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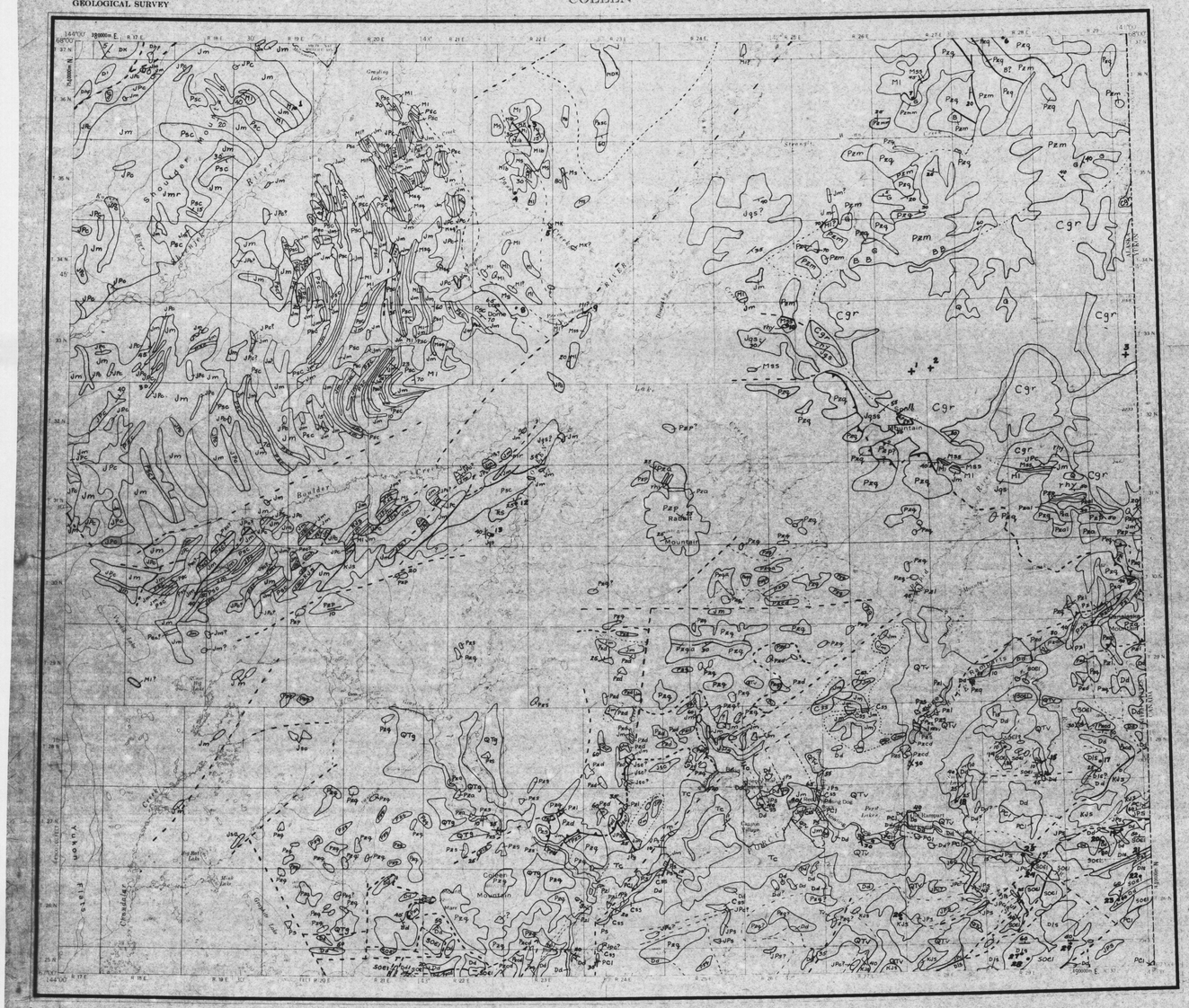
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ALASKA
TOPOGRAPHIC SERIES

COLEEN



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Location Index

Arctic	Table Mtn	
Christian	Coleen	Eagle
Ft. Yukon	Black River	

Geology by:

W. P. Brosgé and H. N. Reiser, 1963

W. P. Brosgé, H. N. Reiser, W. L. Dutro Jr., and Michael Churkin Jr., 1964

W. P. Brosgé and H. N. Reiser, 1967

Preliminary geologic map of the Coleen quadrangle, Alaska

by W. P. Brosgé and H. N. Reiser
1969

THIS MAP IS PRELIMINARY AND HAS NOT BEEN EDITED OR REVIEWED FOR CONFORMITY WITH U.S. GEOLOGICAL SURVEY STANDARDS AND NOMENCLATURE

EXPLANATION

Sedimentary and volcanic deposits

Qal — Alluvium and residual soil (Holocene and Pleistocene deposits)

Christian River Sequence	Brooks Range Sequence	Strangle Woman Creek Sequence	Porcupine River Sequence

Intrusive Rocks

Jm — Mafic rocks. Gabbro, basalt and quartz gabbro, mainly in Christian River sequence; locally some ultramafic rocks. Largest intrusions are at Porcupine River and on Porcupine River. Dikes are mainly Jurassic mafic rocks. Consists of gabbro, basalt (Lachenbruch and others, 1962) and others, 1966).

Rhy — Rhyolite. Sills petrographically related to granite (Chapman and others, 1964) and yielding 162 ± 7 m.y. (Rb-Sr) apparent age.

Gr — Granite. Biotite granite and generic monzonite and quartz monzonite, locally porphyritic. Intrudes Upper Paleozoic rocks and Mississippian Mount Mertie Quartzite. Yields 295 ± 10 m.y. (Rb-Sr) whole rock age.

Table 1. Fossil Collections

Map No.	Field Number	Fossils	Age	Map Unit	Identified by
1	63ABa 86C	Foraminifera	Late Miss.	Mi	Armstrong
2	63ABa 85B		Late Miss.	Mi	"
3	63ABa 76	brachiopods	Late Devonian	MK	Dutro
4	63AR-299	corals	Late Miss.	Mi	Armstrong
5	59ABa 74	Amphipoda, corals	Early Miss.	Mi	Dutro
6	63ABa 277A	brachiopod, corals	Paleozoic	Pzq	Dutro
7	63ABa 308C	corals	Late Miss.	Mi	Armstrong
8	59ABa C 8	Arthrostylus	Carb. or Perm.	Ms	Duncan
9	63ABa 133	corals	Late Devonian	Mi?	Armstrong
10	63ABa 196	brachiopods, corals	Late Devonian	Mss	Dutro
11	63AR-337	ammonites	Early Jurassic (Hettangian)	Mss, Jhg	Silberling and Imlay
11	63ABa 91B	ammonites	Mesozoic	Mss, Jhg	Imlay
11	63ABa 91A	brachiopods, Cetiosaurid, pelecypods	Carb. or Permian	Mss, Jhg	Dutro and Gordon
12	63ABa 2	monotids	Late Triassic	Ms	Silberling
13	63ABa 2	pectenoid, pelecypod	Mississippian	Mss	"
14	63AR-483	trilobite	Cambrian(?)	SOd	Ross
15	63AR-412	Amphipoda?	Devonian(?)	Dd	Oliver
16	63AR-448	corals	Late(?) Ord.	SOd	Oliver
17	63AR-149	corals	Middle Dev.	Dd	Oliver
18	63ABa 232	Amphipoda?	Devonian(?)	Dd	Oliver
19	63AR-520	snail	Silur.-Dev.	Dd	Yochelson
20	63AR-553	Amphipoda?	Devonian(?)	Dd	Oliver
21	63ABa 369	corals	Middle Dev.	DIs	Oliver
22	63ABa 362, 363, 367B	corals	Middle(?) or Late(?) Sil.	SOd	Oliver
23	63AR-526	Amphipoda?	Devonian(?)	Dd	Oliver
24	63AR-478A	corals	Penn.-Perm.	UPs	Armstrong
25	KPO 688	ammonites	Lower Jurassic	JPs	Imlay
26	63ABa 418B	clams	Nuss. or Cret.	Kus	Imlay
27	63ABa 418	corals	Devonian	DIs	Oliver
28	63ABa 417E	corals	Silurian or Middle Dev.	DIs	Oliver
29	63ABa 411	snail, Amphipoda?	Devonian or Devonian	SOd	Yochelson, Oliver

Identifications as records by A. R. Armstrong, Helen Duncan, W. L. Dutro Jr., Ruth Ginsburg, W. P. Brosgé, A. G. Harris, H. N. Reiser, N. J. Silberling, E. L. Yochelson, U.S. Geological Survey

Table 2. Potassium-argon ages on minerals in granite

Potassium analyses by Lee Schlocker. Argon analyses and age calculations by Oliver Van Essen.

Map No.	Field Number	Mineral	Percent K	Ar^{40}_{rad} moles/gm	Ar^{40}_{rad} / Ar^{40}_{total}	Apparent age (m.y.)
1	63AR-361	biotite	6.41 ± 0.23	3.3352 × 10^{-5}	0.82	374 ± 9
2	63ABA-361	muscovite	8.37/8.31 ± 0.40	3.4403 × 10^{-5}	0.76	335 ± 10
3	63ABA-210	biotite	7.62 ± 0.28	3.3237 × 10^{-5}	0.80	299 ± 9
3	63ABA-210	biotite	7.62 ± 0.28	3.3237 × 10^{-5}	0.93	295 ± 9

K^{40} decay constants: $\lambda_\beta = 0.582 \times 10^{-10}$ per year; $\lambda_\beta + \lambda_{EC} = 4.72 \times 10^{-10}$ per year

Abundance ratio: $A^{40}/K = 1.19 \times 10^{-4}$ atoms per atom

For additional data on stratigraphy and age of units 3961

Brosgé, W. P., Reiser, H. N., Dutro, J. T., Jr., and Gryc, George, 1964, Geologic map and stratigraphic summary, Porcupine River, Yukon, Alaska: U.S. Geol. Survey Open-File report.

Churkin, Michael Jr., and Brosgé, W. P., 1965, Devonian fauna from the Nation–Tanana area and its tectonic relation to other Devonian faunas in Alaska, in Geological Survey Research 1965: U.S. Geol. Survey Prof. Paper 525-D, p. D130–D139.

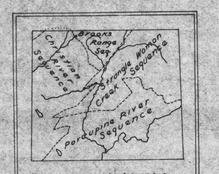
Kindle, E. M., 1908, Geological reconnaissance along the Porcupine River, Yukon Territory: Geological Society of America Bull., v. 19, p. 367–388.

Lawson, A. C., 1905, Mesozoic and Tertiary igneous rocks of the Yukon gold district, Alaska: Am. Jour. Science, 4th ser., v. 19, p. 253–276.

Reiser, H. N., Longshore, R. A., and Brosgé, W. P., 1966, Tungsten-bearing scheelite skarn deposits in the Coleen quadrangle, Alaska: U.S. Geol. Survey Prog. Report 28-8, p. C68–C71.

For interpretation of magnetic rocks 3961

Brosgé, W. P., Brosgé, P. E., and Reiser, H. N., 1966, Interpretation of aeromagnetic data for the central Yukon and northern Alaska: U.S. Geol. Survey Open-File report



Location of stratigraphic sequences in Coleen quadrangle

Geologic contact — dashed where inferred, queried where uncertain or nearly so

Fault — Dashed where inferred

Thrust fault — Teeth on upper plate; dashed where inferred

Strike and dip of beds

Strata at vertical dips

Fossil locality

K-Ar sample locality

Direction in metamorphic rocks

Garnet in metamorphic rocks

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