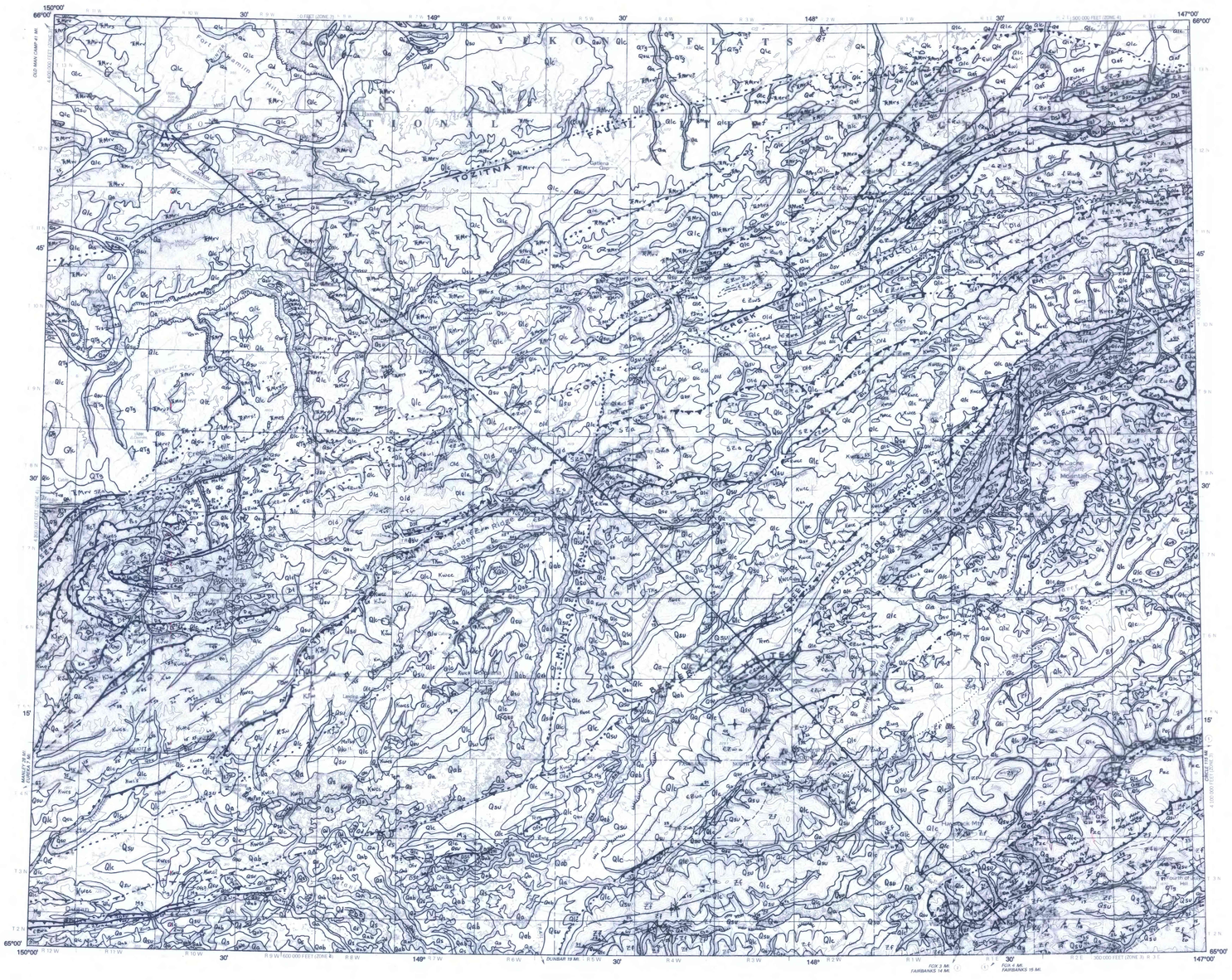
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT
92-562



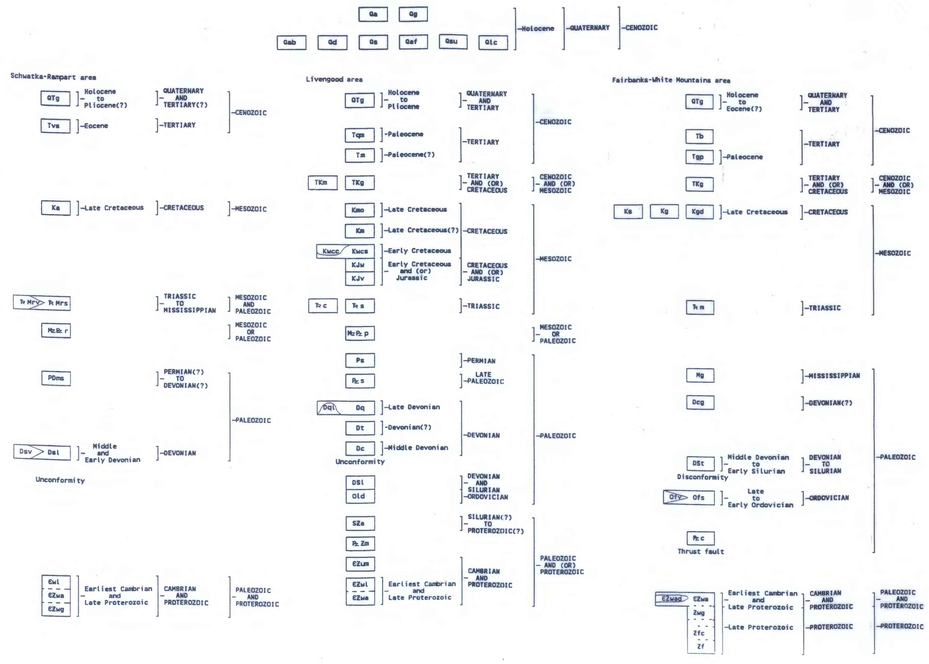
Base from U.S. Geological Survey 1:250,000 topographic series: Livengood 1956, limited photo-revision 1984.

SCALE 1:250 000

CONTOUR INTERVAL 200 FEET
DOTTED LINES REPRESENT 100-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

AREA OF MAP

CORRELATION OF MAP UNITS



EXPLANATION

Contact, approximately located

Contact, gradational

Contact, concealed

Fault, arrows indicate possible direction of movement, otherwise direction unknown

Fault, inferred

Fault, concealed

Thrust fault, teeth on upper plate

Thrust fault, concealed, teeth on upper plate

Terrace

Dikes, various compositions and ages

Eclogitic horizons in Chatanika allochthon (Pꞓc)

FOLDS

Anticline or Antiform

Syncline or Synform

BEDDING

Strike and dip

Horizontal

Vertical

Overturned

FOLIATION

Strike and dip

Horizontal

Vertical

Bedding or foliation estimated from distant, aerial, or photogeologic observations

DEFINITION OF MAP UNITS

UNCONSOLIDATED DEPOSITS

Qa Alluvium
Qg Reworked creek gravels in placer mining areas
Qab Abandoned or inactive flood plain deposits
Qd Sand dune deposits
Qs Swamp deposits
Qaf Alluvial fan deposits
Qsu Silt, undifferentiated, contains reworked loess, swamp and organic-rich deposits
Qlc Loess and colluvium—Including minor upland alluvium

BEDROCK

Schwatka-Rampart area

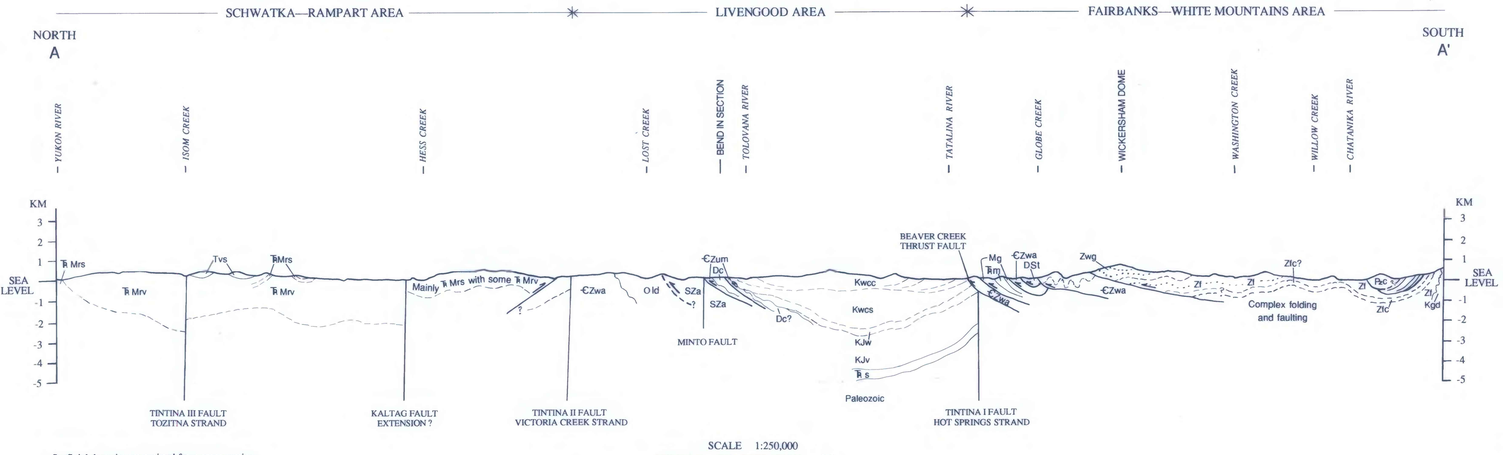
QTg Gravel, sand, and silt
Tvs Volcanic and sedimentary rocks—Conglomerate, graywacke, siltstone, shale, coal, greenstone, basalt, and tuff
Ka Alaskite—Raven Creek Hill
ꞓMrv Rampart Group—Intrusive and associated extrusive mafic igneous rocks, a few interlayered sedimentary rocks
ꞓMrs Rampart Group—Sedimentary rocks—Argillite, chert, graywacke, shale, limestone, and minor amount of mafic igneous rocks
MzPzr Raven Creek Hill unit—Garnetiferous quartz biotite-muscovite±chlorite schist
PDms Metamorphic and sedimentary rocks—Several indeterminate or poorly identified units combined
Dsv Schwatka unit—Mafic metavolcanic rocks and minor clastic sedimentary rocks
Dsl Schwatka unit—Lime mudstone or wackestone
ꞓwl Wickersham unit—Arenaceous, micaceous limestone
ꞓZwa Wickersham unit—Maroon and green argillite, grit (bimodal quartzite), quartzite, siltite, graywacke, and phyllite
ꞓZwg Wickersham unit—Grit, quartzite, graywacke grit, phyllite, slate, limestone, and chert

Livengood area

QTg Gravel, sand, and silt
Tqm Quartz monzonite—Tolovana Hot Springs Dome pluton
Tm Monzonite(?) or monzodiorite(?)—Small bodies, about 4.8 km northeast of Tolovana Hot Springs Dome pluton
TKm Monzonite—Cascaden Ridge pluton
TKg Felsic granitic rocks—Dikes, sills and small bodies of irregular shape, scattered throughout central part of quadrangle, mainly in upper Wilber Creek area
Kmo Quartz monzonite, monzonite, and syenite—Six plutons at and near Sawtooth, Elephant, and Wolverine Mountains
Km Minto unit—Siltstone, mudstone, graywacke, quartzofeldspathic sandstone, shale, and clay shale
Kwcc Wilber Creek unit—Polymictic conglomerate, conglomeratic graywacke, siltstone, and shale
Kwcs Wilber Creek unit—Shale, siltstone, and graywacke
KJw Wolverine quartzite unit—Quartzite, shale, siltstone, and local coquina
KJv Vrain unit—Slate or shale, and minor siltstone
ꞓTs Calcareous phosphatic shale, limestone, minor calcareous sandstone, and grausle conglomerate—Along northern edge of Beaver Creek Fault in eastern part of quadrangle
ꞓTc Shale or slate, chert, and tuff—About 10 km northwest of Wolverine Mountain
MzPzp Phyllite, schistose phyllite, quartzite, siltite, amphibolite, diorite, and greenstone—In southwestern part of quadrangle
Ps Sedimentary rocks—Argillite, siltstone, sandstone, and minor conglomerate—About 4 km southwest of Raven Creek Hill
Pzs Sedimentary rocks—Siliceous slate, chert and cherty argillite, greenstone, lime wackestone, and minor conglomerate—West side of Troublesome Creek and south of Willow Creek
Dq Quail unit—Phyllite, siltstone, quartzose sandstone, graywacke, and conglomerate—West-central part of quadrangle
Dql Quail unit—Lime mudstone or wackestone—West-central part of quadrangle
Dt Troublesome unit—Cherty argillite, chert, siliceous slate, associated with intrusive and extrusive mafic rocks—West-central part of quadrangle
Dc Cascaden Ridge unit—Shale, siltstone, graywacke, polymictic conglomerate, limestone, and minor clastic limestone—South side of Cascaden Ridge and on the flanks of Amy Dome
DSl Lost Creek unit—Lime mudstone and wackestone, graywacke, chert pebble to cobble conglomerate, micritic limestone, chert—About 3 km north and also 10 km northeast of Cascaden Ridge pluton
Old Livengood Dome Chert—Chert, siliceous slate, rare greenstone, tuff, and limestone
SZa Amy Creek unit—Dolomite, lime mudstone, wackestone and packstone, chert, argillite, basaltic greenstone, tuff, tuffaceous siltstone, shale, and minor volcaniclastic graywacke
PzZm Mafic igneous rocks and minor interlayered sedimentary rocks—Gabbro, diabase, diorite, greenstone, basalt, slate, siliceous shale, chert, argillite, claystone, siltite, quartzite, and graywacke—South of Victoria Creek in northeastern part of quadrangle
ꞓZum Ultramafic and mafic rocks—Serpentinite, clinopyroxene peridotite, dunite, clinopyroxenite, clinopyroxene-plagioclase metabasalt, diabase, metatuff, dikes of clinopyroxene gabbro, microgabbro, and diorite
ꞓZwl Wickersham unit—Dark gray sparsely arenaceous limestone
ꞓZwa Wickersham unit—Maroon and green argillite, phyllite, quartzite, graywacke, siltite, and minor grit

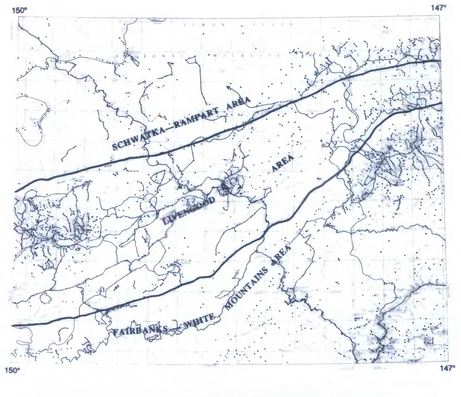
Fairbanks—White Mountains area

QTg Gravel, sand, silt, minor sandstone, conglomerate, and coal
Tb Olivine basalt—Fourth of July Hill and vicinity
Tgp Peraluminous granite—Cache Mountain pluton
TKg Leucocratic quartz monzonite—Vault Creek pluton
Ks Syenite—Roy Creek stock
Kg Granite—Pluton mapped at Pedro Dome intrudes granodiorite (Kgd)
Kgd Granodiorite—Pluton mapped at Pedro Dome
ꞓm Mafic igneous rocks—Gabbro, and diabase or diorite sills and dikes—Intrudes Globe unit
Mg Globe unit—Quartzite, slate, phyllite, and minor claystone
Dcg Beaver Bend unit—Conglomerate, graywacke, siltstone, and slate—Near big bend of Beaver Creek
DSt Tolovana Limestone—Lime mudstone, wackestone, packstone and grainstone, and rare dolomite
Ofv Fossil Creek Volcanics—Alkali basalt, agglomerate, volcaniclastic conglomerate, minor limestone and sandstone
Ofs Fossil Creek Volcanics—Slate, phyllite, shale, siltstone, limestone, chert, tuff, and basalt intruded by gabbro
Pꞓc Chatanika unit—Quartz-biotite-muscovite schist, quartzite, includes eclogitic rocks, allochthonous
ꞓZwa Wickersham unit—Maroon and green argillite, grit, quartzite, siltite, graywacke, phyllite, and limestone—Intruded by gabbro in and near the White Mountains
ꞓZwad Wickersham unit—Dolomite
Zwg Wickersham unit—Grit, quartzite, graywacke, conglomerate, limestone, phyllite, slate, and argillite
Zf Fairbanks schist unit—Micaceous quartzite and quartz-mica schist, pelitic schist, and rare feldspathic quartz-mica schist
Zfc Cleary submit—White felsic schist, micaceous quartzite, chloritic or actinolitic greenschist, greenstone, and marble



Surficial deposits are omitted from cross section

SCALE 1:250,000
VERTICAL EXAGGERATION - 2X



INDEX MAP OF LIVENGOOD QUADRANGLE SHOWING LOCATIONS OF FIELD OBSERVATION POINTS, CONTINUOUS TRAVERSES, AND THE THREE-FOLD AREAL DIVISIONS
Identifiable field stations and traverse routes of geologists who worked between 1902 and 1932 are included. There are more field stations in the areas near Livengood and Pedro Dome than can be plotted on this scale. Many field stations along the continuous traverse routes are not shown individually.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

GEOLOGIC MAP OF THE LIVENGOOD QUADRANGLE, ALASKA

by
F. R. Weber, K. L. Wheeler, C. D. Rinehart, R. M. Chapman, and R. B. Blodgett
1992