DESCRIPTIVE NOTES

MAP-AREA 46 P/11 CONTAINS A HOMOCLINAL NORTHERLY DIPPING SUCCESSION OF HIGH TO MEDIUM GRADE METAMORPHIC ROCKS OF THE BASEMENT COMPLEX AND THE PENRHYN GROUP. GNEISS OF THE COMPLEX (Aggdn) LIES ALONG THE SOUTHERN BORDER OF THE AREA AND ALONG THE COAST FOR 4 TO 5 KM. WHERE EXPOSURES ARE PARTICULARLY CLEAN AND PLENTIFUL. THE GNEISS CONTAINS SEVERAL STEEPLY DIPPING SCREENS OR INFOLDS OF BIOTITE-GARNET PARAGNEISS (An), ORTHOQUARTZITE (Aq) AND AMPHIBOLITE (Am). THESE ARE EXCLUDED FROM THE PENRHYN GROUP PRIMARILY BECAUSE NO MAPPABLE CONTINUITY EXISTS WITH THE GROUP, AND CARBONATE UNITS, SO COMMON INIT, ARE NOT PRESENT. NONETHELESS, IT IS POSSIBLE TO POSTULATE STRUCTURES THAT COULD SUGGEST CONTINUITY AND THE EXCLUSION IS TENUOUS. LENSOID BODIES AND BOUDINAGED DYKES OF AMPHIBOLITE (Am), MOST TOO SMALL TO SHOW, ARE ABUNDANT WITHIN THE GNEISS AS ARE MANY BODIES OF GRANITIC ROCKS AND PEGMATITE (Ag).

THE GNEISSIC COMPLEX IS OVERLAIN BY MARBLE (APC) FOLLOWED BY PARAGNEISS (APn) WHICH PASSES UPWARD THROUGH A RAPID TRANSITION IN STRUCTURAL STYLE (DECREASING INTENSITY OF DEFORMATION UPWARDS) AND A PRESUMED CONCOMITANT DECREASE OF METAMORPHIC GRADE. THE REMAINDER OF THE SUCCESSION IS PREDOMINANTLY QUARTZ-MUSCOVITE PSAMMITE (APqm) WITH SOME SCHISTOSE, TUFFACEOUS (?), PELITIC (APp) AND CARBONATE (APc) UNITS. THE RATIO OF MUSCOVITE TO BIOTITE INCREASES GRADUALLY NORTHWARDS AND IN SEVERAL LOCALITIES THE PRESENCE OF PORPHYROBLASTS OF ANDALUCITE SUGGESTS THAT LOWER METAMORPHIC GRADE WAS IMPOSED UPON THESE ROCKS. EXTENSIONS OF THIS ZONE OF LOWER GRADE METAMORPHISM HAVE BEEN MAPPED IN NORTHERN PARTS OF MAP-AREAS 46 P/5, 45 0/8 AND

Numerous concordant sheets of pegmatite and Leucocratic granite (Ag) LIE WITHIN THE PENRHYN GROUP. A SMALL DISCORDANT PLUTON OF GRANITE WITH MANY RADIATING DYKES INTRUDES UNIT A Pam NORTH OF CAPE ROBERT BROWN. SMALL BODIES OF SIMILAR ROCK ARE PLENTIFUL WITHIN THE GNEISSIC COMPLEX.

GNEISSIC LAYERING AND FOLIATION (S1 OR S2) WITHIN THE BASEMENT COMPLEX TESTIFY TO EARLY DEFORMATION IN THE FOLD BELT BUT THE RELATIONSHIP OF THESE STRUCTURES TO THOSE IN THE PENRHYN GROUP IS NOT KNOWN. EVIDENCE FOR EARLY (D₂) FOLDING IN THE GROUP IS NOT OBVIOUS IN THIS AREA. TIGHT AND OPEN FOLDS AND ASSOCIATED FOLIATION AND LINEATION, ATTRIBUTED TO D3 AND D4 ARE COMMON IN THE BASEMENT COMPLEX AND THE PENRHYN GROUP. NUMEROUS UPRIGHT OPEN FOLDS WITH EAST-NORTHEASTERLY TRENDS ARE LIKELY THE RESULT OF D4. THE GNEISSIC COMPLEX WAS OFFSET LEFT-LATERALLY AT LEAST 2 KM. ALONG A NORTHERLY TRENDING FAULT DURING D6.

GENERAL GEOLOGY

THE FOXE FOLD BELT EXTENDS IN AN EAST-NORTHEAST DIRECTION FROM SOUTHERN MELVILLE PENINSULA TO CENTRAL BAFFIN ISLAND. IT IS COMPOSED OF GRANITOID GNEISSIC ROCKS OF ARCHAEAN AGE (2500 Ma and older) Overlain by META-SEDIMENTARY ROCKS OF EARLY PROTEROZOIC AGE (APPROXIMATELY 2500 to 1700 Ma) of the Penrhyn and Piling Groups. These have undergone polyphase deformation AND METAMORPHISM MOSTLY DURING THE HUDSONIAN OROGENY. GENERATION AND EMPLACEMENT OF PLUTONIC ROCKS PRECEDED, ACCOMPANIED AND FOLLOWED DEFORMATION. DIABASE DYKES OF PRESUMED LATE PROTEROZOIC AGE CUT OLDER ROCKS.

THE ARCHAEAN ROCKS FORM A BASEMENT COMPLEX PREDOMINANTLY OF GRANITOID GNEISS (Aggdn) AND FOLIATED GRANITIC ROCKS (Ag) WITH RELATIVELY MINOR AMOUNTS OF AMPHIBOLITE (Am) AND PARAGNEISS (An) AND OTHER META-SEDIMENTARY ROCKS (Aq. Anb). THE GNEISSIC AND PLUTONIC ROCKS ARE LARGELY OF QUARTZ MONZONITIC TO GRANODIORITIC COMPOSITION; LEUCOCRATIC AND MAFIC VARIETIES OF GNEISS ARE ALSO COMMON BUT DO NOT CONSTITUTE A LARGE VOLUME OF THE COMPLEX. GNEISSIC LAYERING AND MINERAL FOLIATION FORMED OF BIOTITE AND HORNBLENDE ARE UBIQUITOUS BUT NOT ALWAYS CLEARLY VISIBLE. PLUTONIC ROCKS EMPLACED DURING AT LEAST THREE EPISODES OF IGNEOUS ACTIVITY CAN BE DIFFERENTIATED LOCALLY BUT CANNOT EASILY BE MAPPED REGIONALLY BECAUSE THEY ARE COMPOSITIONALLY SIMILAR TO ONE ANOTHER AND TO THE GNEISS WHICH APPEARS TO BE BOTH HOST AND PARENT TO THEM. DEFORMED AMPHIBOLITIC BODIES: PRESUMED TO BE DYKES, ARE OFTEN OBSERVED WITHIN THE COMPLEX AND SOMETIMES AT THE CONTACT WITH THE PENRHYN GROUP. WITH FEW EXCEPTIONS THEY HAVE NOT BEEN OBSERVED WITHIN THE GROUP AND ARE PRESUMED TO PRE-DATE IT. META-SEDIMENTARY AND META-VOLCANIC ROCKS NOT DEMONSTRABLY PART OF THE PENRHYN GROUP HAVE IN SOME PLACES BEEN ASSIGNED TO THE BASEMENT COMPLEX BUT THEIR AFFINITY IS UNCERTAIN GIVEN THE EVIDENT INTRICACIES OF STRATIGRAPHY AND STRUCTURE. SOME LITHOLOGIC SIMILARITY TO ROCKS OF THE PRINCE ALBERT GROUP IN NORTHERN MELVILLE PENINSULA EXISTS BUT SUCH CORRELATION IS TENUOUS AT BEST.

THE PENRHYN GROUP CONSISTS OF PARAGNEISS (APR APRC) AND MARBLE (APC) WITH SOME QUARTZ-BIOTITE PSAMMITE (APQDAPQM, APP) AND CALCIUM-SILICATE GNEISS (APCS) AND MINOR QUARTZITE (APQ), GARNET, BIOTITE AND SILLIMANITE SCHISTS (APnb), AND META-VOLCANIC ROCKS (APm,APvb,APva). COMPLETE UNDERSTANDING OF THE STRATIGRAPHIC SUCCESSION IS LACKING AS MOST UNITS ARE DISCONTINUOUS AND LENSOID AND THE POSSIBILITY OF THE EXISTENCE OF FACIES CHANGES, UNCONFORMITIES AND CRYPTIC EARLY STRUCTURES RENDERS ITS DELINEATION DIFFICULT. A GENERAL ORDER TO THE UNITS CAN BE INDICATED, NONETHELESS. A THIN (50-100 M) BASAL SEQUENCE INCLUDES ORTHOQUARTZITE, RUSTY SILLIMANITE SCHIST, A SUSPECTED META-REGOLITH AND MINOR AMPHIBOLITE, MARBLE AND QUARTZO-FELDSPATHIC GRIT. THIS SEQUENCE IS OVERLAIN BY A PREDOMINANTLY CALCAREOUS UNIT OF MARBLE, CALC-SILICATE GNEISS AND INTERBEDDED QUARTZ-BIOTITE-FELDSPAR PARAGNEISS. THE CALCAREOUS UNIT IS FOLLOWED BY A THICK UNIT OF PARAGNEISSIC ROCKS WITH A THIN BED OF SCHISTOSE PARAGNEISS AT ITS BASE, AND A UNIT OF MARBLE, CALCIUM-SILICATE GNEISS AND BIOTITE QUARTZITE. AT THE HIGHEST OBSERVED STRUCTURAL AND STRATIGRAPHIC LEVELS IS A UNIT OF QUARTZ-BIOTITE-MUSCOVITE PSAMMITE AND GREYWACKE. THE TOP OF THIS UNIT HAS NOT BEEN OBSERVED. THE RELATIONSHIP OF PRESENT TO ORIGINAL THICKNESS OF THE GROUP IS WELL DISGUISED BY THE RIVAL PROCESSES OF THINNING DURING DEFORMATION, REPETITION BY FOLDING AND DILATION BY SYNTECTONIC PLUTONISM.

THE PENRHYN GROUP APPEARS TO LIE UNCONFORMABLY ON THE BASEMENT COMPLEX. TECTONISM HAS OBLITERATED ANY ANGULAR DISCORDANCE AND UNCONFORMABLE RELATIONSHIPS ARE INFERRED BECAUSE OF THE CLEAR LITHOLOGIC CONTRAST AND THE COMMON PRESENCE OF THE THIN ORTHOQUARTZITE UNIT WITH RARE FELDSPATHIC GRIT BEDS LYING UPON A VARIETY OF ROCK TYPES IN THE COMPLEX. THE UPPERMOST UNIT OF THE PENRHYN GROUP MAY BE SEPARATED FROM THE REST OF THE GROUP BY AN UNCONFORMITY. CONTRASTS IN INTENSITY OF METAMORPHISM AND DEFORMATION AND UNEXPLAINED STRUCTURAL DISCORDANCE SUPPORT SUCH AN INTERPRETATION BUT RAPID TRANSITIONS OR FAULTING REMAIN VIABLE ALTERNATE EXPLANATIONS.

METAMORPHISM OF THE PENRHYN GROUP PRODUCED TWO LITHOLOGIC SUITES. MOST OF THE GROUP IS IN UPPERMOST AMPHIBOLITE FACIES AND CONTAINS THE ASSEMBLAGES GARNET-BIOTITE-SILLIMANITE AND CORDIERITE-SILLIMANITE-GARNET IN PARAGNEISS AND, IN MARBLE, DIOPSIDE-FORSTERITE-CALCITE AS WELL AS SCAPOLITE AND A HUMITE GROUP MINERAL. ROCKS OF THE UPPERMOST UNIT OF THE GROUP ARE IN GREENSCHIST FACIES AND CONTAIN CHLORITE-MUSCOVITE-QUARTZ IN PELITIC UNITS. PORPHYROBLASTS OF A MINERAL TENTATIVELY IDENTIFIED AS ANDALUCITE ARE COMMON IN META-PSAMMITIC UNITS AND TREMOLITE OCCURS SPORADICALLY IN CALCAREOUS ROCKS.

POLYPHASE STRUCTURES INDICATING NUMEROUS EPISODES_OF DEFORMATION OF THE BASEMENT COMPLEX AND THE PENRHYN GROUP EXIST THROUGHOUT THE FOLD BELT BUT UNEQUIVOCAL SEQUENTIAL RELATIONSHIPS AMONG THEM ARE RARE. THE EARLIEST DEFORMATIONAL PHASE (D1) IS INFERRED TO HAVE AFFECTED THE BASEMENT COMPLEX PRIOR TO DEPOSITION OF THE PENRHYN GROUP. LITTLE IS KNOWN OF THIS PHASE. THE SECOND PHASE (D2), THE EARLIEST OBSERVED IN THE PENRHYN GROUP, IS BELIEVED TO HAVE FORMED ATTENUATED ISOCLINAL FOLDS AND UBIQUITOUS FOLIATION (S2). IN ALL BUT A FEW OUTCROPS S2 IS PARALLEL TO BEDDING (So). MEAGRE EVIDENCE SUGGESTS THAT THE TREND OF D2 STRUCTURES MAY HAVE BEEN NORTHERLY. THE EFFECTS OF D2 ON THE PENRHYN GROUP REMAIN PROBLEMATICAL, BUT MAY BE RESPONSIBLE FOR SOME OF THE OBSERVED DISCONTINUITY OF UNITS DESCRIBED ABOVE.

THE THIRD AND FOURTH PHASES (D3 AND D4) PRODUCED PROMINENT MESO-AND MEGASCOPIC FOLDS THAT IMPOSE AN EAST-NORTHEAST STRUCTURAL GRAIN IN THE FOXE FOLD BELT. D3 FOLDS ARE TIGHT TO NEARLY ISOCLINAL AND USUALLY RECUMBENT. AXIAL PLANE FOLIATION (S3) IS NEARLY PARALLEL TO LIMBS (S0) AND HENCE TO S2 RENDERING SEPARATION OF PHASES D2 AND D3 VERY DIFFICULT. D4 FOLDS ARE COAXIAL, OR NEARLY SO, WITH D3 BUT ARE MORE OPEN AND GENERALLY UPRIGHT OR SLIGHTLY OVERTURNED. MESOSCOPIC D4 FOLDS CAN OFTEN BE OBSERVED TO HAVE DEFORMED EARLIER STRUCTURES.

NORTH TO NORTHEASTERLY TRENDING BROAD TRANSVERSE FLEXURES (D5) ALTER THE PLUNGES OF PRE-EXISTING FOLDS. FEW MESOSCOPIC STRUCTURES ASSOCIATED WITH THIS PHASE WERE OBSERVED. STEEPLY DIPPING FRACTURES AND FAULTS, MANY WITH NORTHERLY AND NORTHWESTERLY TRENDS ARE EVIDENCE OF THE LAST PHASE OF DEFORMATION (D6). MOST FAULT DISPLACEMENTS APPEAR TO BE LEFT-LATERAL AND EAST-

METAMORPHISM IS BELIEVED TO HAVE ACCOMPANIED ALL PHASES OF DEFORMATION EXCEPT D5 AND D6. IT POSSIBLY REACHED ITS ZENITH DURING D3 BUT MINERAL RECRYSTALLIZATION OUTLASTED MUCH OF THE

MASSIVE AND FOLIATED PLUTONIC ROCKS (Ag), CHIEFLY OF HORNBLENDE AND BIOTITE GRANODIORITE QUARTZ MONZONITE AND GRANITE INTRUDE THE BASEMENT COMPLEX AND THE PENRHYN GROUP. RESEMBLING GRANITOID ROCKS OF THE COMPLEX, SEPARATION OF THESE IS BASED LARGELY ON FIELD RELATIONSHIPS. FOLIATED PLUTONIC ROCKS, EXCEPT WHERE OBSERVED TO HAVE INTRUDED THE PENRHYN GROUP, ARE ASSIGNED TO THE COMPLEX (Ag). WHERE INTRUSIVE INTO THE GROUP THEY (Ag) ARE CONSIDERED TO BE PRE- OR SYNTECTONIC WITH THE MAIN PHASES OF DEFORMATION. IN SOME LOCALITIES INTIMATE MIXING WITH AND PARTIAL MELTING OF PARAGNEISS HAS CREATED ROCK MAPPABLE ONLY AS MIGMATITE (Ang) ALTHOUGH LARGE SCREENS AND ZENOLITHS CAN BE DISTINGUISHED IN PLACES. COMMON LOCAL FORMATION OF PEGMATITE AND LEUCOCRATIC GRANITIC ROCK (Ag) IS BELIEVED COEVAL WITH DEFORMATION ALSO. MASSIVE, OFTEN CROSS-CUTTING PLUTONS (Ag) INVADED THE PENRHYN GROUP AFTER CESSATION OF DEFORMATION.

AVAILABLE RESULTS OF RADIOMETRIC ANALYSES INDICATE FORMATION OF THE BASEMENT COMPLEX PRIOR TO 2500 MA WITH SOME EVENTS OCCURRING POSSIBLY AS LONG AS 3000 MA AGO (R.K. WANLESS, PERSONAL COMMUNICATION, 1976). DEFORMATION OF THE BASEMENT AND THE PENRHYN GROUP MAY HAVE TAKEN PLACE 2134 Ma ago (Jackson and Taylor, 1972) and again during the Hudsonian Orogeny (circa 1700 Ma ago) POST-TECTONIC PLUTONS (1600 Ma old; Heywood, 1966) WERE EMPLACED INTO THE FOLD BELT LATE IN THE OROGENIC HISTORY. FOLLOWING EXTENSIVE UPLIFT AND EROSION, DIABASE DYKES (Hd) PRESUMED TO BE PART OF THE MACKENZIE DYKE SWARM OF CIRCA 1000 MA AGE (FAHRIG, 1970) CUT ROCKS OF THE FOLD BELT. THESE ARE SPATIALLY ASSOCIATED WITH FAULTS AND FRACTURES FORMED DURING D6 TECTONISM. SUBSEQUENT UPLIFT AND EROSION WAS FOLLOWED BY DEPOSITION OF ORDOVICIAN CARBONATE ROCKS, REMNANTS OF WHICH LIE NORTH AND SOUTH OF THE FOLD BELT.

FAHRIG, W.F. 1970. DIABASE DYKE SWARMS: IN GEOLOGY AND ECONOMIC MINERALS OF CANADA, GEOLOGICAL SURVEY OF CANADA, ECONOMIC GEOLOGY REPORT NUMBER ONE, PP. 131 - 134.

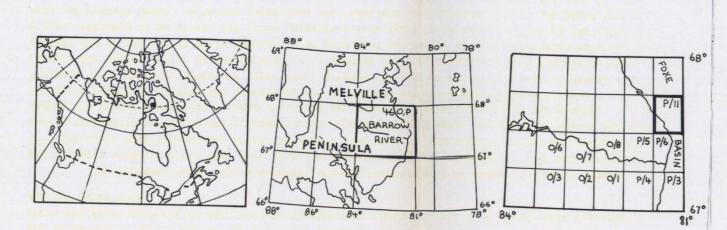
Heywood, W.W. 1967. Geological Notes Northeastern District of Keewatin and Southern Melville Peninsula, District OF FRANKLIN, NORTHWEST TERRITORIES (PARTS OF 46, 47, 56, 57); GEOLOGICAL SURVEY OF CANADA, PAPER 66-40. JACKSON, G.D. AND TAYLOR, F.C. 1972. CORRELATION OF MAJOR APHEBIAN ROCK UNITS IN THE NORTHERN CANADIAN SHIELD; CANADIAN JOURNAL OF EARTH SCIENCES, VOLUME 9, PP. 1650 - 1669.

GEOLOGICAL MAPPING BY: A. V. Okulitch, T. Gordon CROSS-SECTIONS BY: A. V. Okulitch

DESCRIPTIVE NOTES BY: A.V. Okulitch

DRAUGHTING BY: A. V. Okulitch

NOTICE OF ANY REVISIONS OR ADDITIONAL GEOLOGICAL INFORMATION KNOWN TO USERS OF THESE MAPS WOULD BE GRATEFULLY RECEIVED BY THE AUTHORS.



LEGEND

LATE(?) PROTEROZOIC

HId BROWN WEATHERING, DARK GREEN TO BLACK, FINE TO MEDIUM GRAINED PYROXENE DIABASE.

INTRUSIVE CONTACT ORANGE AND BUFF WEATHERING, WHITE, TAN AND GREY, MASSIVE AND FOLIATED, Ag MEDIUM TO COARSE GRAINED, BIOTITE AND HORNBLENDE GRANODIORITE, QUARTZ MONZONITE, GRANITE AND LEUCOCRATIC EQUIVALENTS. SOME PORPHYRITIC VARIETIES. PEGMATITE COMMONLY CONTAINING QUARTZ, FELDSPAR, MUSCOVITE AND BIOTITE; RARELY TOURMALINE. PRE-AND POST-TECTONIC PLUTONS ARE NOT

DIFFERENTIATED. INCLUDES ZENOLITHS OF OLDER UNITS. Ang MIGMATITE COMPOSED OF UNITS APR AND Ag IN LIT-PAR-LIT, ZENOLITHIC AND TEXTURALLY TRANSITIONAL VARIATIONS. MINOR ZENOLITHS OF UNIT APC. INTRUSIVE CONTACT

EARLY PROTEROZOIC APHEBIAN

PENRHYN GROUP MHITE AND LIGHT GREEN WEATHERING, LIGHT GREY, MASSIVE, LAYERED APHANITIC SILICEOUS ROCK (ACID VOLCANIC ROCK ?).

APVb GREEN TO DARK GREEN ACTINOLITIC GREENSTONE (BASIC TO INTERMEDIATE VOLCANIC ROCK?).

GREY, FINE TO MEDIUM GRAINED, THIN TO THICK BEDDED, QUARTZ-MUSCOVITE-FELDSPAR PSAMMITE, SOME WITH ANDALUCITE (?) PORPHYROBLASTS; MUSCOVITE GREY, FINE TO MEDIUM GRAINED, THIN TO THICK BEDDED, QUARTZ-MUSCOVITE-SCHIST, META-GREYWACKE.

APP BLACK, FISSILE, VERY FINE GRAINED, "SOOTY" PELITE. GREY, FINE TO MEDIUM GRAINED, THIN TO THICK BEDDED, QUARTZ-BIOTITE-FELDSPAR PSAMMITE AND META-GREYWACKE, SOME WITH GARNET AND RARELY CORDIERITE. GRADATIONAL CONTACTS WITH UNIT APR IN SOME AREAS. POSSIBLE UNCONFORMITY

BROWN, RUSTY AND TAN WEATHERING, BUFF AND GREY, FINE TO MEDIUM GRAINED, QUARTZ-BIOTITE-FELDSPAR, QUARTZ-FELDSPAR-BIOTITE-GARNET-SILLIMANITE AND QUARTZ-FELDSPAR-BIOTITE-GRAPHITE PARAGNEISS AND MINOR SCHIST. MINOR CORDIERITE-BEARING PARAGNEISS. INCLUDES SOME INTERBEDS OF UNITS APnb, APnc , APc AND APcs .

GREY AND GREY-GREEN, MEDIUM TO COARSE GRAINED THIN BEDDED, CALCIUM-SILICATE GNEISS AND MARBLE-QUARTZITE WITH QUARTZ-CALCITE-PLAGIOCLASE-DIOPSIDE AND ACCESSORY SCAPOLITE, ACTINOLITE, GRAPHITE, EPIDOTE AND BIOTITE. COMMONLY INTERBEDDED WITH AND PASSING LATERALLY INTO UNIT APC.

WHITE, GREY AND GREY-BLUE, MEDIUM TO COARSE GRAINED, MASSIVE AND BEDDED

MARBLE WITH CALCITE-DIOPSIDE-MICROCLINE-QUARTZ AND MINOR DOLOMITE, SCAPOLITE, PHLOGOPITE, GRAPHITE, A HUMITE GROUP MINERAL AND TREMOLITE. INTERBEDDED WITH AND PASSING LATERALLY INTO UNIT APCs. INCLUDES SMALL BEDS OF UNIT APn. PEGMATITE OF UNIT Ag IS UBIQUITOUS. Aphb Brown and Rusty Weathering, Schistose, Biotite-Garnet-Sillimanite Paragneiss.

RUSTY, FINE TO MEDIUM GRAINED, GRAPHITIC PARAGNEISS WITH PYRITE AND APM A DARK GREEN, FINE 10 MEDIUM GRAIN, SOME BIOTITE-GARNET AMPHIBOLITE. A DARK GREEN, FINE TO MEDIUM GRAINED, MASSIVE AND FOLIATED AMPHIBOLITE;

WHITE TO GREY-BLUE, MEDIUM TO COARSE GRAINED, MASSIVE AND FAINTLY BEDDED, MHITE TO GREY-BLUE, MEDIUM TO COARSE GRAINED, INSURING MINOR ORTHOQUARTZITE WITH MINOR FELDSPAR, WHITE MICA AND PHLOGOPITE. MINOR QUARTZO-FELDSPATHIC GRIT, GREY-GREEN DIOPSIDE-CHLORITE ROCK (META-REGOLITH ?). BIOTITE-GARNET-SILLIMANITE SCHIST AND AMPHIBOLITE.

PROBABLE UNCONFORMITY

ORANGE AND BUFF WEATHERING, GREY AND PINK, MEDIUM TO COARSE GRAINED VARIETIES; MINOR QUARTZ DIORITE, DIORITE AND SYENITE. INCLUDES ROCKS OF UNITS Ag AND Aggdn.

ORANGE, GREY AND TAN, MEDIUM TO COARSE GRAINED, LAYERED AND FOLIATED,
BIOTITE AND HORNBLENDE GRANODIORITIC, QUARTZ MONZONITIC AND LEUCOCRATIC
GNEISS. INCLUDES ROCKS OF UNITS Ag, Ag, AND SMALL BODIES OF Am. DARK GREEN FOLIATED AMPHIBOLITE, META-GABBRO AND HORNBLENDE-PLAGIOCLASE.

Aub DARK GREEN, COARSE GRAINED, SERPENTINIZED PYROXENE-BEARING ULTRAMAFIC ROCK. QUARTZ-BIOTITE-FELDSPAR PARAGNEISS, SOME WITH HORNBLENDE; MIGMATITE WITH

UNITAg Anb RUSTY WEATHERING, SCHISTOSE BIOTITE PARAGNEISS,

Aq WHITE, MEDIUM TO COARSE GRAINED, MASSIVE ORTHOQUARTZITE.

---- GEOLOGICAL BOUNDARY (DEFINED, APPROXIMATE) BOUNDARY OF AREAS EXTENSIVELY DRIFT-COVERED.

PLANAR STRUCTURES BEDDING AND COMPOSITIONAL LAYERING (HORIZONTAL, INCLINED, VERTICAL)

> FOLIATION, SCHISTOSITY, GNEISSIC LAYERING, CLEAVAGE AND AXIAL PLANES (HORIZONTAL, INCLINED, VERTICAL, DIP UNKNOWN); EARLIEST OR ONLY OBSERVED. FOLIATION, CLEAVAGE AND AXIAL PLANES (INCLINED, VERTICAL); ASSOCIATED WITH FOLDS OF LATER PHASES OBSERVED TO HAVE DEFORMED BEDDING OR EARLY FOLIATION. FOLIATION, CLEAVAGE AND AXIAL PLANES (INCLINED, VERTICAL); ASSOCIATED WITH FOLDS OBSERVED TO HAVE DEFORMED BEDDING, EARLY FOLIATION AND/OR PRE-EXISTING STRUCTURES.

CLEAVAGE AND AXIAL PLANES (INCLINED, VERTICAL); ASSOCIATED WITH GENTLE FOLDS OBSERVED TO HAVE DEFORMED EARLIER STRUCTURES AND BELIEVED TO HAVE FORMED LATE IN THE TECTONIC HISTORY. STRUCTURAL FORM LINE (ON CROSS-SECTIONS). LINEAR STRUCTURES

LINEATION (PLUNGING, HORIZONTAL); FORMED BY BEDDING-FOLIATION NTERSECTION, MINERAL GROWTH, RODDING AND MULLION; EARLIEST OR ONLY LINEATION (PLUNGING, HORIZONTAL); FORMED BY BEDDING-FOLIATION AND FOLIATION-FOLIATION INTERSECTION, MINERAL GROWTH, RODDING AND MULLION AND FOLD AXES ASSOCIATED WITH FOLDS OBSERVED TO HAVE DEFORMED INEATION (PLUNGING, HORIZONTAL); FORMED BY BEDDING-FOLIATION AND FOLIATION-FOLIATION INTERSECTION, MINERAL GROWTH AND FOLD AXES ASSOCIATED WITH FOLDS OBSERVED TO HAVE DEFORMED BEDDING, EARLY OLIATION AND/OR PRE-EXISTING STRUCTURES.

INEATION (PLUNGING, HORIZONTAL); FORMED BY CLEAVAGE-BEDDING AND LEAVAGE-FOLIATION INTERSECTION AND FOLD AXES ASSOCIATED WITH GENTLE FOLDS BELIEVED TO HAVE FORMED LATE IN THE TECTONIC

HIGH ANGLE FAULT (DEFINED, APPROXIMATE); ARROWS INDICATE APPARENT RELATIVE MOVEMENT LOW ANGLE FAULT (DEFINED, APPROXIMATE); TEETH IN DIRECTION OF DIP. ANTIFORM (DEFINED, APPROXIMATE)

ARROW INDICATES PLUNGE OF TECUMBENT OR OVERTURNED POSTULATED AFFINITY WITH DEFORMATIONAL PHASE. SYNFORM (DEFINED, APPROXIMATE) RECUMBENT OR OVERTURNED A HIGH DEGREE OF UNCERTAINTY OR INTERPRETATION IN THE POSITION OR

THE NATURE OF THE SYMBOL USED IS INDICATED. Position of ENDS of CROSS-SECTION.

METAMORPHIC MINERALS A ANDALUCITE C CORDIERITE G GARNET P PHLOGOPITE Sc SCAPOLITE T TREMOLITE AC ACTINOLITE Ch CHLORITE M MUSCOVITE S SILLIMANITE St STAUROLITE

STRUCTURAL NOTE DESCRIPTION OF STRUCTURES IS FACILITATED BY SEPARATION INTO SIX PHASES USING CRITERIA SUCH AS FOLD STYLE AND ORIENTATION AND SEQUENTIAL RELATIONSHIPS AMONG FOLDS, FOLIATION AND LINEATION. SUCH SEPARATION DOES NOT IMPLY PRESENCE OF DISCRETE EVENTS, PARTICULARLY IN THE CASE OF PHASES D2, D3 AND D4 WHICH MAY WELL BE PARTLY OR WHOLLY SYNCHRONOUS IN SOME AREAS. NO BOUNDS ON THE TIME SPANS REPRESENTED BY THE PHASES ARE IMPLIED AS ONLY THE BROADEST LIMITATIONS CAN BE PLACED ON THE BEGINNINGS AND ENDS OF OROGENIC EVENTS. LARGE FOLDS ON THE MAP ARE GIVEN NUMBERS CORRESPONDING TO THE PHASE POSTULATED TO BE RESPONSIBLE FOR THEM. MESOSCOPIC STRUCTURES ARE ASSIGNED A POSITION IN THE TECTONIC HIERARCHY BASED ON INTERPRETATION OF LOCAL FIELD RELATIONSHIPS ONLY IN THE UNIT WITHIN WHICH THEY WERE OBSERVED. THIS POSITION CANNOT BE DIRECTLY RELATED TO DEFORMATIONAL PHASES WHICH FORMED THE LARGE FOLDS. FOR THESE PRELIMINARY MAPS, NO ATTEMPT HAS BEEN MADE TO INTEGRATE ALL MESOSCOPIC FEATURES INTO A MEGASCOPIC STRUCTURAL SYNTHESIS.

CROSS-SECTIONS PORTRAY THE INFERRED FORM OF STRUCTURES AND SHOW APPARENT DIPS (IN THE SECTION) OF LITHOLOGIC CONTACTS AND FOLIATION. VERTICAL PROPORTIONS ARE NOT TO SCALE. THE HORIZONTAL REFERENCE LINE REPRESENTS AN APPROXIMATE MEAN ELEVATION ALONG THE LINE OF SECTION AND IS USUALLY WITHIN 200 M. OF SEA LEVEL, STRUCTURES APPEARING ON CROSS-SECTIONS ARE HIGHLY INTERPRETATIVE. SOME FEATURES, PARTICULARLY FAULTS, WILL OFTEN NOT APPEAR ON THE MAP AS THEY WERE NOT OBSERVED IN

CANADA Military users, SERIES A 701 SÉRIE EDITION 1 46 P/11 refer to this map as:
Référence de la carte pour usage militaire:

MAP 46 P/11 CARTE EDITION 1 MCE ÉDITION 96 97 98 499000m. E 79 480000m.E. 81 82 83 84 85 86 87 88 89 90 LEGEND - LÉGENDE ROUTES ET OUVRAGES CONNEXES ROADS AND RELATED FEATURES SURFACE PAVÉE, TOUTES SAISONS HARD SURFACE, ALL WEATHER ... ____ GRAVIER LOOSE SURFACE CHEMIN DE TERRE, D'HIVER OU ROUTE EN CONSTRUCTION CART TRACK, WINTER ROAD OR ROAD UNDER CONSTRUCTION ____ SENTIER, PERCÉE, PORTAGE ... TRAIL, CUT LINE, PORTAGE ... AGGLOMÉRATION BUILT-UP AREA CHEMIN DE FER, VOIE D'ÉVITEMENT, GARE, ARRÊT RAILWAY, SIDING, STATION, STOP ... PONT SEAPLANE BASE, ANCHORAGE ... HYDROAÉROPORT, MOUILLAGE . POINTS DE REPÈRE LANDMARK FEATURES MAISON, GRANGE ... HOUSE, BARN ÉGLISE, ÉCOLE CHURCH, SCHOOL POST OFFICE HISTORICAL SITE ... TOWERS: FIRE, RADIO ... PUITS: PÉTROLE, GAZ ... WELL: OIL, GAS RÉSERVOIR: PÉTROLE, ESSENCE, EAU ... TANK: OIL, GASOLINE, WATER ... LIGNE TÉLÉPHONIQUE TELEPHONE LINE LIGNE DE TRANSPORT D'ÉNERGIE ... POWER TRANSMISSION LINE ... MINE CUTTING, EMBANKMENT ... DÉBLAI, REMBLAI GRAVIÈRE GRAVEL PIT FRONTIÈRES ET POINTS DE RÉFÉRENCES BOUNDARIES AND SURVEY CONTROL INTERNATIONAL, PROVINCIAL,
BOUNDARY MONUMENT INTERNATIONALE, PROVINCIALE, BORNE FRONTIÈRE . COMTÉ, DISTRICT _ - - - - - -COUNTY, DISTRICT TOWNSHIP, PARISH-SURVEYED .. UNSURVEYED TOWNSHIP, ATC-ARPENTÉE, NON ARPENTÉE .. TOWNSHIP, DLS - SURVEYED, UNSURVEYED -COINS DE SECTION ... MUNICIPALITÉ ... MUNICIPALITY ... RÉSERVE INDIENNE, PARC, ETC . INDIAN RESERVE, PARK, ETC ... REPÈRE PLANIMÉTRIQUE ... HORIZONTAL SURVEY POINT ... REPÈRE DE NIVELLEMENT AVEC COTE . BENCH MARK WITH ELEVATION .. POINT COTÉ, PRÉCIS: SUR TERRE, SUR L'EAU SPOT ELEVATION, PRECISE: LAND, WATER ... DRAINAGE ET OUVRAGES CONNEXES DRAINAGE AND RELATED FEATURES STREAM, SHORELINE: INDEFINITE .. COURS D'EAU, RIVE; IMPRÉCISE ... DIRECTION DU COURANT .. DIRECTION OF FLOW LAC, LAC INTERMITTENT ... LAKE, INTERMITTENT LAKE . TERRAIN INONDÉ INUNDATED LAND ... MARAIS, MARÉCAGE (BOISÉ) ... MARSH, SWAMP (WOODED) ----LIT DE COURS D'EAU TARI AVEC CHENAUX . DRY RIVER BED WITH CHANNELS SABLE: AU DESSUS, DANS L'EAU ... SAND: ABOVE, IN WATER ... MARÉCAGE EN ENFILADE .. TOUNDRA: ÉTANGS, SOLS POLYGONAUX. RAPIDES, CHUTES, RAPIDES FF RELIEF FEATURES RELIEF COURBES DE NIVEAU . CONTOURS COURBES DE NIVEAU APPROXIMATIVES . APPROXIMATE CONTOURS .. COURBE DE CUVETTE ... DEPRESSION CONTOUR POINT COTÉ, APPROXIMATIF: SUR TERRE, SUR L'EAU ... SPOT ELEVATION, APPROXIMATE: LAND, WATER ... SABLE, DUNES ... SAND, SAND DUNES ... PALSA BOG ... RÉGION BOISÉE .. WOODED AREA ... RÉGION DÉBOISÉE . CLEARED AREA .. GRID ZONE DESIGNATION: 100,000 M. SQUARE IDENTIFICATION PHOTOGRAPHY PHOTOGRAPHIE DÉSIGNATION DE RESTITUTION COMPILATION ME 99 REFERENCE POINT CHURCH — ÉGLISE (as above cindessu EASTING: Read number on grid line LONGITUDE EST: Noter le chiffre de la ligne du quadrillage immédiatement à gauche Estimate tenths of a square from Estimer le nombre de dixièmes du carri entre cette ligne et le repère en direction est NORTHING: Read number on grid line LATITUDE NORD: Noter le chiffre de la ligne du quadrillage immédiatement en-dessous du repère. Estimate tenths of a square from this line northward to point: Estimer le nombre de dixièmes du carré entre cette ligne et le repère en direction nord: GRID REFERENCE SAMPLE EXEMPLE DU QUADRILLAGE Nearest similar grid reference 100,000 metres (about 63 mile La prochaine référence similaire est à 100,000 mètres (environ 63 mille ONE THOUSAND METRE UNIVERSAL TRANSVERSE MERCATOR GRID ZONE 17 QUADRILLAGE DE MILLE MÈTRES UNIVERSEL TRANSVERSE DE MERCATOR 46 P/13 The 1975 MAGNETIC BEARING is 46°52′ (833 mils) WEST of GRID NORTH. ANNUAL CHANGE DECREASING 20.9' GRID NORTH is 0°14' (4 mils) WEST of TRUE NORTH Le REPÈRE MAGNÉTIQUE en 1975 est à 46°52' (833 mils) OUEST du NORD DU QUADRILLAGE. 46 P/5 46 P/6 VARIATION ANNUELLE DÉCROISSANTE 20.9' NORD DU QUADRILLAGE est 0°14′ (4 mils) à l'ouest (NORD GÉOGRAPHIQUE au centre de la carte. THE MAGNETIC COMPASS MAY BE ERRATIC IN THIS AREA LA BOUSSOLE SERA PEUT-LTRE INSTABLE DANS CETTE RÉGION OPEN FILE ÉCHELLE DE CONVERSION DES ÉLÉVATIONS DOSSIER PUBLIC ÉLÉVATIONS EN MÈTRES AU-DESSUS DU NIVEAU MOYEN DE LA MER Feet 100 50 0 100 200 300 400 500 600 700 800 900 1000 Pieds MARCH 1977 **ELEVATIONS IN METRES ABOVE MEAN SEA LEVEL** PRODUCED BY SURVEYS AND MAPPING BRANCH. DEPARTMENT OF ENERGY, MINES AND RESOURCES. DISTRICT OF FRANKLIN 443 NORTHWEST TERRITORIES ÉQUIDISTANCE DES COURBES 10 MÈTRES CONTOUR INTERVAL. COPIES MAY BE OBTAINED FROM THE CANADA MAP OFFICE DEPARTMENT OF ENERGY, MINES AND RESOURCES, OTTAWA. OR YOUR NEAREST MAP DEALER. GEOLOGICAL SURVEY SYSTÈME DE RÉFÉRENCE GÉODÉSIQUE NORD-AMÉRICAIN 1927 NORTH AMERICAN DATUM 1927 OMMISSION GÉOLOGIQUE PROJECTION TRANSVERSE DE MERCATOR

This map has been produced from a scanned version of the original map Reproduction par numérisation d'une carte sur papier