

LEGEND

- SURFICIAL DEPOSITS**
- NONGLACIAL ENVIRONMENT**
- ORGANIC DEPOSITS:** moss, sedge, and woody peat containing ice; derived from the accumulation and preservation of vegetation in a wet reducing environment; produces flat, wet terrain
- 8e Coalesced peat mounds: stratified mossy peat, minor woody peat and ice; characterized by distinctive mounds with radius 200 m, standing 1.5-3 m above surrounding terrain; riparian association, developed adjacent to drainageways in fenland
 - 8d Peat-mineral soil complex: veneer of wet fen peat interrupted by mudboils 70-100 cm diameter; substrate consists of marine deposits and till, undifferentiated; grades to unit 6a
 - 8c Fen peat: wet, dense amorphous sedge peat with moss peat; in coastal areas occurs as a blanket 1.5-2 m thick and as stringed fen; farther inland occurs as infillings in relict and modern drainageways; derived from sedges and mossy vegetation in environments with slow-flowing water; unit contains palsen
 - 8b Polygonal bog peat: mossy fibrous peat with large ice wedge polygons; 2-4 m thick; derived from tundra (lichen-moss-heath) vegetation
 - 8a Pitted forest peat: spongy, stratified, amorphous, fibrous, and woody peat with some charcoal layers; unit characterized by irregular thermokarst depressions about 3 m deep; derived from spruce forest vegetation
- 7 FLUVIAL DEPOSITS (Alluvium):** cross-stratified sand and rounded gravel, and plane-bedded silty sand with organic lenses; deposited by running water in modern streams; commonly less than 3 m thick; occurs as floodplains, point bars, river islands, and deltas; in places gradational with unit 4d

- PROGLACIAL AND NONGLACIAL ENVIRONMENTS**
- MARINE DEPOSITS:** well sorted stratified sand to massive stony silt, deposited into Tyrrell Sea; forms an extensive featureless blanket several metres thick which is commonly overlain by peat or swamp
- 6d Littoral sand: stratified sand with minor gravel; below 60 m elevation occurs as a blanket up to 3 m thick and as beach ridges composed largely of calcareous material; above 60 m is derived from reworked ice contact deposits and is composed of granitic material
 - 6c Intertidal silt: uniform, grey calcareous silt with fine sand; contains organic blebs and ice-rafted boulders; about 2 m thick
 - 6b Offshore pelite: grey, calcareous, plane-bedded and laminated silt-clay grading upwards to sandy silt, some stony silt; fossiliferous; 2-6 m thick, thickening eastwards
 - 6a Stony marine deposits: soft, poorly sorted, massive, stony to gritty silt; 2-6 m thick; mainly a marine or glaciomarine sediment containing large amounts of ice-rafted debris originating from ice shelves or drifting pack ice. Where deposits are thin, stony material may be derived from frost churning of marine pelite with underlying till
- LACUSTRINE DEPOSITS:** massive to bedded silt-clay with granules, overlain by a veneer of sand, deposited in littoral and deep-water environments of glacial Lake Agassiz; generally occurs as a featureless blanket several metres thick overlain by peat and swamp
- 5b Littoral sand: noncalcareous well sorted stratified sand, minor gravel; nonfossiliferous; 1-4 m thick; generally a blanket deposit, but beach ridges occur locally
 - 5a Offshore pelite: sticky red-brown calcareous silt-clay with granules of clay and crystalline and sedimentary rock; generally massive, locally rhythmically bedded with beds thinning upwards; 3-6 m thick; forms a blanket grooved by drifting ice
- FLUVIAL DEPOSITS:** sorted, mainly stratified sand and gravelly sand deposited by running water downstream from glacier ice and in nonglacial streams; form, texture, and structure vary
- 4d Alluvium: chiefly cross-stratified sand and rounded gravel, with some plane-bedded silty sand with organic lenses below 60 m elevation; commonly less than 3 m thick; occurs as terraces and abandoned floodplains, point bars, river islands, and deltas
 - 4c Outwash terrace deposits: cross-stratified sand and gravel; commonly less than 3 m thick; occurs along flanks and bottoms of meltwater channels; grades to unit 4d
 - 4b Outwash fan deposits: aprons of cross-stratified sand and gravel broken by braided channels and kettle depressions; 8-10 m thick on ice contact sides, grading to less than 1 m on distal side
 - 4a Ice contact delta sands: stratified, generally plane-bedded sand and silty sand; 4-10 m thick; occurs as flat-topped pads that formed where subglacial tunnels debouched into former lakes and seas

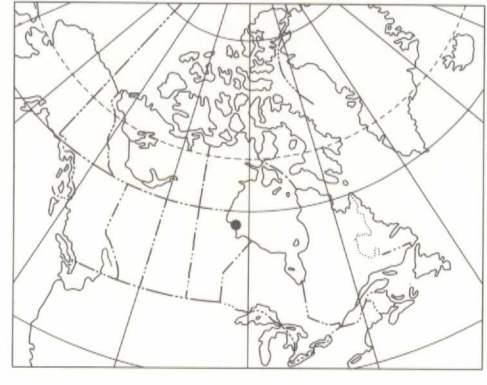
- GLACIAL ENVIRONMENT**
- GLACIOFLUVIAL DEPOSITS:** sorted, mainly stratified sand and gravelly sand deposited by running water in contact with glacier ice; of variable form, texture, and structure
- 3c Crevasse fillings: sand and gravel, 4-5 m thick, in ridges that form a reticulate pattern; occurs in belts; network marks fracture patterns in a thinning ice mass
 - 3b Kame deposits: sorted, poorly stratified sand with gravel; hummocks and ridges ranging from small disintegration features, 5-8 m thick, to arcuate kame moraines, 10-30 m thick, marking former ice margins
 - 3a Esker sands: stratified sand, minor gravel in prominent broad-crested ridges 10-20 m high; formed in or at the mouths of tunnels in glacier ice; surfaces of some eskers have been reworked by marine or lacustrine processes; small eskers are shown by symbols
- TILL:** chiefly unsorted debris deposited beneath or at the front of moving glaciers and beneath ice shelves; olive grey; of variable texture, lithology, thickness, and morphological expression
- 2c Silty till: till with a calcareous clay-silt matrix; contains both carbonate and granitic clasts; locally includes shell fragments; hard to compact, jointed, ranging from olive grey to black; occurs as a blanket up to 30 m thick consisting of 1 to 4 sheets and as end moraine
 - 2b Boulderly till: till with a sandy matrix with abundant boulder-sized granitic clasts throughout; moderately compact; 2-5 m thick; occurs as belts of ribbed moraine and as a veneer over bedrock; ribs are probably related to concentration of debris along shear planes
 - 2a Sandy till: till with a sandy matrix, consisting mainly of granitic material; loose to moderately compact; upper layers (ablation till) are partially sorted; occurs as a blanket, locally fluted, small end moraines, and till plateaus. DeGeer moraines consist of sandy till containing interbeds of lacustrine silt and sand

- BEDROCK**
- C CARBONATE ROCK: Buff, finely crystalline, locally bioclastic limestone and dolomite of Silurian and Ordovician age, occurring in sections along rivers and as platforms along the coast
- GRANITIC AND METAMORPHIC ROCKS:** Archean and Proterozoic igneous and metasedimentary rocks
- G2 Frost-shattered rock composed of quartz monzonite, alaskite, and gneiss, occurring as stacked angular blocks 0.5-2 m across, with unweathered surfaces
 - G1 Coherent rock composed of phaneritic granitic lithologies, with spalled and flaked surfaces, occurring mainly as small knobs; and aphanitic greywacke, with polished and striated surfaces, occurring as prominent ridges near Churchill

- Notes**
- Some map units and symbols shown in the legend apply to adjacent map areas
 - $\frac{3}{2}$ designation refers to a veneer of unit x overlying unit y or to an organic unit x overlying an inorganic unit y; for example $\frac{3b}{2c}$ refers to lacustrine sand veneer over silty till
 - Boundaries of all units covered by the swamp symbol are approximate
 - The area north of 58°30' and east of 94°30' was mapped by Serge Paradis

- Geological boundary (defined, gradational).....
 Small bedrock outcrop.....
 Striae.....
 Washed esker.....
 Beach.....
- Escarpment.....
 Bog or swamp.....
 Ground observation point.....
 Composition or genesis uncertain.....
 Radiocarbon date.....

Note: Symbols in red may form geological boundaries



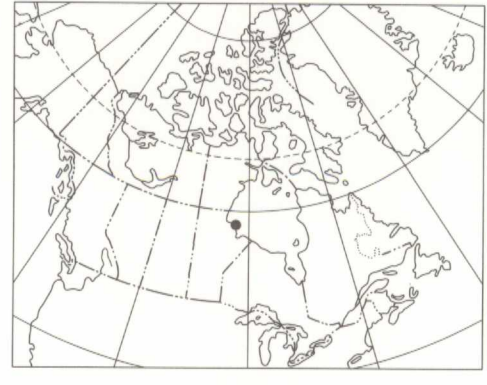
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Geology by L.A. Dredge and F.M. Nixon 1977-78

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

Base map at the same scale published by the Army Survey Establishment, R.C.E. in 1966



MAP 3-1980
 SURFICIAL GEOLOGY
CAPE CHURCHILL
 MANITOBA
 Scale 1:250 000

Universal Transverse Mercator Projection
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 APR 8 1982
 GEOLOGICAL SURVEY OF CANADA
 COMMISSION GÉOLOGIQUE DU CANADA

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

Magnetic declination 1980 varies from 2°41.4' easterly at centre of west edge to 0°28.2' westerly at centre of east edge. Mean annual change 1.4' westerly

Elevations in feet above mean sea level

64 P	54 M
MAP 7-1980	MAP 5-1980
64 I	54 L
MAP 6-1980	MAP 4-1980
64 H	54 E
MAP 1-1980	MAP 2-1980

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

MAP 3-1980
CAPE CHURCHILL
 MANITOBA

3-1980

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