This bedrock map is accompanied by two other maps of the same area; viz. 0.F.656 STRUCTURAL GEOLOGY OF THE AULNEAU PENINSULA; LAKE OF THE WOODS, ONTARIO; by D.V. ZIEHLKE; and by 0.F.657 SAMPLE LOCATION MAP, AULNEAU

PENINSULA, LAKE OF THE WOODS, ONTARIO, by D.V. ZIEHLKE

The Aulneau batholith is oval in shape and is 45 by 25 km. It is surrounded by supracrustal rocks of greenstone type, which wrap around it in the style typical of Archean greenstone belts, and is one of the oval-shaped intrusions of the Kenora-Wabigoon greenstone belt (Wilson, 1971).

Twenty-nine types of leucocratic rocks were distinguished, and mapped, within the Aulneau Peninsula batholithic complex. These petrographic types are described in detail in Table 1. The numbered groups are in order of decreasing age. They are mainly varieties of granite, granodiorite and tonalite, plus minor gneissic and migmatitic types. They are numbered in six groups, of which the first five make up the main portion of the complex. The sixth is the rocks of Painted Rock Island, which are not placed in the main scheme because they are outside the projected southern closure of the volcanic rock envelope arbitrarily chosen as the limits of the batholith for this study. Also the Painted Rock Island pluton appears to be a later high magnetic type intrusion not directly related to the main Aulneau system.

Plutonic Complex
The main central pluton phase consists predominantly of fine to medium grained light pinkish grey plag. (57.8-58.6%)
- qtz. (21.0-24.5%) - K-feld. (10.9-11.2%) - bio. + hb. + ep. + mt. (6.8-9.2%) granodiorite (to trondhjemite)
with up to 35% mixed gneissic schlieren (21, 20 complexes) and several other minor intrusive phases. Some texture,
grain size and minor compositional variation within this zone impart general inhomogeneity to outcrops. Rocks
also contain segregated leucocratic zones (1.5-4.0 cm. across) with mafic bio., ep., hb., and mt. cores.

Pegmatite and aplite 5 to 80% in outcrop.

for this study. Also the Painted Rock Island pluton appears to be a later high magnetic type intrusion not directly related to the main Aulneau		
system.		
The fact that some phases recognized within the oval-shaped Aulneau batholith are continuous to the south across the projected volcanic	The state of the s	
envelope closure suggests that the Aulneau may be part of a larger batholithic complex extending southward.	3b, 10 miles of the second of	30 30.00
The position of the Aulneau batholith in the region is shown on Figure 1, 0.F.652.	The state of the s	2
REFERENCE:	Symore Lakeb. 46 250 / Symore Lakeb. 46 250 / Symore Lakeb.	- 1.5b
Wilson, H.D.B., 1971: The Superior Province in the Precambrian of Manitoba. In Geoscience Studies in Manitoba. Geological Association of Canada		Lake Louis Color Dinger
Special Paper 9, Turnock, A.C. (ed.).		
TABLE 1. PETROGRAPHIC PHASES OF THE AULNEAU BATHOLITH	51	
Phase no. Composition Color Grain Size Texture Structure Comments la plag. (55.3-63.2%) black and coarse recrystallized strong occurs at Gale L. in north		Index Island
qtz. $(22.5-31.4\%)$ white $(4-15 \text{ mm})$ cataclastic foliation & and near contact in SW with K-feldspar $(0-2.6\%)$ lineation several other mixed early bio + ep. $(8.6-17.9\%)$ (augen feld. minor phases (this is trondhjemite developed) oldest of these)		HAYFER
lb plag. (51-57%) white to medium- inequigranular strong foli. occurs at Gale L. and as qtz. (25-33%) pinkish coarse cataclastic (+ lin.) cataclastic inclusions in	The Company of the Co	Sc. 5c. 5c. 6hanner
K-feldspar (6-13%) white (3-10 mm) - augen la complex, as well as bio. + ep. (2.7-8.8%) locally being interbanded with la trondhjemite		Remisula PENTABULA
lc complex: - a predominantly non-gneissic inhomogenous, recrystallized hb-trondhjemite, volcanic amphibolite inclusions (up to 30%); complex made up of highly mixed early plag. (56.7-68.8%) - qtz. (17.7-31.8%) - K-feldspar (0-2.8%) -		1060 ; c
bio. + hb. (6.6-18.4%) trondhjemite, and minor hb. and non hbbearing trondhjemite phases, plus light and dark grey felsite dikes, aplite and pegmatite. ld biotite migmatite complex:		Jich Bary Bary Bary Bary Bary Bary Bary Bary
 inhomogenous light grey fine to medium grained plag. (66.2-70.3%) - qtz. (17.4-32.4%) - K-feldspar (.8-4.7%) - bio. + ep. (4.5-12.0%) Trondhjemite. trondhjemitic migmatite with gneissic, more biotite and K-feldspar rich schlieren inclusions (often swirled gneissosity), minor amphibolite inclusions and inclusion layers (0-20% in outcrop). Also recognizable 		
metavolcanic inclusions (rarely up to 40% oc., Miles Bay area, but generally much less). Complex includes at least two recognizable fine to medium grained trondhjemite intrusive phases plus various felsite, plagiophyre, aplite, and pegmatite intrusions (up to 5 ages).	A N D W A D S TO TO THE STATE OF THE STATE O	5d 5d 50 5d 50 5d
le plag. (55.3-63.8%) medium medium- subhedral weakly to extensive post-migmatite qtz. (21.0-33.9%) grey coarse slightly moderately phase, contains schlieren		
K-feldspar (0-3.7%) (2-7 mm) inequigran. foliated of earlier migmatitic phases, bio. + ep. (5.0-12.7%) , up to 30% locally. Possibly more than one pulsation of this type of magma.	INDIAN RESERVED.	
1f plag. (56-60.9%) grey medium- subhedral weakly to closely associated with and qtz. (22.6-30.5%) coarse slightly moderately very similar to le, except K-feldspar (0-2.6%) (3-6 mm) inequigran. foliated for presence of hb, which in	TIC. St. No. 100 S	The state of the s
bio. + hb. + ep. places can be traced as (7.4-17.4%) trondhj. contact metamorphic effect	5c, 14 / 5c, 15 / 5c,	CENTER SON
lg plag. (59.1-65.0%) light medium subhedral weak bio. local complex NW end of qtz. (22-31.5%) greyish (2-3 mm) inequigran. foliation Miles Is., made up largely K-feldspar (1.1-3.6%) tan with a few recrystallized of this igneous phase + bio. + ep. (4.7-7.5%) (4-5 mm) containing up to 40% mig-		
trondhjemite feld.clots matite trondhj. and amphi- bolite gneiss, plus inclu- sions of earlier homogenous		
trondhj. phase; also fine grained felsite dikes and 2 ages of pegmatite		
1h plag. (58.9-62.9%) + light medium-coarse inequigran. strong minor phase in Miles Bay qtz. (20.1, 29.6%) grey (3-12 mm) anhedral to tectonic includes early migmatitic K-feldspar (7.2-2.4%) subhedral foliation trondhjemite schlieren; + bio. + ep. + mt.		BELL BELL BELL BELL BELL BELL BELL BELL
(8.9-16.4%) trondhjemite relative age li plag. (63.2-63.5%) grey to medium- subhedral moderate to rock homogenous, contains		
qtz. $(26.9-30.3\%)$ pinkish coarse slightly strong up to 30% gneissic trondhj. K-feldspar $(0.4-1.8\%)$ grey $(2-6$ mm) inequigran. foliation + amphibolite $(1a-f)$ inclubio. + hb. + ep. + chl. sions. Highly epidotized, $(4.9-9.2\%)$ iron stained and is sheared	T-Voir 19 Contract : William 19 Cosc 1	50
trondhjemite in zones, indicating dis- continuing faulting across southern Miles Bay		
2a plag. (10-60%) dark grey medium to variable variable, highly inhomogenous, numerous com- hb.+bio.+(pyx.)(40-80%) to black coarse to subhedral to massive to volcanic inclusions, small plex qtz. (0-4%) K-feld. (0-4%)color index pegmatitic anhedral foliated and ones often partially		
plex qtz. (0-4%) K-feld. (0-4%)color index pegmatitic anhedral foliated and ones often partially diorite-gabbor varies inequigran. lineated exsolved (comp. variable) 30-90)		Vol. 1. Solvenia de la constante de la constan
2b plag. (30-60%) black to fine to variable massive to very inhomogenous unit typified com- hb.+bio.+ep.+(pyx.) dark grey pegmatitic porphyroblastic well lineated in places by mafic hbbio. plex (40-70%) (C.I.45 to equigran varies over clots up to several inches	The second secon	
qtz. (0-4%) to 70) outcrop across in places (with mafic diorite to gabbro depleted surrounding zones). Minor granitic stringers and clots present, plus pegmatitic		
intrusions. Possible large (> 100 m) outcrop of basalt in poorly exposed NE end of 4c.		1:1:3:1 Ab and the second of t
2c. plag. (10-70%) black and medium- subhedral weak to some pegmatitic px-hb zones, d,e, hb.+pyx.+bio.+ep. white (to coarse inequigran. stong intruded by several surround-h. (30-90%) dark grey) pegmatitic cataclastic ing Aulneau phases, contain		
diorite-gabbro (C.I. = (3-30 mm) foliation some volcanic basaltic 30-90) and lineation inclusions		
hb. (40-90%) white coarse subhedral primary contact with numerous sub- gabbro (C.I. = pegmatitic layering in rounded inclusions of la 30 - 90) (3-30 mm) 4f complex rocks, 4f, g small	Volcanic Vol	Company of the compan
areal extent compared with 4a to d, dikes of 4f visible in surrounding la rocks		
Ja plag. (48.4-59.4%) light buff medium— anhedral proto to sheared north aulneau contact qtz. (27.0-31.6%) pink coarse recrystallized cataclastic phase, fairly homogenous, K-feldspar (5.1-12.3%) (white inequigran. augen with shearing effects decreas-	LEGEND*	
bio. + ep. + musc. weathering) feldspar ing southward away from trondhjemite - common, volcanic contact granodiorite mortar		
3b plag. (50.0-62.6%) medium medium inequigran. weakly to rock inhomogenous, includes qtz. (25.7-35.2%) grey to (2-4 mm) recrystallized strongly la rocks plus post la minor	Phases of Unknown Relative Age, of Known but with known age span	At c
K-feldspar (5.0-11.4%) light with 4-6 mm foliated, phase (not listed) and bio. + ep. (3.4-6.4%) pinkish subhedral feld granulated phase 3 trondhjemite grey crystals	Relative indicated by arrows	
3c plag. (53.0-66.0%) grey to fine- inequigran. moderate- contain up to 20% inclusion qtz. (24.1-29.0%) pink, much medium subhedral weak bio of la and lb, intruded by K-feldspar (4.7-14.2%) Fe stain- (1-3.0 mm) (with occa- foliation phase 5c. bio. + ep. (4.9-13.7%) ing sional 5 mm	Age of things of the property	
granodiorite - feld crystals trondhjemite	ш Diabase Diabase Batholith Diabase	
plag. (40.7-55.8%) pink to medium subhedral moderate to composition varies from qtz. (25.4-32.0%) pinkish (.15-4 mm) inequigran. weak outcrop to outcrop, inclusions K-feldspar (10.5-20.1%) grey (some bio. + ep. + chl. Fe stained) foliation variable in composition, pegmatite and aplite common	Intrusive Intrusive	
(3.5-9.0%) granodiorite	Late Late	
4a plag. (52.7-66.3%) black and medium— subhedral moderate to hb crystals and mafic bio- qtz. (24.2-30.4%) white coarse inequigran. to strong bio hb rich clots 1-3 cm across K-feldspar (.1-3.2%) (3-8 mm) porphyritic foliation make up 1-4% of rock. Also hb. + bio. + chl. + ep.	Late	46 46 TO THE TOTAL OF THE TOTAL
(711.4%) trondhjemite inclusions	[5e] [5e] [5land Stand Sta	
plag. (50.7-59.5%) usually medium equigran. moderately bio-hb weathers out imparting qtz. (24.0-28.4%) tan, some- grained subhedral foliated, peculiar surface, sphene K-feldspar (4.3-12.7%) times (2-5 mm) unusual crystals often visible in bio. + hb. + ep. greyish or pockmarked hand specimen, rock homog. in	5b le z i le	1 c 5 c 5 c
(8.1-15.4%) pinkish weathered composition trondhjemite (to grey (Fe surface granodiorite) stained)	Pa Pb Pc (PAINTED ROCK ISLAND PLUTON) Group	
4c plag. (48.2-60.8%) light pink medium to inequigran. massive to high qtz. content with large qtz. (23.3-35.0%) (some Fe coarse to porphyritic weakly recrystallized blebs (up to K-feldspar (3.4-10.9%) + staining) (3-8 mm) foliated 1.5 cm) some hb. + bio.	ISLAND PLUTON) Godi	
bio. + ep. + chl. + hb. (3.7-12.7%) trondhjemite clots near unit 4b. Contact between units 4b and 4c. 5a plag. (44.7-46.4%) light medium to inequigran. moderate closely resembles 5c but		1000:
qtz. (27.8-34.7%) pink to coarse subhedral bio without visible poikilitic K-feldspar (15.4-21.6%) white (2-7 mm) foliation K-feldspar "ghost" deutero- bio. + ep. (3.5-5.9%) granodiorite within 5c	Intermediate Intermediate	
5b plag. (50.0-59.9%) pink to fine to equigran. weak to formerly (1973 Ann. Report) qtz. (24.2-35.6%) grey (color medium subhedral moderate grouped with 5a. Rock	FAINTED ROPO INTERMEDIATE HB GROUP	BAY JA ST Klawakamik
K-feldspar (5.9-19.8%) varies in (.5-2.5 mm) bio flow intrudes 5a, and appears bio.+ep.+musc.(0.6-15.1%) patches due foliation as inclusion in 5c trondhjemite - to local Fe granodiorite staining	Bio Bio	RESERVE
5c plag. (43.1-61.1%) light medium poikilitic weak flow K-feldspar "ghost" poik- qtz. (13.9-33.0%) pink to to coarse subhedral foliation ilitic deuteroblasts typify K-feldspar (3.0-24.8%) buff (.2-4 cm) inequigran, to massive this phase (visible when	Group Group	Mone
K-reldspar (3.0-24.8%) buff (.2-4 cm) inequigran. to massive this phase (visible when bio. + ep. + musc. reflecting light only). granodiorite - Size of crystals (1-3.5 cm) varies 1-12% in oc.		Canic Bluffy Sland
plag. (44.2-56.9%) reddish coarse porphyritic generally K-feldspar xals 1.5-3.5 cm, qtz. (11.9-28.8%) pink (.4-2.0 cm) euhedral to massive to make up 4-20% of oc.	Early Early	Bluffy
bio. + hb. + ep. foliated may be warranted (Hb-bearing (3.7-16.9%) and non Hb-bearing types)		SABASIO
quartz-monzonite	Pc, Peg Pc, Peg A · K E · · · · · · · · · · · · · · · · ·	
qtz. (1.9%) (.4-2.0 cm) euhedral eated (flow porphyry locally associated K-feldspar (27.4%) lineation with 5d, observed in only hb. + bio. (22.8%) of plag. a few outcrops		
5e plag. (53.8%) light medium equigran. massive massive to weakly flow		GEOLOGY OF THE AULNEAU PENINSULA,
qtz. (33.0%) buff (2-3 mm) euhedral to foliated late minor K-feldspar (10.1%) pink subhedral intrusion restricted to bio. + ep. (3.1%) granodiorite batholith	Volcanic	LAKE OF THE WOODS, ONTARIO
Painted Rock Island Pluton Pa Gneissic Complex Mixed fine to medium grained, grey to tannish grey trondhjemitic plag. (55.5-64.8%) - qtz. (15.0-29.6%) -	Rocks	By D.V. ZIEHLKE 1977
K-feld. (U-10.6%) - bio. + hb. + mt. + ep. (7.8-19.6%) gneissic migmatites with gneissic layering developed to varying degrees. Generally very discontinuous inhomogenous 2-30 cm. wide layers of differing color and slight compositional variation. Complex also contains minor non-hb bearing migmatites and later troublemite to	* Phases occuring together on the same horizontal level are believed to be approximately the same relative age	
granodiorite minor intrusions. Also, complex contains up to 10% interlayered amphibolite schist layers 2-20 cm. wide. The main phase from this complex closely resembles phase 1d of the Aulneau batholith. This may have been the country rock into which Pc intruded.	are beneved to be approximately the same relative age	
Pb <u>Migmatite Complex</u> Very inhomogenous highly migmatized medium grained, tan colored (bio. + hb. + mt. bearing) granodiorite- trondhjemite with segregated leucocratic mt. bearing clots, leucocratic stringers, and mafic bio-hb schlieren.		
Pc Plutonic Complex The main central pluton phase consists and materials of fitness and the second s		

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