DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

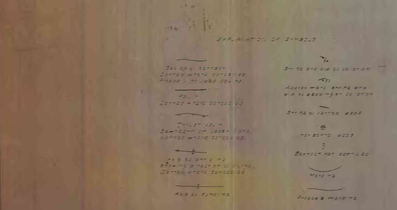
PREPARED IN COOPERATION WITH STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP
OF 77-28

BASE BY U.S. GEOLOGICAL SURVEY, 1956

SCALE 1:250,000

Geology by: I.L. Tailleur, 1962; W.H. Patton, T.P. Miller, 1965; W.P. Brosge, H.N. Reiser, I.L. Tailleur, 1966; C.E. Fritts, G.R. Pessel, G.R. Eakins, I.L. Tailleur, R.E. Garland, 1972; I.L. Tailleur, W.P. Brosge, G.R. Pessel, R.E. Garland, 1973; I.L. Tailleur, W.P. Brosge, G.R. Pessel, 1974.



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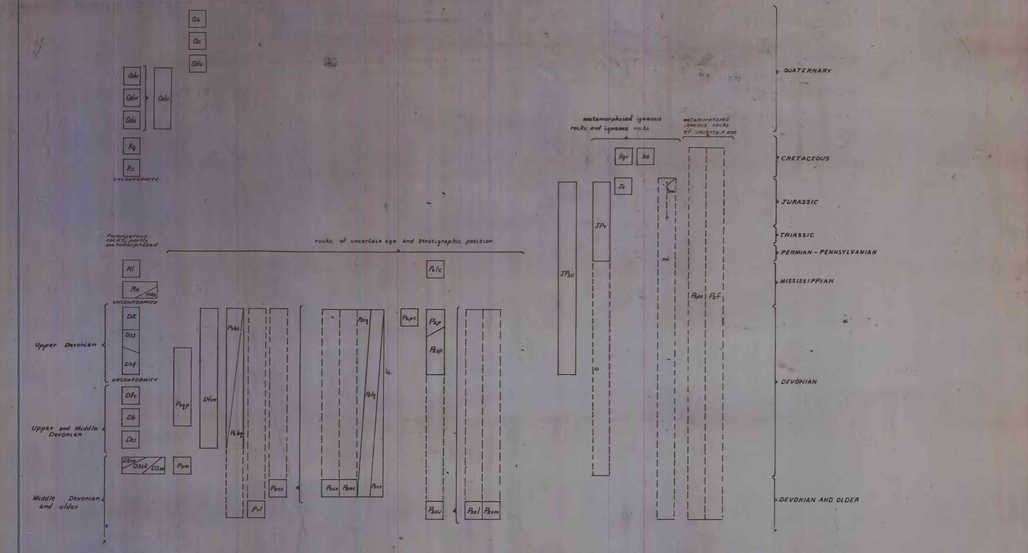
PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF AMBLER RIVER QUADRANGLE, ALASKA

Compiled by G. H. Pessel and W. P. Brosge 1977

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qa ALLUVIUM

Qc COLLUVIUM

Qs UNCONSOLIDATED SAND

Qfs UNCONSOLIDATED SAND AND FINE SEDIMENTS

Qdu ULANEAK DRIFT

Qdw WALKER DRIFT

Qda AMBLER DRIFT

Qpu UNDIFFERENTIATED DRIFT

Kg QUARTZ CONGLOMERATE, quartz-pebble conglomerate with a quartzose matrix, some clasts of chert, schist, and greenstone; some interbedded quartzose sandstone and mudstone.

Kc IGNEOUS PEBBLE CONGLOMERATE, massive, poorly sorted, poorly stratified pebble to cobble conglomerate. Clasts of extrusive and intrusive igneous rocks in a graywacke and mudstone matrix. Some clasts of chert and mudstone. Probable Early Cretaceous (Albian) age (Patton, Miller and Tailleur, 1968).

FOSSILIFEROUS ROCKS, PARTLY METAMORPHOSED

Ml LISBURNE GROUP, light gray and dark gray limestone and marble, generally cherty, fossiliferous in part.

Me EIDEDICOTT GROUP, undifferentiated black shale and calcareous shale of the Kayak Shale, and quartzite and conglomerate of the Kekiktuk Conglomerate.

Mke KEKIKTUK CONGLOMERATE, gray-green, massive, quartz and chert-pebble conglomerate, quartzite, and sandstone, minor amounts of dark shale.

Dk KANAYUT CONGLOMERATE, gray-green, massive quartz and chert-pebble conglomerate, quartzite, and sandstone with some shale.

Dss SANDSTONE, gray-green, thin-bedded, limonitic sandstone, partly calcareous, gradational with the Kanayut Conglomerate (Dk).

Dhf HUNT FORK SHALE, black shale, slate, and phyllite, with some interbedded sandstone and quartzite; lenses of brown, limonitic limestone.

Dfc SILTSTONE AND PHYLLITE, light brown and orange weathering, gray, calcareous siltstone and phyllite; minor amounts of sandstone, conglomerate, and dark-gray phyllite.

Db LIMESTONE AND PHYLLITE, interbedded black calcareous phyllite and black argillaceous limestone.

Dcc CHLORITIC PHYLLITE, green, chloritic, calcareous phyllite, siltstone and grit.

DSsk SKAJIT LIMESTONE, mostly light-gray, massive marble, highly-sheared and folded in part.

DSso ORANGE MARBLE, orange weathering, medium to coarse grain, chloritic marble, highly sheared in part; boudins and sills of chloritic greenstone.

DSld DARK GRAY MARBLE, dark-gray, dark weathering limestone and marble.

ROCKS OF UNCERTAIN AGE AND STRATIGRAPHIC POSITION

Dfcw WACKE, brown to green calcareous wacke and dark-gray volcanic wacke.

Pzbs BLACK SILTSTONE, black, soft siltstone and sandy siltstone

Pzbc BLACK QUARTZITE, black, fine-grain quartzite, probably metamorphosed Jbs in part, but mostly associated with units in Pzsu and Pzcc.

Pzp PHYLLITE, brown to dark gray phyllite and slate, commonly sericitic; gradational into quartz-mica schist (Pzsu).

Pzso PHYLLITIC SCHIST, transitional stage between Pzp and Pzsu.

Pzpc PHYLLITE AND CHERT, interbedded phyllite and gray chert. Probably an equivalent of Pzp. Mapped only in T. 22 N., R. 3 E.

Pzm MASSIVE LIMESTONE, massive, gray limestone, probably associated with the Skajit Limestone (DSsk), but stratigraphic position uncertain.

Pzqp QUARTZ-PHYLLITE, light-gray, fine to medium grain quartzite interbedded with brown and gray phyllite.

Pzcc UNDIFFERENTIATED CHLORITE SCHIST, mostly quartz-chlorite-albite* calcite schist with abundant lenses and beds of marble locally. Carbonates differentiated as Pzl where possible. Includes units of Pzcq, Pzlq, Pzcs, Pzmc, and Pzca. This unit is probably older than the Skajit Limestone (DSsk) in part, and may contain units as old as Middle Ordovician.

Pzcq CHLORITIC QUARTZITE, mostly quartz-albite-chlorite*magnetite schist and schistose quartzite. Contains some boudins of schistose greenstone.

Pzlq LIMESTONE-QUARTZITE, interbedded quartz-albite-muscovite schist, quartzite, and light gray marble. Marbles are differentiated as Pzl where possible.

Pzcs CALC-SCHIST, mostly quartz-albite-calcite schist, but considerable variation in composition. Assemblages containing epidote, muscovite and actinolite are common.

Pzmc CHLORITIC MARBLE, mostly orange-weathering chloritic marble, probably equivalent to DSso in part.

Pzca META-APLITE (?), K-feldspar-quartz-albite* calcite schists. May be metamorphosed aplite.

Pzsu UNDIFFERENTIATED QUARTZ-MICA SCHIST, mostly quartz-mica schist with minor amounts of chlorite schist, greenstone, marble, and felsic schist. Includes units of Pzl, Pzsl, and Pzsm. This unit appears to be structurally below the various units in Pzcc, and thus could be older than both that unit and the Skajit Limestone, but the age is very uncertain. The unit may be a structural mixture of units of several ages, from as young as Devonian to Ordovician and older.

Pzl MARBLE, mostly light-gray, medium-grain marble; generally highly sheared. Includes fossiliferous recrystallized Devonian limestone in Cosmos Hills (Patton, Miller and Tailleur, 1968).

Pzsm MASSIVE QUARTZ-MICA SCHIST, massive-weathering quartz-mica schist, commonly graphitic; generally more resistant than the surrounding schist and phyllite. White quartz veins abundant locally.

Pzsl CALCAREOUS SCHIST, brown-weathering calcareous schist.

Pzlc CHERTY LIMESTONE, intermedded chert and marble and cherty marble, generally highly sheared and folded. Probably a metamorphosed equivalent of Lisburne Group carbonate (Mll). Mapped only in three small exposures, T. 18 N., R. 9 E.; T. 22 N., R. 3 E., and T. 22 N., R. 9 E.

JPzu UNDIFFERENTIATED PHYLLITE AND MAFIC IGNEOUS ROCKS, mafic igneous rocks of JPv interbedded or structurally mixed with phyllites of Pzp.

IGNEOUS ROCKS

JPv MAFIC IGNEOUS ROCKS, slightly metamorphosed mafic hypabyssal and volcanic rocks. Possibly Jurassic in age (Patton, Miller, and Tailleur, 1968), but may be as old as Devonian (Fritts, 1974).

Js SERPENTINITE, partially serpentinized peridotite and dunite, highly sheared locally. Possibly Jurassic in age (Patton, Miller, and Tailleur, 1968).

Kgr GRANITE, plutonic rocks consisting mostly of quartz-perthitic K-feldspar-sodic plagioclase-muscovite*biotite granites, biotite commonly altered to chlorite; generally foliated and sheared. The pluton west of the Kooyuktuk River has a potassium-argon age-date of 98 million years.

bs BIOTITE SCHIST, plagioclase-quartz-biotite schist; possibly a metamorphosed granodiorite; probably related to the intrusion of the granite (Kgr).

mi GREENSTONE: metamorphosed basalt, dacite, and other volcanic rocks. Pillows are reported in some localities. Age is very uncertain, but probably equivalent to JPv in part.

bmi GLAUCOPHANE BEARING GREENSTONE, glaucophane-garnet greenstone, including various metamorphosed mafic igneous rocks. Jadeite reported in one locality several miles south of YABM Ruby.

METAMORPHOSED IGNEOUS ROCKS OF UNCERTAIN AGE

Pzps PORPHYROBLASTIC SCHIST, quartz-albite-K-feldspar-muscovite* biotite schist with porphyroblasts of K-feldspar. Interpreted to be meta-rhyolite by most mining geologists (Wilson, 1975).

Pzf FELSIC SCHIST, mostly quartz-albite-K-feldspar schist; generally fine-grain, massive in part. Probably metamorphosed acidic igneous rocks, including rhyolite and aplite.

Copper deposits, stream-sediment anomalies and large groups of claims made in the last 10 years (Alaska Div. Geol. and Geophys. Surveys, 1973, p. 8) occur in a zone along the strike of units bmi, Pzps and Pzf.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.