

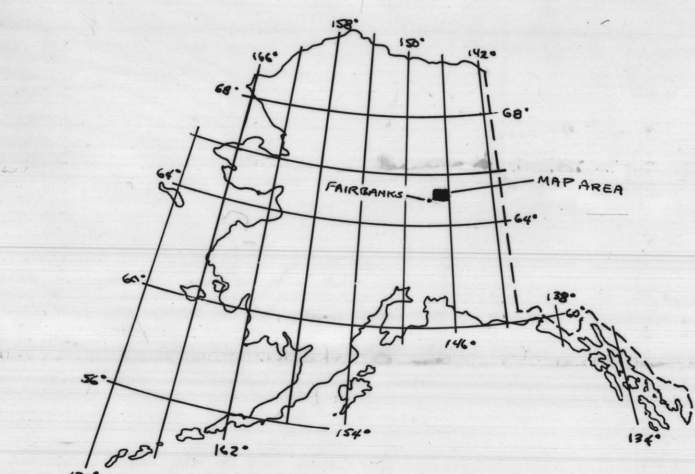
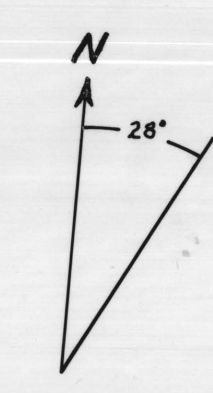
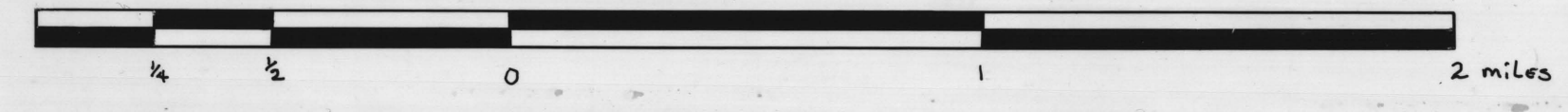
BEDROCK GEOLOGY OF THE FAIRBANKS MINING DISTRICT, SOUTHEAST SECTOR

by M.S. Robinson
1982

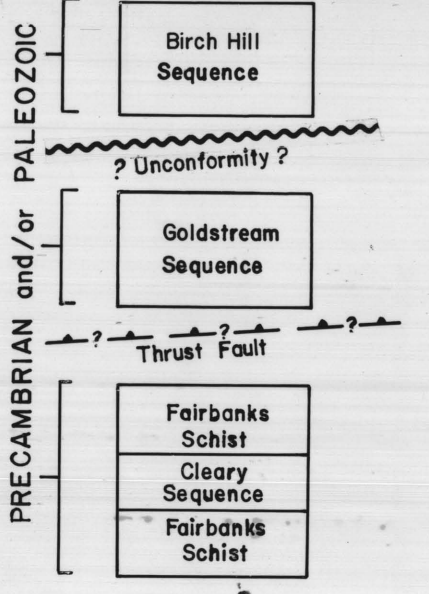
A COOPERATIVE EFFORT BY THE MINERAL INDUSTRY RESEARCH LABORATORY, UNIVERSITY OF ALASKA
AND THE ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

This is a preliminary publication of the Alaska Division of Geological and Geophysical Surveys and as such has not received final editing and review. The author will appreciate useful comments on the accuracy of the data, and welcome suggestions that will improve the report.

Scale 1:24,000

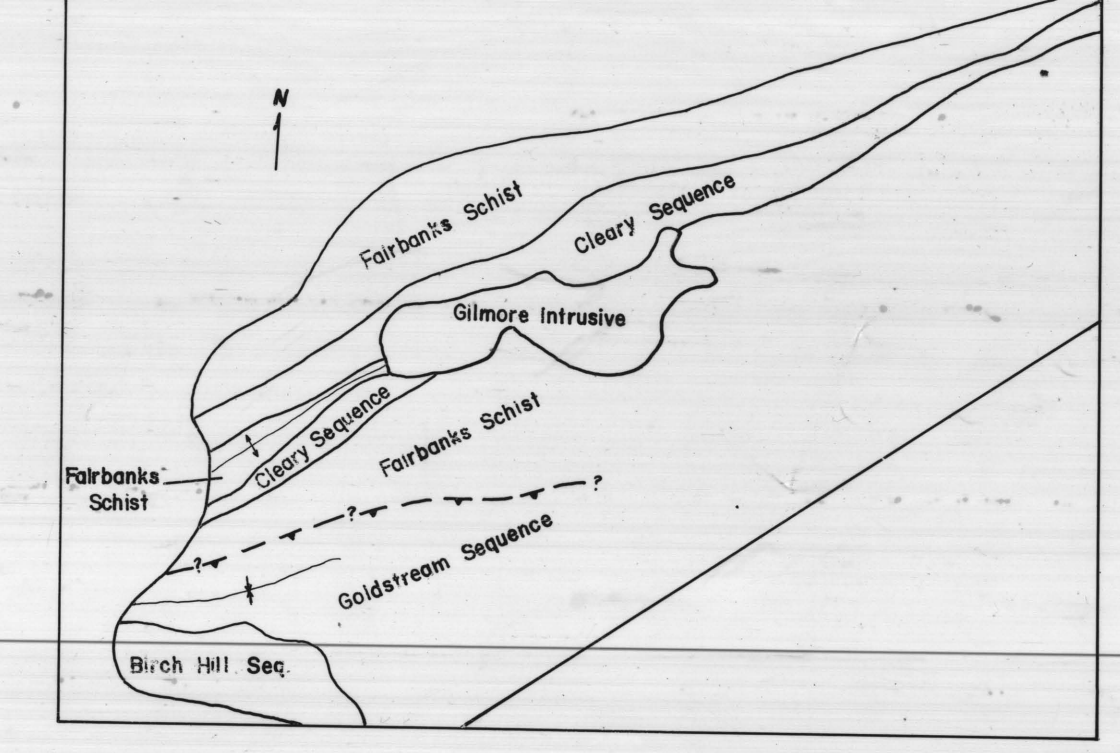


Structural / Stratigraphic Relationships Between Rock Units



- Contact showing dip. Solid where known, dashed where approximate and dotted where concealed or inferred.
- Thrust fault showing direction and dip of thrust plane. Sawtooth on upper plate. Solid where known, dashed where approximate and dotted where concealed or inferred.
- Fault showing dip and displacement and relative movement. Solid where known, dashed where approximate and dotted where concealed or inferred.
- Synform showing trace and plunge of crestal axis.
- Strike and dip of schistosity parallel to bedding.
- Strike and plunge of lineation. Mineral: h = hornblende, t = tremolite, b = biotite. Structural: qb = quartz bodies, F = fold axes, D = truncation.
- Strike and dip of schistosity and plunge of lineation.
- Strike and dip of jointing.
- Strike of vertical jointing.
- Mine or prospect.
- Limit of rubbleshop.
- Limit of outcrop.

Distribution of Rock Units



Bedrock geology by T.K. Bundsten, M.S. Robinson, T.R. Smith and P.A. Metz. Assisted by M.D. Albano, M.L. Hall, J.D. Rasmussen, D.N. Soliz, S.A. Liss, V.M. Ferrelli, J.C. Clough and G.H. Laird.

Clary Sequence

m Light-gray to white, coarse-grained, highly crystalline marble; contains sulfides in Clary, Detrock, and Chatham Creeks. Base of top of Clary Sequence north of Clary Summit. Very greenish dark gray-green, very fine grained, thinly laminated to massive-bedded siliceous dolomite. Siliceous dolomite occurs in Clary and Chatham Creeks and may represent metamorphosed siliceous schistite.

mqe Light-brown to buff, fine- to coarse-grained, thinly laminated muscovite-quartz-schist ± garnet, biotite, and feldspar. Recognized by presence of gray or brown muscovite and gray quartz. Probably represents metamorphosed pelitic sediment.

mq Light-brown to buff, fine-grained, thin-bedded to massive quartzite and micaceous quartzite.

mqe White to yellow and brown, fine- to medium-grained, thinly laminated muscovite-quartz-schist ± feldspar and sulfides. Recognized by presence of yellow white or clear muscovite, light-colored quartz, and limonite along fracture surfaces. Probably represents metamorphosed siliceous schistite or metachert. Hosts most gold and antimony occurrences in district.

mqv White to yellow, pink, and brown, fine- to medium-grained, porphyroblastic felsic schist with quartz and feldspar porphyroblasts and blastomylonites. Recognized by presence of pink potassium feldspar and quartz blastomylonites in nonfoliated massive varieties and of large, pink potassium feldspar blastomylonites and smaller, white albite porphyroblasts in foliated varieties. Probably represents metamorphosed pelitic flow rock.

ga Dark-gray to black, fine- to medium-grained quartz-graphite schist. Probably represents metamorphosed carbonaceous sediment.

msv Dark-green to black, medium- to very coarse grained, thin-bedded to massive amphibolite and calc-amphibolite ± garnet, almandine, and biotite. Recognized by presence of dark-green hornblende, light-red to pink garnet, and light-brown siderite. Massive variety probably represents metamorphosed basalt and thin-bedded variety may represent metamorphosed mafic tuff.

mqps Dark-gray to brown, fine- to medium-grained, thinly laminated garnet-biotite-muscovite-quartz schist. May include brown to buff, fine- to medium-grained, and micaceous quartzite. Recognized by presence of major amount of biotite. Probably represents metamorphosed pelitic sediment.

ia Light-green to white, medium- to coarse-grained tremolite schist. Recognized by presence of tremolite in light-colored, recrystallized calcite groundmass. Distinctive marker horizon within Goldstream Sequence and is present on Chena Ridge, in Goldstream Valley, and at Fox.

ca Green to dark-green, fine-grained, thinly laminated to massive, banded, siliceous calc-amphibolite. May contain gray to tan and green, thinly laminated to massive metachert. Probably represents metamorphosed calcareous and siliceous sediment.

mq Light-brown to buff, fine-grained, thin-bedded to massive quartzite and micaceous quartzite. May contain muscovite and biotite.

Birch Hill Sequence

cs Light- to dark-brown, fine- to medium-grained, thinly laminated, muscovite-biotite calc-schist.

ca Green to dark-green, fine-grained, thinly laminated to massive, siliceous calc-amphibolite. May contain gray to tan and green, fine-grained metachert.

ph Dark-gray to black, very fine grained, thin-bedded, dyalitic siltstone. Includes dark-gray to brown quartzite, dark-gray to black thin-bedded slate, and minor felsic tuff. This contains lower greenschist-facies mineral assemblages.

Intrusive Rocks

qm Light-gray to off-white, medium- to coarse-grained, porphyritic quartz monzonite with potassium feldspar phenocrysts to 6 in length and quartz phenocrysts to 1 in diameter.

qd Dark-gray to gray, fine- to medium-grained, hypidiomorphic granular gneiss.

ap Light-brown to buff, fine- to medium-grained, aegirite schist pegmatite; may contain pyrite and arsenopyrite concentrations. Recognized by presence of light-brown titanite halos surrounding mafic concentrations and by aegirite texture.

Extrusive Rocks

a Light-gray to white, fine-grained siltite. Occurs as dikes and small intrusive bodies.

b Medium-gray to black and gray-green to yellow-orange, fine-grained, cholectitic basalt with pillow and columnar structures locally.

Fairbanks Schist

mqe Light-brown to buff, medium- to coarse-grained, thinly laminated, muscovite-quartz-schist ± garnet, biotite, and feldspar. Recognized by presence of gray or brown muscovite and gray quartz. Contains abundant garnet in northern and western sectors of district; abundance of garnet decreases to southeast, where biotite becomes major mineral phase. When biotite becomes a dominant mineral, rock is biotite-muscovite-quartz schist (mqv). Chlorite is ubiquitous mineral phase throughout district and probably represents retrograde metamorphic event. This probably represents metamorphosed pelitic sediment.

mqps Dark-gray to brown, fine- to medium-grained, thinly laminated, biotite-muscovite-quartz schist. Contains brown to buff, fine- to medium-grained, thinly laminated to massive quartzite and micaceous quartzite. Becomes dominant rock type in southeastern sector of district. Contains garnet and feldspar porphyroblasts locally. This probably represents metamorphosed argillaceous and arkosic sediments.

mq Light-brown to brown and gray, fine- to medium-grained, thin-bedded to massive quartzite and micaceous quartzite.