retrogressed by Hudsonian greenschist to lower amphibolite metamorphism)

Granulite facies (strongly retrogressed by Hudsonian greenschist to lower amphibolite facies metamorphism)

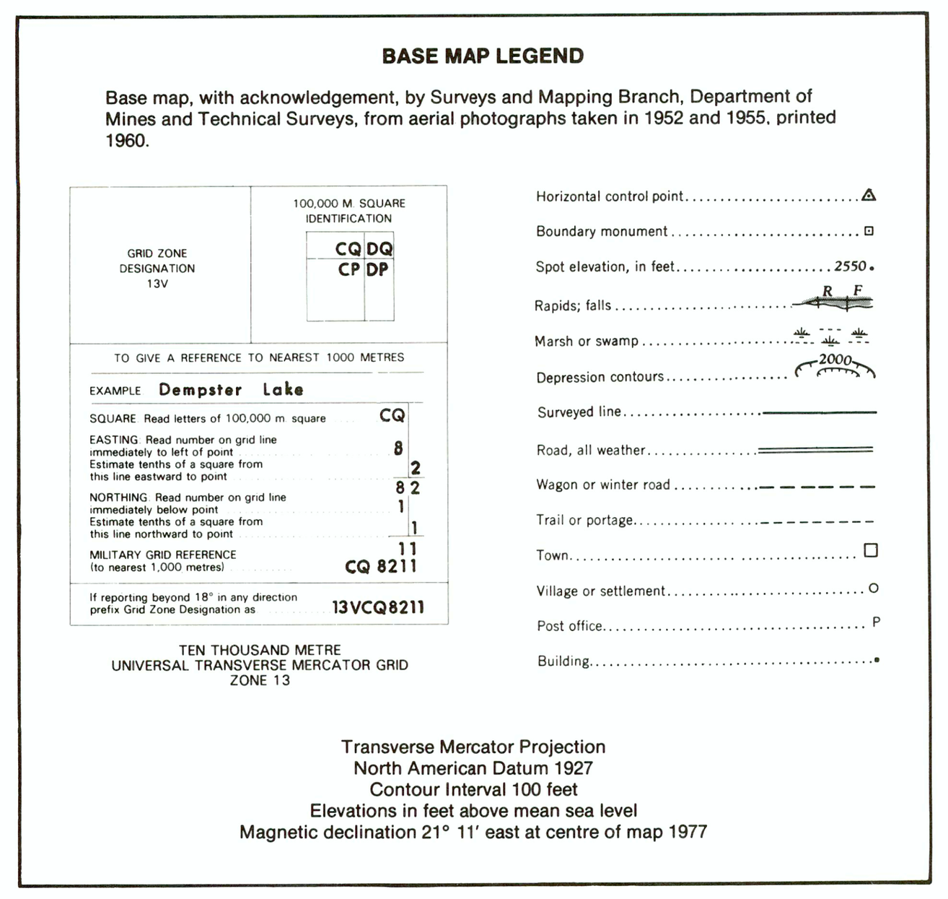
unmetamorphosed rocks

LITHOSTRUCTURAL DOMAINS OF THE PRECAMBRIAN SHIELD IN SASKATCHEWAN



Modified from Lewry and Sibbald (1977), and Macdonald and Broughton (1980)

BASE MAP LEGEND



Base map, with acknowledgement, by Surveys and Mapping Branch, Department of Mines and Technical Surveys, from aerial photographs taken in 1952 and 1955, printed 1960.

Transverse Mercator Projection
North American Datum 1927
Contour interval 100 feet
Elevations in feet above mean sea level
Magnetic declination 21° 11' east at centre of map 1977

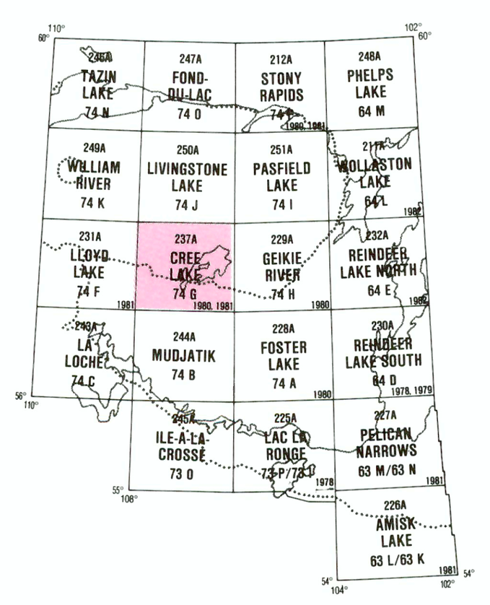
Geology compiled by C.F. Gilboy, 1980 and 1984, with revisions by M.W. Thomas, 1984 and 1985.

Map scribed by P. Weir 1984, 1985. Colour reproduction by electronic scanning of hand-coloured original. Legend and text phototypeset via in-house text-processing equipment and custom typesetting by Brigdens, Regina.

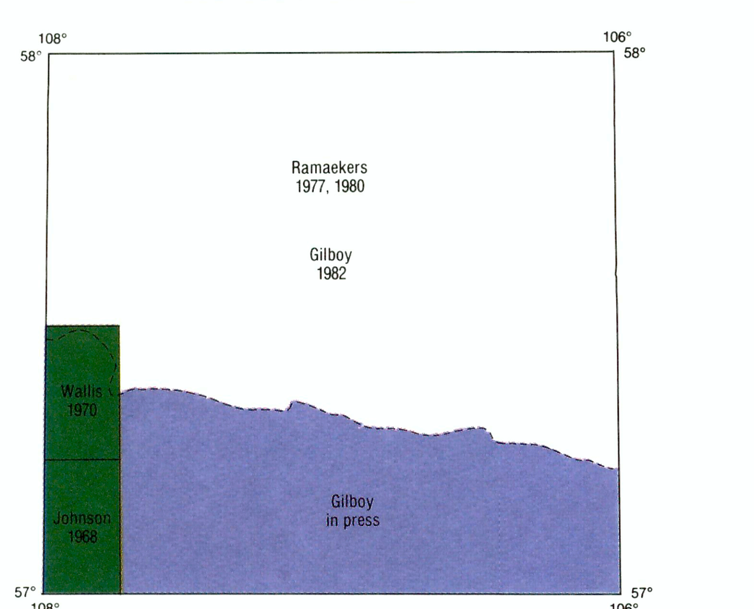
Published 1985

Series Coordinator: R. Macdonald
Production Editor: R.F. Davie

INDEX TO MAPS OF THE COMPILATION BEDROCK GEOLOGY SERIES



SOURCES OF COMPILATION



Saskatchewan Geological Survey 1:63 360 scale mapping

Saskatchewan Geological Survey 1:100 000 scale reconnaissance mapping

Saskatchewan Geological Survey Athabasca Group and sub-Athabasca Group mapping

GEOLOGICAL NOTES

The Cree Lake area covers approximately 13 700 km². Five geologically distinctive sub-areas are recognized:
1. Wollaston Domain (in the southeast),
2. Mudjatik Domain (in the south-centre),
3. Virgin River Domain (immediately west of the Mudjatik Domain),
4. Western Granulite Domain (in the southwest),
5. Athabasca Group sediments (northern half of the area).

The first four sub-areas comprise crystalline basement rocks which, except for the ill-defined transitional contact between the Wollaston and Mudjatik Domains, are separated from one another by shear zones. The gently dipping Athabasca Group unconformably overlies the crystalline basement.

Wollaston Domain

This domain is largely made up of distinctive, dark pink, foliated granitic rock (unit Wfn). This rock type, which shows remarkable regional homogeneity and may be of plutonic intrusive origin, crops out in dome cores throughout the Wollaston Domain and is generally believed to be of Archean age (Lewry and Sibbald, 1980; Ray and Wanless, 1980). Westwards, the foliated granite gradually loses its regional homogeneity and assumes the compositionally more varied character of Mudjatik Domain felsic gneisses (unit Mfn).

Southeastwards and probably to the north, where evidence is restricted mainly to boulder occurrences, Wollaston Group tourmaliniferous paragneisses of probable Aphebian age overlie the gneisses of unit Wfn. Typical rock types include garnetiferous and biotitic pelites and psammopelites (unit Wpsn) and locally calcareous meta-arkosic psammites (unit Wrn).

Mudjatik Domain

Regionally inhomogeneous felsic gneisses (unit Mfn) of unknown parentage are dominant in this domain. Long, narrow (0.5 to 3.0 km wide) arcuate-trending bands of supracrustal rock relieve the monotony of the felsic gneisses.

The supracrustal rocks are predominantly pelitic (unit Mpsn), but semipelitic and psammitic metasediments also occur in this unit. Metaquartzites (unit Mq) are locally abundant in the west. Banded iron-formation (unit Mif) is exposed 4 km south of American Lake and is also interpreted to exist over a magnetic high in the southeast, south of Huston Lake. Close to its contacts with the felsic gneisses, unit Mpsn contains lenses and layers of hypersthene-bearing amphibole gneiss (unit Mmh), some of which are striped by white quartzofeldspathic layers several millimetres or centimetres thick. Most of these amphibole gneisses are probably of supracrustal origin, but a few may have been derived from mafic intrusions.

Major magmatic bodies are all of granitoid composition. Apart from possible plutons within unit Mfn felsic gneiss, the earliest intrusions are of two main types:
1. Well-foliated to massive metatrondhjemite/metatonalite/metagranodiorite (unit Mgt) occurs along the southeast side of the Cable Bay Shear Zone. Streaked-out mafic patches, possibly representing xenolithic material, are distinguishable in some exposures of this unit.
2. Well-foliated, folded metamonzogranite (unit Mgm), also situated close to the Cable Bay Shear Zone, characteristically contains numerous microcline megacrysts up to 4 cm in length, as well as ferrohastingsite. Similar metamonzogranite underlies the region around the channel connecting Leavitt Bay with Cree Lake.

Late, massive to weakly foliated leucogranite (unit Mga) is common in dykes but forms few masses of mappable dimension. Of these, the largest is located on the southwestern shore of Leavitt Bay, Cree Lake.

Cable Bay Shear Zone

Cataclastic rocks crop out in a 50 to 100 m wide zone along a steep scarp that extends southwest from Cable Bay to Carpenter Lake. Felsic rocks have been converted into very fine grained mylonites, whereas more mafic rocks appear either to have withstood mylonitization or to have recrystallized to produce rather coarse grained cataclasites. This shear zone likely continues toward the southwest in a wide sand-filled valley and marks the boundary between the Mudjatik and Virgin River Domains.

Virgin River Domain

Like the Mudjatik Domain, this domain is largely composed of felsic gneisses (unit Vfn) but differs in that northeasterly trending structures, rather than arcuate structures, predominate. Other rock types are abundant only in the west, adjacent to the Virgin River Shear Zone.

Three small lenses of ultramafic rock (unit Vu) crop out in the south part of the domain. The easternmost lens is a dark, well-foliated rock made up of garnet, hornblende and augite with smaller amounts of plagioclase and pyrrhotite, whereas the lenses in the west are coarse grained and massive, with amphibole and pyrrhotite as the only recognizable minerals.

'Virgin Schist Group' metamorphic rocks of sedimentary and possible volcanic origin occur as lenses and bands which are increasingly abundant and continuous towards the west.[2] Within unit Vpsn, pelites are dominant and contain a wide range of ferromagnesian and aluminosilicate minerals which provide firm evidence for a westerly decrease in regional metamorphic grade; psammopelites, psammites and calc-silicate rocks are subordinate in this unit. Banded iron-formation (unit Vif) 6 km east of the Nyberg Lakes, and several large lenses of metaquartzite (unit Vq) also occur in this domain. In the westernmost belt of supracrustal rocks, amphibolitic layers ranging in thickness from 1 cm to 150 m or more characterize unit Vmn. They are possibly products of volcanism.

The western margin of the Virgin River Domain exposes the 'Central Gneiss Complex' (Wallis, 1970) which comprises heterogeneous felsic gneisses containing 10 to 25 percent amphibolite as concordant layers or sheets, and 25 to 40 percent subconcordant metadiabase injections (unit Vcg). Where these rocks are migmatized (subunit Vcgm), the heterogeneous felsic gneisses and the concordant amphibolites are recrystallized, the former with loss of compositional layering and planar fabrics. The metadiabase injections may be correlative with mafic sheets of the 'Chipman sill swarm' occurring 275 km to the northeast near Black Lake (Macdonald and Broughton, 1980).

Virgin River Shear Zone

This shear zone is about 4.5 km wide at its northern end, where it bifurcates. Grey and pink cataclastic rocks (unit x) derived from heterogeneous gneisses of the Virgin River Domain and the Western Granulite Domain are separated here by pink augen gneiss (unit n). Southwards, the augen gneisses grade into a pink micro-augen mylonite (subunit xn), apparently derived from unit Vcg. The shear zone narrows to the south, and mylonites were not recognized as a mappable unit by Johnson (1968) in the Nyberg Lakes area.

Western Granulite Domain

The Western Granulite Domain is mostly underlain by heterogeneous grey and pink 'blue quartz' felsic and mafelsic gneisses (units WGf and WGd), which are generally hypersthene-bearing. Pink augen gneiss (unit WGxn) occurs in isolated, lenticular bodies; plagioclase and microcline augen have average lengths of about 5.0 cm and in thin section this rock type displays typical cataclastic textures. Concordant sheets of poorly foliated greenish-grey amphibole gneiss (unit WGm) form mappable units in the north. Although hypersthene was not identified, these amphibolites appear to be the retrogressed products of high grade (granulite facies) metamorphic rocks, and have likely undergone a thermotectonic development similar to that of the 'blue quartz' gneisses.

The Athabasca Group

Athabasca Group arenites of presumed Paleohelikian age unconformably overlie crystalline Precambrian basement in the north. Both sediments and, to a lesser extent, basement are injected by diabase dykes mainly concentrated in a 6 km wide northwest-trending zone (the Cree Lake Dyke Swarm). Radiometric dating of these dykes suggests they are Neohelikian in age.

Metamorphic and Structural History

Gilboy (in press) recognizes four deformational events to the east of the Virgin River Shear Zone; all are probably of Hudsonian age. The first two apparently took place under a prolonged period of medium pressure upper amphibolite to granulite facies regional metamorphism which peaked at about 4.5 kb, 725°C. During these events, all depositional fabrics in the supracrustal rocks were destroyed, except perhaps for sedimentary banding now evident as compositional and textural layering. The first deformation (D_1) is considered to be responsible for the regionally developed gneissic foliation and/or schistosity; no genetically related folds have been identified. The D_2 deformation is associated with large west-northwest-trending upright folds, best seen in the Mudjatik Domain. Upright folds with northeast trending subhorizontal axes probably formed domes and basins during D_3, by which time P/T conditions in the Mudjatik had waned to about 3.7 kb, 650°C. The D_4 deformation is represented by shearing which is generally localized, except in the Virgin River and Cable Bay Shear Zones, and was accompanied by regional retrogression, especially in the west.

Wallis (1970) postulated a somewhat different structural development for the area. He suggested that an early stage of isoclinal folding (F_1), whilst responsible for the regional development of schistosity and gneissosity, may nevertheless have had insignificant regional effects. Wallis's phase F_2, which produced regional northeast-trending tight folds and was dominant in its control of outcrop patterns, was followed by regional east-west cross-folding (F_3), migmatization and mylonitization, in that order. The mylonites were deformed by small-scale F_4 brittle structures such as box folds, kink bands and monoclinal step folds.

Wallis pointed out that metamorphic grades and histories of the rocks on either side of the Virgin River Shear Zone differ markedly. In the east, supracrustals of the 'Virgin Schist Group' crystallized at approximately 3 to 5 kb and 500° to 600°C, contain mineral assemblages clearly demonstrating that they have undergone pulsatory crystallization, and lack retrogressive changes. In the west, however, gneisses crystallized at 5 to 8 kb, 700° to 800°C and show the effects of cataclasis and retrogression. This contrast led Wallis to conclude that rocks west of the Virgin River Shear Zone are part of an Archean granulite facies terrain and are considerably older than the felsic gneisses and supracrustal rocks east of the shear. The cataclasis and retrogression of the western rocks may represent the early F_1 and M_1 periods of the Hudsonian orogeny, which so intensely affected the eastern rocks.

Post-Hudsonian uplift, deposition of Athabasca Group sediments and diabase dyke injection were succeeded by regional fracturing and probable normal faulting.

Economic Geology

An east-west 40 km wide strip along the southern limit of the Athabasca Group has recently been a focus of intensive uranium exploration, although as yet no major discovery has been reported.

In the past, especially in the interval from 1958 to 1968, supracrustal rocks of the 'Virgin Schist Group' attracted considerable exploration work aimed at locating base or precious metal occurrences. Viable economic deposits have not yet been found.

The VH iron prospect, discovered 6 km east of Nyberg Lakes in 1962, contains chiefly magnetite. Host rocks are metasediments, comprising pelites, garnetiferous quartzites and iron-formation (Harper, 1983).

[2]The 'Virgin Schist Group' as originally defined by Johnson (1968) and Wallis (1970) comprised only the westernmost belt of Virgin River Domain supracrustal rocks. On this compilation, all supracrustal rocks of the Virgin River Domain are included in this 'group', after Gilboy (in press).

References[3]

Armstrong, R.L. and Ramaekers, P. (in prep.): Sr isotopic study of Helikian sediments and basaltic dikes in the Athabasca basin, northern Saskatchewan.
Bell, K. and Macdonald, R. (1982): Geochronological calibration of the Precambrian shield in Saskatchewan; *in* Summary of Investigations 1982, Saskatchewan Geological Survey; Sask. Energy Mines, Misc. Rep. 82-4, p17-22.
Burwash, R.A., Baadsgaard, H. and Morton, R.D. (1962): Precambrian K-Ar dates from the western Canada sedimentary basin; J. Geophys. Res., v67, p1617-1625.
Douglas, R.J.W. (1980): Proposals for time classification and correlation of Precambrian rocks and events in Canada and adjacent areas of the Canadian Shield, Pt. 2: A provisional standard for correlating Precambrian rocks; Geol. Surv. Can., Pap. 80-24, 19p.
Gilboy, C.F. (1982): Sub-Athabasca basement geology project; *in* Summary of Investigations 1982, Saskatchewan Geological Survey; Sask. Energy Mines, Misc. Rep. 82-4, p12-15.
Gilboy, C.F. (in press): Geology of the Precambrian basement south of the Athabasca Group, part of the Cree Lake (south) area; Sask. Energy Mines, Rep. 203.
Harper, C.T. (1983): Iron Ores of northern Saskatchewan; Sask. Energy Mines, Rep. 220, 102p.
Johnson, R.L. (1968): The geology of the Nyberg Lakes area (west half), Saskatchewan; Sask. Dep. Miner. Resour., Rep. 118, 15p.
Lewry, J.F. and Sibbald, T.I.I. (1977): Variation in lithology and tectonometamorphic relationships in the Precambrian basement of northern Saskatchewan; Can. J. Earth Sci., v14, p1453-1467.
__________ (1980): Thermotectonic evolution of the Churchill Province in northern Saskatchewan; Tectonophysics, v68, p45-82.
Macdonald, R. and Broughton, P. (1980): Geological map of Saskatchewan, provisional edition; Sask. Miner. Resour., scale 1:1 000 000.
Ramaekers, P. (1977): Athabasca Formation, south-central edge (74G): Part I Reconnaissance geology; *in* Summary of Investigations 1977, Saskatchewan Geological Survey, Sask. Dep. Miner. Resour., p157-163.
__________ (1980): Stratigraphy and tectonic history of the Athabasca Group (Helikian) of northern Saskatchewan; *in* Summary of Investigations 1980, Saskatchewan Geological Survey; Sask. Miner. Resour., Misc. Rep. 80-4, p99-106.
Ray, G.E. and Wanless, R.K. (1980): The age and geological history of the Wollaston, Peter Lake, and Rottenstone domains in northern Saskatchewan; Can. J. Earth Sci., v17, p333-347.
Rees, C.J. (1982): Metamorphism in the Canadian Shield of northern Saskatchewan; Sask. Miner. Resour., Open File Rep. 82-2, 136p.
Wallis, R.H. (1970): The geology of the Dufferin Lake area (west half), Saskatchewan; Sask. Dep. Miner. Resour., Rep. 132.

[3]A more complete bibliography for Cree Lake, NTS 74G is available from the Saskatchewan Geological Survey, Regina.

This publication may be referenced as:

Gilboy, C.F. (1985): Compilation Bedrock Geology, Cree Lake, NTS Area 74G; Saskatchewan Energy and Mines, Report 237 (1:250 000 scale map with marginal notes).

Map 237A. Compilation Bedrock Geology Series
CREE LAKE, NTS AREA 74G
SASKATCHEWAN
1:250 000 Scale
~~~~~~~~~~