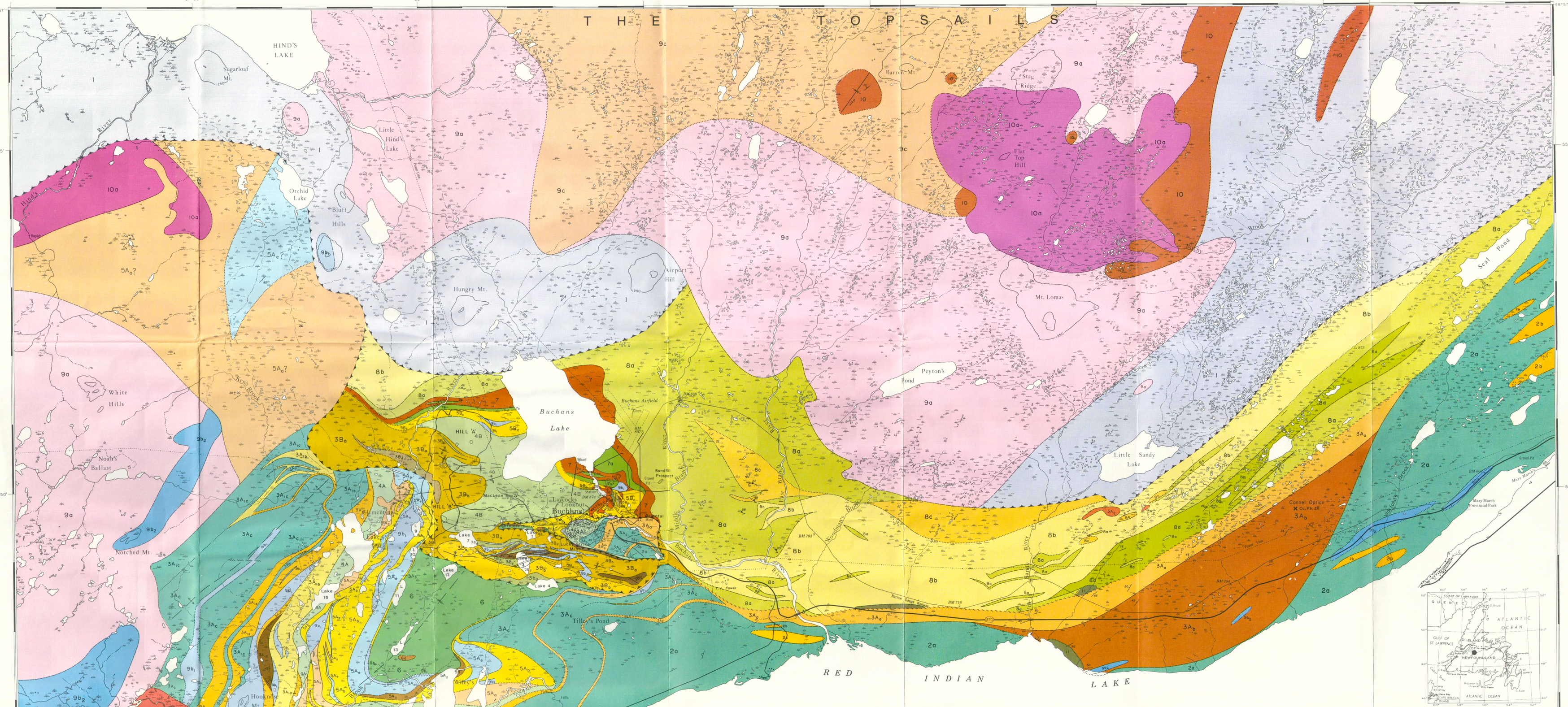

GEOLOGICAL MAP OF BUCHANS AREA

NEWFOUNDLAND

Scale 1:50,000 Échelle

Miles 1 0 1 2 3 Milles

Metres 1000 0 1000 2000 3000 4000 Mètres

SYMBOLS

- Geological boundary (defined, approximate, assumed)
- Bedding, tops known (inclined, vertical)
- Bedding, tops unknown (inclined, vertical)
- Pillow bedding, tops known (inclined, vertical)
- Flow banding (inclined, vertical)
- Schistosity, foliation (inclined, vertical)
- Foliation due to thrusting (inclined, vertical)
- Anticline (approximate)
- Syncline (approximate)
- Thrust fault (defined, approximate or assumed)
- Fault (defined, approximate, assumed)
- In situ and transported sulfides, extreme outline projected to surface

Geology compiled by Asarco Inc. and Price Company Limited (now Abitibi-Price Inc.). Geology in remote areas compiled in consultation with Department of Mines and Energy, Government of Newfoundland and Labrador.

Whole rock Rb/Sr isochrons determined by Bell and Blenkinsop using the decay-constant for ^{87}Rb of $1.42 \times 10^{-11}\ yr^{-1}$.

Map accompanies manuscript "Geology and Ore Deposits of the Buchans Area, Central Newfoundland", by J.G. Thurlow and E.A. Swanson in Swanson, E.A., Strong, D.F. and Thurlow, J.G., eds., The Buchans Orebodies: Fifty Years of Geology and Mining: Geol. Assoc. Canada Spec. Paper 22, in press.

Geological cartography by Mineral Development Division, Department of Mines and Energy Government of Newfoundland and Labrador.

Base maps at same scale published by the Surveys & Mapping Branch, Department of Energy, Mines and Resources, Ottawa.

Approximate magnetic declinations, 1969, for center of map, 28°39'W, decreasing 3.0' annually.

Elevations in feet above mean sea level.

Colour separation and printing negatives prepared by Maritime Resource Management Service, Amherst, Nova Scotia, 1980.

The Provisional Map is equivalent to a standard map in accuracy of content.

Some names on this map are not yet official. Corrections or additions are invited by the Surveys and Mapping Branch.

CARBONIFEROUS

11 Poorly indurated red sandstone and conglomerate

SILURIAN AND DEVONIAN

10 | 10a Reddish subaerial ignimbrite, flow-banded rhyolite and pyroclastics. Extrusive equivalents of the Topsails Granite. **10a**, subvolcanic quartz-feldspar porphyry.

TOPSAILS GRANITE

9a **Alkali Feldspar Granite** (387 ± 16 Ma): Fine grained, brick-red granite. Locally approaches syenite. Locally associated bodies of fine grained quartz-feldspar porphyry.

$9b_1$ | $9b_2$ **Mafic Intrusives (associated with Topsails Granite):** Fine to coarse grained diabase ($9b_1$) and gabbro ($9b_2$).

9c **Peralkaline Granite** (421 ± 7 Ma): Medium to coarse grained, equigranular, white-weathering granite.

ORDOVICIAN - SILURIAN

BUCHANS GROUP (447 ± 18 Ma)

Upper Buchans Subgroup

6 | 6a **Lake Seven Basalt:** Basaltic, amygdaloidal, feldsparphyric, hematitized lava, pillow lava, breccia and minor tuff. **6a**, arkosic interbeds

Lower Buchans Subgroup

$5A_g$ | 5A | $5A_f$ | $5A_e$ | $5A_d$ | $5A_c$ | $5A_b$ | $5A_a$ **Lucky Strike Ore Horizon Sequence:** Predominantly felsic sequence of pyroclastics, flows, breccias and clastic sediments; **$5A_g$**, small rhyolite units at base, flanked by pyritic siltstone and wacke, followed by **$5A_f$**, dacitic crystal-vitric tuffs gradational with **$5A_e$**, lithic-rich pyroclastic breccias and in situ massive and fragmental transported sulfides; **$5A_d$**, granite-bearing breccia-conglomerate; **$5A_c$**, mafic interbeds.

4A **Intermediate Footwall:** Complex assemblage of mafic to felsic pyroclastics, breccias, minor flows. Locally altered, mineralized.

$3A_c$ | $3A_b$ | $3A_a$ **Footwall Arkose:** **$3A_c$**, Lithic arkose, with local thin, widely separated interbeds of mudstone, siltstone, siliceous graywacke, conglomerate; **$3A_b$**, sequence of pumiceous felsic pyroclastics and interbedded tuffaceous sediments, underlying lithic arkose east of Buchans; **$3A_a$**, basaltic lava, pillow lava, pillow breccia, lesser pyroclastics and lenses of bedded chert.

2a | 2b | 2c **Footwall Basalt:** **2a**, Basaltic lava, pillow lava and pillow breccia, weakly to strongly amygdaloidal, feldsparphyric and hematitized, with lesser pyroclastics and discontinuous lenses of multicolored bedded chert. Host for Skidder Brook massive sulfide deposit; **2b**, felsic flows, breccia and tuff; **2c**, rhyolite.

ORDOVICIAN OR OLDER

1 **Hungry Mountain Complex** (660 ± 70 and 400 ± 60 Ma): Massive to foliated biotite granodiorite, hornblende diorite, gabbro and amphibolite with less abundant foliated granite.

$8c$ | $8b$ | $8c$ | $8d$ **Little Sandy Sequence:** Interlingered and interbedded mafic, intermediate and felsic volcanic rocks with the latter predominant; **8a**, basaltic and andesitic pillow lava, breccia, pyroclastic flows and tuff, minor unseparated felsic volcanics; **8b**, dacitic breccia and quartz-feldspar crystal tuff; **8c**, rhyolitic quartz-feldspar crystal tuffs, breccias, tuffs, pyroclastic flows, flow-banded to massive flows; **8d**, dominantly intermediate fragmental volcanics, locally altered and mineralized.

7 | 7a **Upper Arkose:** Resedimented arkosic conglomerate, lithic arkose, siliceous graywacke, siltstone; **7a**, interbeds of mafic volcanics, possibly correlative with 6.

$5B_c$ | $5B_b$ | $5B_a$ **Oriental Ore Horizon Sequence:** Complex assemblage of felsic pyroclastics, breccias, flows and clastic sediments. Similar lithologically and stratigraphically to Lucky Strike Ore Horizon Sequence; **$5B_c$**, coalescing rhyolite breccia domes at base, flanked and overlain by **$5B_b$**, pyritic siltstone and wacke, followed by **$5B_a$**, dacitic crystal-vitric tuffs gradational with polylithic breccia-conglomerate and in situ massive and fragmental transported sulfides which in turn are associated with **$5B_d$**, granitoid-bearing breccia-conglomerate.

4B **Ski Hill Sequence:** Stratigraphic equivalent of Intermediate Footwall. Basaltic pillow lava, porphyritic and amygdaloidal andesitic flow breccias and fine to coarse pyroclastics. Includes minor polylithic breccias near stratigraphic top, overlain in subsurface by altered intermediate to felsic flows, breccias and pumiceous pyroclastics (Oriental Intermediate).

$3B_c$ | $3B_b$ | $3B_a$ **Prominent Quartz Sequence:** Stratigraphic equivalent of 3A: Dacitic ($3B_c$) to rhyolitic ($3B_b$) pyroclastics; **$3B_a$**, interbedded lenses of graded pumiceous subaqueous pyroclastic flows, cherty mudstone and siltstone; **$3B_d$**, locally important basaltic members.

$3A_f$ | $3A_e$ | $3A_d$ **Wiley's Prominent Quartz Sequence:** Stratigraphic volcanic equivalent of 3A: felsic pyroclastics characterized by quartz crystals commonly exceeding 10 mm in diameter; **$3A_f$**, rhyolite flows and tuffs; **$3A_{fc}$**, dacitic pyroclastics; **$3A_{fc}$**, interbeds of basaltic lavas; pillow lavas; **$3A_{fd}$**, multicolored tuffaceous siltstone, siltstone, mudstone and chert.

$3A_g$ **Feeder Granodiorite** (410 ± 80 Ma): Pink, medium to coarse grained, biotite granodiorite, probably synchronous with **$3A_g$** and other Buchans Group rocks.