

## YELLOWKNIFE - HEARNE LAKE DISTRICT OF MACKENZIE

Universal Transverse Mercator Projection

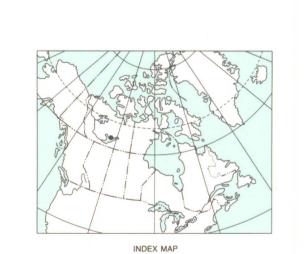
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NORTHWEST TERRITORIES

Scale 1:250 000

5 0 5 10 15 20 Kilometres

85 N 85-O 85 P 85 K 85 J 85-I 1601A



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JULY 23 1986

GEOLOGICAL SURVEY
COMMISSION GEOLOGIQUE

Gravel, sand, silt; unconsolidated HORN RIVER FORMATION: shale, dark brown, bituminous, calcareous, interbedded with grey argillaceous limestone LONELY BAY FORMATION: limestone, varied, fine grained, brown to grey, massive, mediumto thin-bedded; minor dolomitic to argillaceous limestone CHINCHAGA FORMATION: gypsum, recessive, white to dark grey, commonly brecciated; minor thin gypsiferous limestone FITZGERALD FORMATION: dolomite, thick bedded, massive to rubbly weathering, light to medium brown, calcareous, conglomeratic MIRAGE POINT FORMATION: dolomite, dark red, purple, orange red, in part argillaceous, with dolomitic limestone to sandstone to shale, minor gypsum locally CHEDABUCTO LAKE FORMATION: dolomite, thick bedded to massive, fine grained, brown LA MARTRE FALLS FORMATION: shale, green, fissile, with minor thin quartz sandstone and OLD FORT ISLAND FORMATION: sandstone, quartzose, thin- to thick-bedded, minor thin €OFI siltstone to shale MACKENZIE DYKES: diabase, gabbro, north-northwesterly trend, position approximate or assumed in many cases as dykes defined by aeromagnetic expression; width of dyke exaggerated on map COMPTON INTRUSIVE SUITE Diorite, quartz monzonite, undivided, massive, hornblende, biotite, intruded as laccoliths near top of Pethei Group GREAT SLAVE SUPERGROUP CHRISTIE BAY GROUP STARK FORMATION: breccia, mudstone and carbonate, blocks of stromatolitic limestone in red mudstone matrix PETHEI GROUP (platform facies) PETHEI GROUP (basinal facies) HEARNE FORMATION: limestone. PEKANATUI POINT FORMATION: white to light grey with reddish limestone, light grey, aphanitic, thin, aminations and mottling of limestone even bedded with siliceous seams or dolomite, stromatolitic at top or argillaceous laminations, convolute

WILDBREAD FORMATION: limestone,

thick bedded, stromatolitic, grey

mestone, brown dolomite, white

TSINGI FORMATION: limestone,

hick bedded, blue-grey weathering,

istinctive discontinuous laminations

and mottling of brown weathering

TALTHEILEI FORMATION: dolomite,

light brown weathering, thin- to thick-

edded, fine- to medium-grained,

stromatolitic, with minor limestone

ecrystallized oolitic limestone

bedding and breccia beds common

BLANCHET FORMATION: greywacke-

mudstone, thick bedded, massive

interlayered argillite and limestone

McLEAN FORMATION: limestone and

mudstone, lower part is medium- to

discontinuous red-brown mudstone

laminations, upper part is brown to

green mudstone with argillaceous

greywacke with thin argillite or

thin-bedded grey limestone

interbedded with crenulated

limestone nodules

KAHOCHELLA GROUP CHARLTON BAY FORMATION: shale, dark green, finely laminated, with large calcareous McLEOD BAY FORMATION: shale, red, with small, closely spaced, calcareous concretions SOSAN GROUP SETON FORMATION: basalt and rhyolite, with interbedded sandstone, granular hematite and tuffaceous shale. Basalt in massive to columnar flows, breccias and rhyolite flows and KLUZIAI FORMATION: sandstone, subarkose, fine grained, pink to grey, lenticular bedding, Stratigraphic position relative to Great Slave Supergroup not defined HEARNE DYKES: diabase, gabbro, northeasterly trend, width of dyke exaggerated on map BLACHFORD LAKE INTRUSIVE SUITE THOR LAKE SYENITE: syenite, zoned, coarse- to medium-grained, dark green, fayalite-PTL hedenbergite syenite, coarse grained ferrorichterite syenite, inequigranular ferrorichterite GRACE LAKE GRANITE: granite, light grey to pale greenish grey, massive, coarse grained, PML MAD LAKE GRANITE: granite, pink, massive, subporphyritic ARNE CHANNEL GRANITE: granite, pinkish brown, massive, medium grained, equigranular, hornblende, scattered xenocrysts of dark andesine NHITEMAN LAKE QUARTZ SYENITE: quartz syenite, older phase dark green, fayaliteclinopyroxene-bearing, younger phase light green to pinkish grey, massive, uniform, medium CARIBOU LAKE GABBRO: gabbro, texturally and compositionally zoned, from massive olivine gabbro on west, to massive to faintly layered medium grained equigranular, noritic gabbro, to magnetite and sulphide-bearing pegmatitic to medium grained gabbro Age of dykes relative to Great Slave Supergroup and Blachford Lake Intrusive Suite not defined INDIN DYKES: diabase, gabbro, north-northeasterly to northwesterly trends, width of dyke exaggerated on map

Pm MILT SHEETS: diabase, gabbro, flat lying sheets, extent exaggerated on map

DOGRIB DYKES: diabase, east-northeasterly trend, width of dyke exaggerated on map

DOUGLAS PENINSULA FORMATION: marlstone, thin bedded, fissile, with pink to light

rown argillaceous limestone in dark, red-brown mudstone

PETHEI GROUP (continued)

## LEGEND

Relative ages of following six granitoid units (ADU - AA) not defined DUCKFISH GRANITE: granite, mauve pink, massive, mafic-poor, equigranular, with MOROSE GRANITE: granite, white to pink to pale brown, massive, coarse grained, equigranular, biotite-muscovite, minor pegmatite phases REDOUT GRANITE: granite, pink to pinkish grey, fine- to medium-grained, equigranular, eterogeneous, biotite-muscovite, pegmatite common With abundant inclusions of Yellowknife rocks PROSPEROUS GRANITE: granite, white to buff to light pink, massive, homogeneous, medium- to medium-coarse-grained, locally inequigranular, biotite-muscovite, pegmatite With abundant inclusions of Yellowknife rocks MEANDER LAKE PLUTONIC SUITE Granite, granodiorite, undivided, pink, massive, medium grained, equigranular to locally inequigranular, heterogeneous, biotite, locally muscovite, local minor pegmatite With abundant inclusions of Yellowknife rocks AWRY PLUTONIC SUITE heterogeneous, medium- to medium-coarse-grained, equigranular to locally inequigranular, biotite-poor, pegmatite common With abundant inclusions of Anton Complex rocks STAGG PLUTONIC SUITE Granite, granodiorite, tonalite, undivided, grey to reddish grey to dark pink, massive to weakly layered or foliated, medium- to coarse-grained, equigranular to coarsely porphyroblastic in

granitic phases, abundant biotite and locally hornblende-bearing
With abundant inclusions of Yellowknife rocks

DEFEAT PLUTONIC SUITE (AWB-AD)
Granodiorite, tonalite, granite, undivided, white to pink to dark red, massive to weakly foliated in main western body, homogeneous, equigranular, biotite, rarely hornblende-bearing
With abundant inclusions of Yellowknife rocks

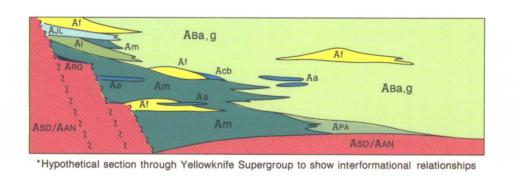
WOOL BAY QUARTZ DIORITE: quartz diorite, diorite, dark grey to black, massive to locally weakly layered, medium grained, equigranular, hornblende-bearing

ADT

DETOUR GRANODIORITE: granodiorite, grey, metamorphosed, foliated, porphyritic with phenocrysts of quartz and plagioclase

AMACHER GRANITE: granite, pale pink to grey, massive, homogeneous, medium- to medium-coarse-grained with coarse irridescent quartz, contains biotite in fine grained aggregates, metamorphosed

Amphibolite, dark green to black, massive to weakly foliated, intruded as sills into Yellowknife Supergroup rocks and probably contemporaneous with them



YELLOWKNIFE SUPERGROUP
Stratigraphic order no

crossbedded, commonly with thin argillaceous interbeds with local thin lenses of fine conglomerate, greenschist grade, occurs at Yellowknife

RAQUETTE LAKE FORMATION: quartzite, conglomerate, breccia, quartz sandstone with carbonate matrix, sandstones, white to buff, structureless, conglomerates contain volcanic and / or granitoid clasts, amphibolite grade, occurs at Upper Ross Lake

BEAULIEU GROUP (east of Yellowknife, unnamed at Russell Lake and Stagg Lake)

Carbonate, thin units (exaggerated on map), dolomite, limestone, calc-silicate gneisses, commonly

associated with felsic volcanics in Detour-Turnback lakes area, associated with silicate iron

APA

PAYNE LAKE FORMATION: undifferentiated volcaniclastic metasediments, dominantly layered schists and gneisses including quartz-feldspar schists containing minor mica derived from rhyolite or rhyolitic detritus, biotite-muscovite-quartz-feldspar schists derived from felsic volcaniclastic sediments, amphibole-rich schists with varied amounts of biotite derived from mafic volcaniclastic rocks and biotite-rich pelitic to semipelitic schists derived from mudstones to quartz and volcanic

Af

Felsic volcanic rocks, mainly dacitic to rhyolitic, includes massive, structureless rhyolite domes to thick massive volcaniclastic units to thin bedded sediments, minor more mafic volcanic units locally present, primary features locally preserved

BANTING FORMATION

SHARRIE RHYOLITE

ATOf

TOWNSITE FLOWS

Andesitic pillowed lavas, pillowed breccias, minor massive flows, volcaniclastic sediments

WEBB LAKE ANDESITE

ALICE FORMATION: has a dacitic member at the top

MALICE FORMATION: has a dacitic member at the top

Mafic volcanic rocks, mainly basalt, minor andesite, massive and pillowed flows, minor fragmental units, minor more felsic units locally present, includes contemporaneous intrusions of gabbroic dykes, sills and irregular bodies that in some cases are mapped separately (Aa)

KAM FORMATION

ADUM DUCK FORMATION
DOME LAKE BASALT
ACM CAMERON RIVER BASALT
TUMPLINE BASALT
SUNSET LAKE BASALT

clast-rich wackes

ATUf TURNBACK RHYOLITE

ANTON COMPLEX
Granodiorite, tonalite, granite, undivided, metamorphosed with unmetamorphosed intrusive phases, weakly to moderately foliated, compositionally and texturally heterogeneous, may in part be older than Yellowknife Supergroup but also includes younger intrusive phases

With abundant inclusions of Yellowknife rocks

SLEEPY DRAGON COMPLEX
Granodiorite, tonalite, granite, undivided, compositionally and texturally heterogeneous ranging from mylonitic gneisses to massive bodies, in part older than Yellowknife Supergroup (northwest area) but also in part remobilized after deposition of Yellowknife rocks (southeast area) and may also include some post-Yellowknife intrusions

With abundant inclusions of Yellowknife rocks

Geological boundary (defined, approximate, assumed) . . . . . Geological boundary (gradational over several kilometres) . Pluton boundary within plutonic complex 75/ X X Bedding, tops known (inclined, vertical, overturned). .. Y X / Bedding, tops unknown (inclined, vertical, dip unknown) Trace of bedding or foliation. 75 90 Pillow lava, tops known (inclined, vertical, overturned) . Foliation, cleavage, schistosity, gneissosity 75777 (inclined, vertical, dip unknown) . Lineation (inclined) Glacial striae (direction of ice movement known) Cordierite isograd in metasedimentary rocks Hornblende isograd in metavolcanic rocks . . Geology by A. Davidson, 1971, 1977; R.J.W. Douglas and A.W. Norris, 1957; Y.O. Fortier, 1943-1945; L.M. Hauer (compiler), 1979; J.B. Henderson, 1970-1972; J.F. Henderson, 1937-1939; J.F. Henderson and I.C. Brown, 1946-1952; P.F. Hoffman, 1972, 1976; A.W. Jolliffe, 1935-1938; M.B. Lambert, 1972-1973; W.O. Richmond, 1961 Compiled by J.B. Henderson, 1976, 1981 Geological cartography by P. Corrigan, Geological Survey of Canada Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada Base map assembled by the Geological Survey of Canada from maps published at the same scale by the Army Survey Establishment, R.C.E., in 1960 and 1980

Base map assembled by the Geological Survey of Canada from maps published at the same scale by the Army Survey Establishment, R.C.E., in 1960 and 1980

Copies of the topographical editions covering this map area may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, Ontario, K1A 0E9

Mean magnetic declination 1984, 28° 31' East, decreasing 16.7' annually. Readings vary from 26°44.4' in the SE corner to 30°17.6' in the NW corner of the map area

Elevations in feet above mean sea level

Recommended citation:

Henderson, J.B.

1985: Geology, Yellowknife - Hearne Lake,
District of Mackenzie, Northwest Territories;
Geological Survey of Canada,
Map 1601A, scale 1:250 000

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Paleozoic outcrop . .

DISTRICT OF MACKENZIE
NORTHWEST TERRITORIES