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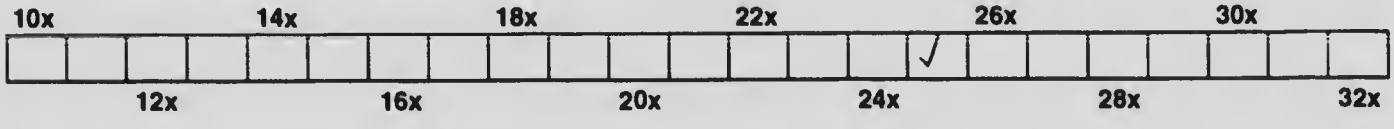
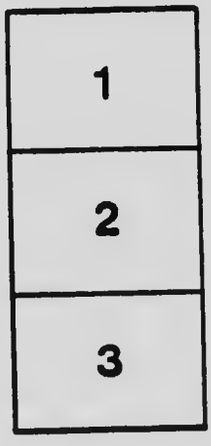
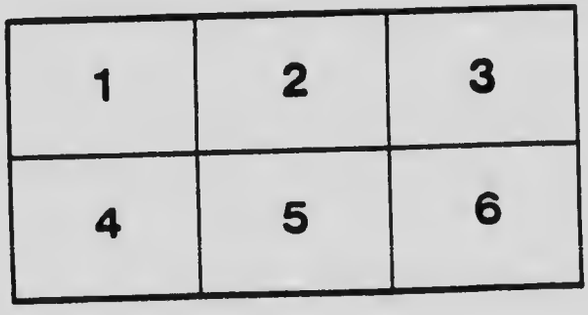
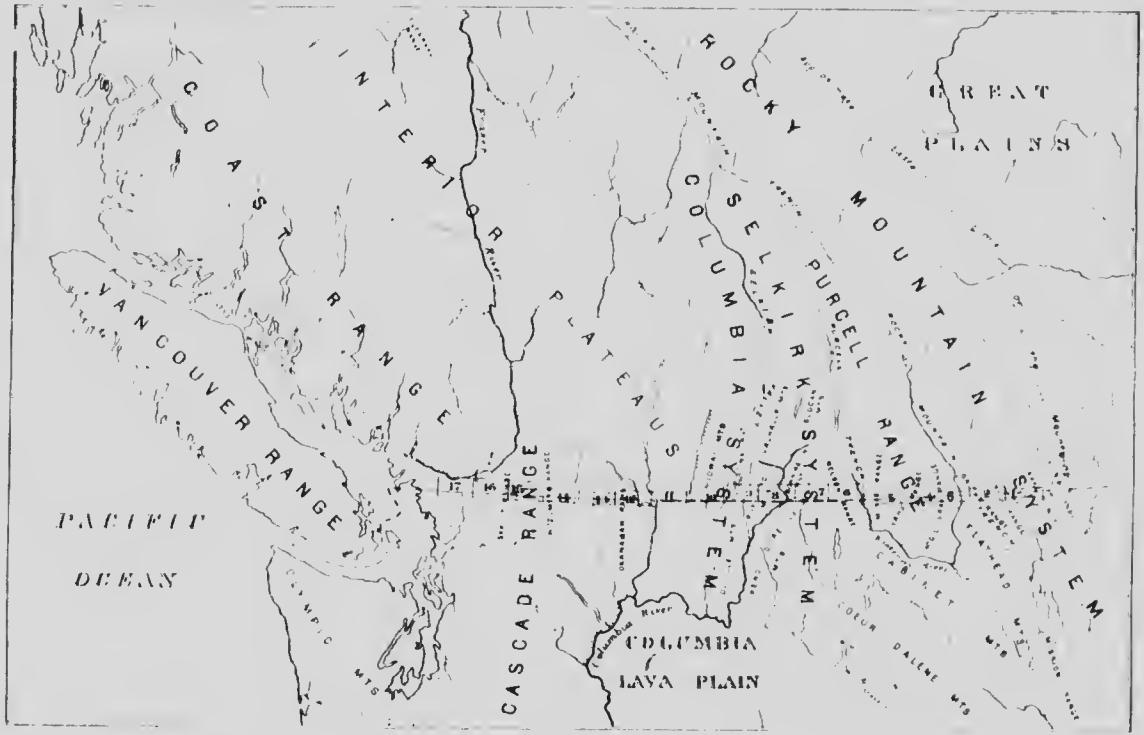








KEY SHOWING POSITION OF SHEETS

Sheet 1—Clarke Ran
" 2—Galton Ra
" 3—Rocky Mou ench.
" 4—Yahk Range
" 5—Moyie Range.
" 6—Purcell Trench.
" 7—Pend D'Oreille River.
" 8 -Rossland Mountains.
" 9—Christina Lake.
Sheet 10—Midway Mountains,
" 11—Osoyoos Lake.
" 12—Kruger Mountain.
" 13—Okanagan Range.
" 14—Hozomeen Range.
" 15—Skagit Range.
" 16—Chilliwack River.
" 17—Sumas Lake.

Plate 72—Views of the Rocky and Selkirk Ranges.
" 73—Views of the Selkirk, Columbia and Cascade Ranges.
—Erratum Sheet.

ERRATA

Appendix 6

Report of the Chief Ast

Part III—ma

Sheet 17.—Boundary Monument			19 is 0.94 miles west of Mon. 20
" 15.—	"	"	59 is 1 02 " " " 60
" 10.—	"	"	144 should be deleted
	"	"	145 should read 144
	"	"	146 " " 145
	"	"	147 " " 146
	"	"	148 " " 147
	"	"	149 " " 148
	"	"	150 " " 149
	"	"	151 " " 150
	"	"	152 " " 151
	"	"	153 " " 152
	"	"	154 " " 153
	"	"	155 " " 154
Sheet 9.—	"	"	156 " " 155
	"	"	157 " " 156
	"	"	158 " " 157
	"	"	159 " " 158
	"	"	160 " " 159
	"	"	161 " " 160
	"	"	162 " " 161
	"	"	163 " " 162
	"	"	164 " " 163
	"	"	165 " " 164
	"	"	165 is a few yards east of the railway track near Laurier.
Sheet 5.—	"	"	207 is 2.72 miles west of Mon. 208
	"	"	207 should read 208
	"	"	208 " " 209
	"	"	209 " " 210
	"	"	210 " " 211
	"	"	211 " " 212
	"	"	212 " " 213
	"	"	213 " " 214
	"	"	214 " " 215
	"	"	215 " " 216
	"	"	216 " " 217
	"	"	218 is 0.02 miles east of Mon. 217
	"	"	217 should read 219
	"	"	218 " " 220
	"	"	219 " " 221
	"	"	220 " " 222
Sheet 4.—	"	"	221 " " 223
	"	"	222 " " 224
	"	"	223 " " 225
	"	"	224 " " 226
	"	"	225 " " 227

Sheet
(conti

Sheet

Sheet

Sheet

RRATA

pendix 6.

Chief Astronomer 1910

III—maps

Sheet 4.— (continued)	Boundary	Monument	226 should read 228
	"	"	227 " " 229
	"	"	228 " " 230
	"	"	229 " " 231
	"	"	230 " " 232
	"	"	231 " " 233
	"	"	232 " " 234
	"	"	233 " " 235
	"	"	234 " " 236
Sheet 3.—	"	"	235 " " 237
	"	"	236 " " 238
	"	"	237 " " 239
	"	"	238 " " 240
	"	"	239 " " 241
	"	"	240 " " 242
	"	"	241 " " 243
	"	"	244 is 0.22 miles west of Mon. 245
	"	"	242 should read 245
	"	"	243 " " 246
	"	"	244 " " 247
Sheet 2.—	"	"	245 " " 248
	"	"	246 " " 249
	"	"	247 " " 250
	"	"	248 " " 251
	"	"	252 is 1.35 miles east of Mon. 251
	"	"	249 should read 253
	"	"	250 " " 254
	"	"	251 " " 255
	"	"	252 " " 256
	"	"	257 is 2.59 miles east of Mon. 256
	"	"	253 should read 258
	"	"	259 is 2.14 miles east of Mon. 258
	"	"	254 should read 260
Sheet 1.—	"	"	255 " " 261
	"	"	256 " " 262
	"	"	257 " " 263
	"	"	258 " " 264
	"	"	259 " " 265
	"	"	260 " " 266
	"	"	261 " " 267
	"	"	262 " " 268
	"	"	269 is 0.94 miles west of Mon. 270
	"	"	263 should read 270
	"	"	264 " " 271
	"	"	265 " " 272
	"	"	273 is 1.16 miles east of Mon. 272

ERRATA

Boundary Monument		255	should read		261
"	"	256	"	"	262
"	"	257	"	"	263
"	"	258	"	"	264
"	"	259	"	"	265
"	"	260	"	"	266
"	"	261	"	"	267
"	"	262	"	"	268
"	"	269 is 0.94 miles we			
"	"	263	should read		270
"	"	264	"	"	271
"	"	265	"	"	272
"	"	273 is 1.16 miles eas			

read 261
" 262
" 263
" 264
" 265
" 266
" 267
" 268
miles west of Mon. 270
read 270
" 271
" 272
miles east of Mon. 272

LEGEND

PLEISTOCENE & RECENT

Glacial drift and alluvium
including winged out moraines of the Flathead valley

MIOCENE

Ks

Kishenehn formation
chiefly bluish-grey clays, interbeds of grey sandstone, fossiliferous

Kn

Kintla formation
chiefly thin-bedded, red argillite, and interbedded flow of basic lava

chiefly MIDDLE CAMBRIAN(?)

Sh

Sheppard formation
chiefly thin-bedded, light grey, micaceous dolomite, an interbedded flow of basic lava

Pu

Purcell lava
massive, basic flow

Si

Siyeh formation
chiefly massive, dark grey, siliceous magnesian limestone; also much greenish-grey metargillite

LOWER CAMBRIAN(?)

Gr

Grinnell formation
chiefly thin-bedded, red metargillite, an interbedded flow of basic amygdaloid

Appekunny formation
mainly thin-bedded, light greenish-grey metargillite; harder quartzite and magnesian limestone lenses

BELTIAN

A

Altyn formation
thin to thick-bedded, light grey, generally sandy, siliceous, magnesian limestone; locally fossil, Beltina dana

Wt

Waterton formation
massive, dark grey, "felspathized" dolomite

CAMBRIAN(?)

Intrusive

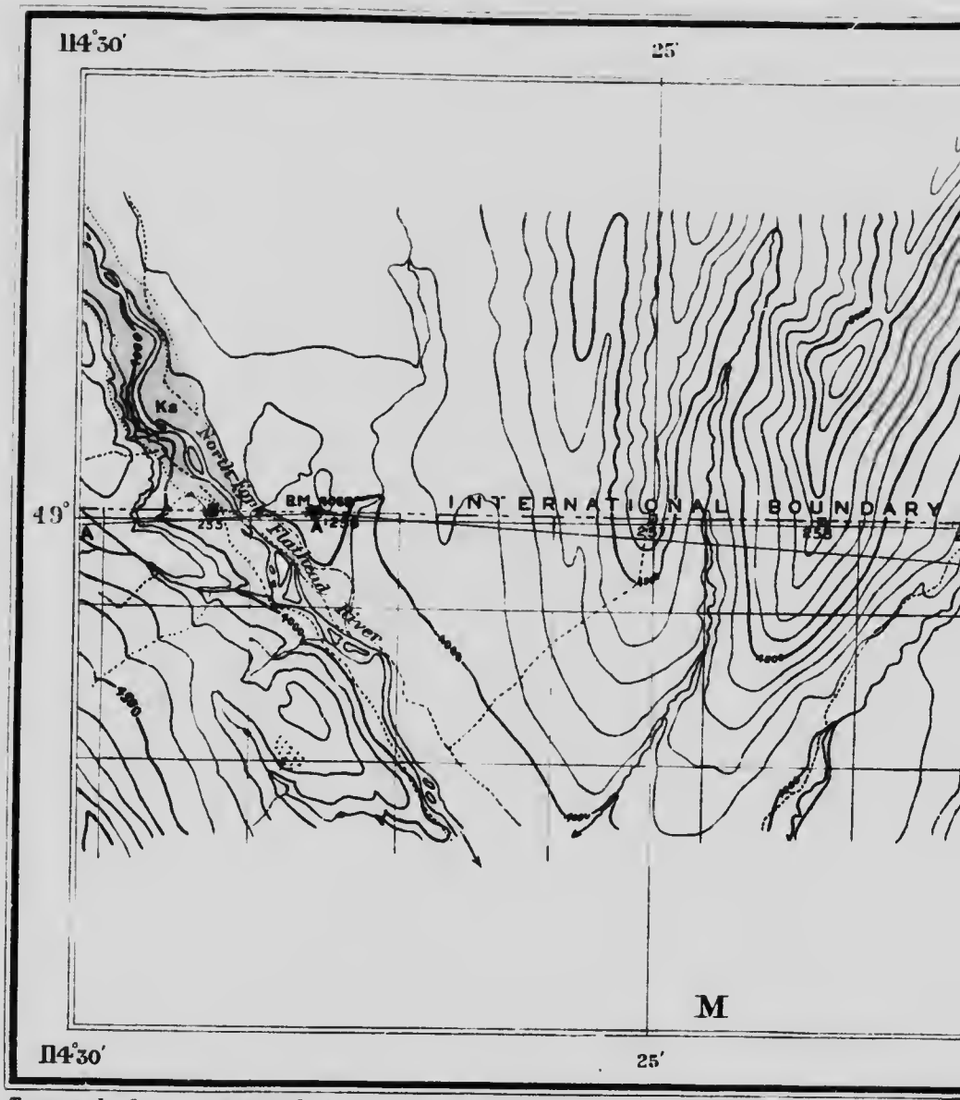
Abnormal Gabbro

Symbols

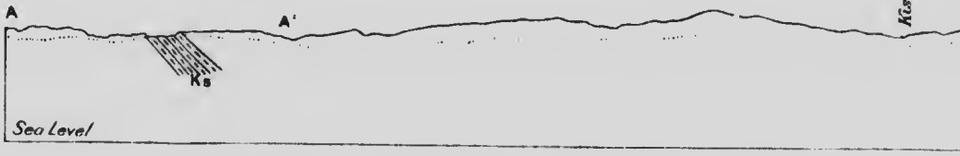
Geological boundary

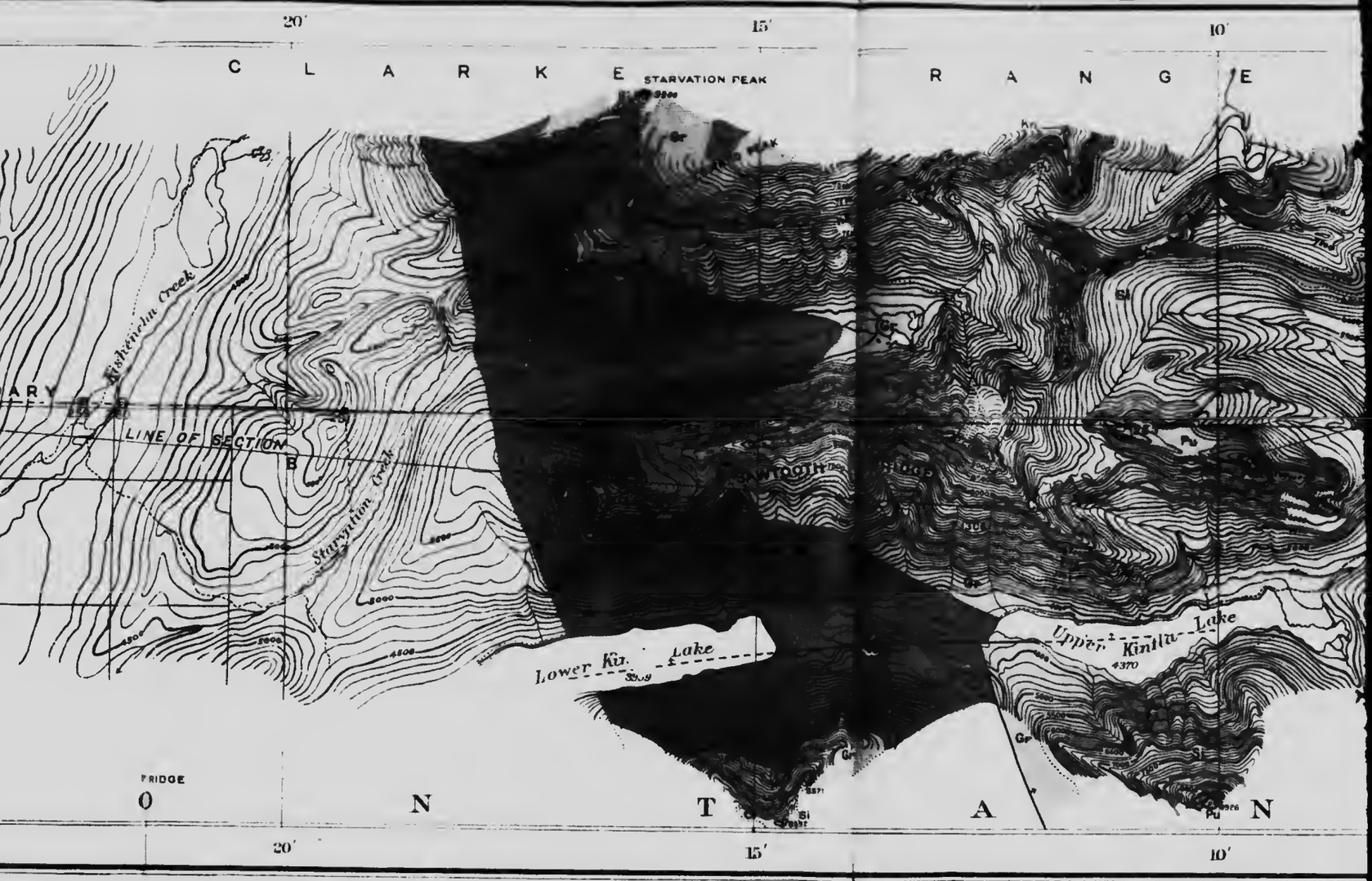
Fault

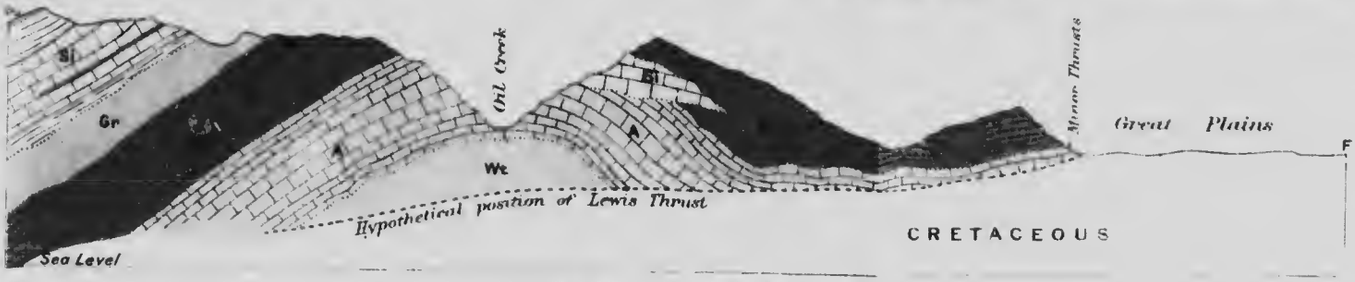
Note. *Localities of chemically analyzed rocks, shown thus,* + 1306



Topography from surveys made by the Boundary Commission.







Sections along line AA'BCDEF

GEOLOGY OF THE FORTY-NINTH PARALLEL, By R. A. Daly.

Scale: $\frac{1}{62500}$ = 0·9864 Statute Miles to 1 Inch

Miles

Contour interval 100 feet

15′ 10′ 5′

R A N G E

BRITISH COLUMBIA ALBERTA

PROVINCIAL BOUNDARY

ARVATION PEAK

Mt. EDWARD PEAK

SAWTOOTH RIDGE

Summit Lake

Upper Kintla Lake

Lake

GREAT DIVIDE

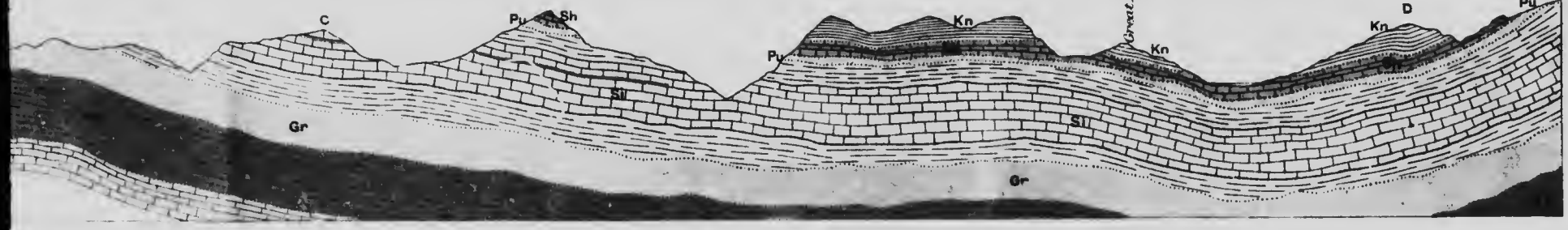
Line of Section

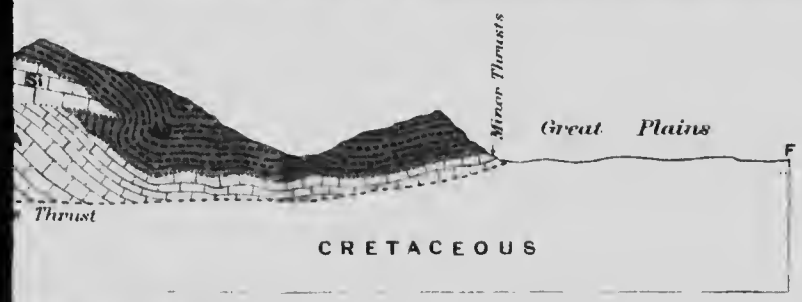
49°

T A N A

15′ 10′ 5′

1260





MAP 74 A

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ong line AA'BCDEF

NINTH PARALLEL, By R.A.Daly.

4 Statute Miles to 1 Inch

Miles

2 0 2 4

nterval 100 feet

SHEET 2 GALTO

Bou

ERRATA

Boundary Monument 245 should read 248
" " 246 " " 249
" " 247 " " 250
" " 248 " " 251
" " 252 is 1.35 miles east of Mon. 251
" " 249 should read 253
" " 250 " " 254
" " 251 " " 255
" " 252 " " 256
" " 257 is 2.59 miles east of Mon. 256
" " 253 should read 258
" " 259 is 2.14 miles east of Mon 258
" " 254 should read 260

LEGEND

PLEISTOCENE & RECENT

Glacial drift and alluvium

MISSISSIPPIAN & DEVONIAN MIOCENE

Ks — Kishenehn formation
chiefly bluish-grey clay, interbeds of grey sandstone; fossiliferous

Limestone
massive, grey, fossiliferous

MIDDLE chiefly CAMBRIAN(?)

R — Roosville formation
light green and grey, thin-bedded metargillite

P — Phillips formation
purplish to red, thin-bedded metargillite & quartzite

G — Gateway formation
chiefly thin-bedded, siliceous metargillite, some dolomite at base

Pu — Purcell lava
massive, basic flow

Si — Siyeh formation
massive, dark grey, siliceous magnesian limestone with much greenish-grey metargillite

LOWER CAMBRIAN(?)

W — Wigwam formation
thin-to-thick-bedded red sandstone and metargillite

Mc — MacDonald formation
thin to thick-bedded, grey metargillite, with rare lenses of dolomite

H — Hefty formation
chiefly thick-bedded, reddish sandstone

CAMBRIAN(?) BELTIAN

A — Altyn formation
thin-bedded siliceous dolomite

Intrusive

Abnormal gabbro

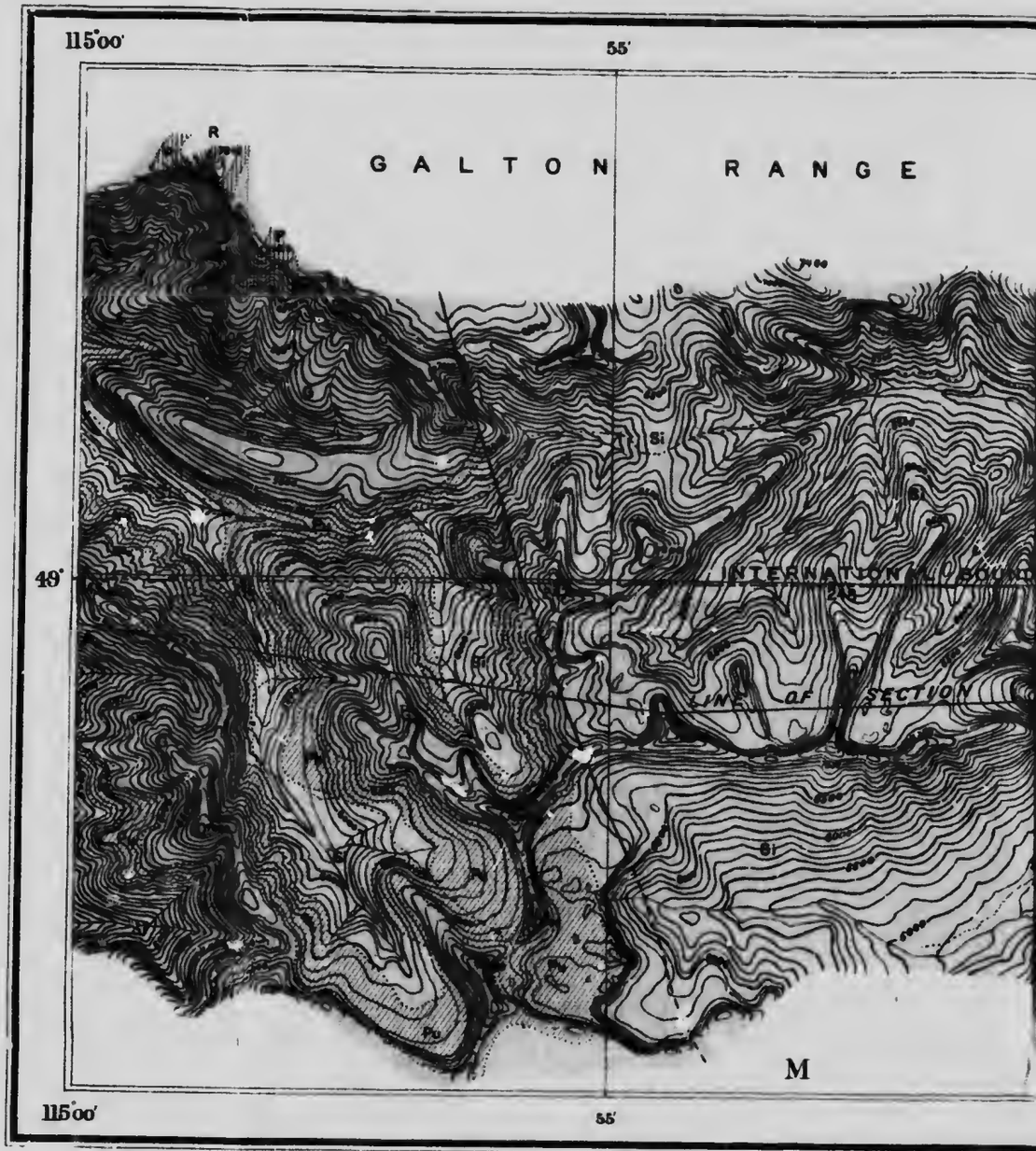
Symbols

Geological boundary

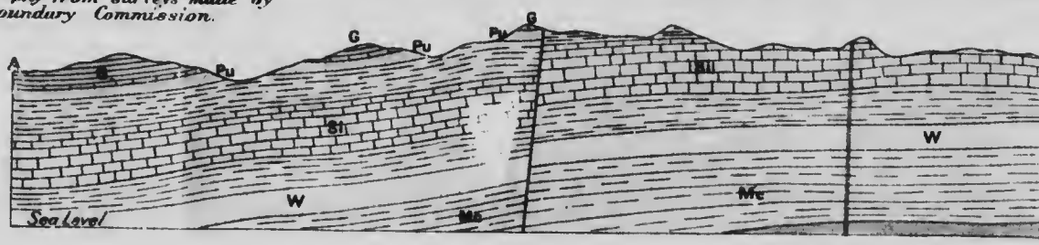
Fault

Glacial Striae

Note. *Localities of chemically analysed rocks, shown thus,* +1250



...phy from surveys made by ...oundary Commission.



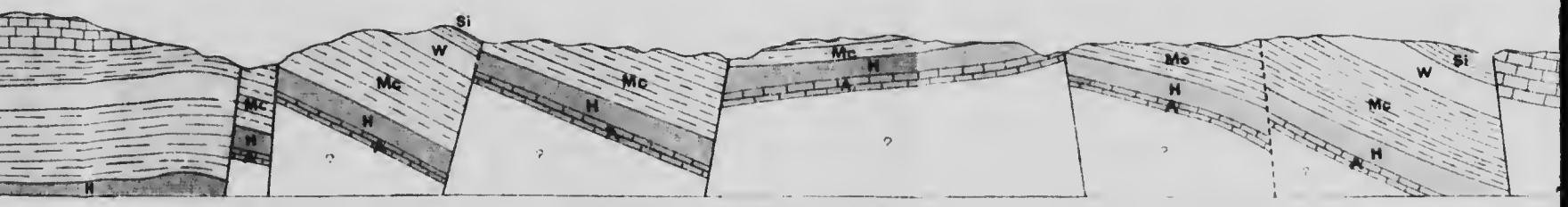
50′ 45′ 40′

MACDONALD RANGE

Wigwam River

O N T A N

50′ 45′ 40′



Section along line A B

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: $\frac{1}{62500}$ = 0.9864 Statute Miles to 1 inch

Miles

1 ½ 0 1 2 3 4

Contour interval, 100 feet

45′ 40′ 35′ 114°30′

A C D O N A L D R A N G E

Flathead River

Mc

253

Mt HEFTY

49°

31

T A N A

45′ 40′ 35′ 114°30′

1261

Mc H A

Mc H A

Mc W Si

Mc H A

B

Sea Level

along line A B

Y-NINTH PARALLEL. By R.A. Daly.

9864 Statute Miles to 1 Inch

Miles

2 3 4

ur interval 100 feet

MAP 75A

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SHEET 3.—ROCKY MOU

Boundary M
"
"
"
"
"
"
"
"
"
"

Y MOUNTAIN TRENCH

ERRATA

ndary Monument 235 should read 237
" " 236 " " 238
" " 237 " " 239
" " 238 " " 240
" " 239 " " 241
" " 240 " " 242
" " 241 " " 243
" " 244 is 0.22 miles west of Mon. 245
" " 242 should read 245
" " 243 " " 246
" " 244 " " 247

LEGEND

PLEISTOCENE & RECENT

Glacial drift and alluvium

DEVONIAN

Limestone and quartzite
massive limestone fossiliferous

Chiefly MIDDLE CAMBRIAN(?)

G
Gateway formation
chiefly thin-bedded, siliceous metargillite some dolomite at base

Pu
Purcell lava
massive, basic flows

LOWER CAMBRIAN(?)

Si
Siyeh formation
thin-to-thick-bedded, greenish grey metargillite, with massive, siliceous, magnesian limestone

W
Wigwam formation
thin to thick-bedded, red sandstone and metargillite

Mc
MacDonald formation
thin-to-thick-bedded, grey metargillite

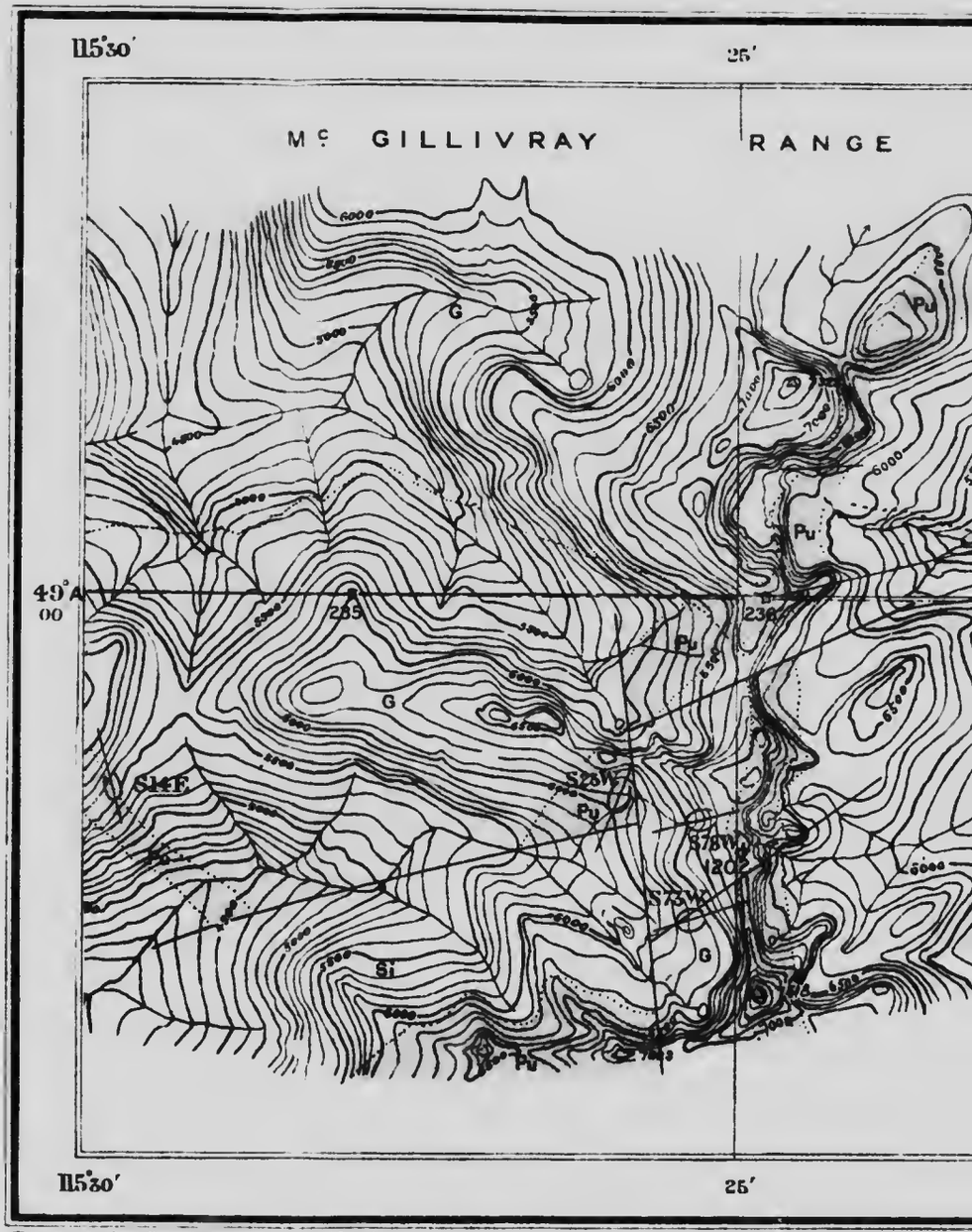
Symbols

Geological boundary

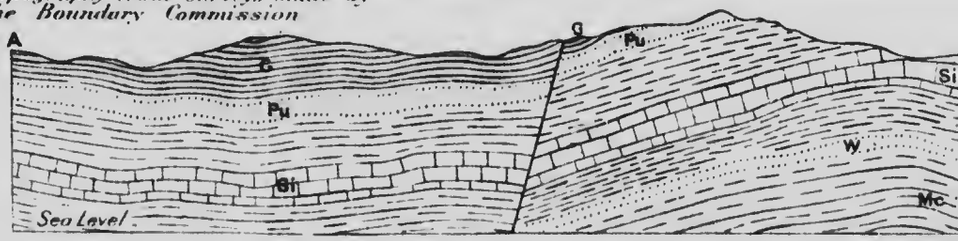
Fault

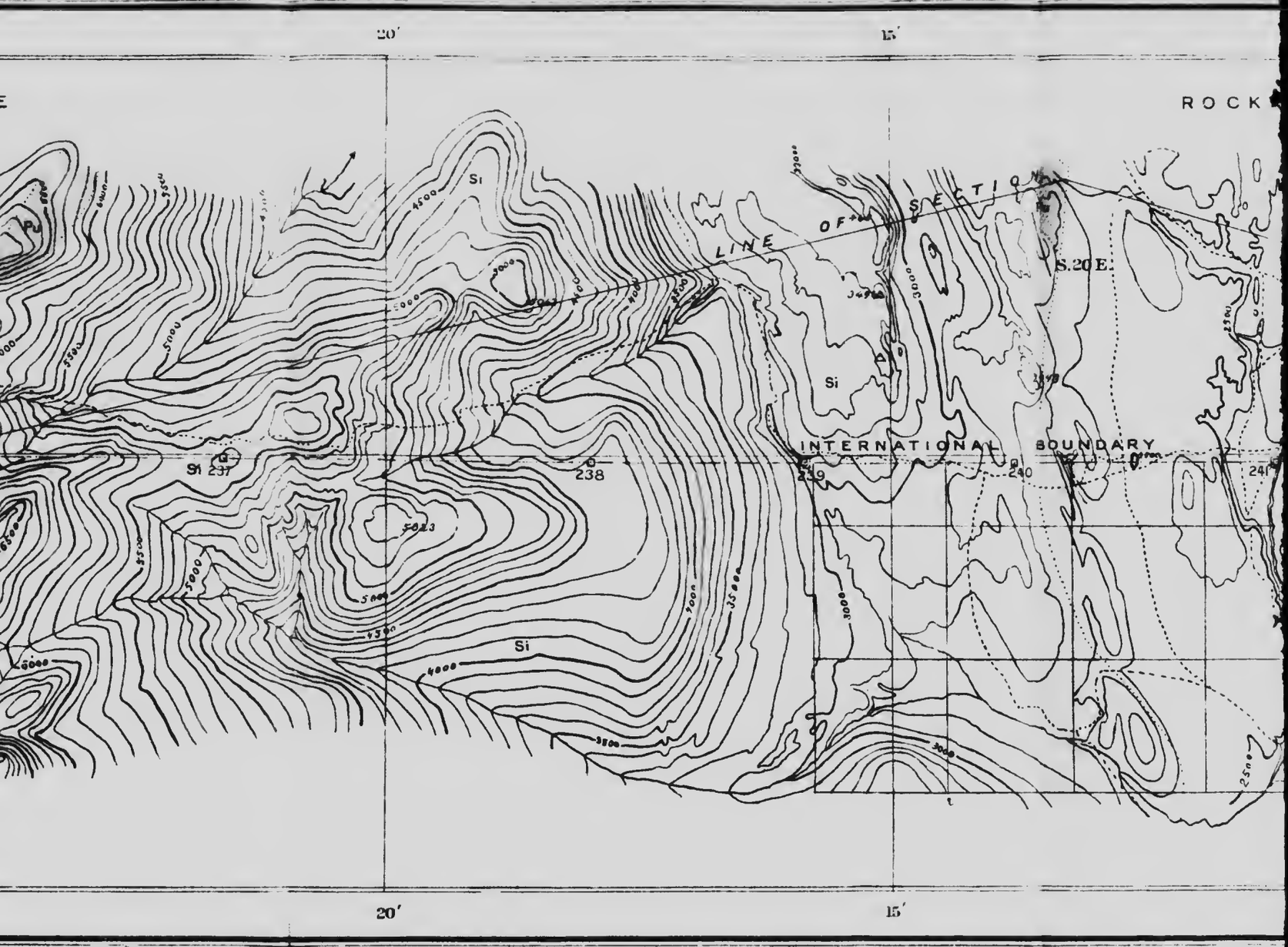
Glacial striae

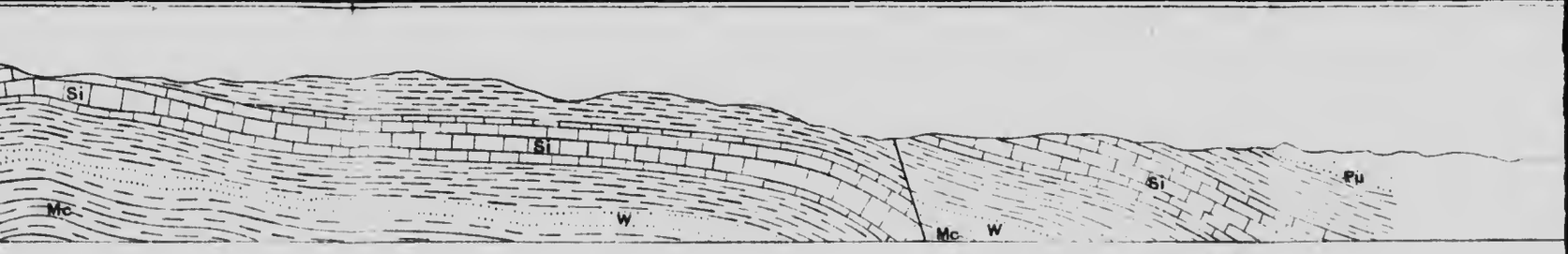
Note. *Localities of chemically analyzed rocks shown thus.* +1202



Topography from surveys made by the Boundary Commission







Section along line A B

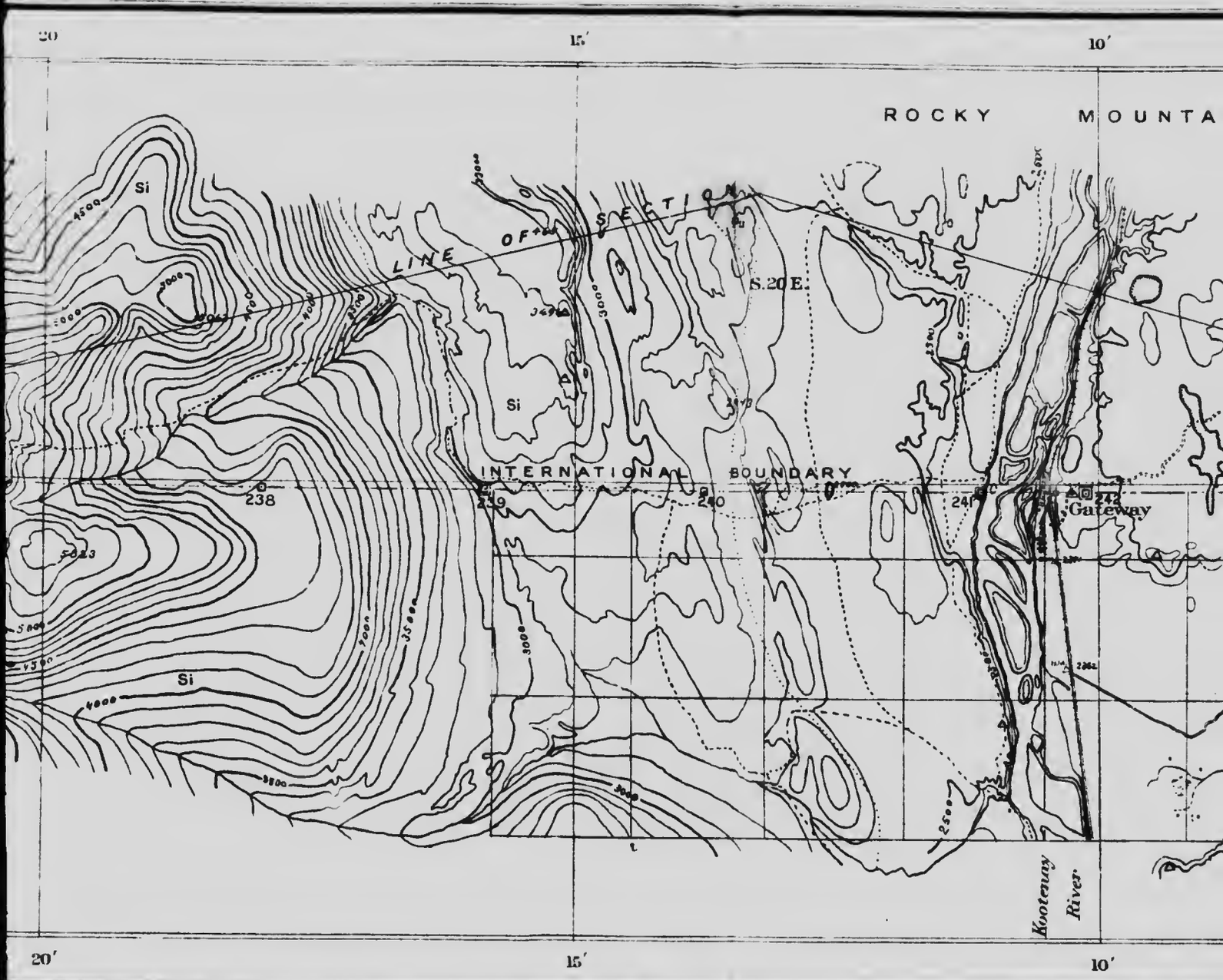
GEOLOGY OF THE FORTY-NINTH PARALLEL. By R.A.

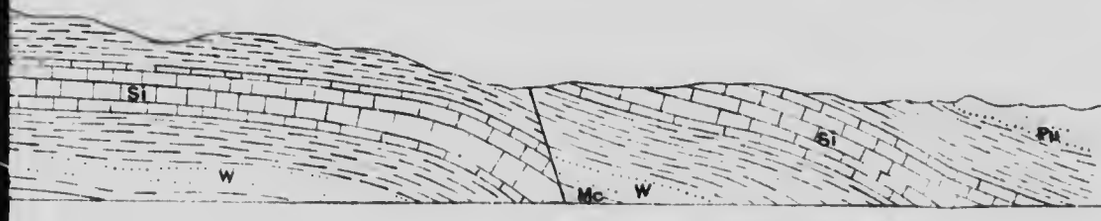
Scale: $\frac{1}{62500}$ = 0·9864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval 100 feet





Section along line A B

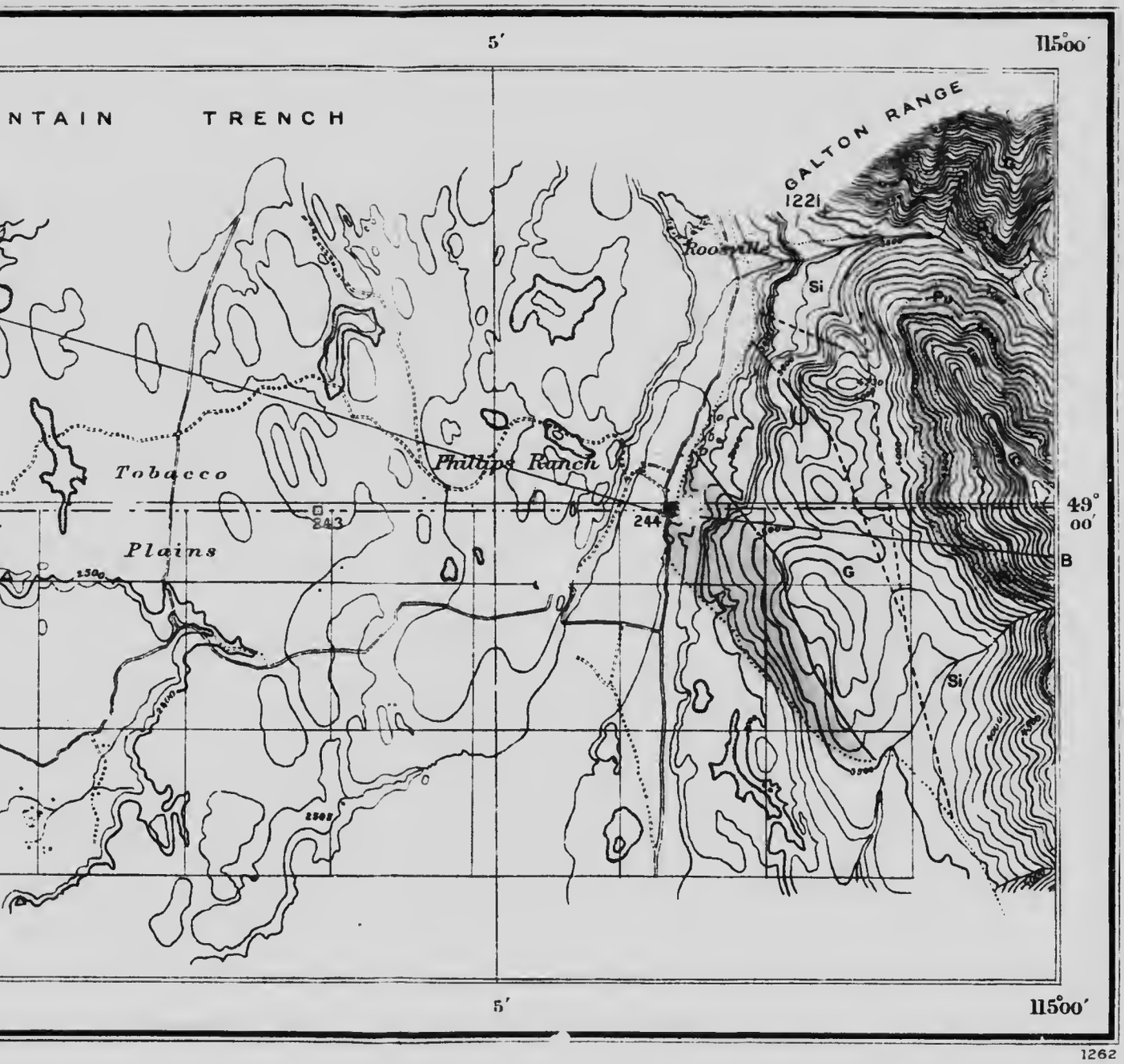
GEOLOGY OF THE FORTY-NINTH PARALLEL. By R.A. Daly.

Scale: $\frac{1}{62500}$ = 0·9864 Statute Miles to 1 Inch

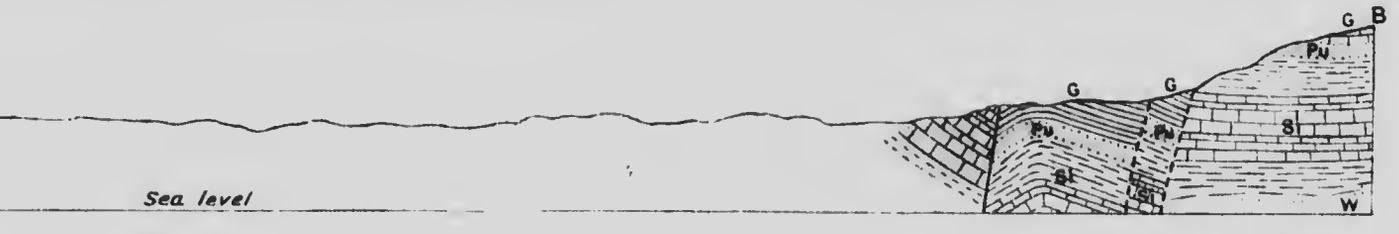
Miles

1 ½ 0 1 2 3 +

Contour interval, 100 feet



1262



MAP 76 A

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SHEET 4.—YAKH

Bounda
“
“
“
“
“
“
“
“
“
“
“
“
“

YAKH RANGE

ERRATA

Boundary	Monument	221	should	read	223
"	"	222	"	"	224
"	"	223	"	"	225
"	"	224	"	"	226
"	"	225	"	"	227
"	"	226	"	"	228
"	"	227	"	"	229
"	"	228	"	"	230
"	"	229	"	"	231
"	"	230	"	"	232
"	"	231	"	"	233
"	"	232	"	"	234
"	"	233	"	"	235
"	"	234	"	"	236

LEGEND

Chiefly MIDDLE CAMBRIAN(?)

M
Moyie formation
thin-to thick-bedded shales, metargillites and quartzites; white, grey, blackish, greenish & purplish

G
Gateway formation
chiefly thin-bedded, siliceous metargillites; some dolomite at base (Equivalent of lower part of Moyie formation)

Pu
Purcell lava
massive basic flows

Ke
Kitchener formation
thin-to thick-bedded greenish-grey quartzite and metargillite: somewhat dolomitic in places

Si
Siyeh formation
thin-to thick-bedded, greenish-grey metargillite, with massive, siliceous, magnesian limestone (Equivalent to up. Kitchener formation)

(?) LOWER CAMBRIAN(?) & BELTIAN CAMBRIAN(?)

W
Wigwam formation
thin-to-thick-bedded, red sandstone and metargillite (Equivalent of lower part of Kitchener formation)

C
Creston formation
generally thick-bedded grey quartzite and metargillite; sometimes dolomitic

CAMBRIAN(?)

Intrusive

Abnormal hornblende gabbro

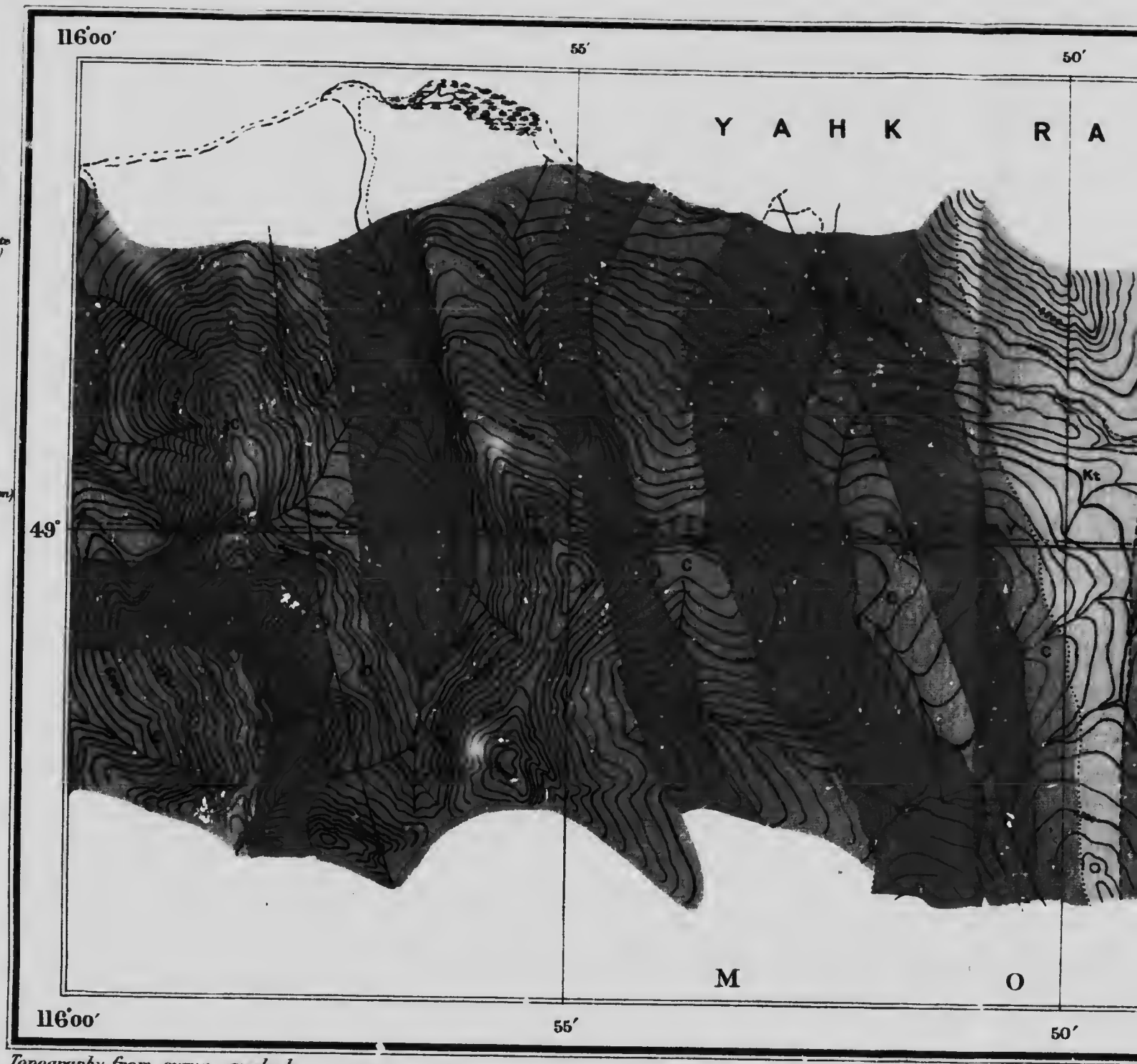
Symbols

Geological boundary

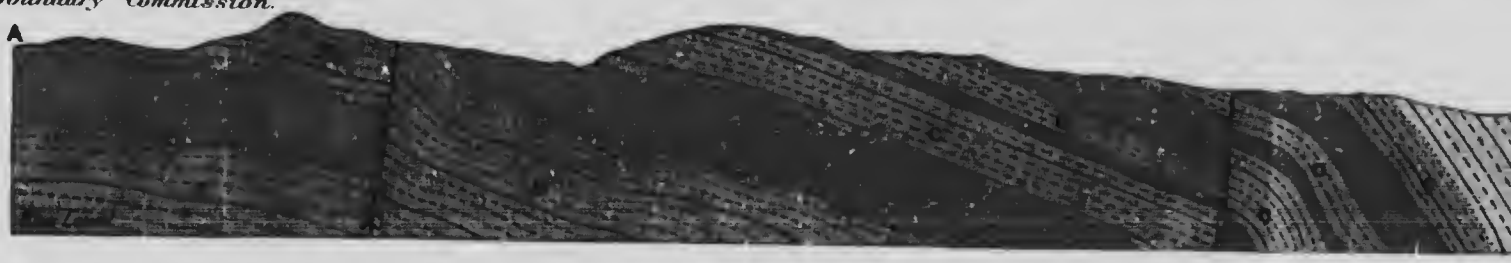
Fault

Glacial striae

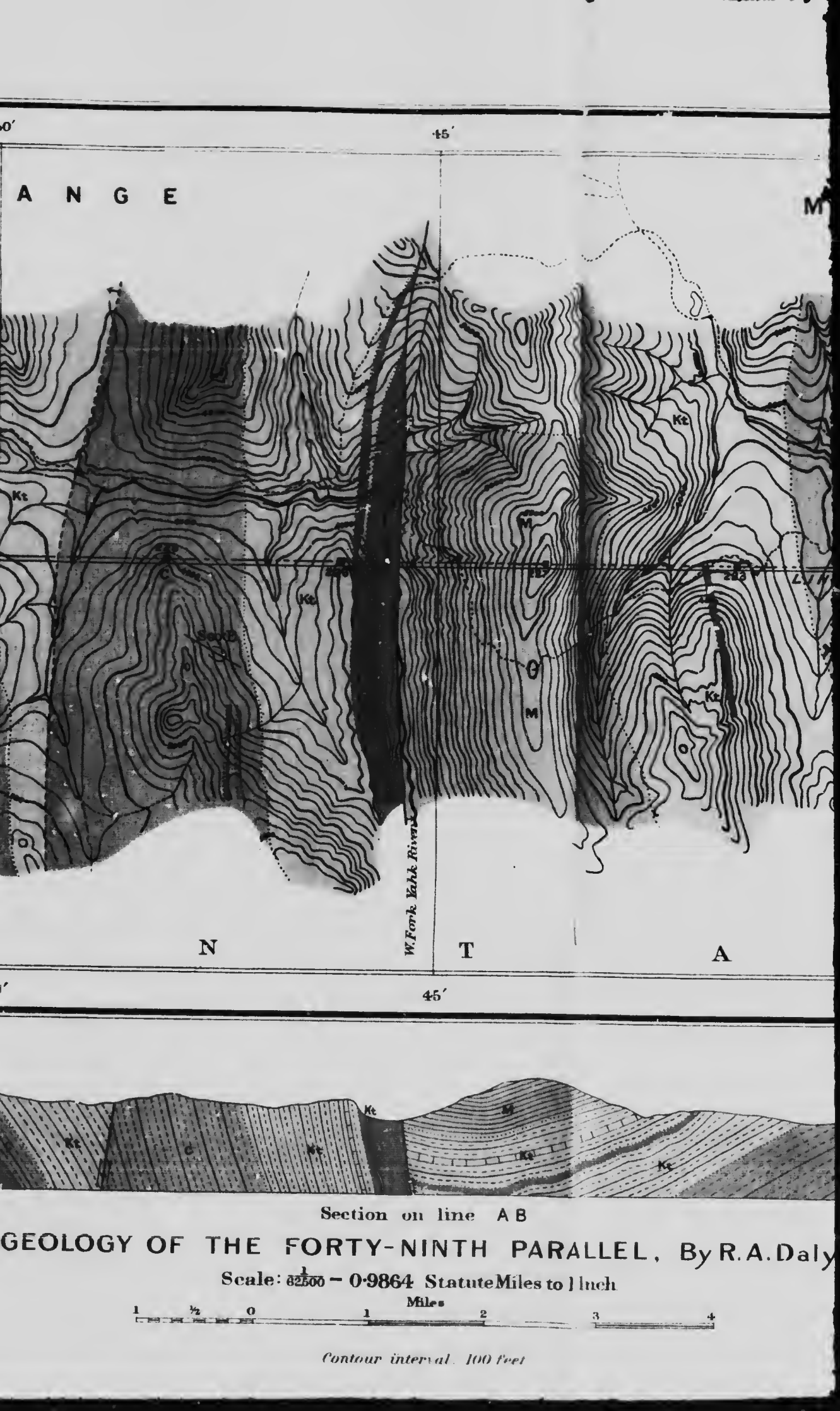
Note. *Localities of chemically analyzed rocks, shown thus,* + 1164



Topography from surveys made by the Boundary Commission.



GEO



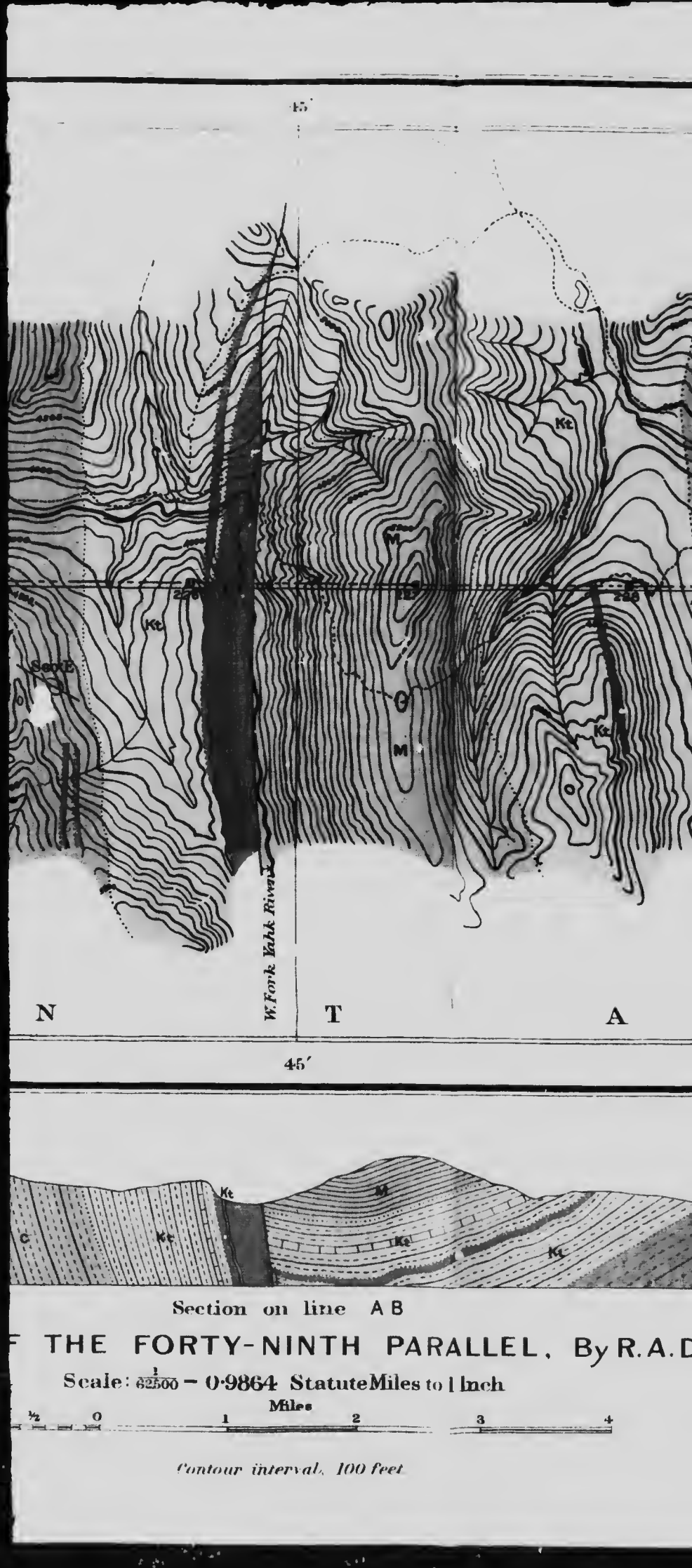
GEOLOGY OF THE FORTY-NINTH PARALLEL, By R. A. Daly

Scale: $\frac{1}{62500}$ – 0·9864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval, 100 feet



F THE FORTY-NINTH PARALLEL, By R. A. D

Scale: $\frac{1}{62500}$ – 0·9864 Statute Miles to 1 Inch

Miles

½ 0 1 2 3 4

Contour interval, 100 feet

40′ 35′ 115°30′

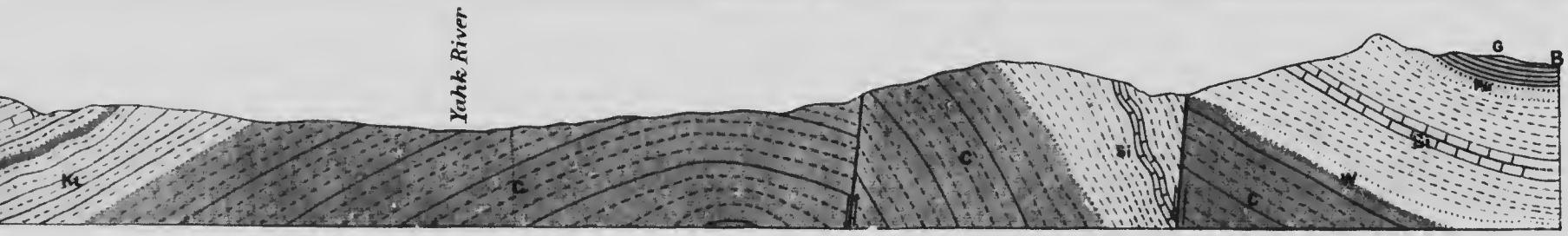
Mc GILLIVRAY RANGE

Yahk River

A N A

40′ 35′ 115°30′

1263



EL. By R.A. Daly.

MAP 77 A

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SHEET 5. M

Boundary M
"
"
"
"
"
"
"
"
"
"
"
"
"
"
"

5. MOYIE RANGE

ERRATA

ndary Monument 207 is 2.72 miles west of Mon 208
" " 207 should read 208
" " 208 " " 209
" " 209 " " 210
" " 210 " " 211
" " 211 " " 212
" " 212 " " 213
" " 213 " " 214
" " 214 " " 215
" " 215 " " 216
" " 216 " " 217
" " 218 is 0.02 miles east of Mon. 217
" " 217 should read 219
" " 218 " " 220
" " 219 " " 221
" " 220 " " 222

LEGEND

CAMBRIAN? | L.ᵉ CAMBRIAN & BELTIAN? | chiefly MIDDLE L.ᵉ CAMBRIAN? | MIDDLE CAMBRIAN? | RECENT

Alluvium

M

Moyie formation
thin-to thick-bedded shales, metargillite and quartzite, white, grey, blackish, greenish & purplish

Kt

Kitchener formation
thin-to thick-bedded, greenish-grey quartzite and interbedded metargillite

C

Creston formation
massive to thin-bedded, grey quartzite and subordinate metargillite

Intrusive

Abnormal hornblende gabbro

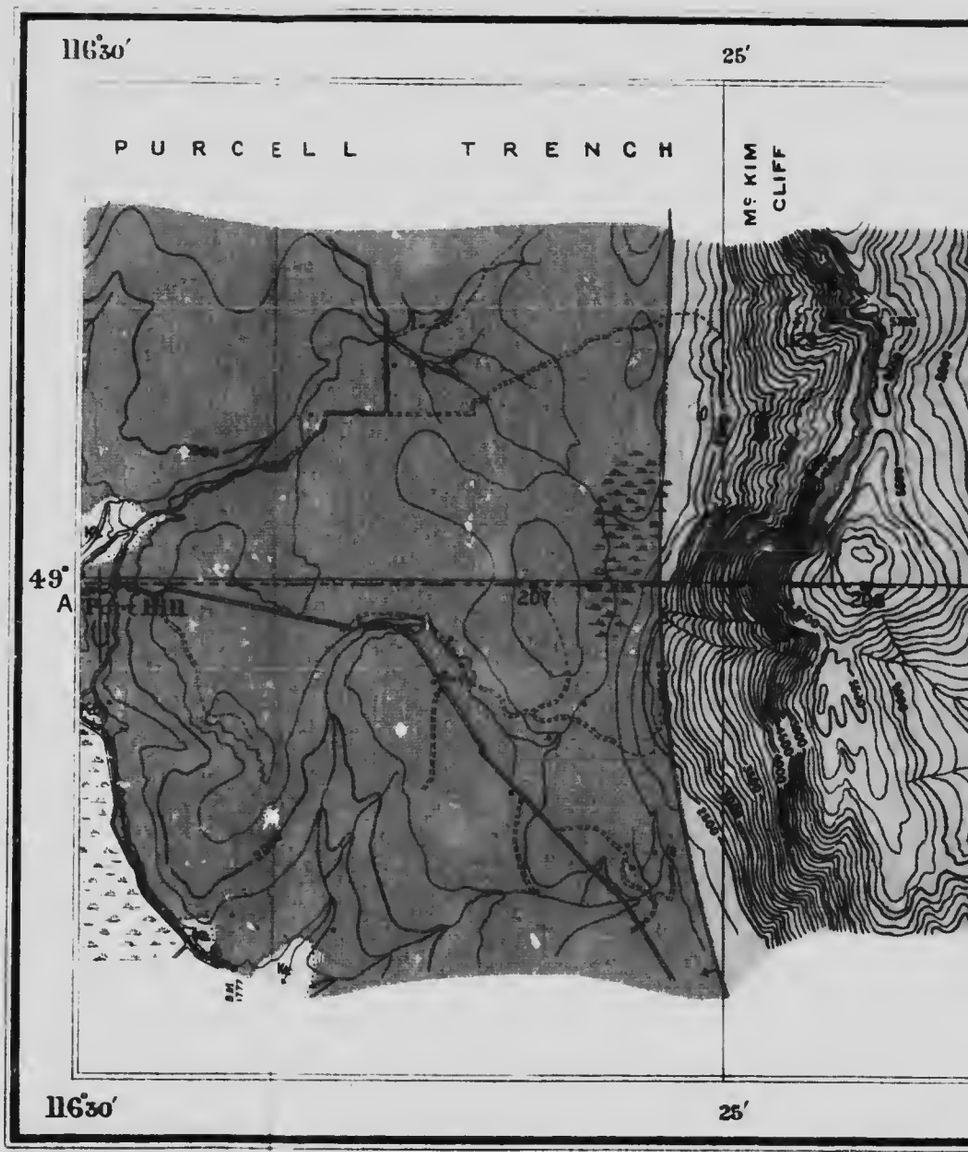
Symbols

Geological boundary

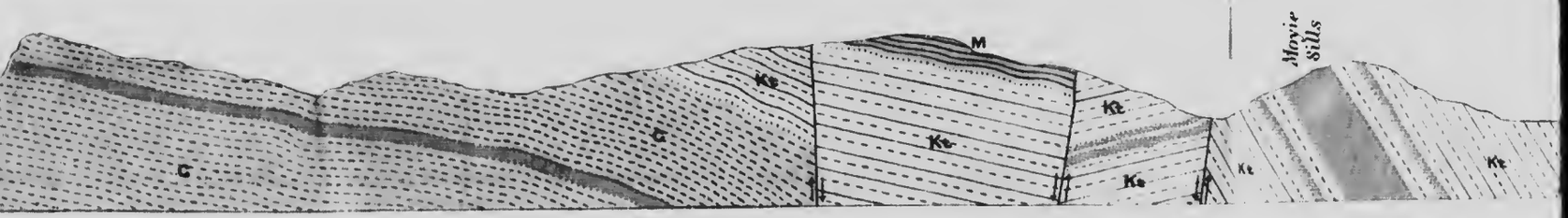
Fault

Glacial striae

Note. Localities of chemically analyzed rocks, shown thus +M34



Topography from surveys made by the Boundary Commission.



Section along line A B

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Da

Scale $\frac{1}{62500}$ = 0·9864 Statute Miles to 1 Inch

Miles

Contour interval, 100 feet

15′ 10′ 5′ 116°00′

Y A H K R A N G E

Moyie River

Kt

C

115°

114°

MOYIE MT.

215 216 217 218 219 220

LINE OF SECTION

49°

B

H O M O N T A N A

15′ 10′ 5′ 116°00′

1264

Moyie sills

Moyie River

Kt

C

q

B

long line A B

INTH PARALLEL, By R.A. Daly.

Statute Miles to 1 Inch

Miles

2 3 4

erval, 100 feet

MAP 78 A

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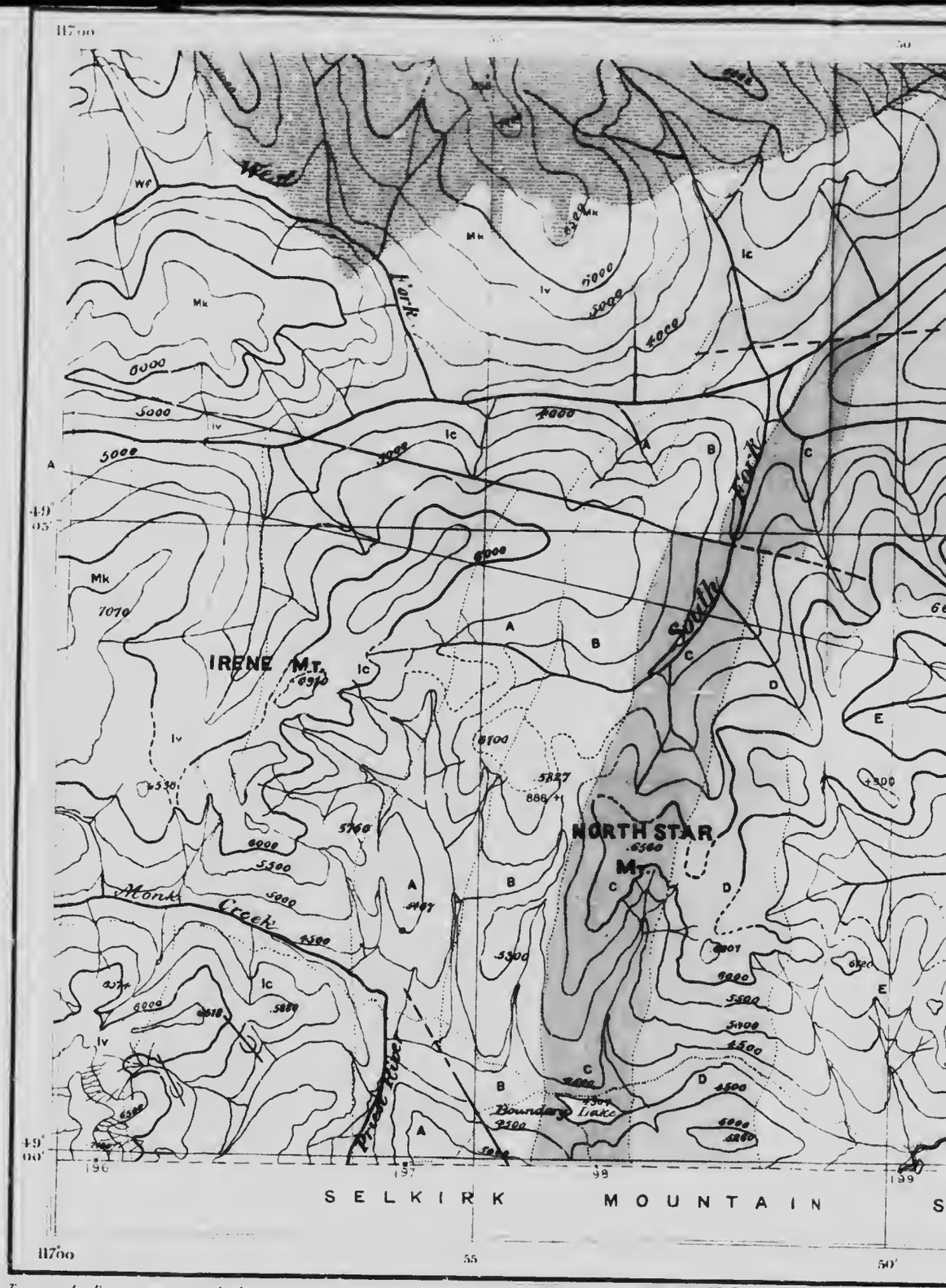
SHEET 6.—PURCEL

PURCELL TRENCH



PRE BELTIAN PRIEST RIVER TERRANE

BELTIAN — LOWER CAMBRIAN (?) to MID CAMBRIAN

Mk — Monk Formation

Iv — Irene volcanic formation

Ic — Irene conglomerate

A

B

C

D

E

F

G

CAMBRIAN — JURASSIC TERTIARY

Intrusive

Bayonne batholith

Rykert batholith

Abnormal hornblende granite

Abnormal hornblende gabbro

Greenstone

Symbols

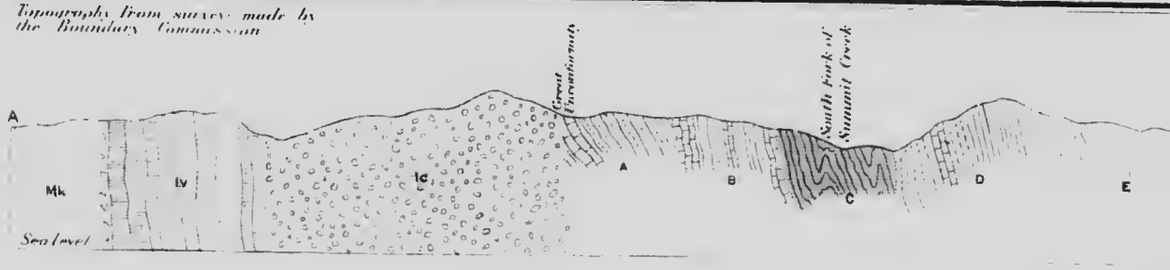
Geological boundary

Fault

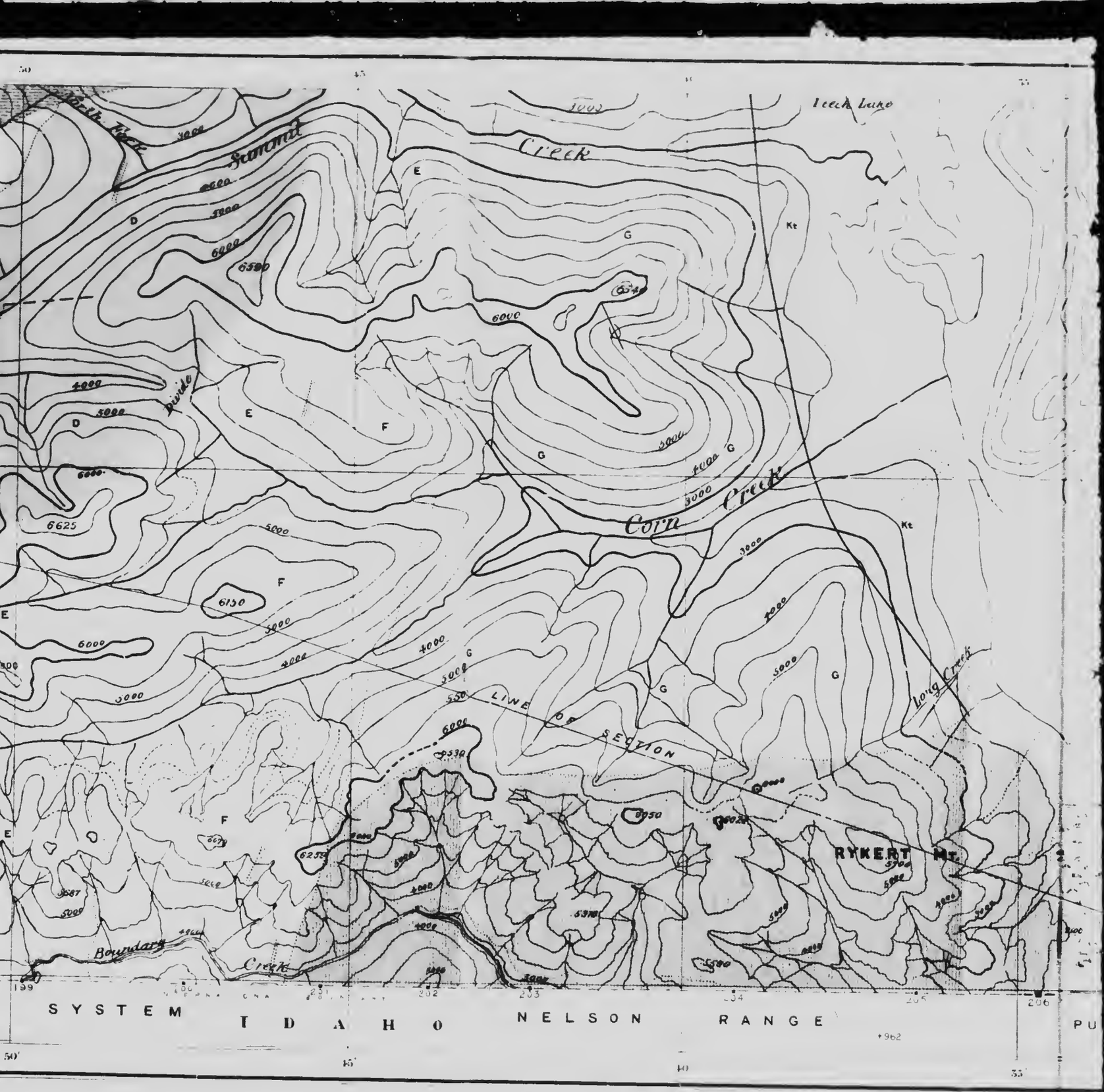
Glacial striae

Note

Topography from surveys made by the Boundary Commission



GEO



Section along line A B

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: $\frac{1}{62500}$ 0·9864 Statute Miles to 1 Inch

Miles

Contour interval 500 feet

Kootenay River

B

AB

H PARALLEL. By R. A. Daly.

Miles to Inch

MAP 79A

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SHEET 7. PEND D' OR

D' OREILLE RIVER

LEGEND

TERTIARY

Bs — Beaver Mountain sediments

Bv — Beaver Mountain volcanics

Rv — Rossland volcanic formation
Flows and pyroclastic deposits of augite andesite and basalt

CARBONIFEROUS (?) CRETACEOUS

Pend D'Oreille limestone
white to blueish massive marbles

CARBONIFEROUS ORDOVICIAN

PD — Pend D'Oreille schist
carbonaceous phyllite with quartzitic and amphibolitic intercalations

MIDDLE CAMBRIAN (?) chiefly

L — Lone Star formation
dark grey carbonaceous phyllite with quartz schist and quartzite

B — Beehive formation
banded quartzite with thin interbeds of metargillite

LOWER CAMBRIAN & BELTIAN

Rp — Ripple formation
massive white quartzite

D — Dewdney formation
banded quartzite with conglomerate interbeds

WF — Wolf formation
massive greenish and arkose to very thick beds of subarkosic sandstone

BELTIAN

Mk — Monk formation
alternating phyllites and metamorphosed siliceous argillaceous and conglomerates, often calcareous

Iv — Irene volcanic formation
thick flows of pyroxene andesites with some pyroclastics

TERTIARY

Intrusive

Salmon river monzonite
stock

Granite
satellitic to Bayonne batholith

Olivine syenite
stocks

Symbols

Geological boundary

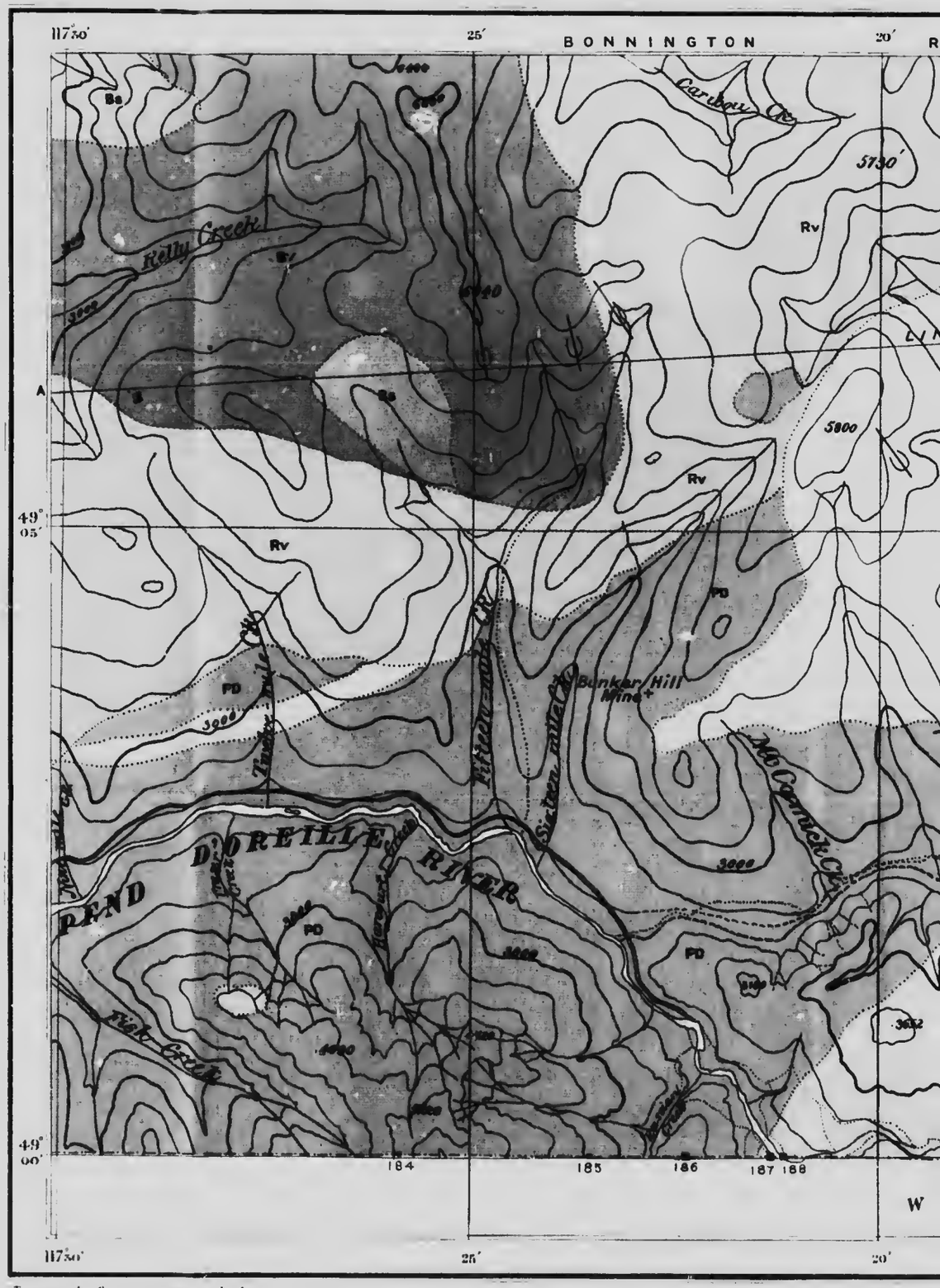
Fault

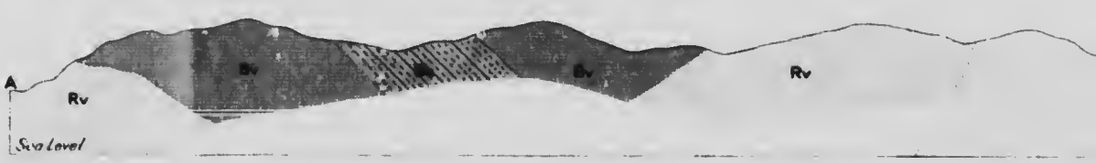
Glacial striae

Topography from surveys made by the Boundary Commission

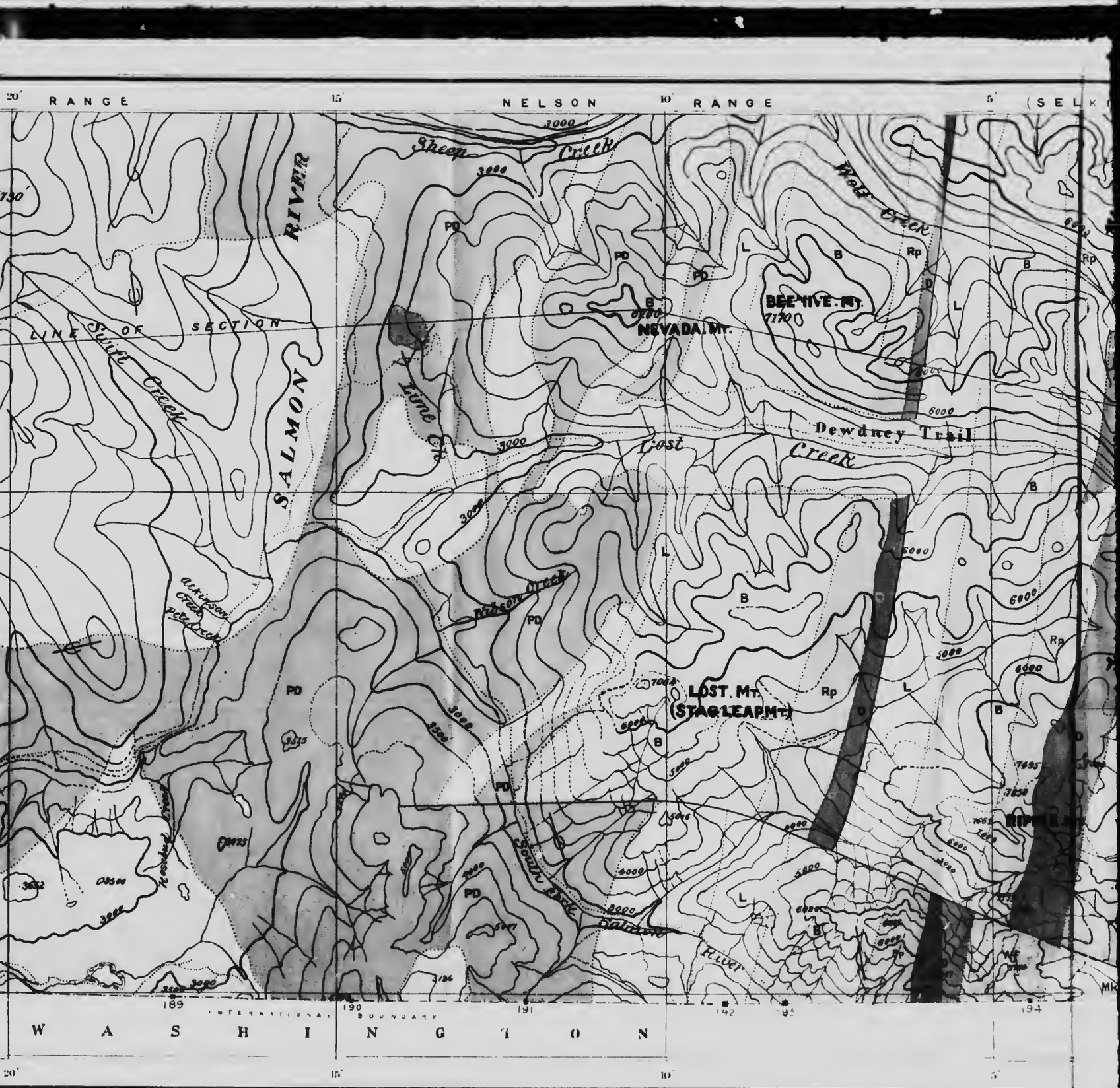
Note Somewhat numerous though narrow dikes of aplite cutting the schists in the Pend D'Oreille valley are not shown

Note Localities of chemically analysed rocks shown thus + 666





GEO



Section along line A B C

GEOLOGY OF THE FORTY-NINTH PARALLEL, By R.A. Daly.

Scale: $\frac{1}{2500}$ = 0.9864 Statute Miles to 1 Inch

Miles

Contour interval 500 Feet

NELSON 10' RANGE 5' SELKIRKS 117°00

Sheep Creek

Wolf Creek

SALMON RIVER

Lime Cr.

Lost Creek

Dewdney Trail

Nelson Creek

South Fork Salmon River

Mouk Cr.

NEVADA MT.

BEEHIVE MT.

LOST. Mt. (STAG LEAP Mt.)

PD Rp L B WF Mk lv

49° 05'

49° 00'

3000 4000 5000 6000 7000

190 191 192 193 194 195

H I N G T O N

IDAHO

5' 10' 5' 117°00'

Section along line ABC

ORTY-NINTH PARALLEL. By R.A. Daly.

000 09864 Statute Miles to 1 Inch

Miles

MAP 80A

SHEET 8. ROSSLAND M

LEGEND

TERTIARY

Conglomerate
fossiliferous on Sophie mountain

Bs
Beaver mountain sediments
grey and brown shales and sandstones

Bv
Beaver mountain volcanics
flows and pyroclastic deposits of andesite, andesite and basalt

CARBONIFEROUS TO CRETACEOUS

Rv
Rossland volcanic formation
Tuffs and pyroclastic deposits of latite, andesites and basalt

LOWER CRETACEOUS

Carbonaceous argillite, sandstone etc
fossiliferous

CARBONIFEROUS

Pend D'Oreille limestone
white marble fossiliferous

CARBONIFEROUS TO ORDOVICIAN

PD
Pend D'Oreille schist
carbonaceous phyllite with quartzite and greenstone intercalations

Intrusive

TERTIARY

Coryell batholith
hornblende-idonite syenite, pulaskite with phases of syenite porphyry

Sheppard granite
biotite granite, stocks and dikes

Shatterzone of Trail batholith

MESOZOIC

Trail batholith
granodiorite

Rossland monzonite
stock

Dunite and Serpentine
dikes and chanoliths

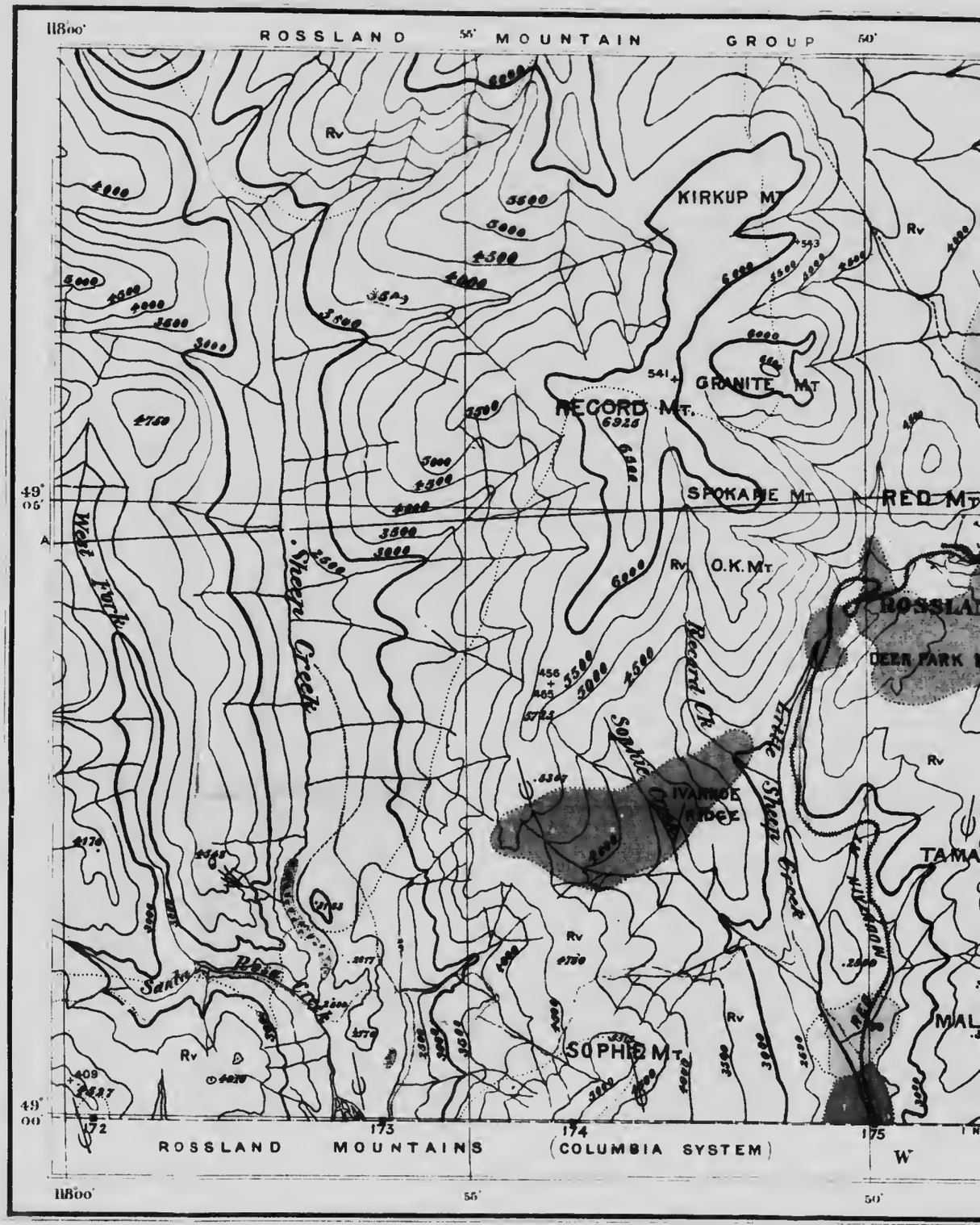
Symbols

Geological boundary

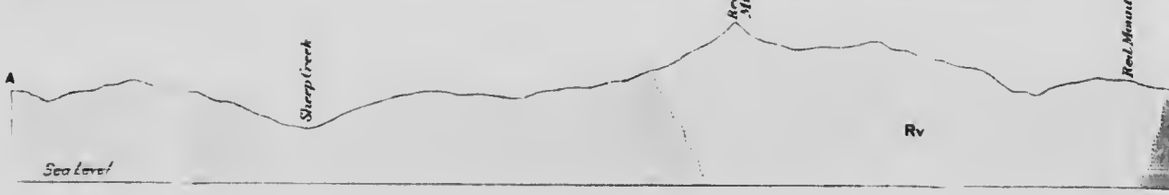
Glacial striae

Note Many minettes and other microlamprophyres cut the Pend D'Oreille schists in the Pend D'Oreille river area as well as the older rocks in the Rossland mining camp. Numerous porphyrite dikes syngenetic with the Rossland volcanics are not shown and apophysal dikes from batholiths and stocks are likewise not plotted.

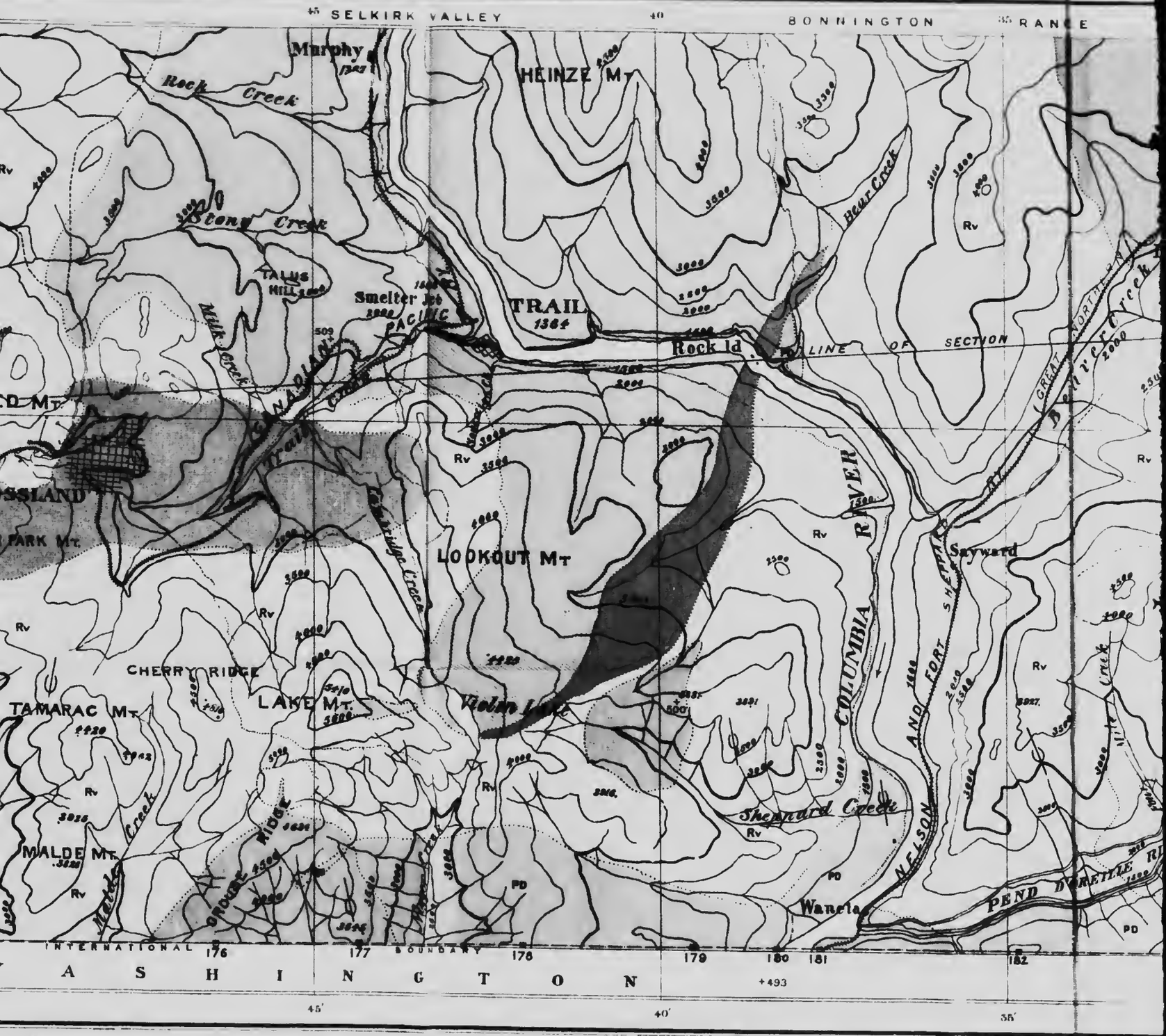
Localities of chemically analyzed rocks shown thus +409



Topography from surveys made by the Boundary Commission



GEOLOG

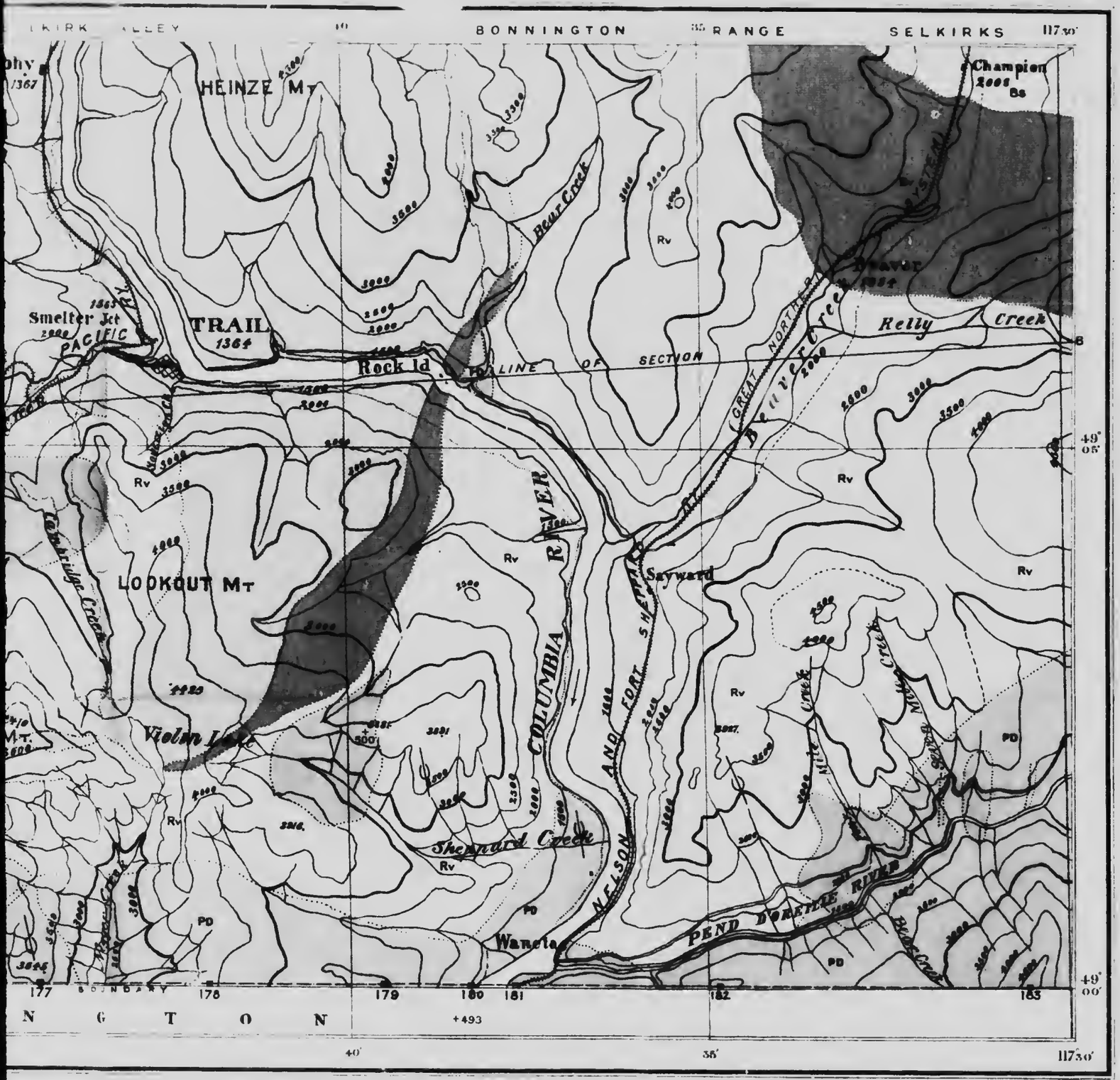


Section along line A B

OLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: ~~62500~~ = 0·9864 Statute Miles to Inch

Contour interval, 500 feet



MAP 81A

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SHEET 9. CHRIST

ERRATA

Boundary	Monument	156	should re	
"	"	157	"	"
"	"	158	"	"
"	"	159	"	"
"	"	160	"	"
"	"	161	"	"
"	"	162	"	"
"	"	163	"	"
"	"	164	"	"
"	"	165	"	"
"	"	165 is a few ya		
		track nea		

CHRISTINA LAKE

RATA

hould read 155
" " 156
" " 157
" " 158
" " 159
" " 160
" " 161
" " 162
" " 163
" " 164
a few yards east of the railway
rack near Laurier.

LEGEND

TERTIARY

Conglomerate

CARBONIFEROUS TO CRETACEOUS

Px

Phoenix volcanic formation
flows and pyroclastic deposits of augite andesite etc

Rx

Rossland volcanic formation
flows and pyroclastic deposits of latite andesites and basalt

CARBONIFEROUS PALAEOZOIC?

Su

Sutherland schists
phyllite quartz-sericite gneiss and metamorphic schists etc

Limestone
white to bluish marble

GF

Grand Forks schists
amphibolite, hornblende schists etc

Intrusive

MIOCENE?

Coryell batholith
hornblende biotite syenite, pulaskite

EOCENE?

Syenite porphyry
porphyritic phase of Coryell batholith

CRETACEOUS?

Olivine syenite

Barrabur[illegible]e

Bitter Creek peridotite

Fife gabbro

Baker gabbro

Dunite

JURASSIC?

Smelter stock
biotite granite

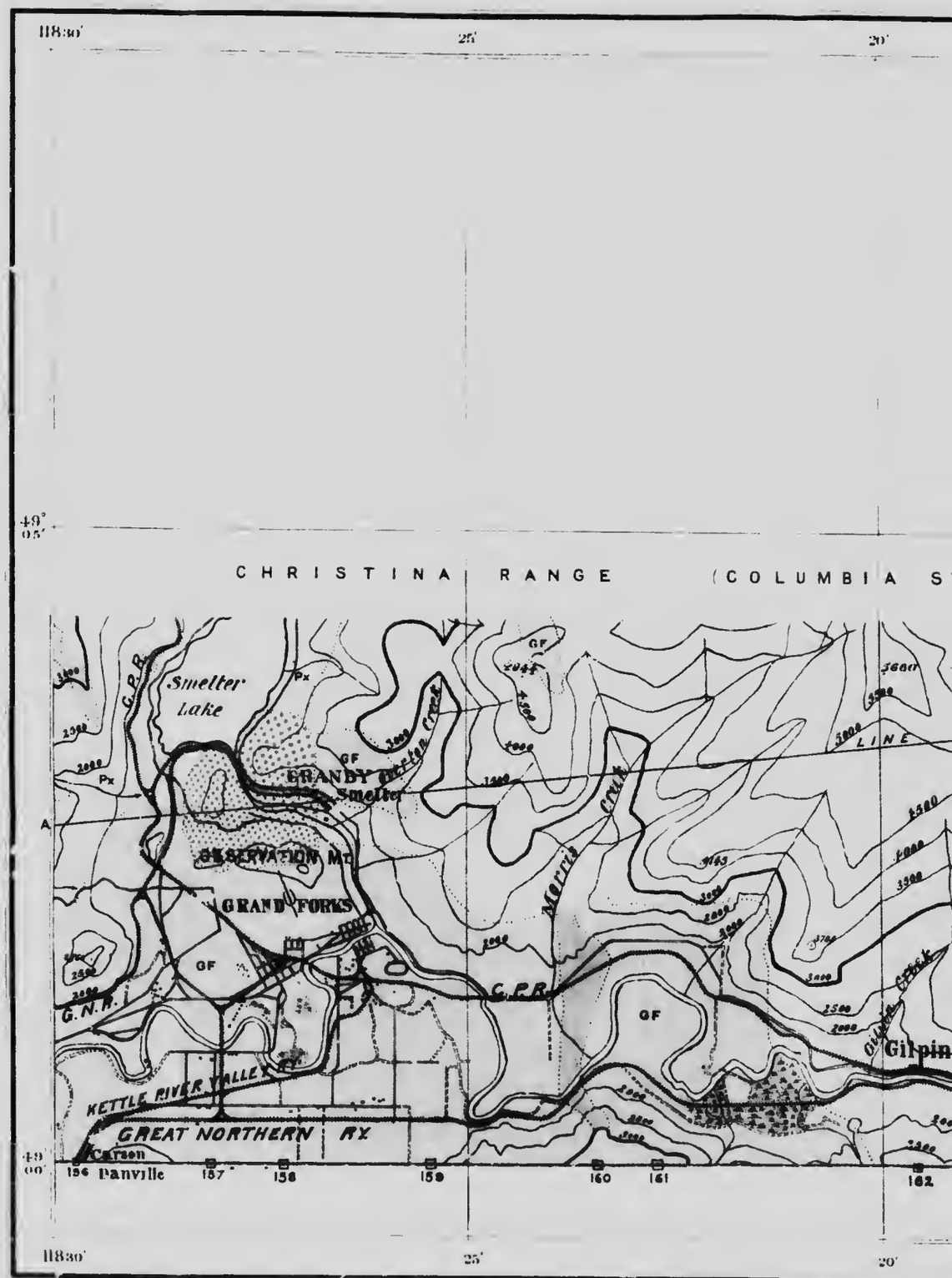
Cascade batholith
mesozonic biotite granite satellitic stock north of Castle mountain

Symbols

Geological boundary

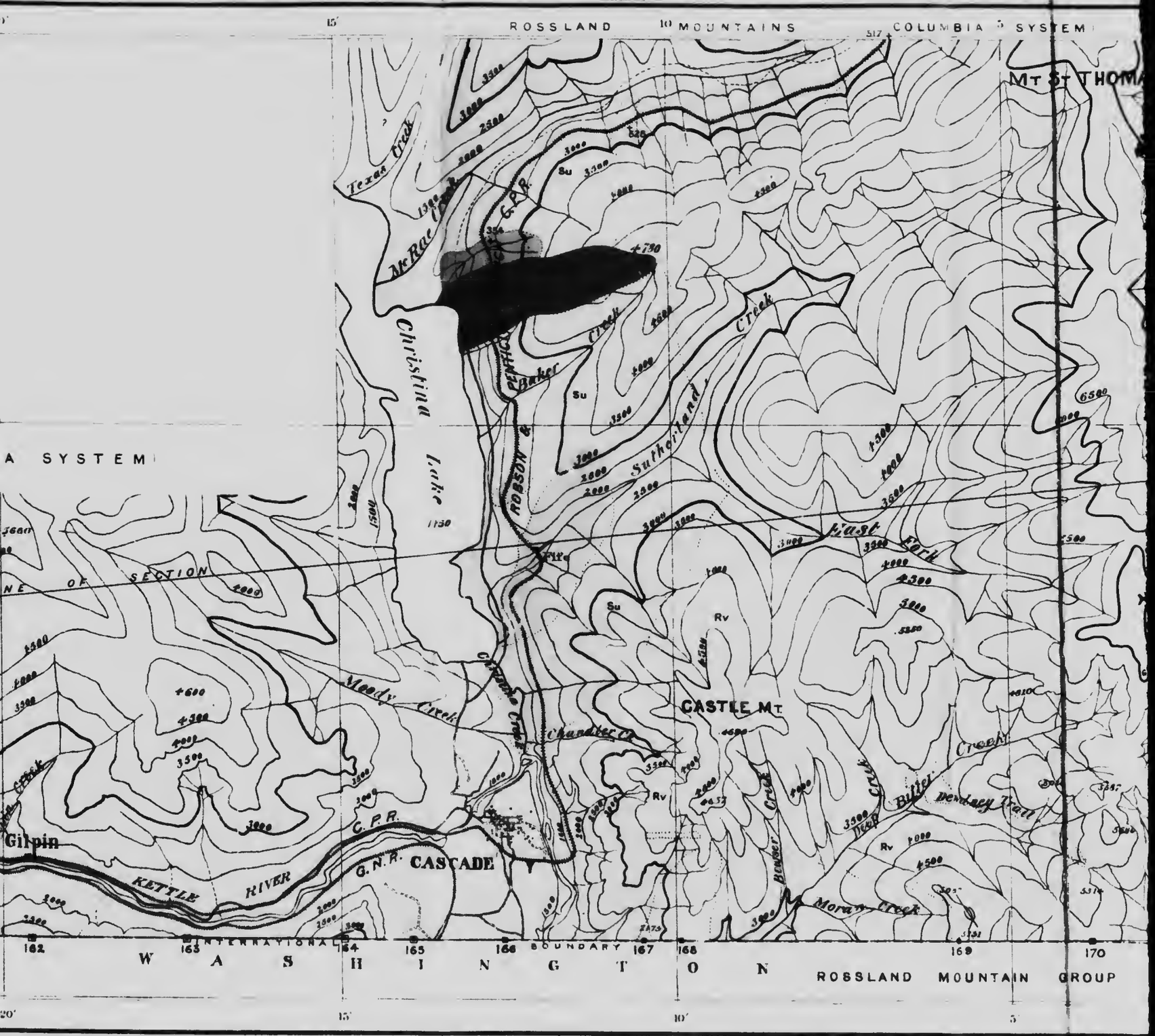
Glacial striae

Note — *Folded structure of Sutherland and Grand Forks schists in section merely diagrammatic*
Many exposed lakes show large intrusive masses not shown
Localities of chemically analysed rocks shown thus + 517



Topography from surveys made by the Boundary Commission

GEOL



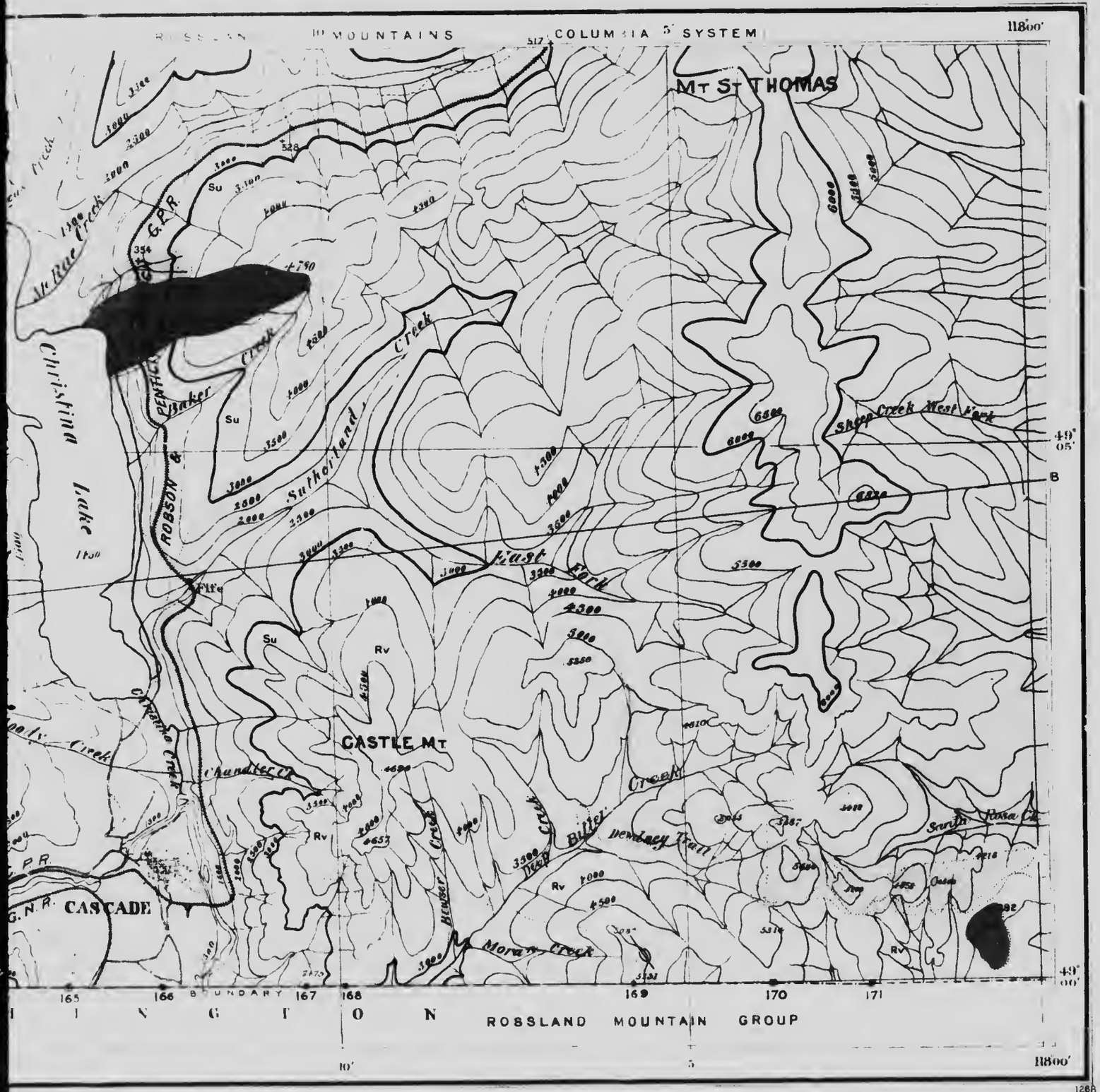
Section along line AB

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R.A. Daly.

Scale: 1/62500 — 0.9864 Statute Miles to 1 inch

Miles

Contour interval 500 feet



g line AB

TH PARALLEL. By R.A. Daly.

nute Miles to 1 Inch

MAP 2A

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SHEET 10. M

E

Boundary	Monume
"	"
"	"
"	"
"	"
"	"
"	"
"	"
"	"
"	"
"	"
"	"

ERRATA

Monument 144 should be deleted
" 145 should read 144
" 146 " " 145
" 147 " " 146
" 148 " " 147
" 149 " " 148
" 150 " " 149
" 151 " " 150
" 152 " " 151
" 153 " " 152
" 154 " " 153
" 155 " " 154

LEGEND

PLEISTOCENE & RECENT

Alluvium and glacial drift

(?) MIOCENE

Mc — Midway volcanic group
trachyte and analcitic rhomb-porphyry flows and pyroclastic deposits

Ma — Midway volcanic group
andesites and basalt; flows and pyroclastic deposits

OLIGOCENE

KR — Kettle river formation
sandstone, conglomerate, shale, arkose

CARBONIFEROUS TO TRIASSIC

Px — Phoenix volcanic formation
flows and pyroclastic deposits of augite andesite, etc.

(?) CARBONIFEROUS

At — Attwood series
argillite, quartzite, limestone

An — Anarchist series
quartzite, phyllitic shales, greenstones with some limestone pods.

Ls — Limestone
crystalline, bluish-grey to white

(?)

Ch — Chlorite and hornblende schist

GF — Grand Forks schist
amphibolite, hornblende schists, etc.

Intrusive

(?) MIOCENE

Pulaskite porphyry
dikes and sills

Rhomb - porphyry

OLIGOCENE

Porphyrite
chonolithe, dikes and sills

(?) JURASSIC

Granodiorite
stocks, dikes, etc

(?) CARBONIFEROUS

Serpentine
dikes, etc.

Symbols

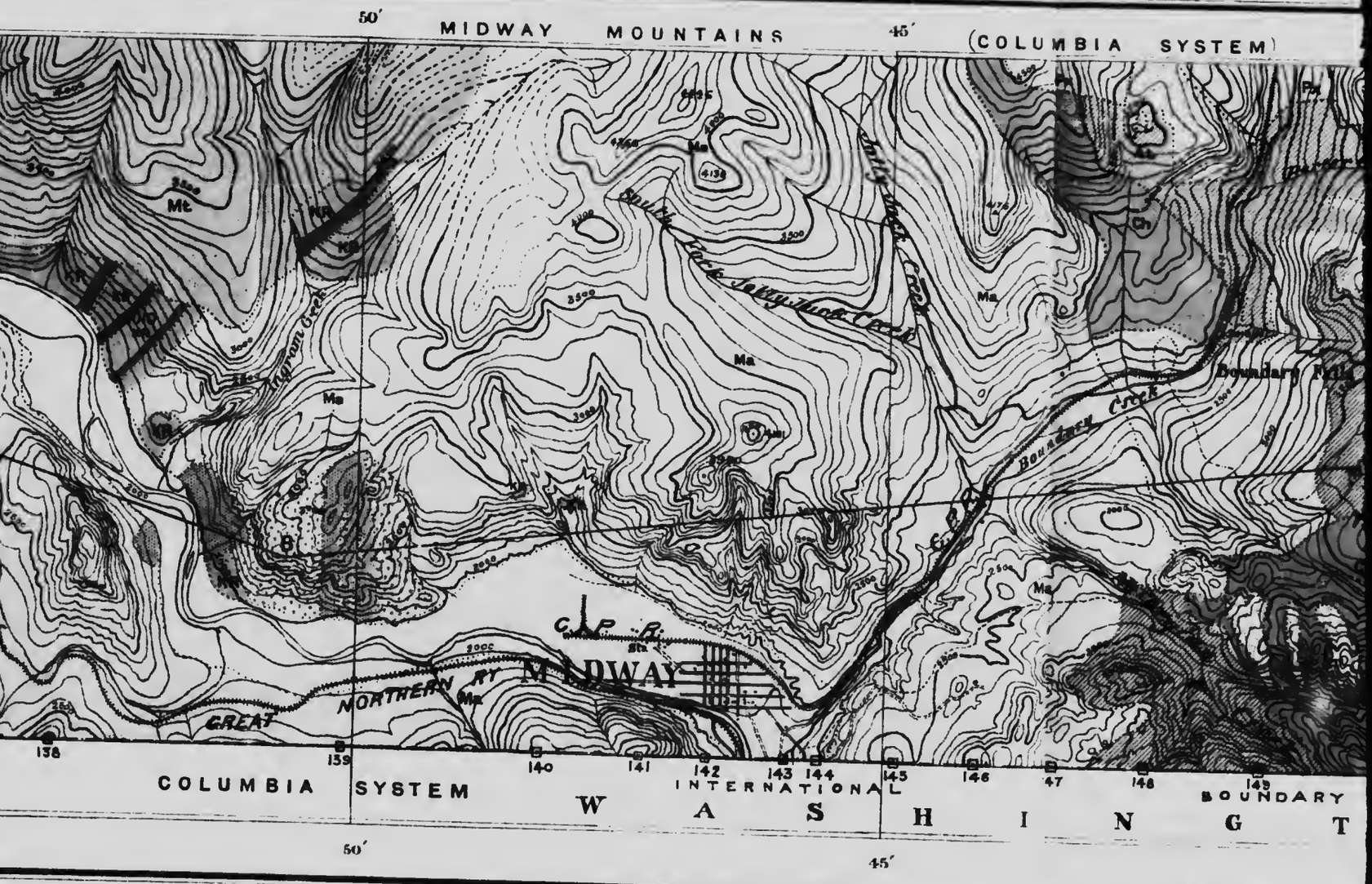
Geological boundary

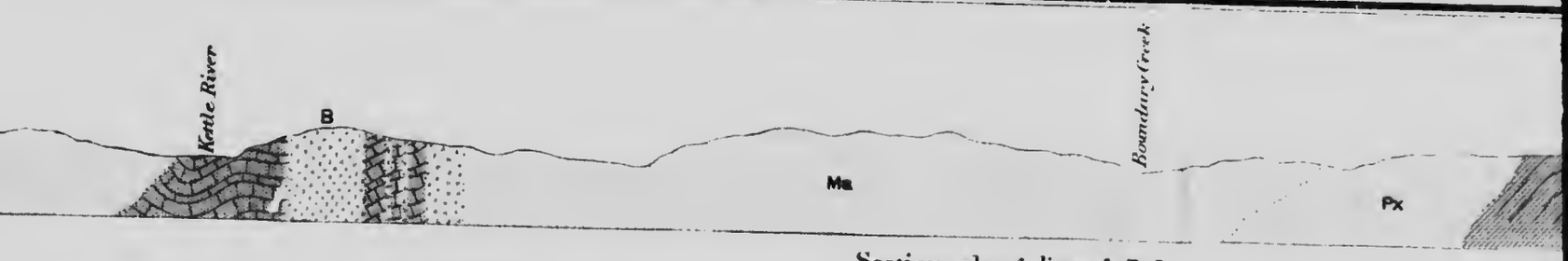
Glacial striae

Topography from surveys made by the Boundary Commission.

Note — *Structures shown in schists and limestone merely diagrammatic. On account of the small scale, many dikes and intrusive sheets of porphyrites and porphyries, as well as granodiorite apophyses are not plotted. Similarly many dikes which are cogenetic with the volcanics are not shown.*

Localities of chemically analyzed rocks, shown thus, + 1010





Section along line A B C

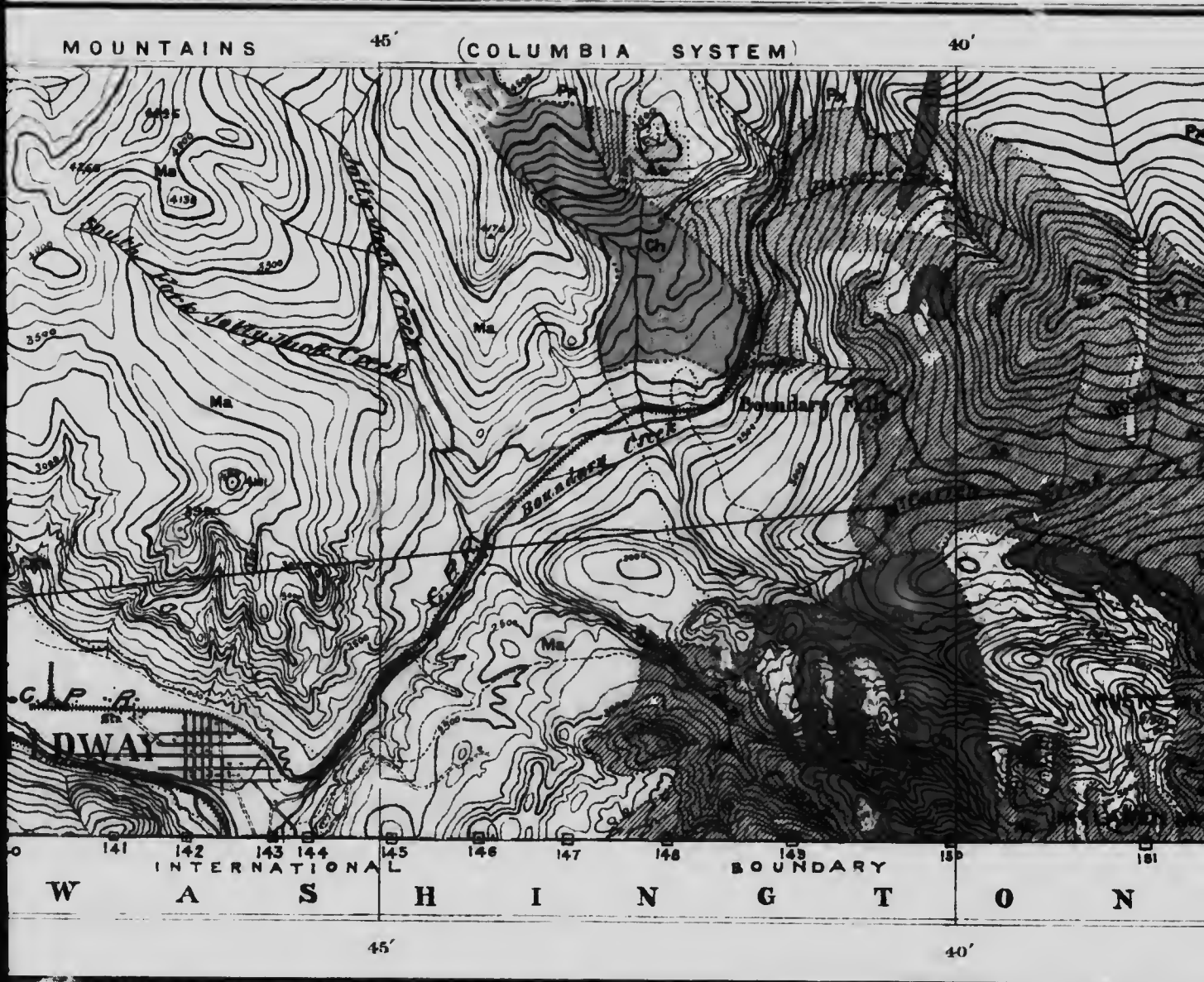
GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly

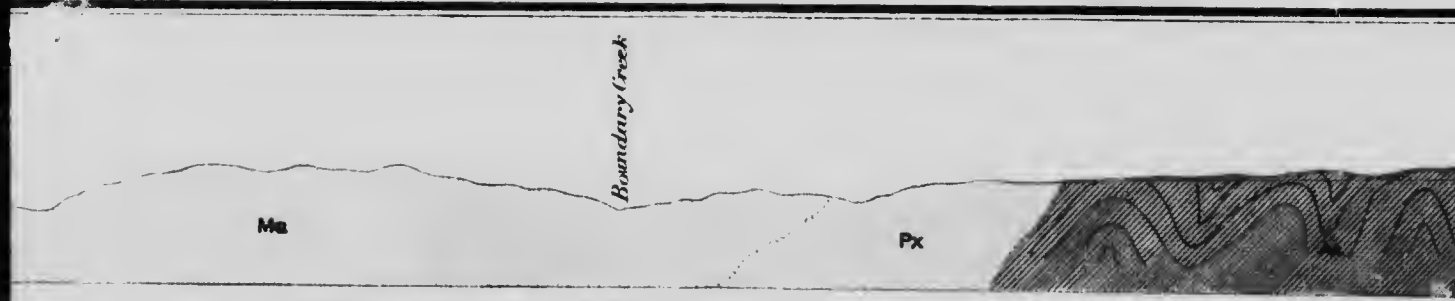
Scale: ~~1:2500~~ – 09864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval, 100 feet





Section along line A B C

OF THE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: ~~62500~~ — 09864 Statute Miles to 1 Inch

Miles

0 1 2 3 4

Contour interval, 100 feet

1269

MAP 85A

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SHEET 11. OSC

1. OSOYOOS

LEGEND

PLEISTOCENE & RECENT

Glacial drift and alluvium

(?) MIOCENE

Shack... flows (part of Midw... anic group)

Extrusive rhomb-porphyry
flows (part of Midway volcanic group)

OLIGOCENE

KR

Kettle river formation
sandstone, conglomerate, shale, arkose

(?) CARBONIFEROUS

Limestone of Anarchist series
white to bluish-grey, crystalline

(?) UPPER PALAEOZOIC

An

Anarchist series
quartzite, phillitic slates, greenstones, with limestone pods.

Intrusive

(?) MIOCENE

Intrusive rhomb-porphyry
chonolithe and dikes

(?) JURASSIC

Granodiorite

Osoyoos batholith
gneissic derivative of granodiorite

Diorite and gabbro

(?) LATE PALAEOZOIC

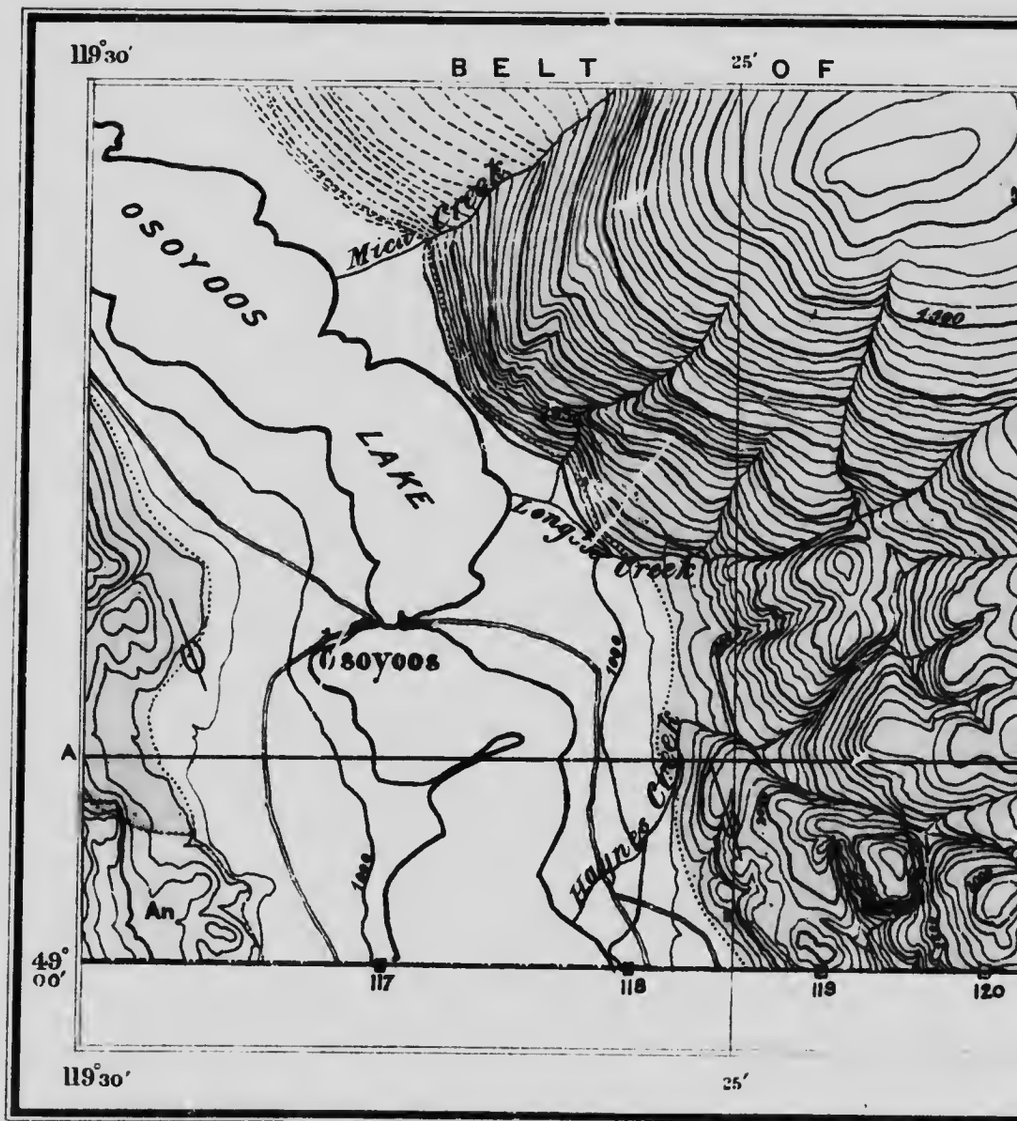
Dunite

Symbols

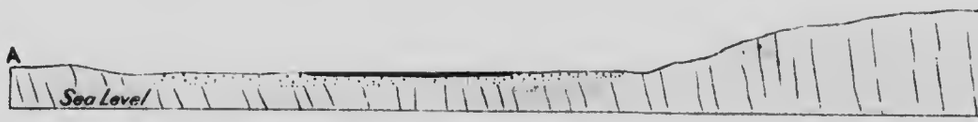
Geological boundary

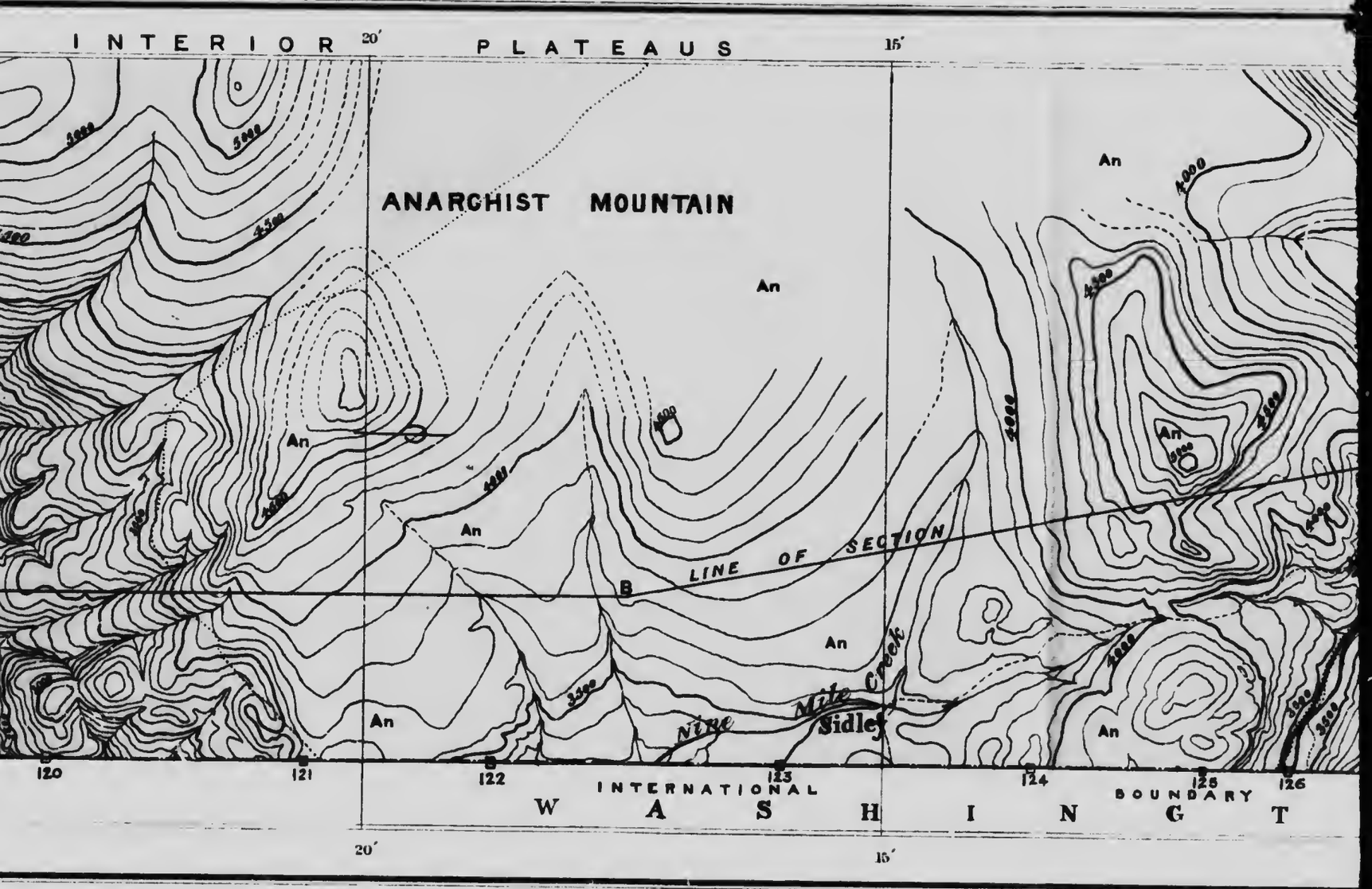
Glacial striae

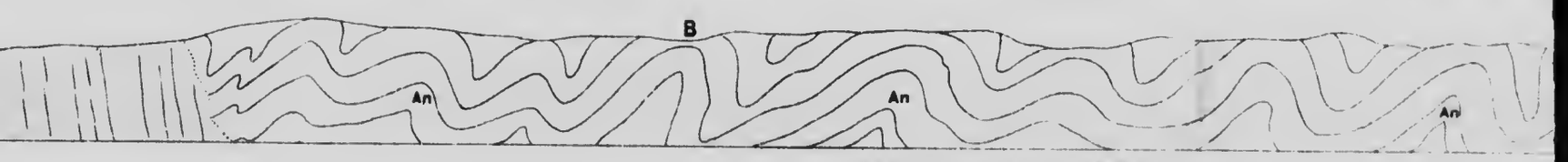
Note *Structures of Anarchist series, shown in the section, merely diagrammatic*
Localities of chemically analyzed rocks, shown thus. +295



Topography from surveys made by the Boundary Commission.







Section along line A B C

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly

Scale: ~~1/62500~~ 1/63360 — 09864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval 100 feet

15′ 10′ 5′ MIDWAY MOUNTAINS 119°00′

OF SECTION

S H I N G T O N

BOUNDARY

49° 00′

1270

Section along line A B C

RTY-NINTH PARALLEL. By R. A. Daly.

—09864 Statute Miles to 1 Inch

Miles

Contour interval, 100 feet

MAP 54 A

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SHEET 12. KRUGER MOU

R MOUNTAIN

LEGEND

UPPER PLEISTOCENE & RECENT

Glacial drift and alluvium

An

Anarchist series
phyllite, slate, quartzite, greenstone, amphibolite, with limestone pods

Intrusive

TERTIARY

Cathedral batholith
alkaline biotite granite

Similkameen batholith
granodiorite

Kruger alkaline body
malignite and eleolite syenite

JURASSIC(?)

Osoyoos gneissic batholith

LATE PALAEOZOIC(?)

Basic intrusives of Richter mountain

Peridotite

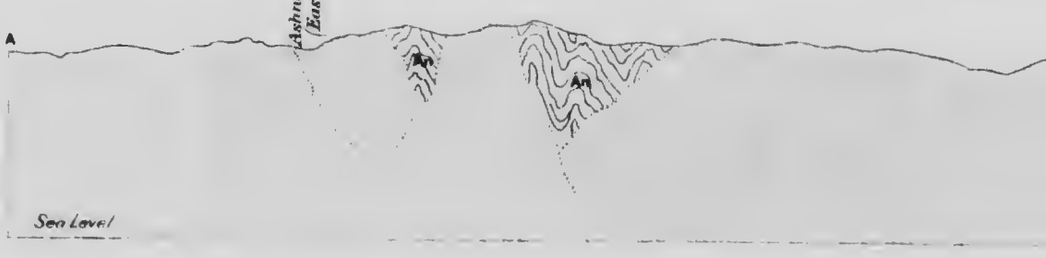
Symbols

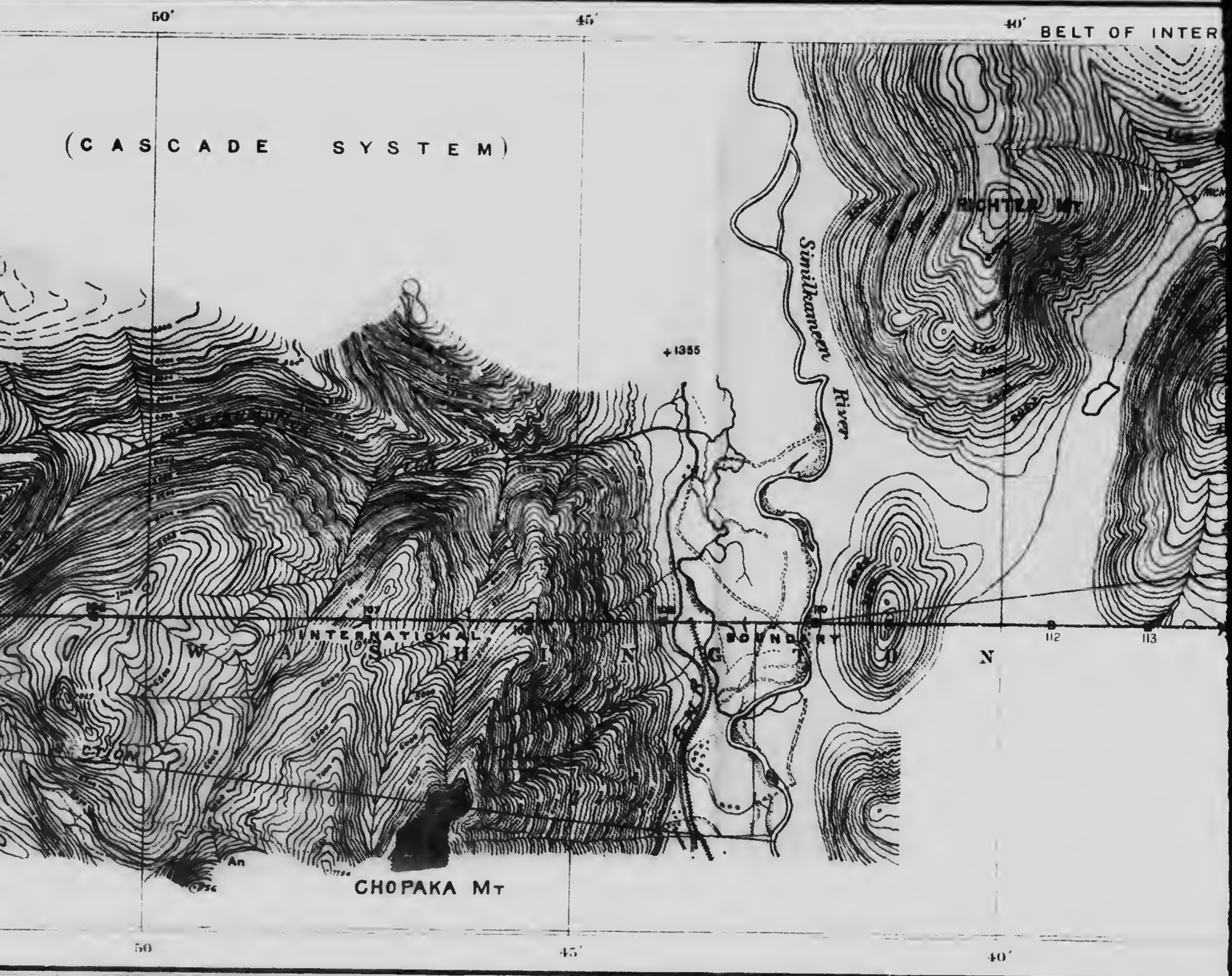
Geological boundary

Glacial strine

Note *Structure of Anarchist series, shown in section, merely diagrammatic.*
Localities of chemically analysed rocks shown thus +1100

Topography from surveys made by the Boundary Commission





Section along line A B

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: $\frac{1}{62500}$ = 0.9864 Statute Miles to 1 Inch

Miles

Contour interval 100 feet

45′ 40′ BELT OF INTERIOR PLATEAUS 35′ 119°30′

S T E M)

Similkameen River

KRUGER MOUNTAIN

OSOYOOS LAKE

+1355

Kilpoola Lake

SECTION

A

B

49°

112 113 114 115 116

N

CHOPAKA Mt

45′ 40′ 35′ 119°30′

1271

Similkameen River

A

B

Section along line A B

HE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: 62500 = 0·9864 Statute Miles to 1 Inch

Miles 0 1 2 3 4

Contour interval 100 feet

MAP 85 A

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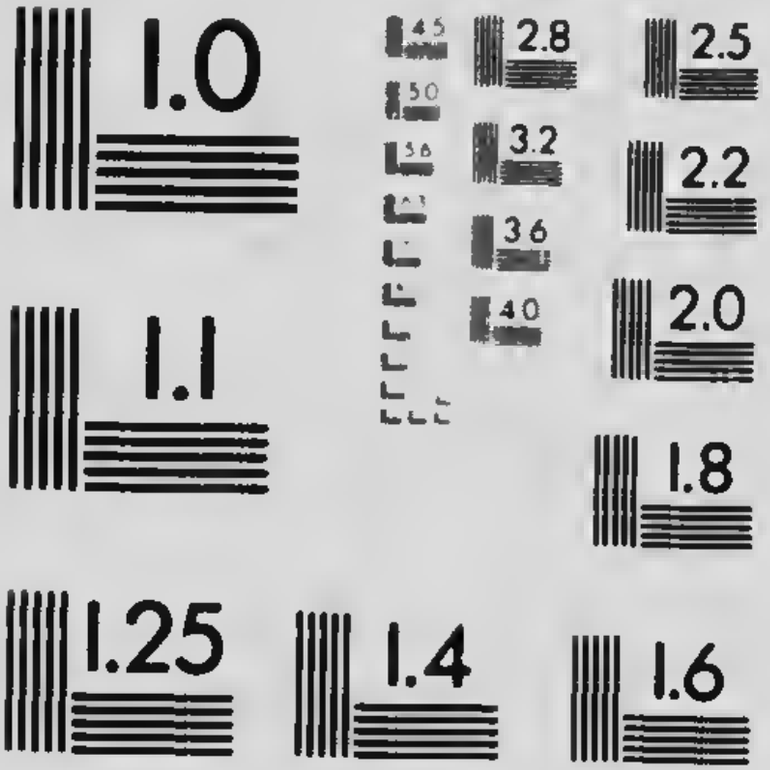
SHEET 13. OKANAGAN RANGE



LEGEND

PLEISTOCENE

Vesicular dikes of basalt *(Bauerman Ridge)* and andesite *(cutting Basic Complex)*

TERTIARY

Park granite stocks

Cathedral batholith
younger (more salic) phase

Cathedral batholith
older phase, alkaline biotite granite

LOWER CRETACEOUS

Agglomerate

JURASSIC (?)

Remmel batholith
Eastern phase: highly salic derivative of sheared granodiorite

Remmel batholith
Western phase; sheared granodiorite

LATE PALAEOZOIC (?)

Ashnola gabbro

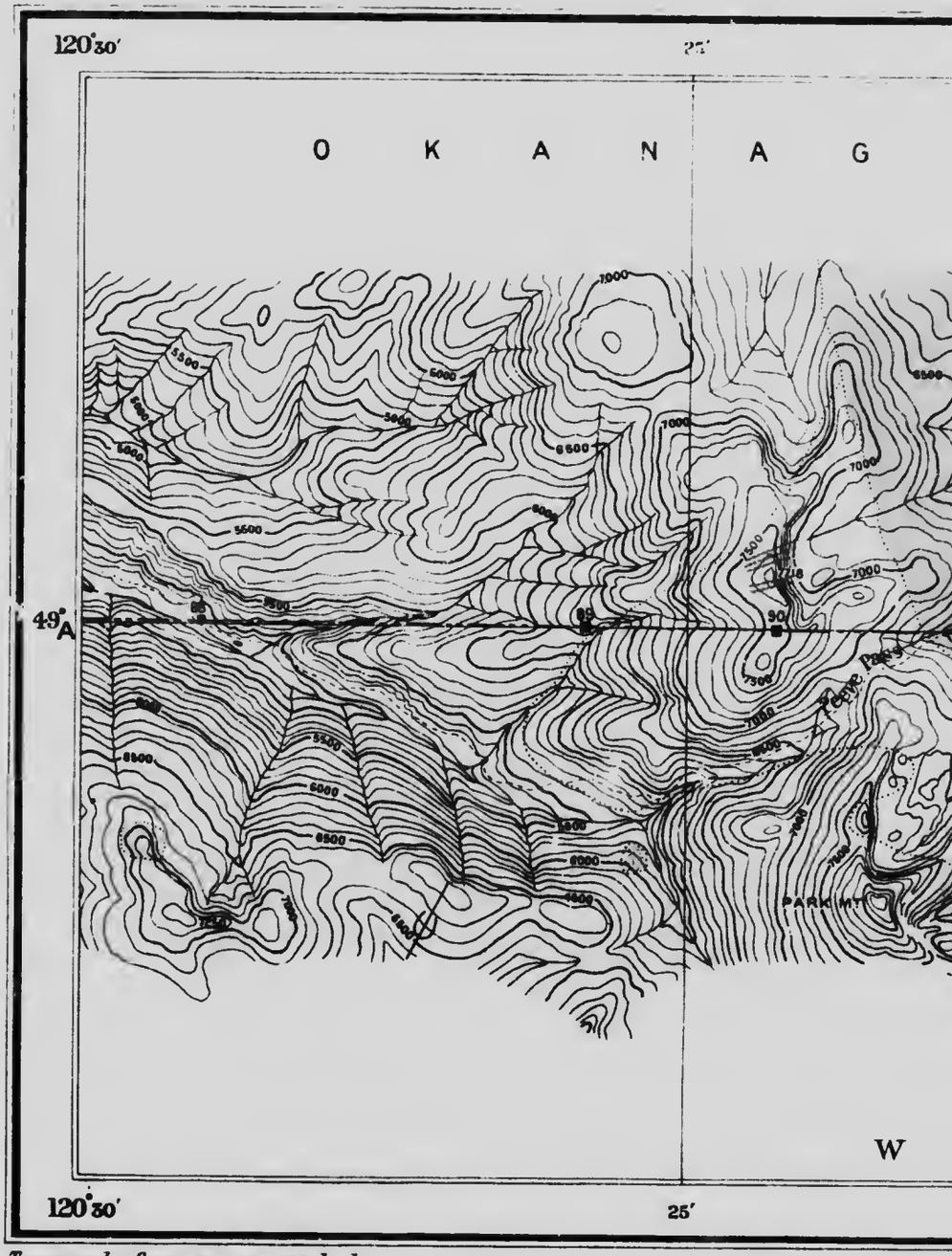
Basic complex

Symbols

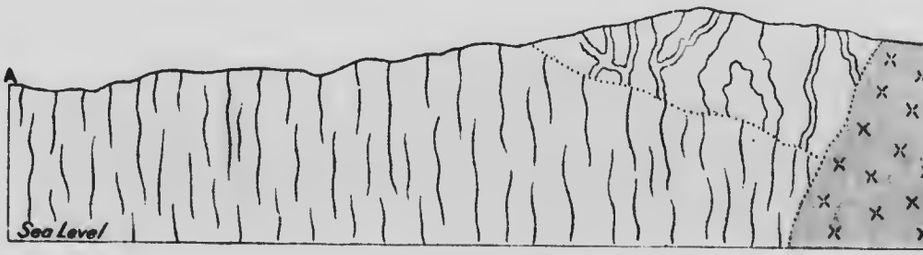
Geological boundary

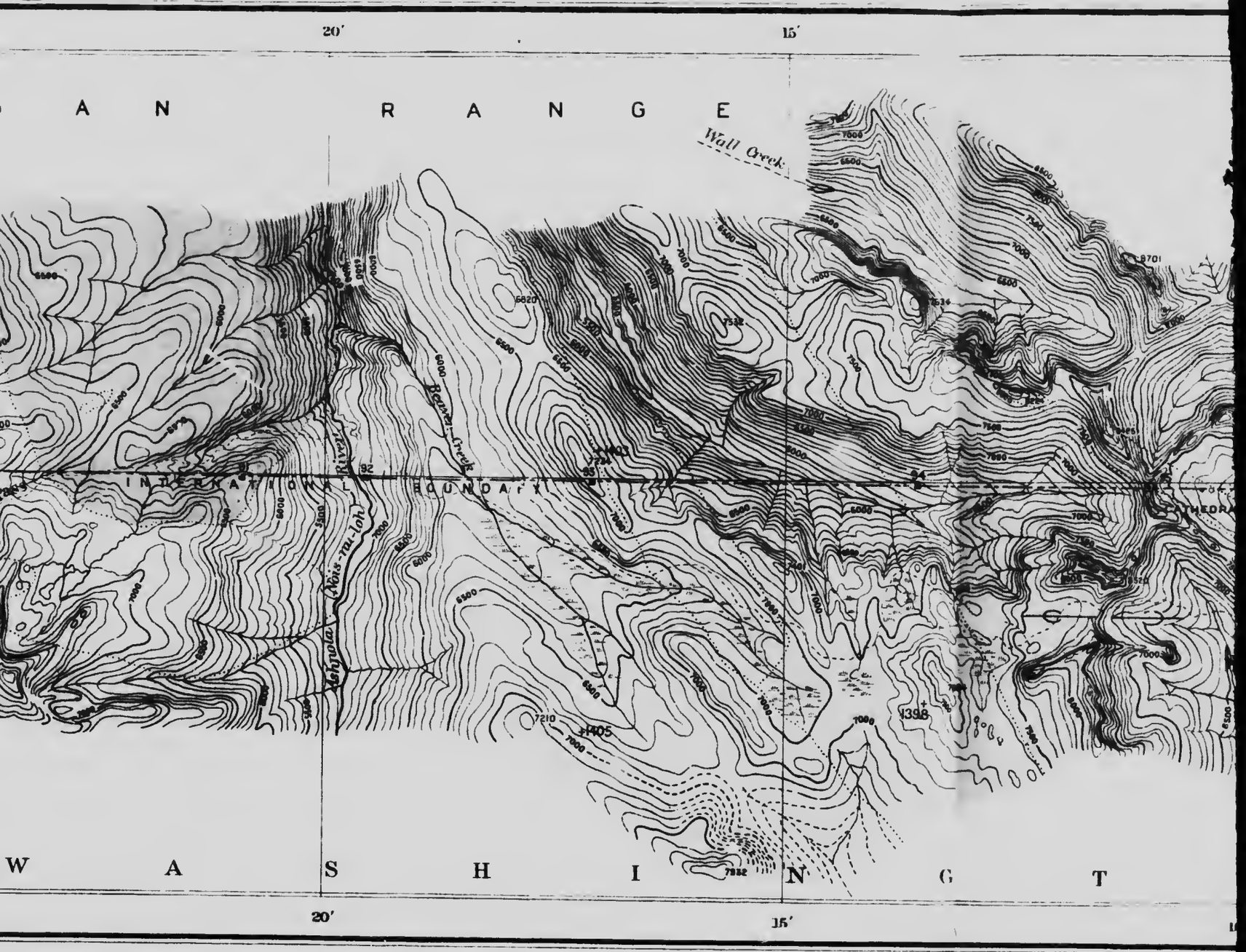
Glacial striae

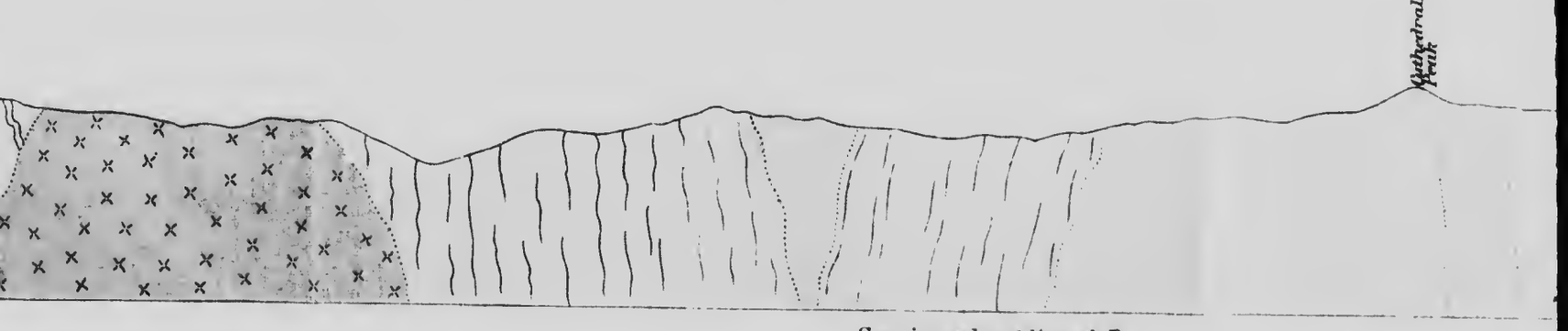
Note. *Localities of chemically analyzed rocks, shown thus,* + 1388



Topography from surveys made by the Boundary Commission.







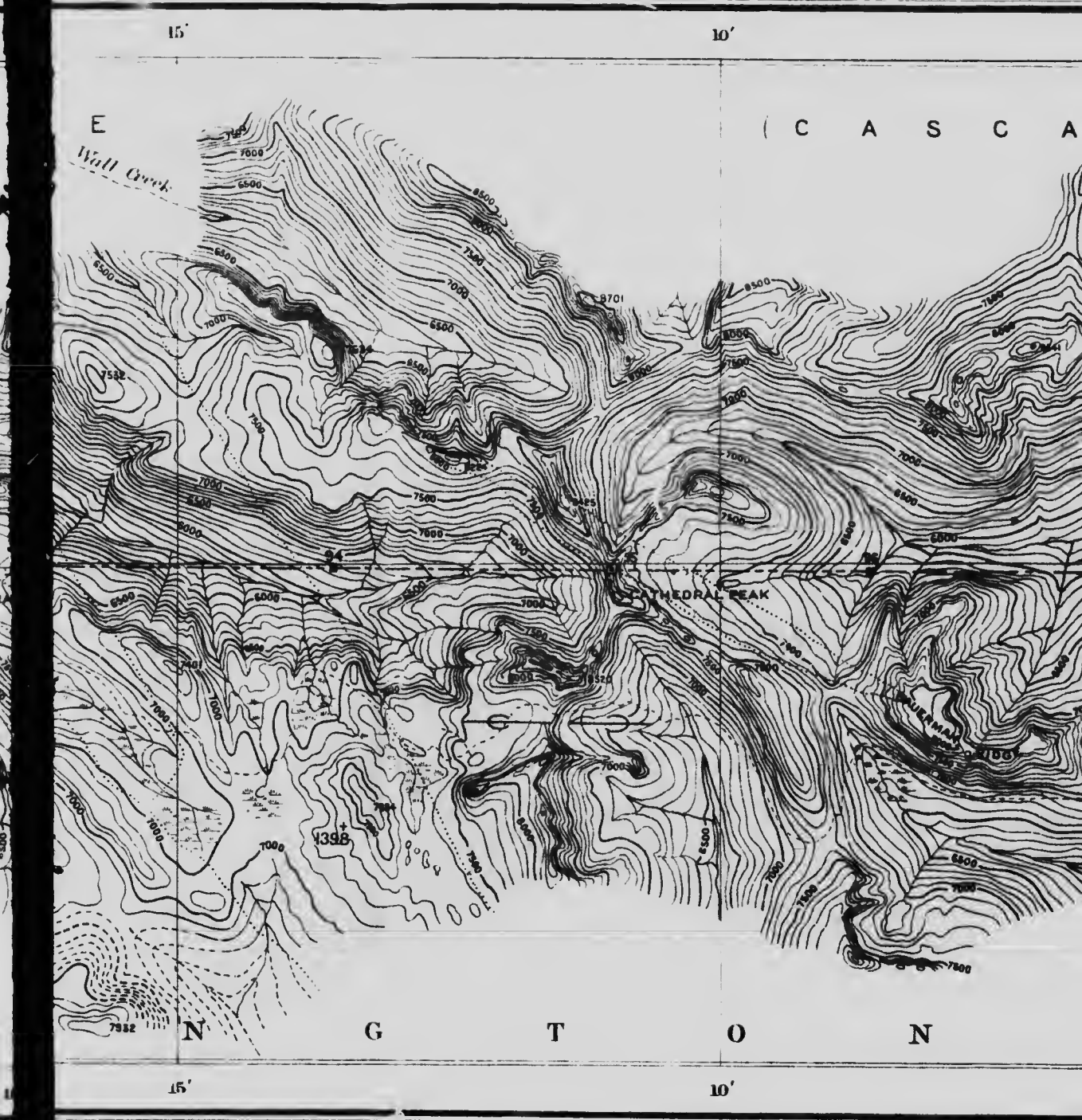
Section along line A B

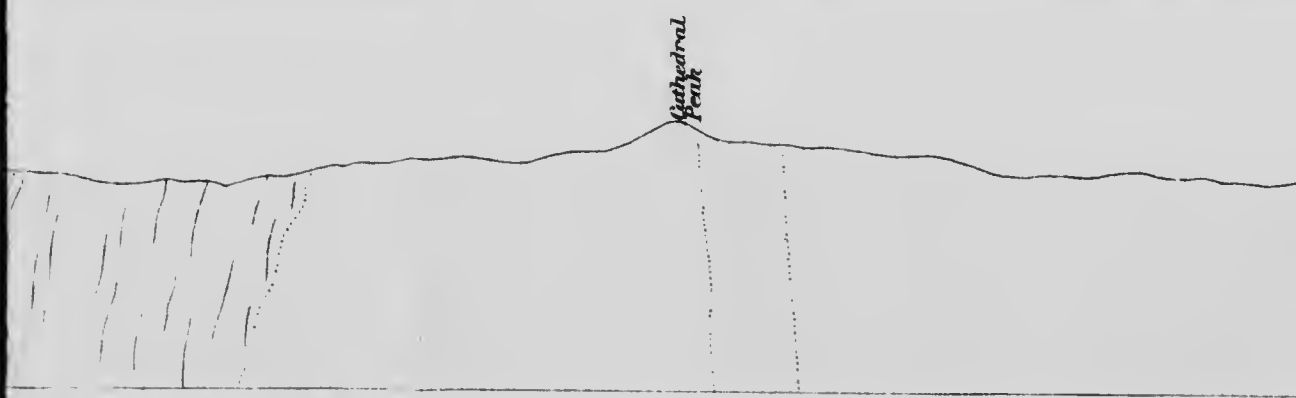
GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Daly.

Scale: $\frac{1}{62500}$ = 09864 Statute Miles to 1 Inch

Miles

Contour interval, 100 feet





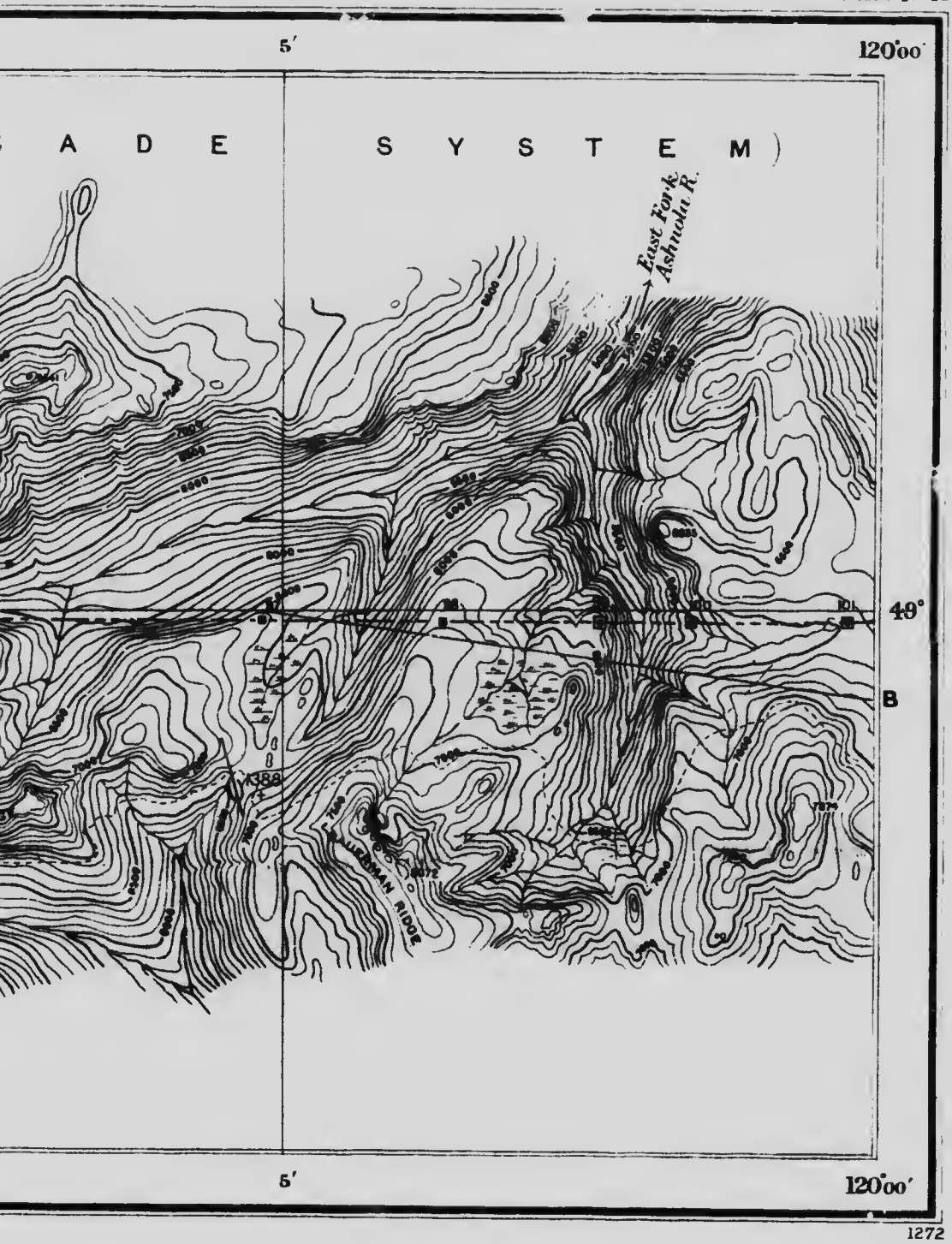
Section along line A B

RTY-NINTH PARALLEL, By R. A. Daly.

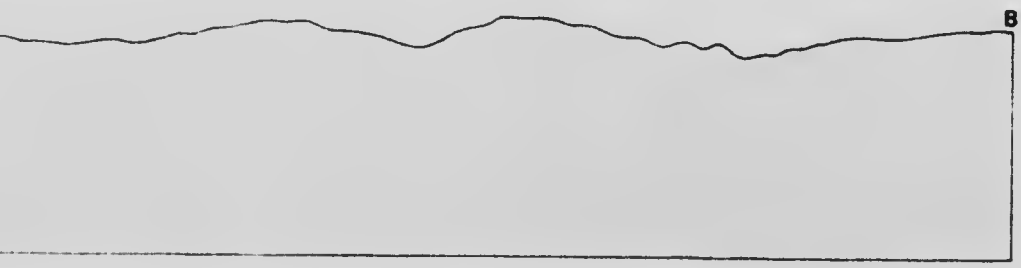
= 09864 Statute Miles to 1 Inch

Miles

ntour interval 100 feet



1272



MAP 86A

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SHEET 14—HOZOMEEN RANGE

LEGEND

CRETACEOUS (SHASTA-CHICO Pasayten series)

L
Member L
black argillite

K
Member K
green and grey sandstone with interbeds of shale and conglomerate

J
Member J
coarse conglomerate

BI
Members B to I
arkose and sandstone chiefly with conglomerate and shale

LOWER CRETACEOUS

Pv
Pasayten volcanic formation
andesitic breccia

CARBONIFEROUS

Hz
Hozomeen series
greenst one cherts quartzite & limestone pods

Intrusive

MIOCENE (?)

Syenite porphyry
chonolith

Castle Mountain stock
granodiorite

Lightning Creek stocks
diorite

JURASSIC(?)

Remmel batholith
western phase, sheared granodiorite

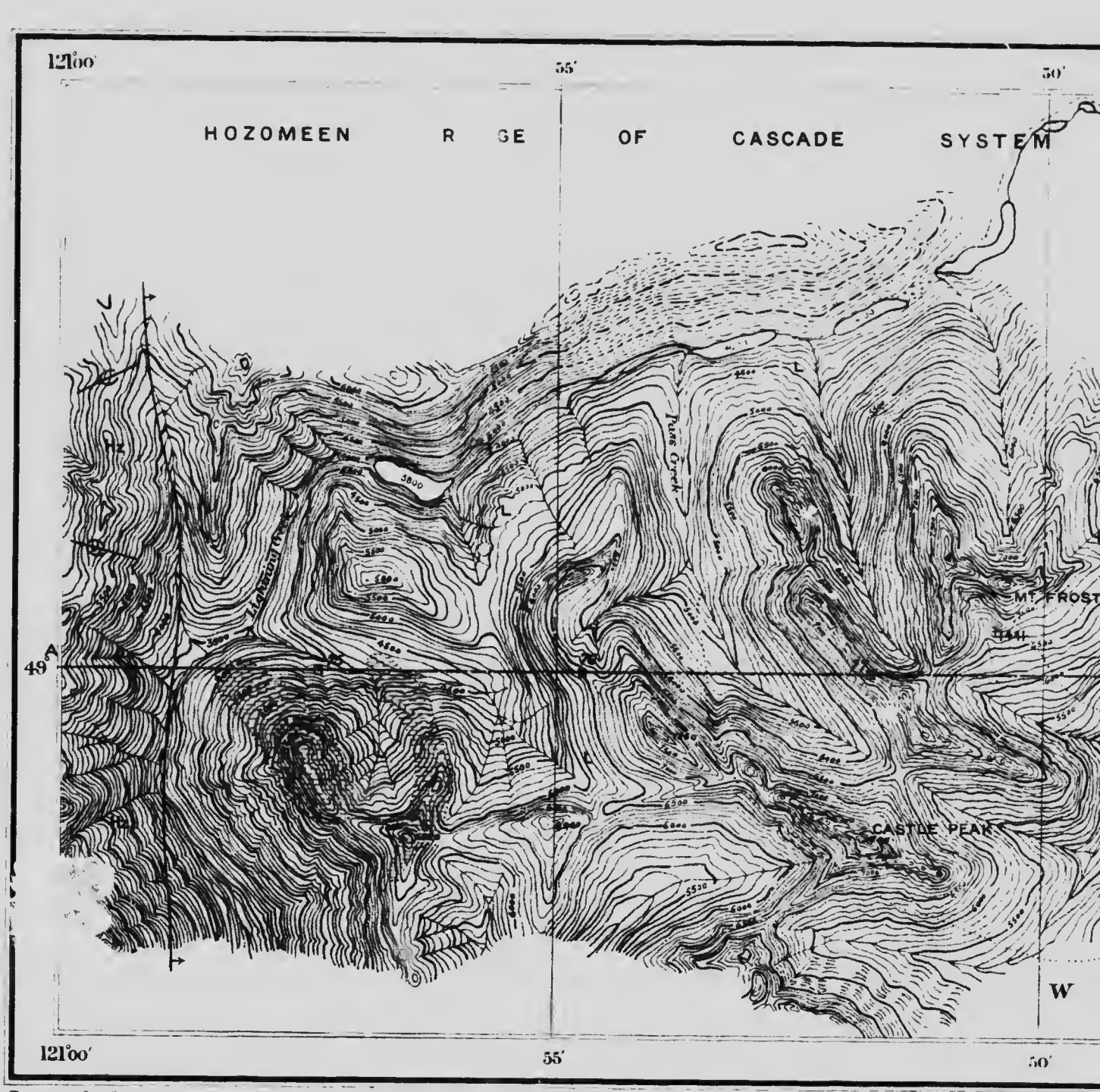
Symbols

Geological boundary

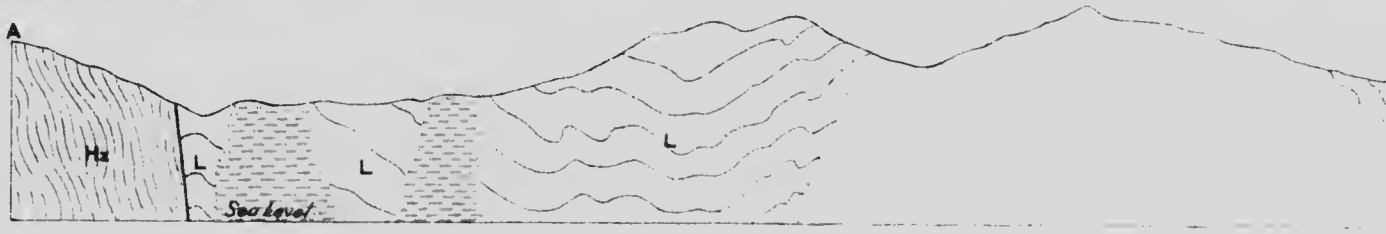
Fault

Glacial striae

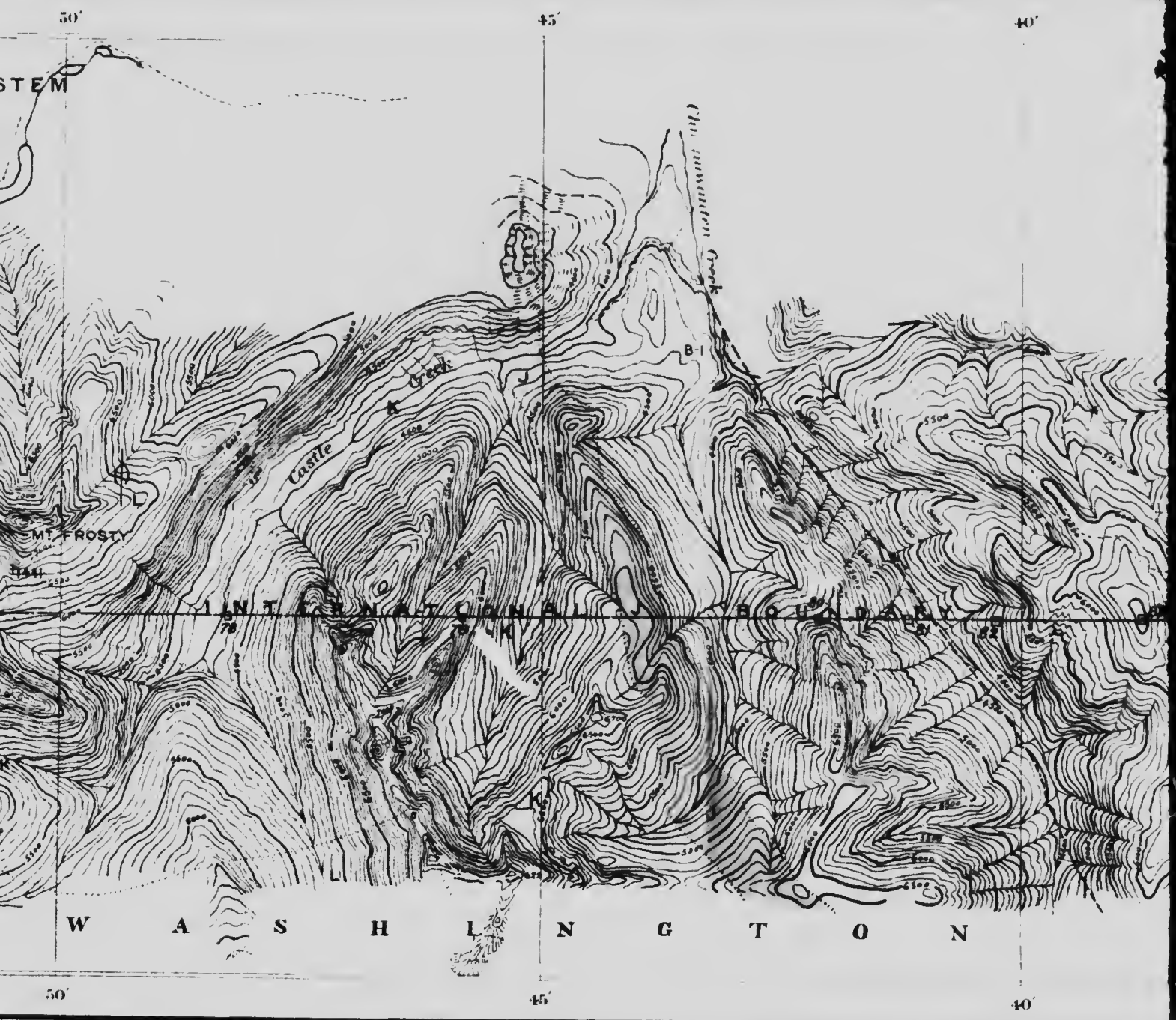
Note *Structure of Hozomeen series shown in section, merely diagrammatic.*
Localities of chemically analyzed rocks, shown thus +1441

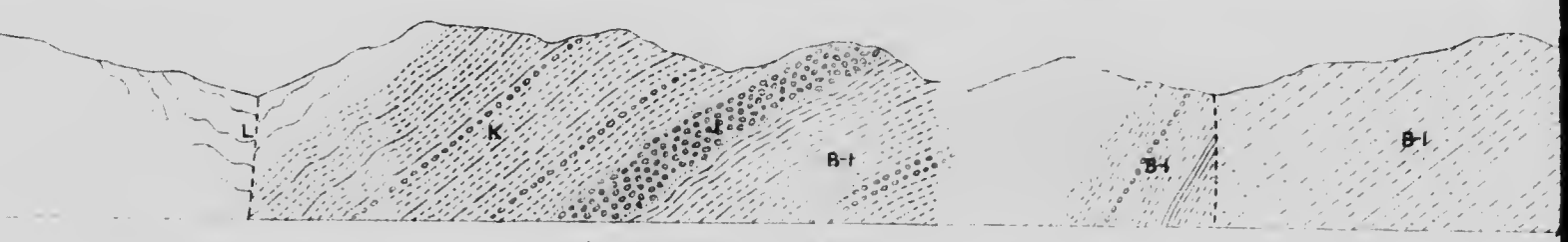


Topography from surveys made by the Boundary Commission.



GEO





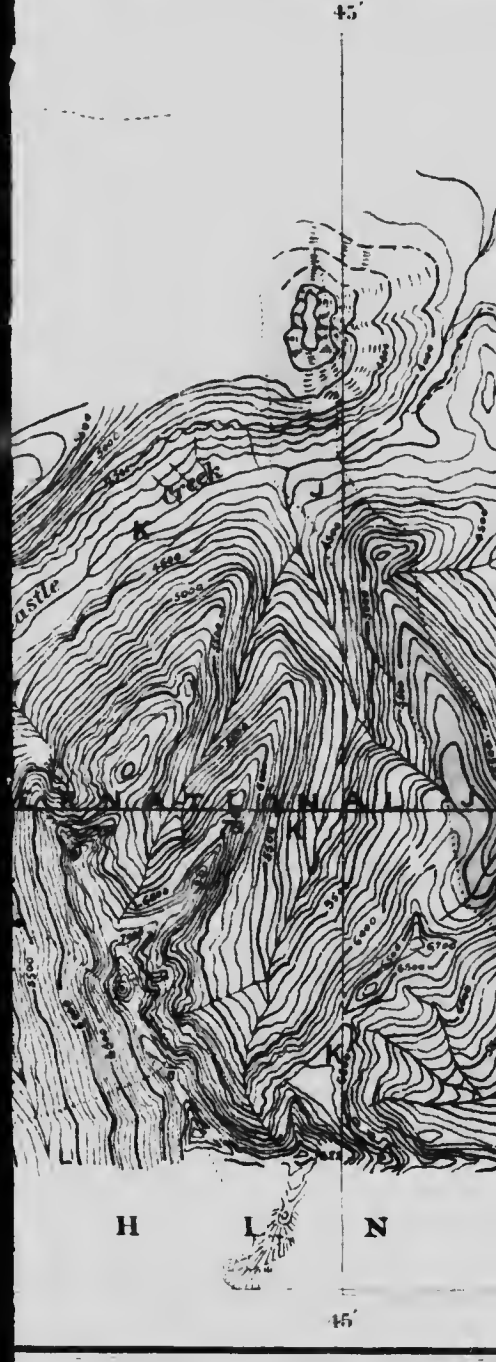
Section along line AB

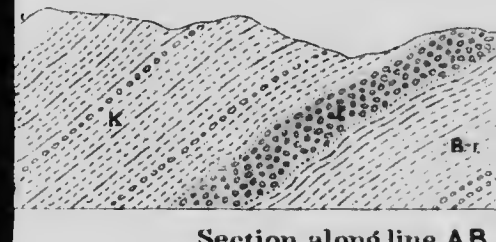
GEOLOGY OF THE FORTY-NINTH PARALLEL. By R.A. Daly.

Scale $\frac{1}{62500}$ = 0·9864 Statute Miles to 1 inch

Miles

Contour interval 100 feet





Section along line AB

THE FORTY-NINTH PA

Scale: $\frac{1}{62500}$ = 0·9864 Statute Miles

Miles

Contour interval 100 feet

40′ 35′ 120°30′

Chuchuwanten Creek

B-1

LINE OF B SECTION

B 49°

PASAYTEN RIVER

OKANAGAN RANGE

40′ 35′ 120°30′

1273

Pasayten River Unconformity

B

B-1 B-1 B-1 Pv

AB

PARALLEL. By R.A. Daly.

iles to 1 Inch

3 0

MAP 87A

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to accomp[any] a Geological Survey Memoir N°

SHEET 15. SKAGIT RANGE

ERRATUM

Boundary Monument 59 is 1.02 miles west of Mon 60

LEGEND

PLEISTOCENE & RECENT

Glacial drift and alluvium

OLIGOCENE(?)

Skagit volcanic formation
liparite tuff

Skagit volcanic formation
andesite flows and pyroclastic deposits

CARBONIFEROUS

Ch

Chilliwack series
locally argillite and sandstone

(?) CARBONIFEROUS

Hx

Hozameen series
cherty quartzite, greenstone, phyllite, and limestone pods

Intrusive

MIOCENE(?)

Chilliwack batholith
granodiorite
Granite at Skagit River

Monzonite
stock and dikes

JURASSIC(?) (?)

Harzburgite

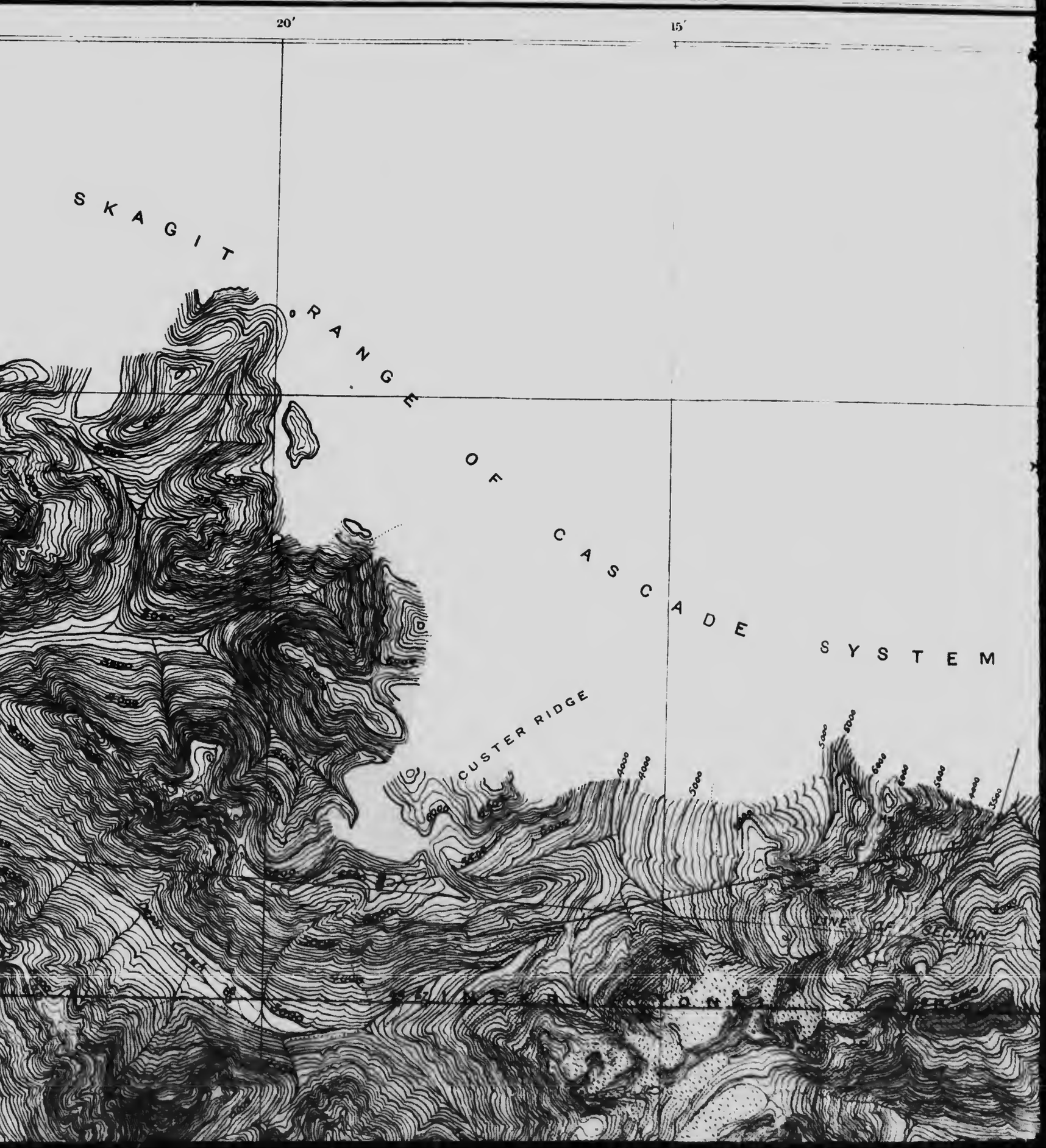
Custer granite-gneiss
sheared granodiorite

Symbols

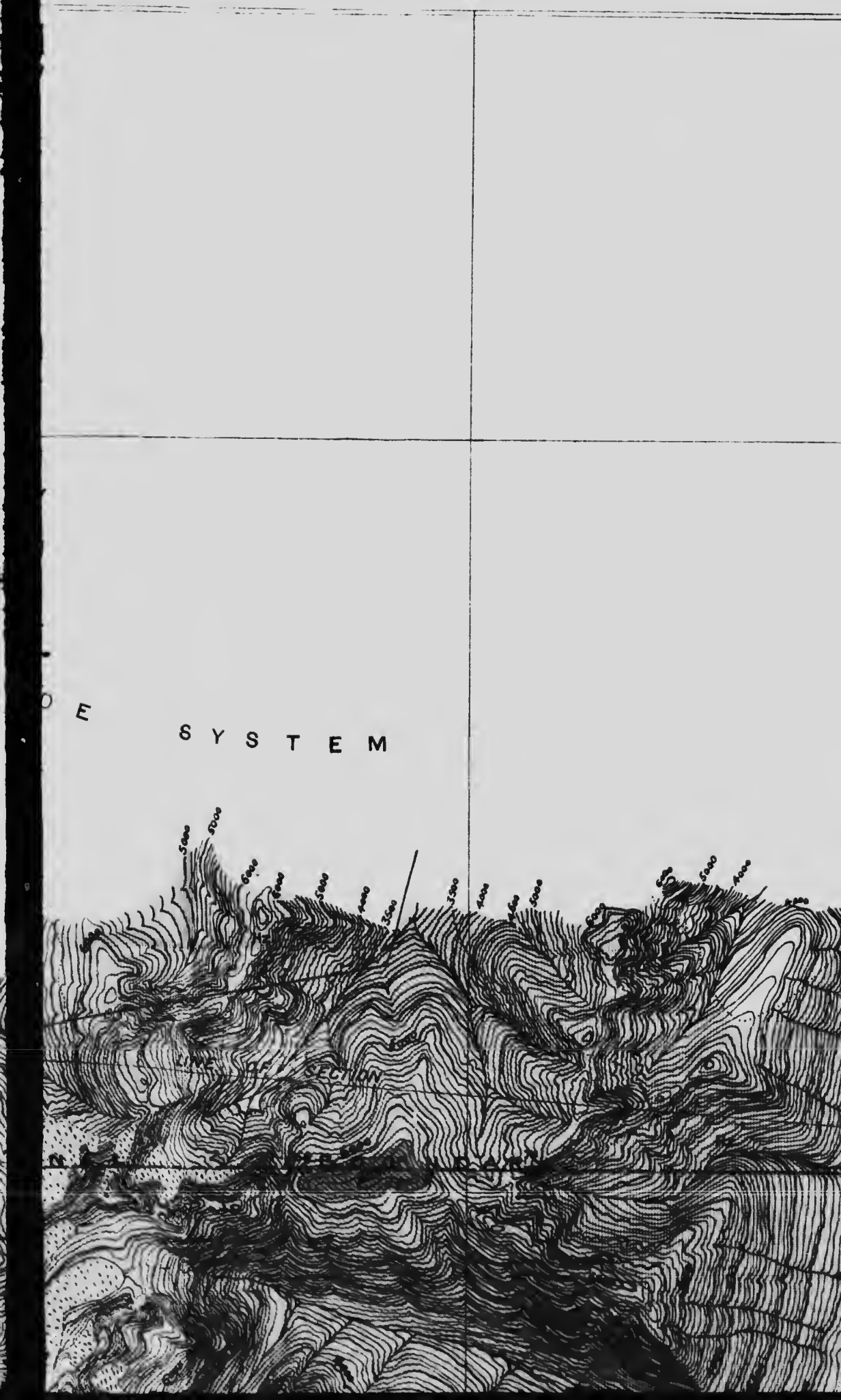
Geological boundary

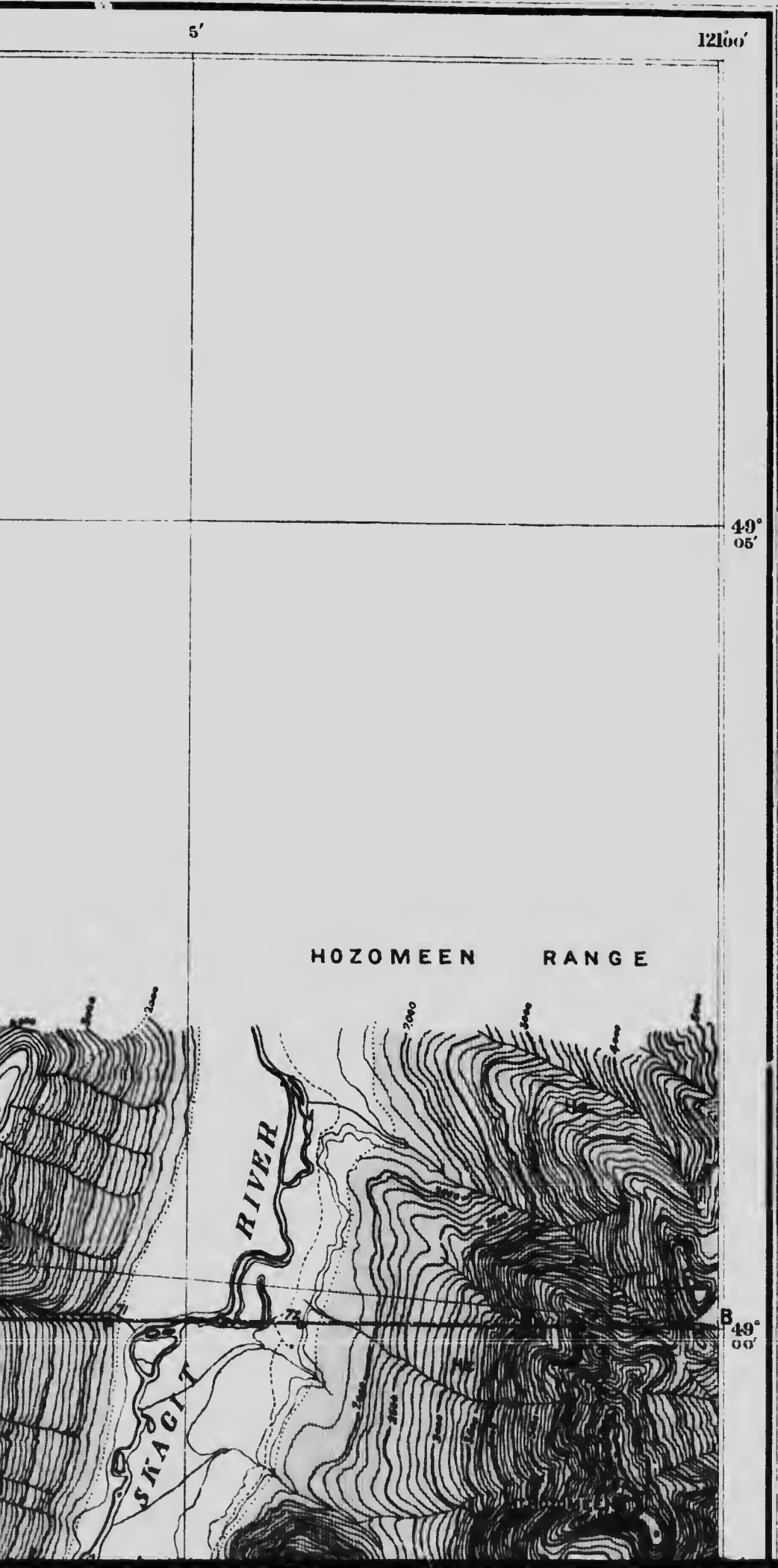
Fault

Glacial striae


20′
15′
SKAGIT
RANGE
OF
CASCADE
SYSTEM
CUSTER RIDGE
LINE OF SECTION

10′




5′
121°00′
49°
05′
HOZOMEEN RANGE
SKAGIT RIVER
B
49°
00′

MIOCENE

Chilliwack batholith
granodiorite
Granite at Skagit River

Monzonite
stock and dikes

JURASSIC(?) (?)

Harzburgite

Custer granite-gneiss
sheared granodiorite

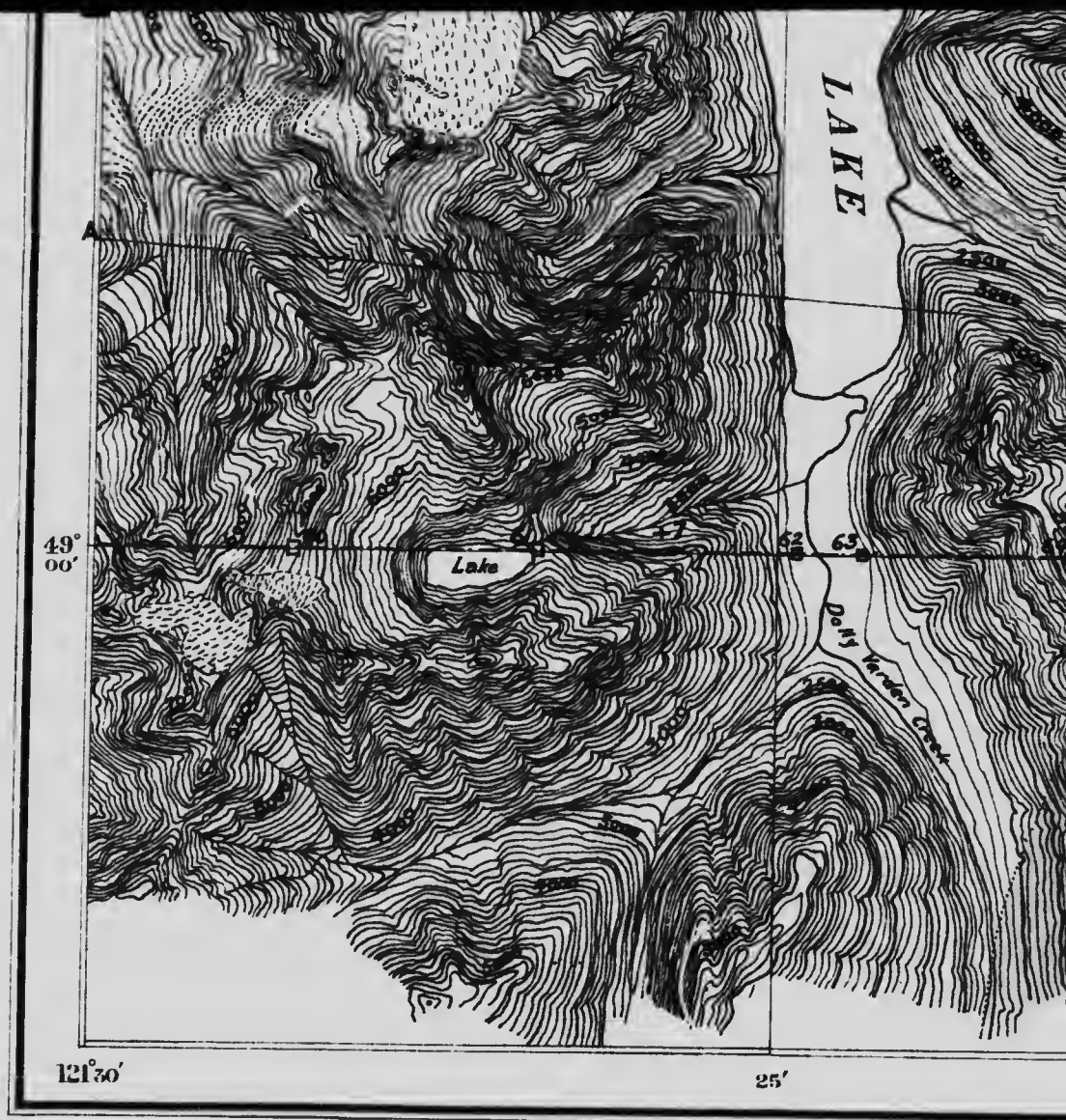
Symbols

Geological boundary

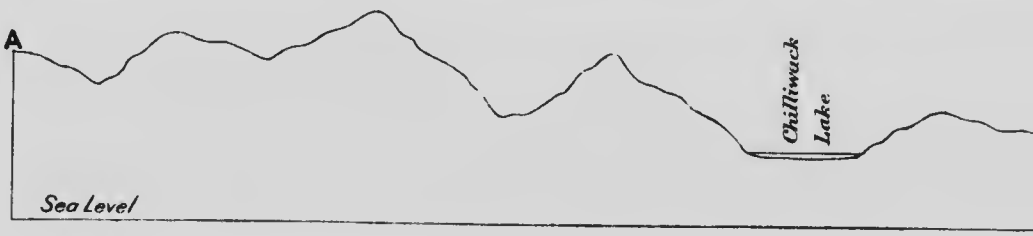
Fault

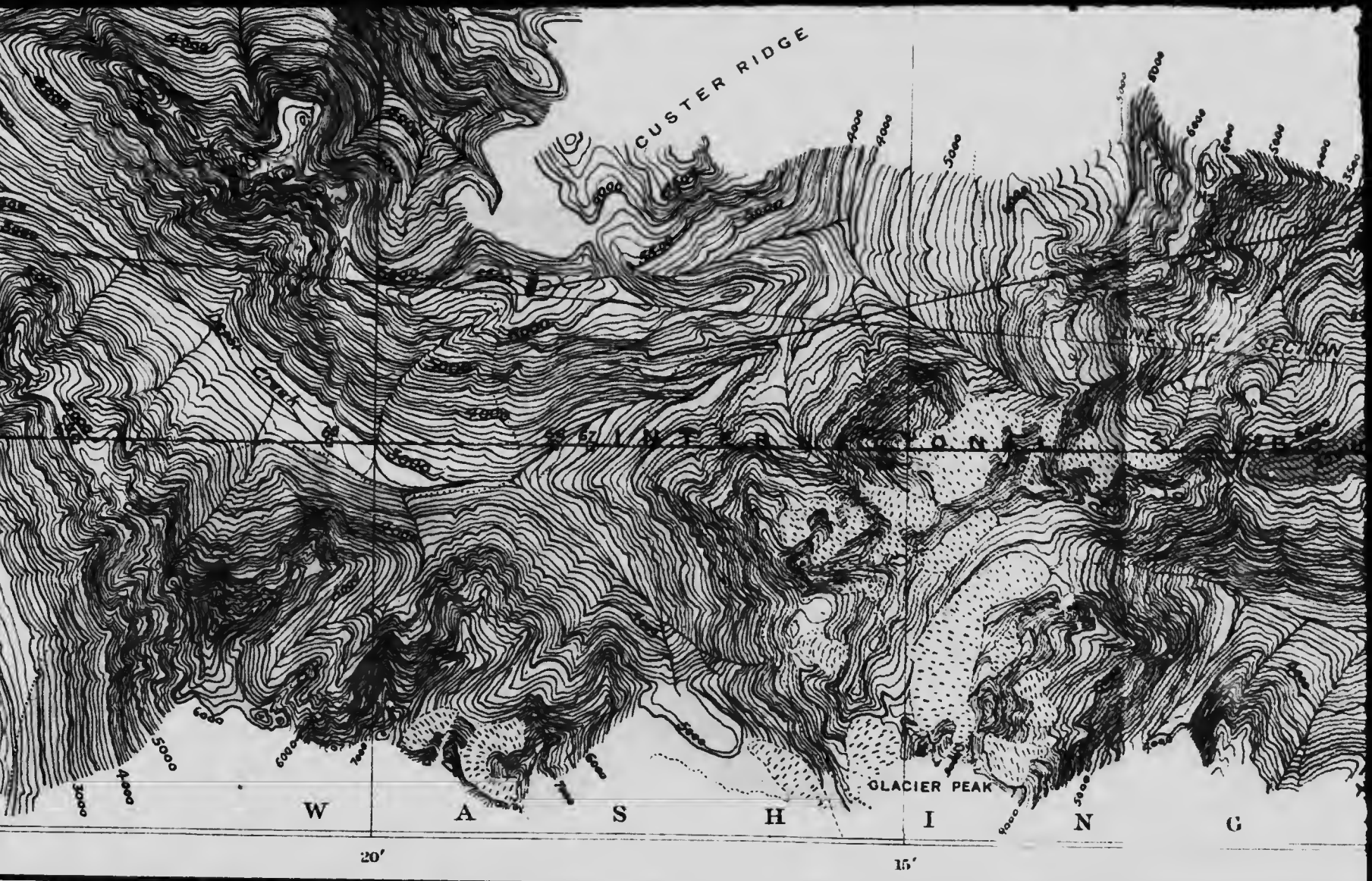
Glacial striae

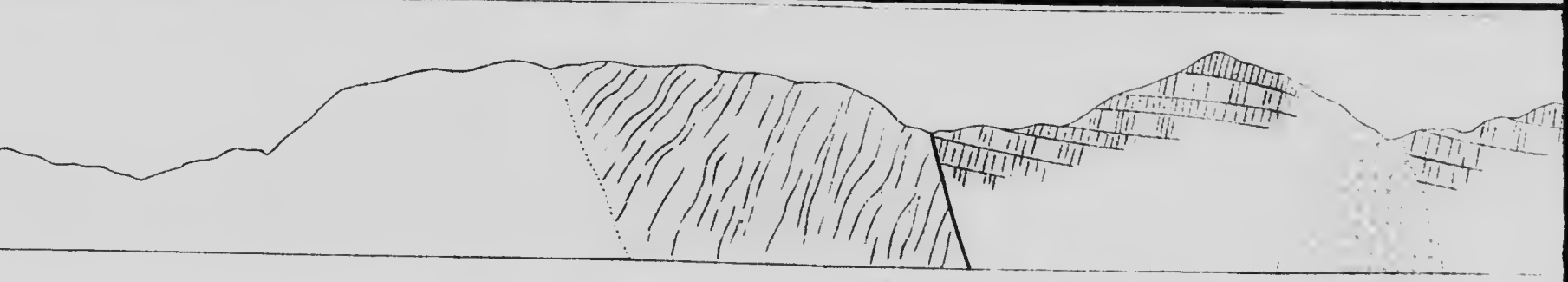
Note. *Structure of Hozomeen series, shown on section, merely diagrammatic.*
Localities of chemically analyzed rocks, shown thus. +7



Topography from surveys made by the Boundary Commission.







Section along line A B

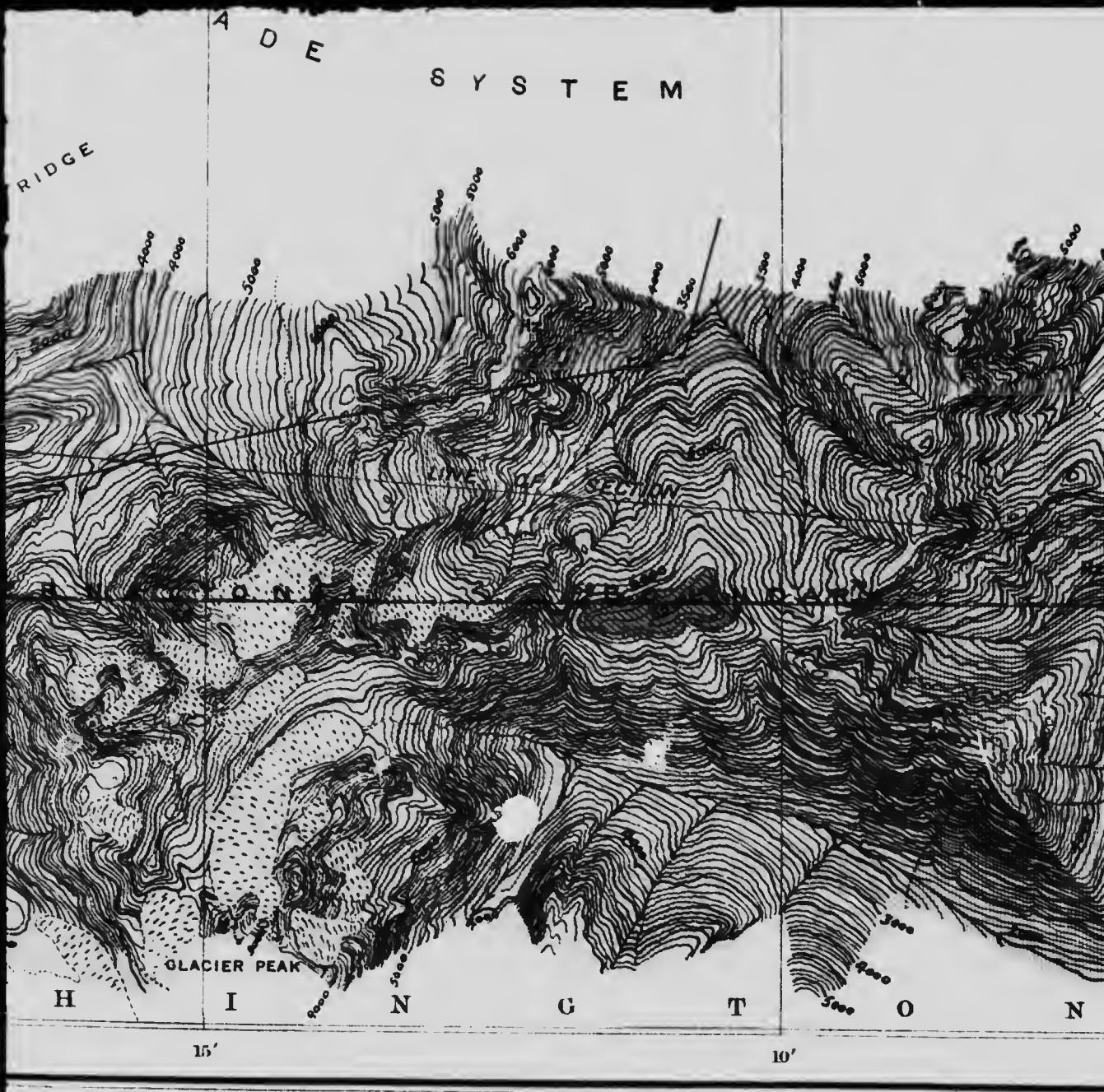
GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A. Da

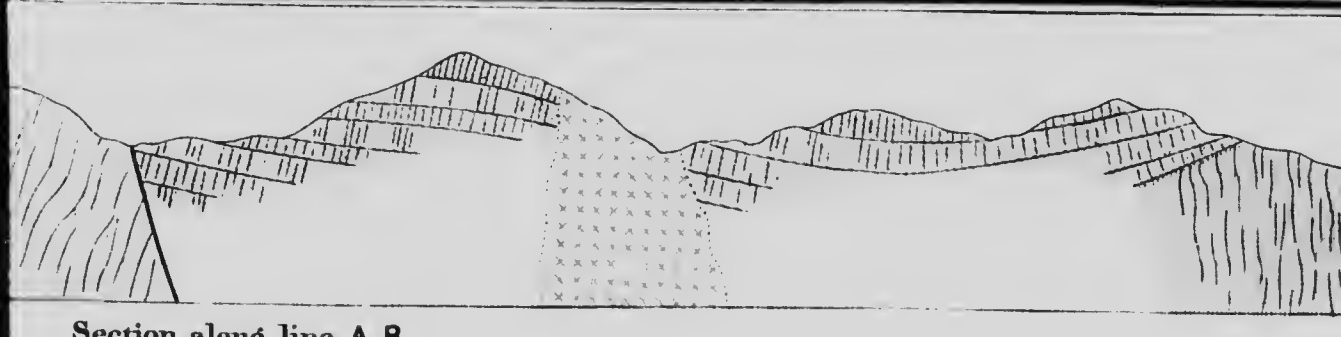
Scale: $\frac{1}{62500}$ — 09864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval 100 feet





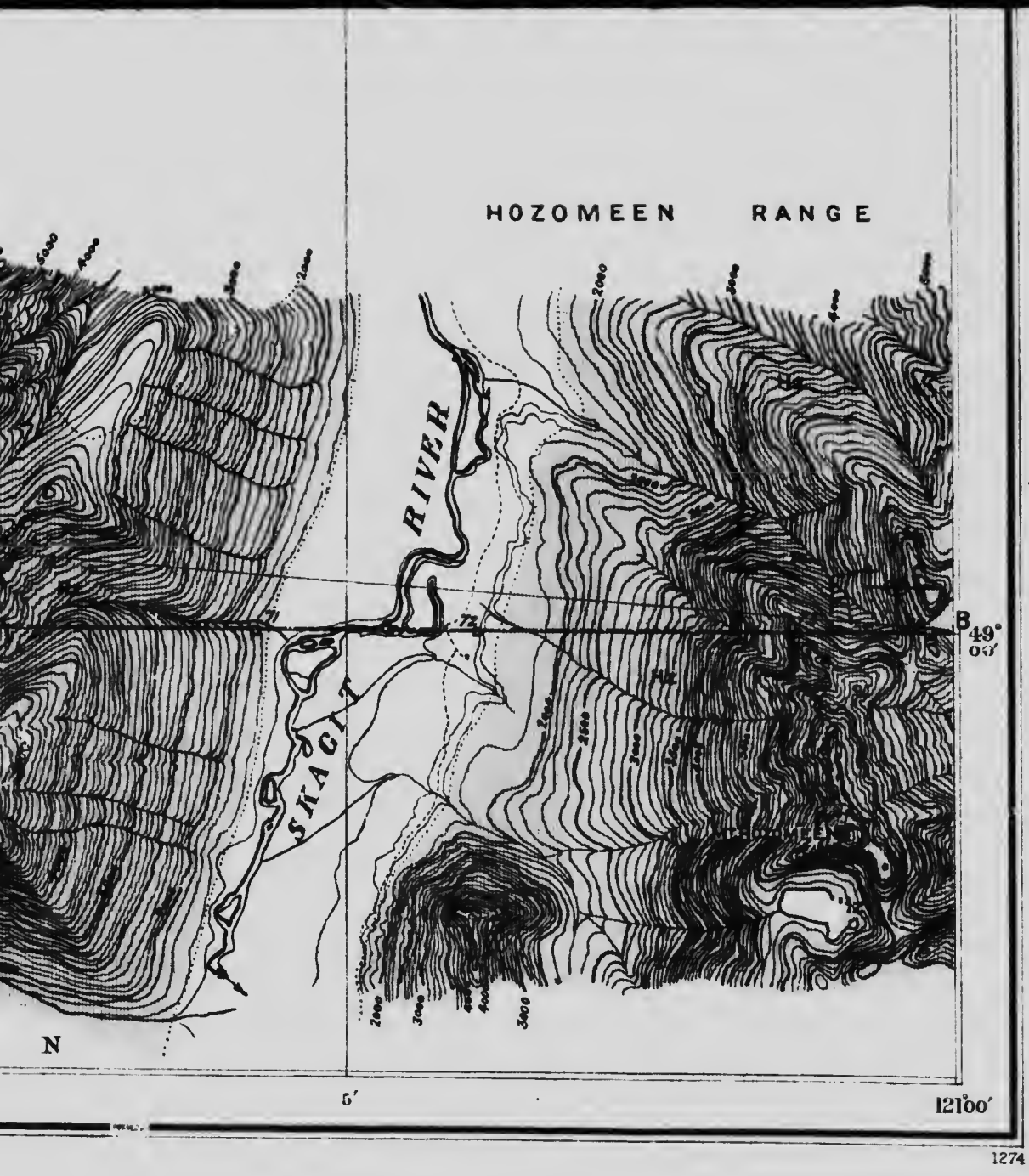
Section along line A B

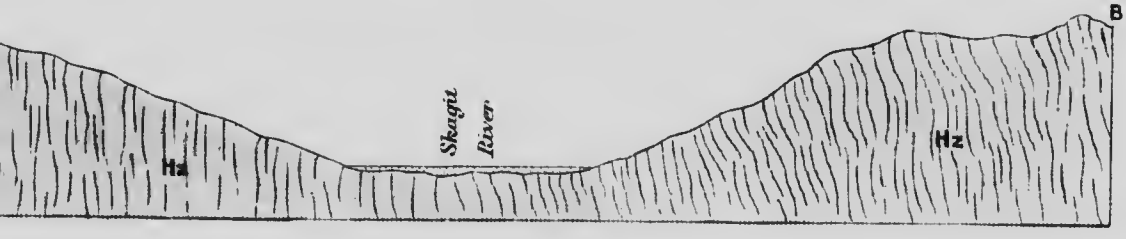
FORTY-NINTH PARALLEL, By R.A. Daly.

1/62500 = 0·9864 Statute Miles to 1 Inch

Miles 1 2 3 4

Contour interval 100 feet





MAP 88A

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SHEET 16.—CHILLIWACK RIVER

LEGEND

CRETACEOUS (?)

Ta — **Tamihy series**
conglomerate, green and black sandstones, and grey shales

TRIASSIC

C — **Cultus formation**
dark grey to black argillite, with interbeds of grit, sandstone and conglomerate

CARBONIFEROUS

Cv — **Chilliwack volcanic formation**
chiefly flows of augite and hornblende andesites, with ash-beds

Chilliwack series
outcrops of fossiliferous limestone

CARBONIFEROUS (and older?)

Ch — **Chilliwack series**
argillite, quartzitic sandstone, and limestone, with interbeds of grit and conglomerate

Intrusive

MIOCENE (?)

3 — **Chilliwack batholith**
granodiorite, with gravitic phases

2 — **Slesse stock**
diorite

CARBONIFEROUS (?)

1 — **Vedder greenstone**

Symbols

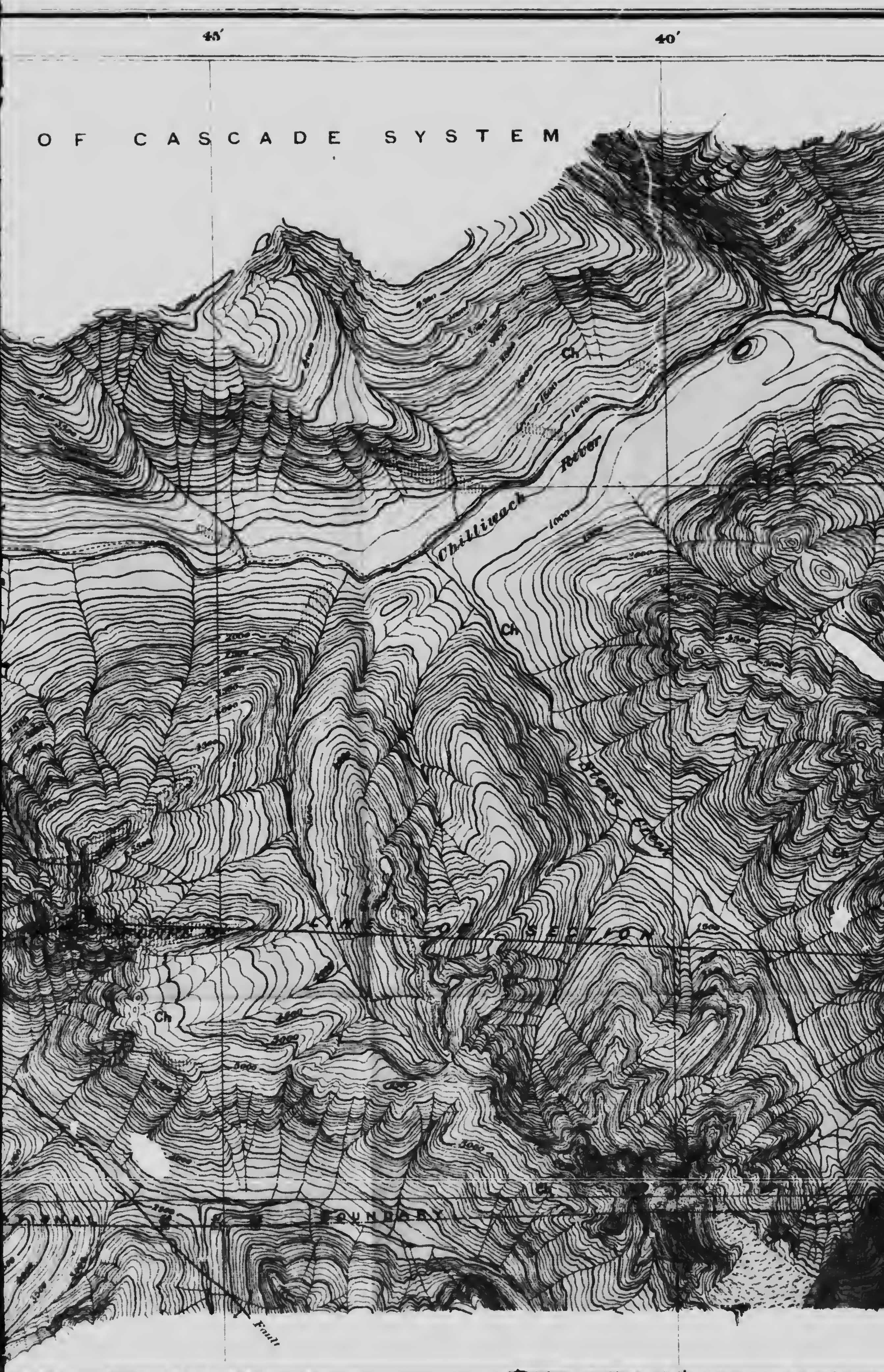
Geological boundary

Fault

Note: *Structure of Cultus formation, shown on section, merely diagrammatic.*

Localities of chemically analysed rocks shown thus + 54

50′
45′
SKAGIT RANGE OF CASCADE SYSTEM
Chilliwack River
Ch
Ch
Ch
Ch
INTERNATIONAL BOUNDARY
Fault



45′
40′
OF CASCADE SYSTEM
Chilliwack River
Ch
LINE OF SECTION
BOUNDARY
Fault


36′
121°30′
49°
05′
49°
00′
Ch
Ch
Ch

CARBONIFEROUS (and older?)

Chilliwack series
outcrops of fossiliferous limestone

Ch

Chilliwack series
argillite, quartzitic sandstone, and limestone, with interbeds of grit and conglomerate

Intrusive

MIOCENE (?)

3

Chilliwack batholith
granodiorite, with granitic phases

CARBONIFEROUS (?)

2

Slesse stock
diorite

1

Vedder greenstone

Symbols

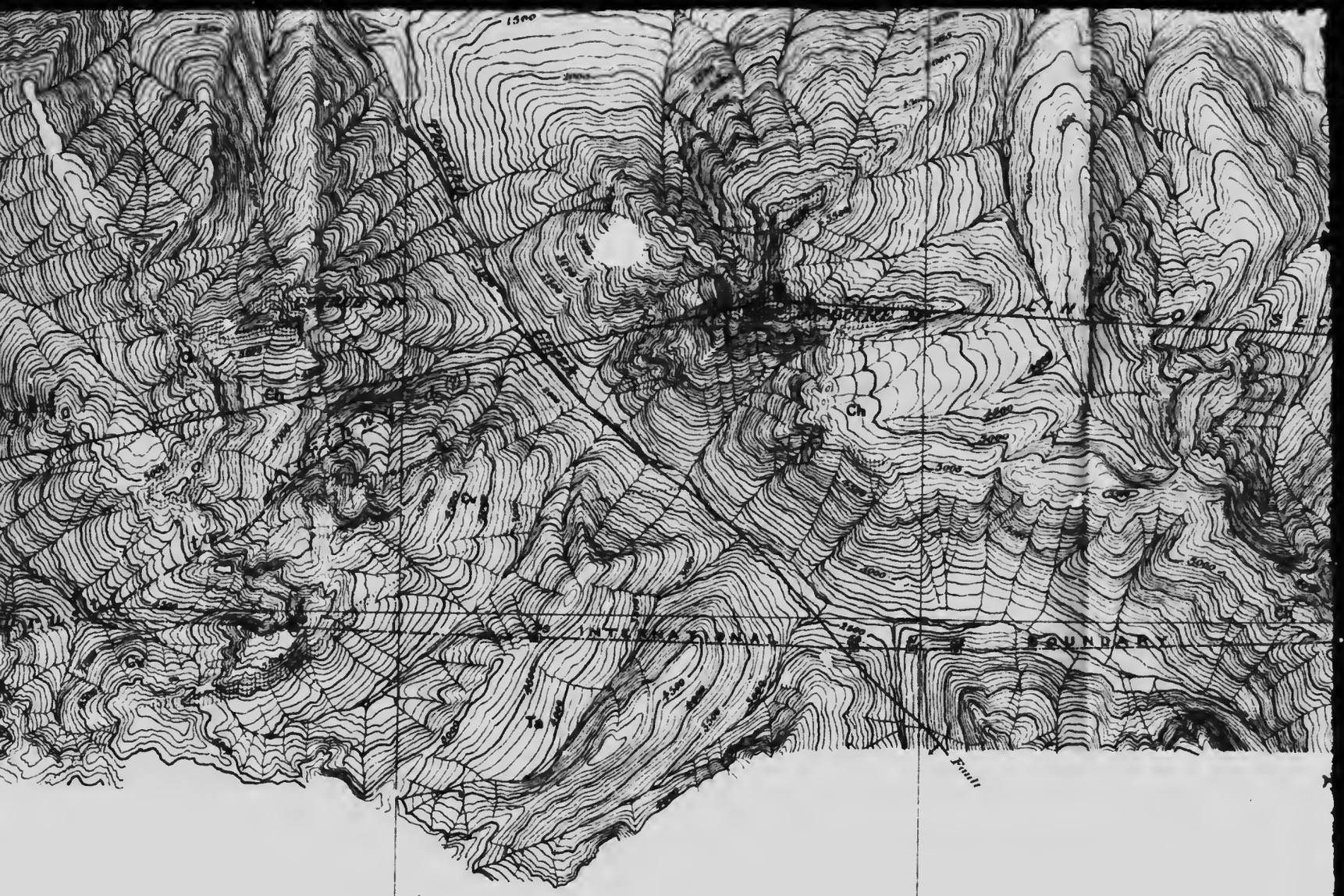
Geological boundary

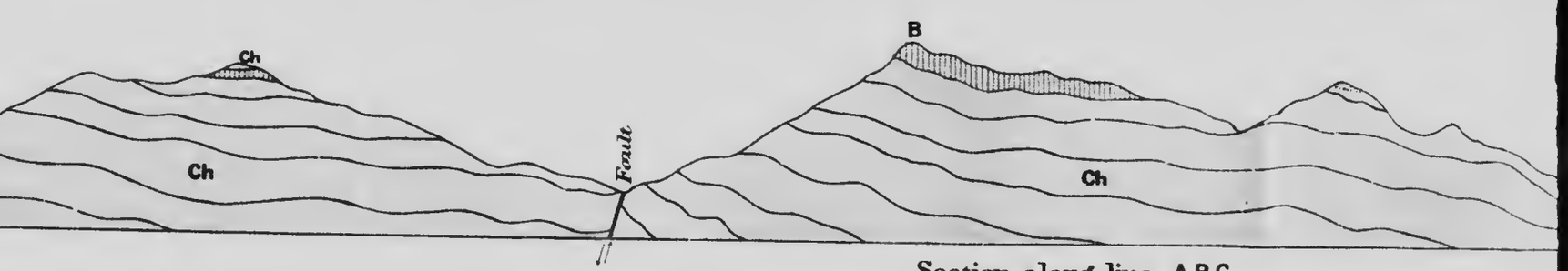
Fault

Note; *Structure of Cultus formation, shown on section, merely diagrammatic.*

Localities of chemically analyzed rocks, shown thus + 54

Topography from surveys made by the Boundary Commission





Section along line ABC

GEOLOGY OF THE FORTY-NINTH PARALLEL. By R. A.

Scale: ~~$\frac{1}{62500}$~~ — 0·9864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval 100 feet

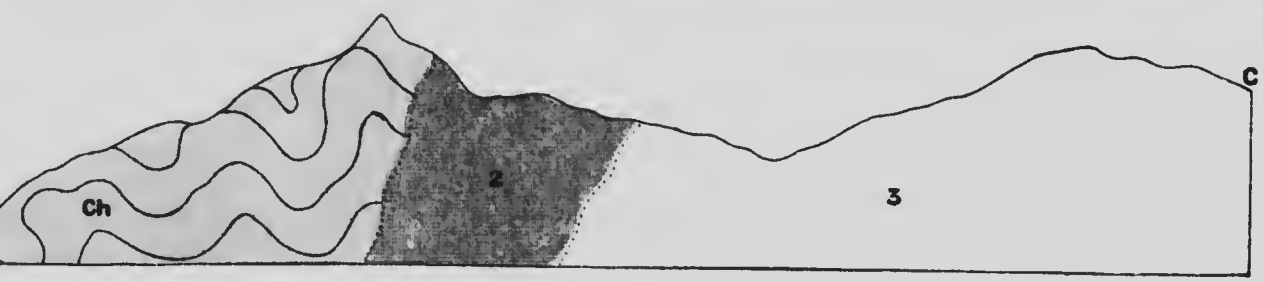
Section along line ABC

OF THE FORTY-NINTH PARALLEL, By R. A. Daly.

Scale: $\frac{1}{62500}$ = 0.9864 Statute Miles to 1 inch

½ 0 1 Miles 2 3 4

Contour interval 100 feet



MAP 89A

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SHEET 17. SUMAS LAKE

ERRATUM

Boundary Monument 19 is 0.94 miles west of Mon. 20

LEGEND

PLEISTOCENE AND RECENT

Alluvium and glacial drift
(north of Boundary Line)

(?) EOCENE

Hu

Huntingdon formation
sandstone, conglomerate, shale and thin coal-beds

TRIASSIC

C

Cultus formation
chiefly dark-grey to black argillite, with sandstone and fine-grained conglomerate.

CARBONIFEROUS (and older?)

Ch

Chilliwack series
argillite, sandstone and fine conglomerate (here unfossiliferous)

Intrusive

(?) CARBONIFEROUS JURASSIC (?)

Sumas batholith
granite

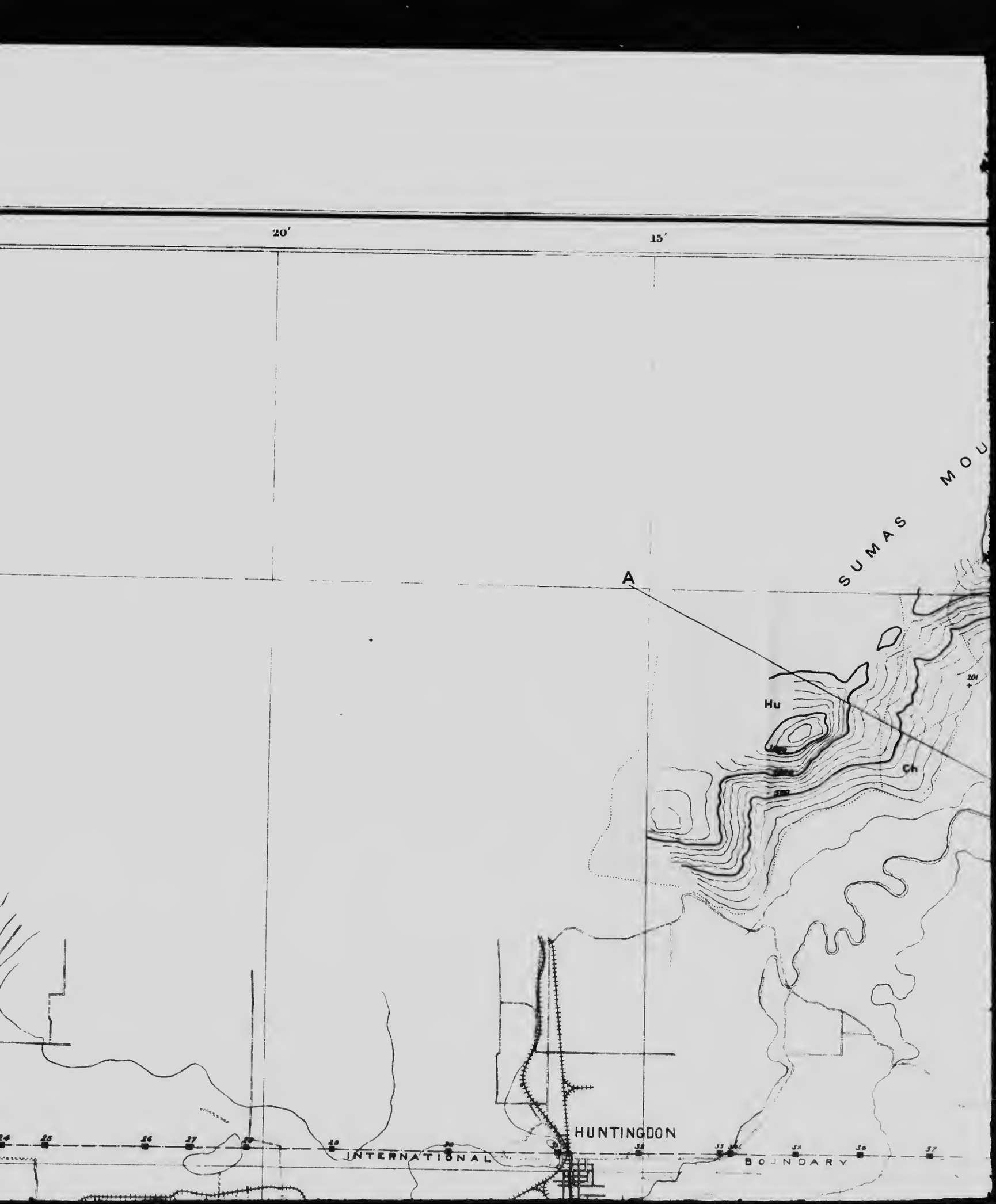
Sumas diorite
cut by granite (plutonic breccia)

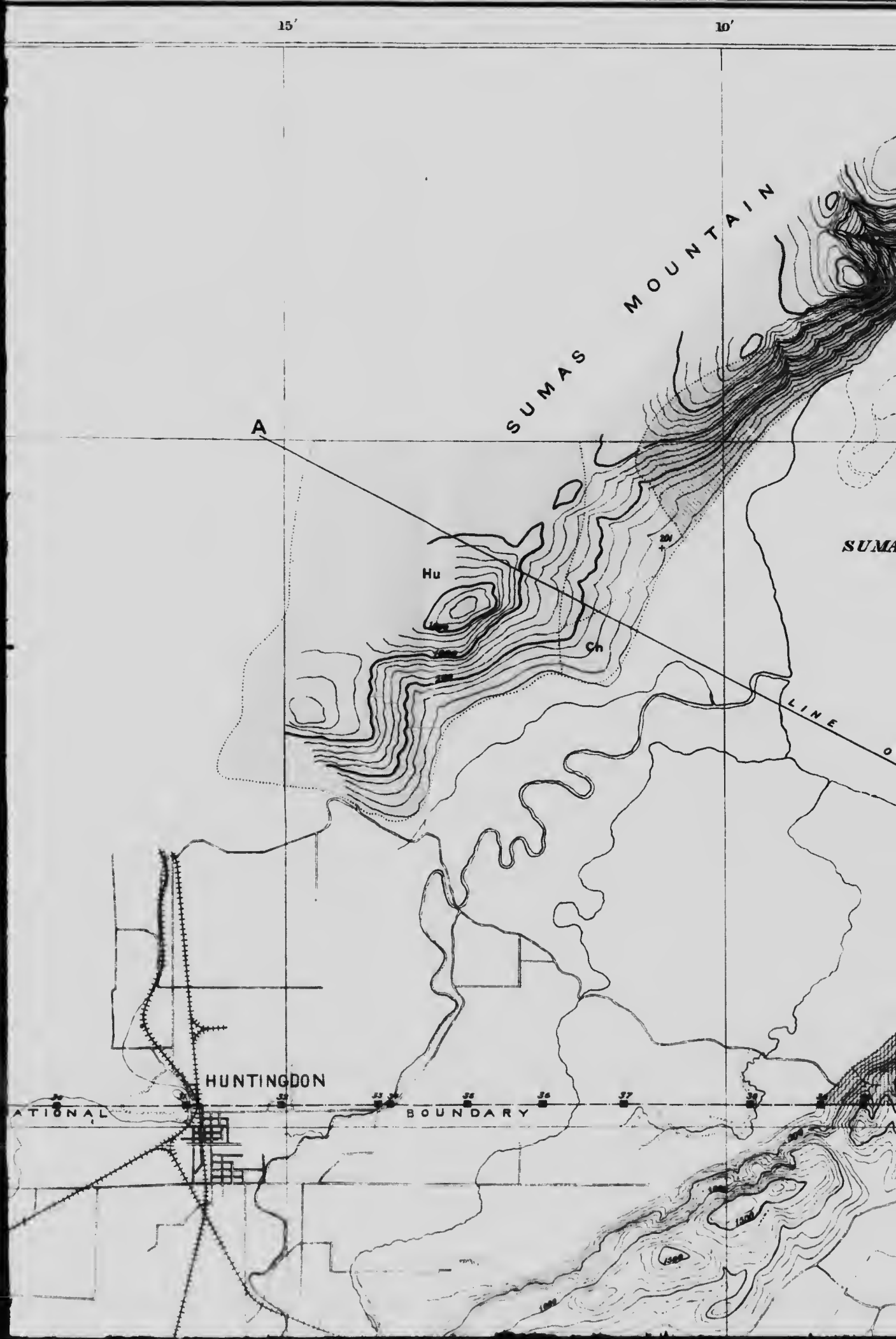
Vedder greenstone

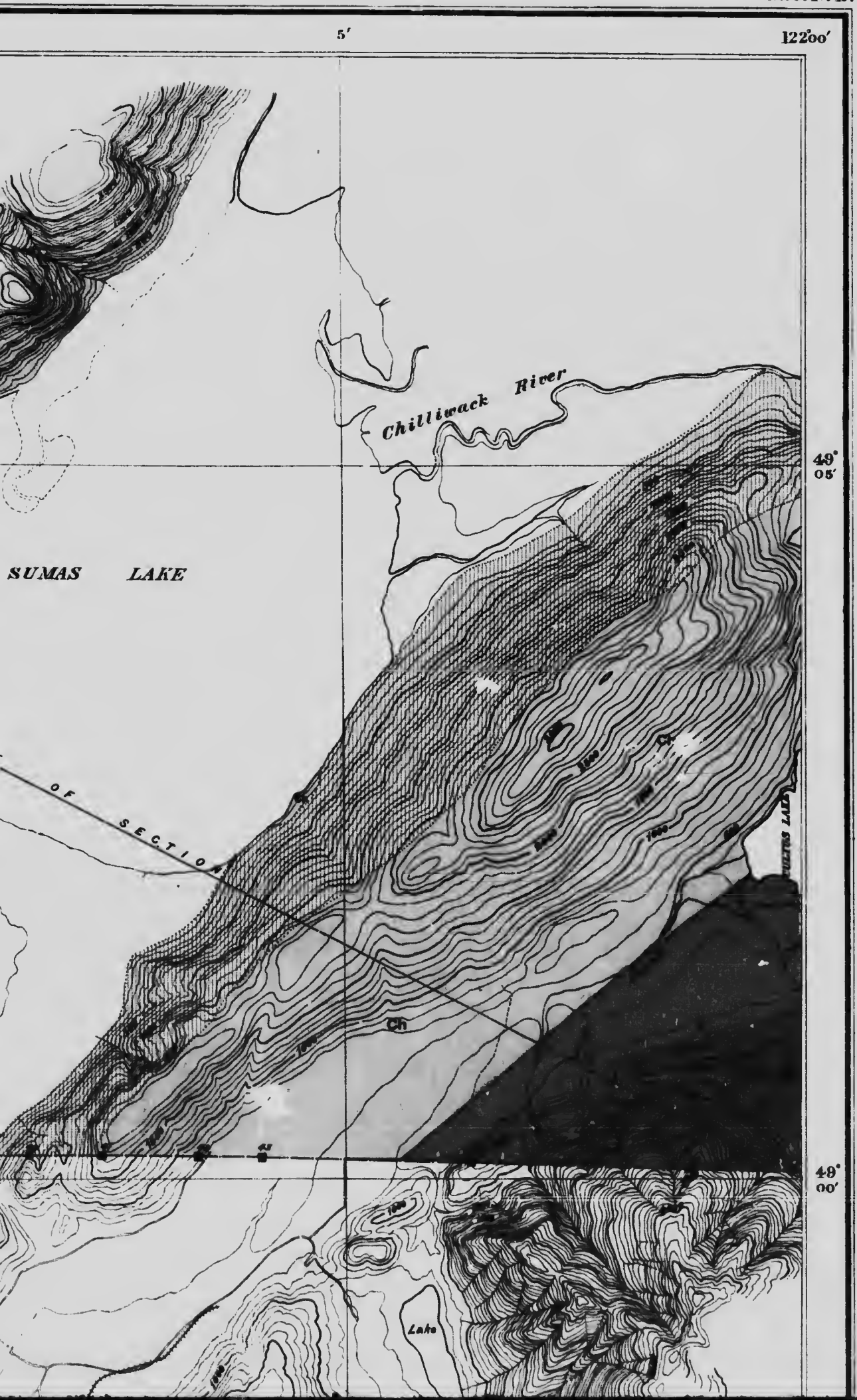
Symbols

Geological boundary

Fault(?)


20'
15'
A
SUMAS MOU
Hu
Ch
201
HUNTINGDON
INTERNATIONAL
BOUNDARY


15′
10′
SUMAS MOUNTAIN
A
Hu
Ch
SUMA
LINE O
HUNTINGDON
ATIONAL
BOUNDARY


5′
122°00′
Chilliwack River
49°
05′
SUMAS LAKE
OF SECTION
49°
00′
Lake

CARBONIFEROUS (?) JURASSIC (?)

Intrusive

Sumas batholith
granite

Sumas diorite
cut by ; ravite (plutonic breccia)

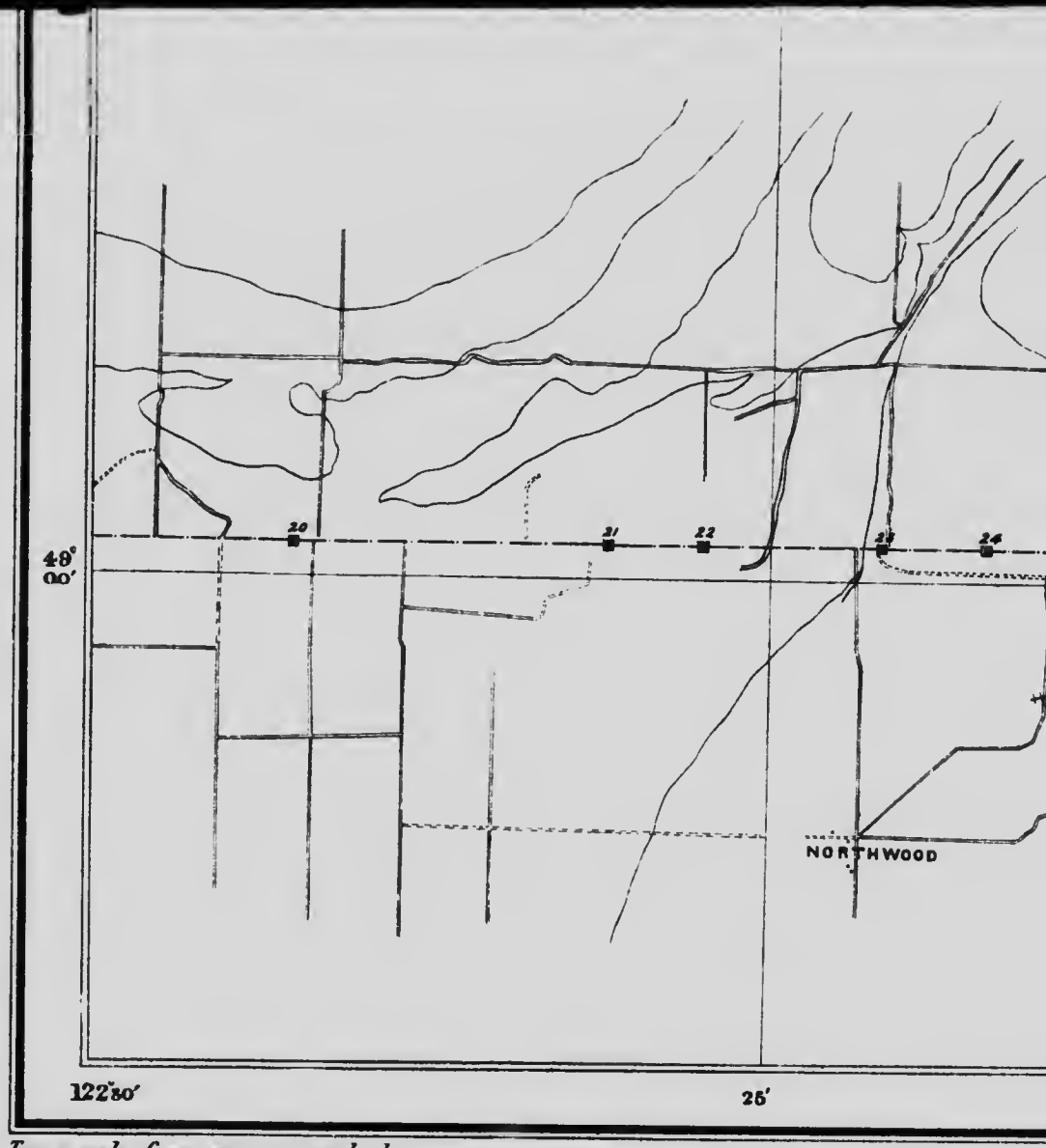
Vedder greenstone

Symbols

Geological boundary

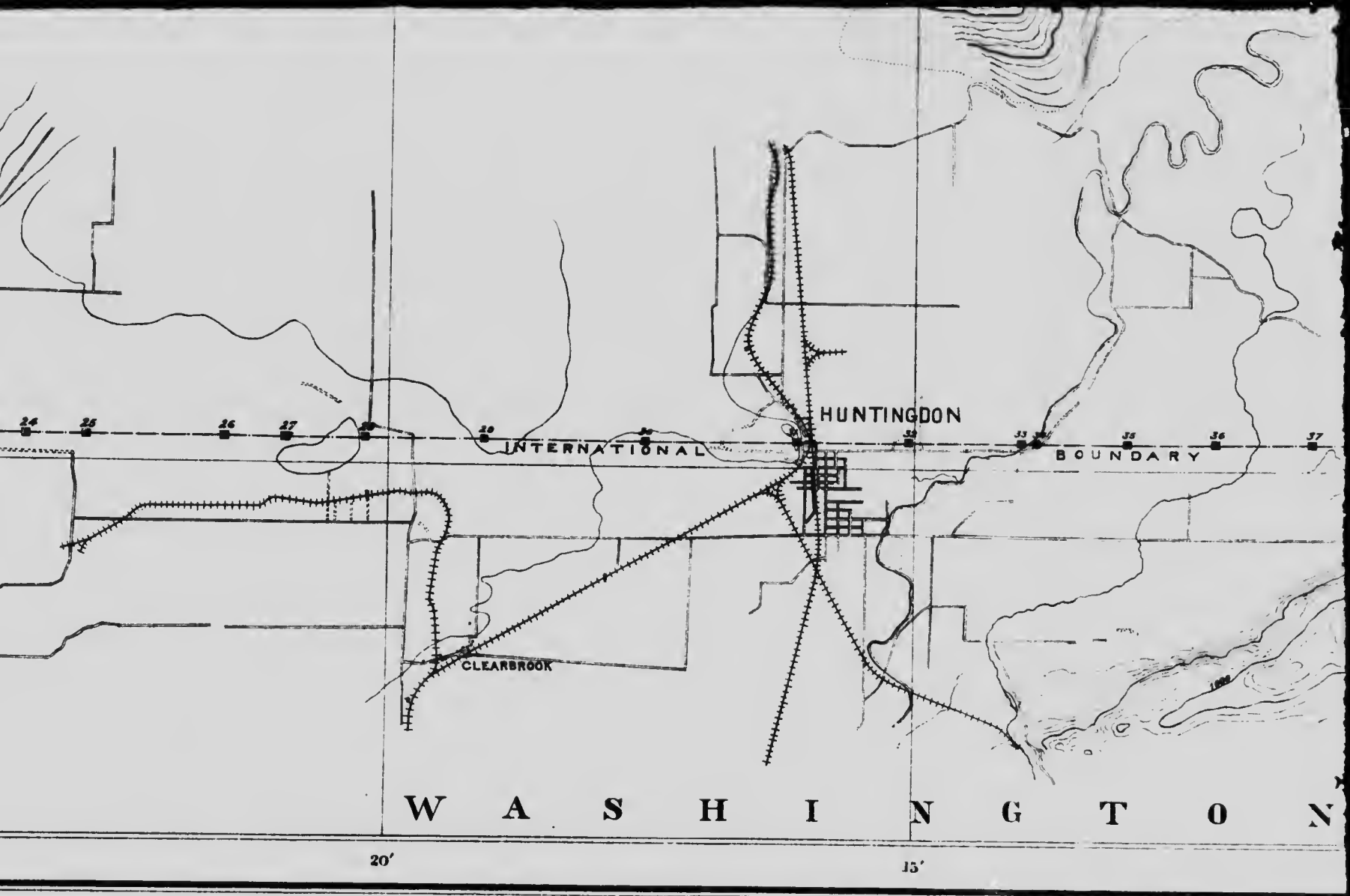
Fault(?)

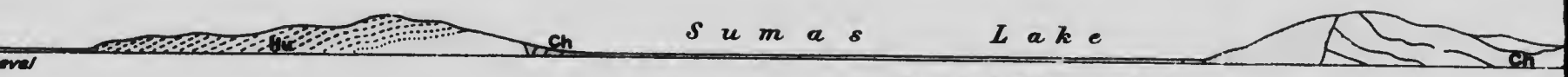
Note. *Localities of chemically analyzed rocks, shown thus,* +201



Topography from surveys made by the Boundary Commission.

A
Sea level





Section along line A B

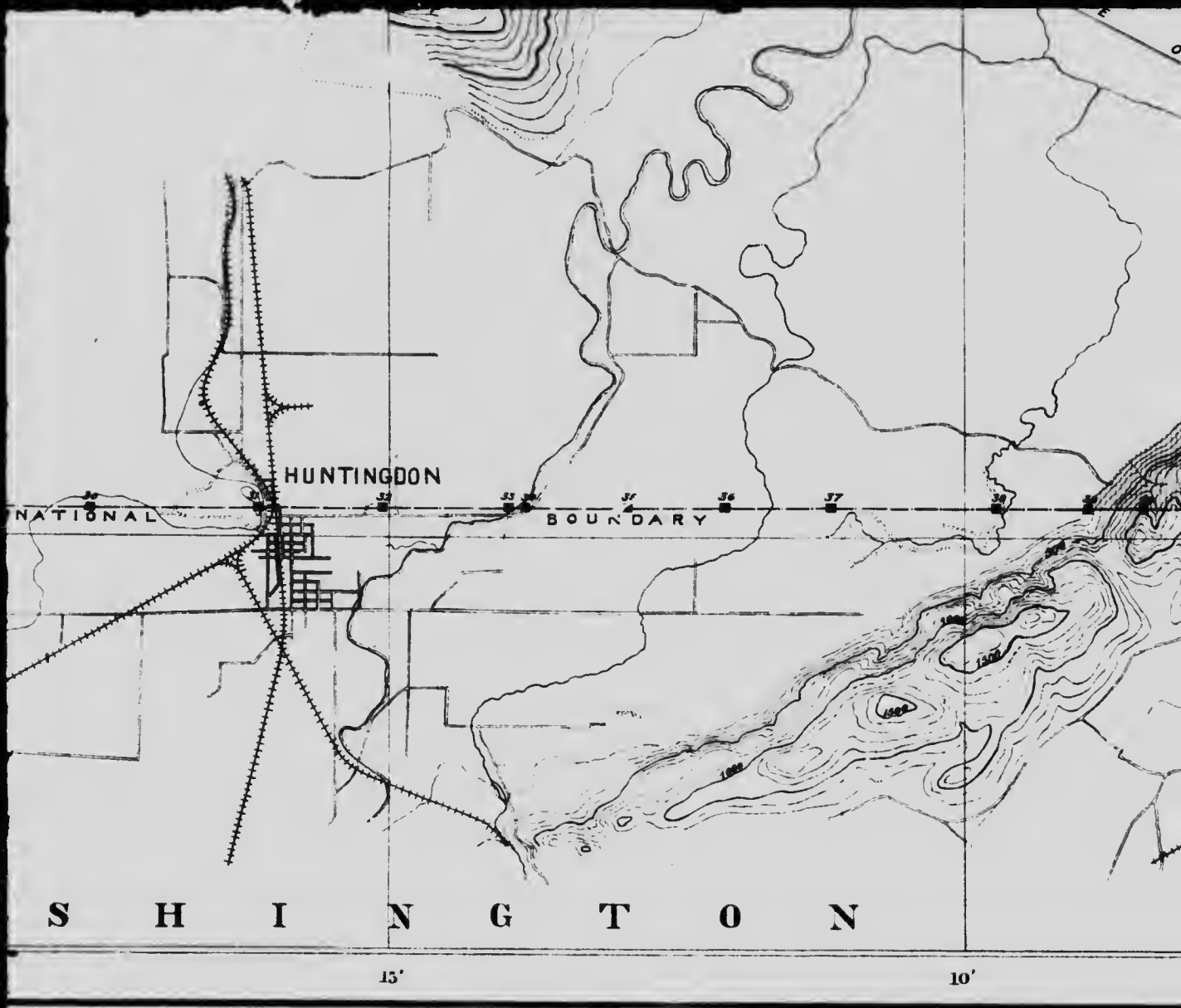
GEOLOGY OF THE FORTY-NINTH PARALLEL, By R. A. Dal

Scale: ~~62500~~ 1 – 0·9864 Statute Miles to 1 Inch

Miles

1 ½ 0 1 2 3 4

Contour interval, 100 feet



Section along line A B

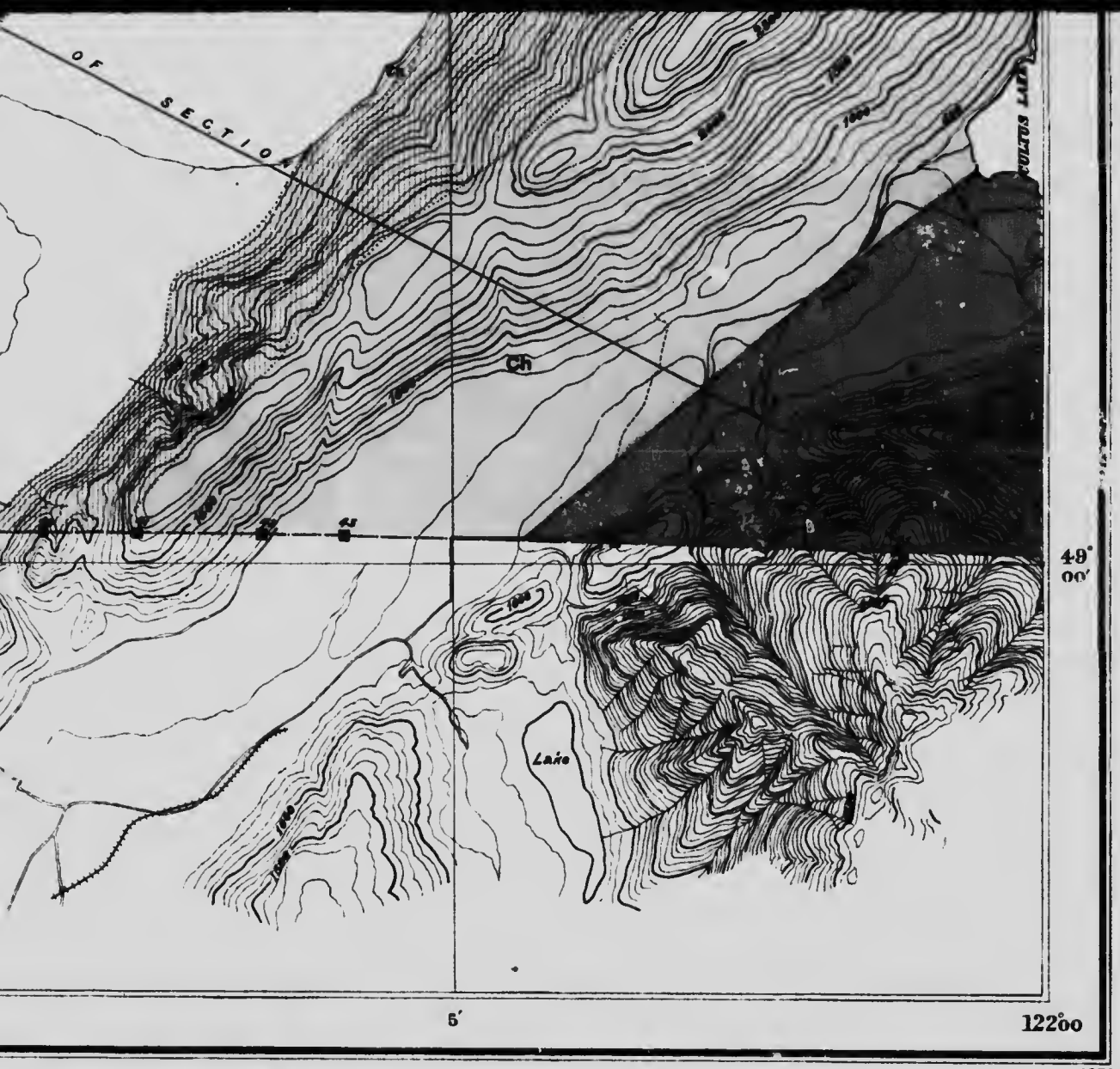
F THE FORTY-NINTH PARALLEL, By R. A. Daly.

Scale: ~~62500~~ 1 – 0·9864 Statute Miles to 1 Inch

Miles

½ 0 1 2 3 4

Contour interval, 100 feet



MAP 90A

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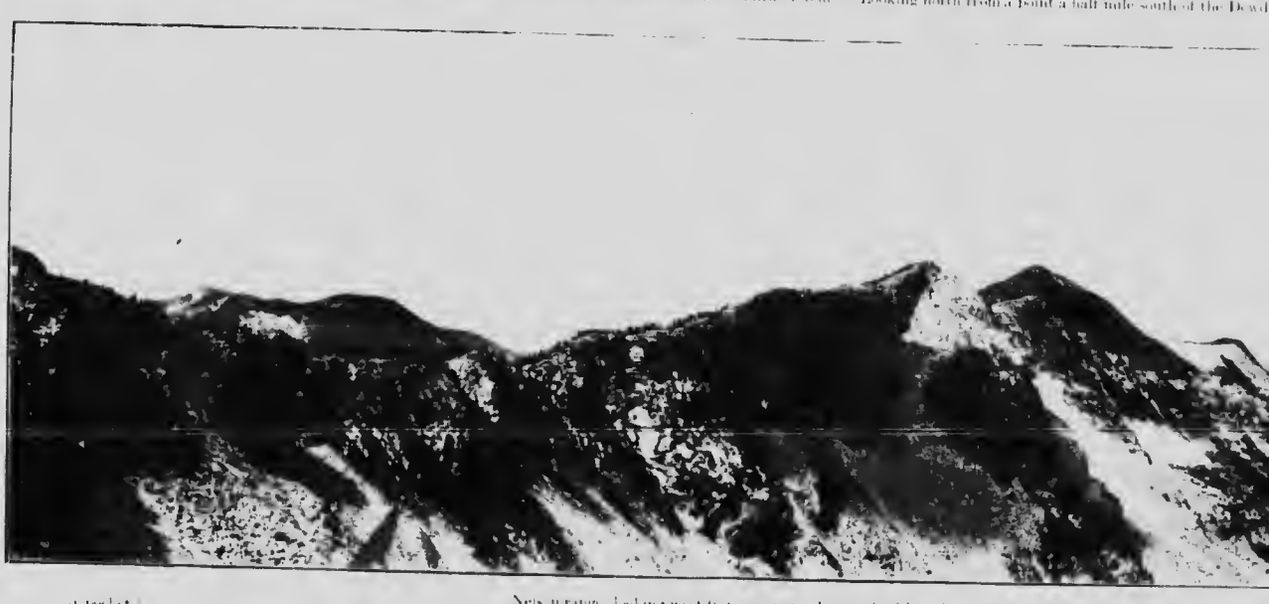
PLATE 72. VIEWS IN THE ROCKY AND SELKIRK RANGES.

Typical view in the Clarke range. Looking eastward from head of Starvation Creek. The slope in middle of view is composed of the S

Summit of the Nelson range (Selkirk system). Looking north from a point a half mile south of the Dewd



a pocket.

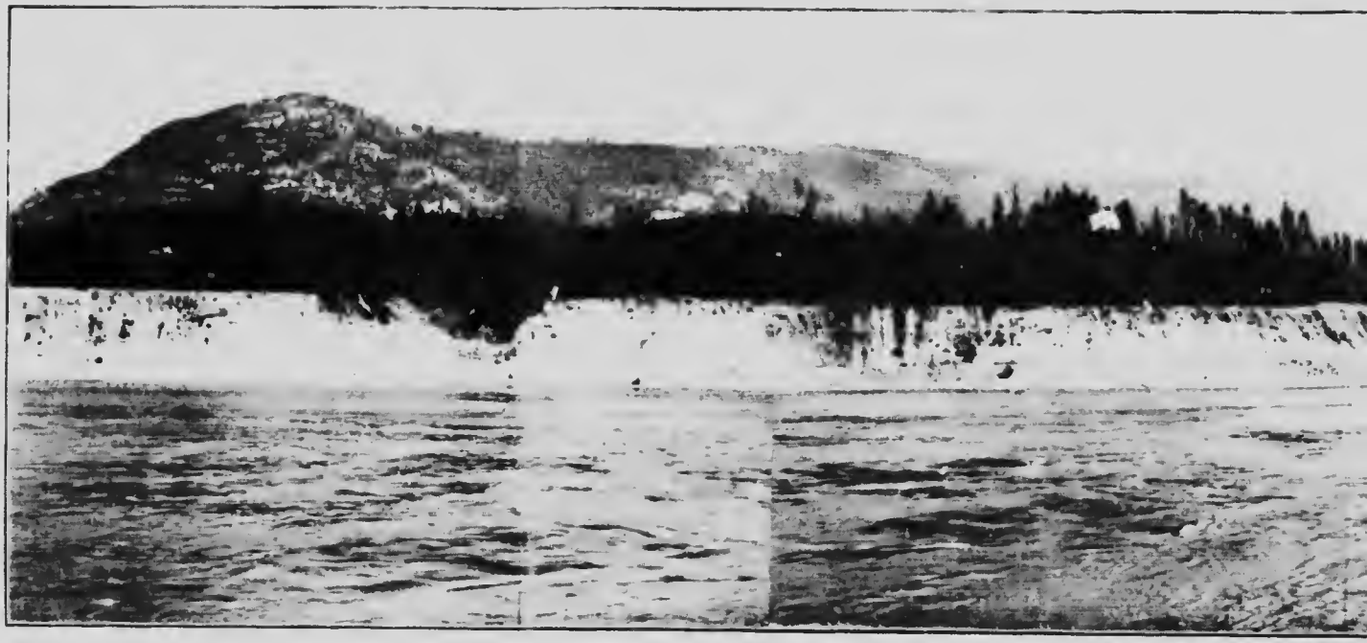
Nels n range, looking west fr m summit ridge north of Dewdney trail. Ridges of near distance composed

ess I of the Sicker formation capped by the Parcell Lava, which is overlain by the Karmutsen formation

of the Dewdney trail. Beehive Mountain in distant, on the left.

ne composed of vertical quartzites, etc., of the Sutton series

PLATE 73. VIEWS IN THE SELKIRK, COLUMBIA AND CASCADE RANGES.



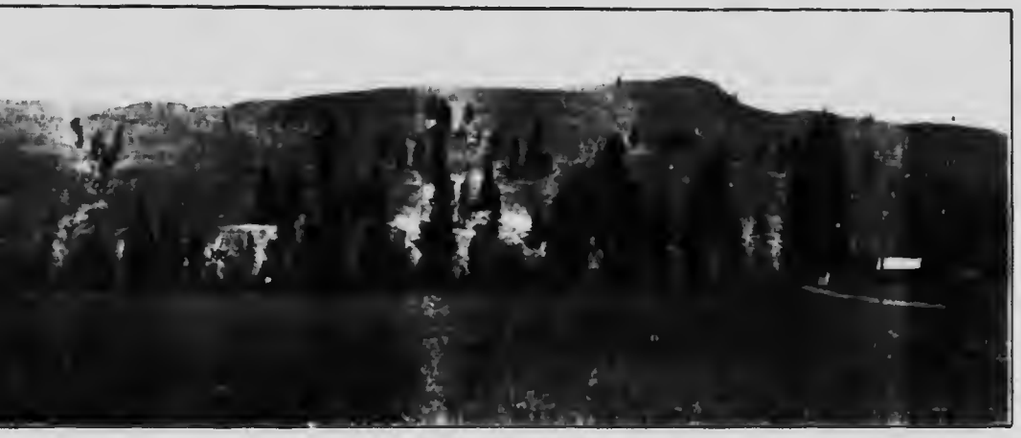
Columbia River terrace and the Pend Oreille mountains, Selkirk system. Looking southwe

Typical view in the Midway Mountains. Looking northeastwardly across Kettle Ri

(In pocket.)

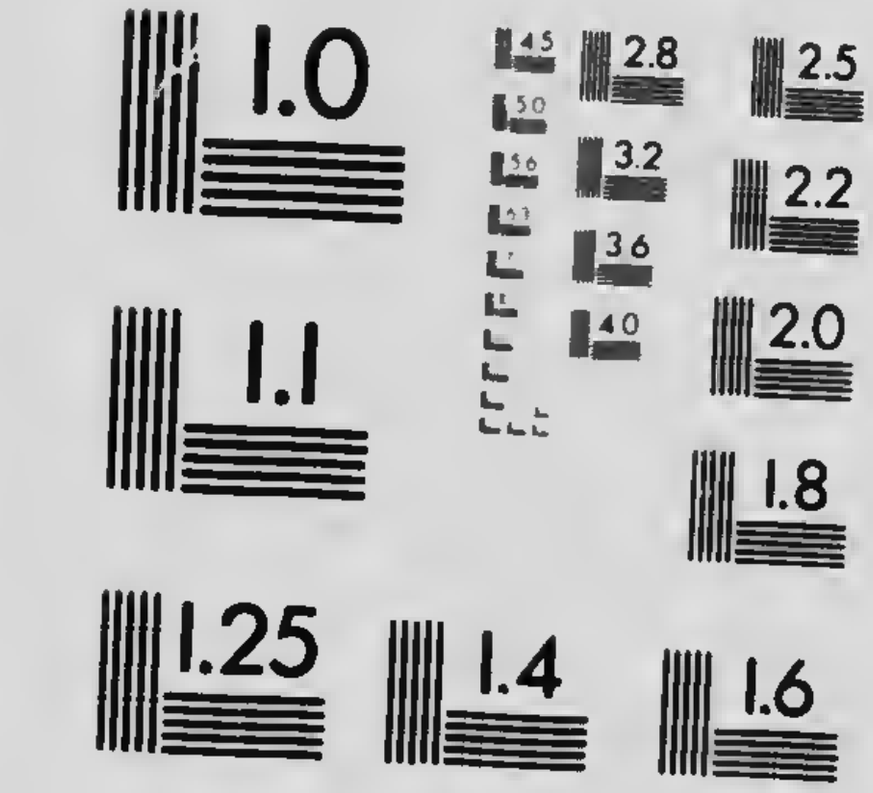
ical view in the Skagit range. Looking east from divide between Middle and Slesse creeks. Chilliwack River v

king southwest from near International Boundary



ttle River near bridge six miles above Midway

ack River valley on the left. View shows accordance of summit levels.



FICHE 3 NOT REQUIRED

7