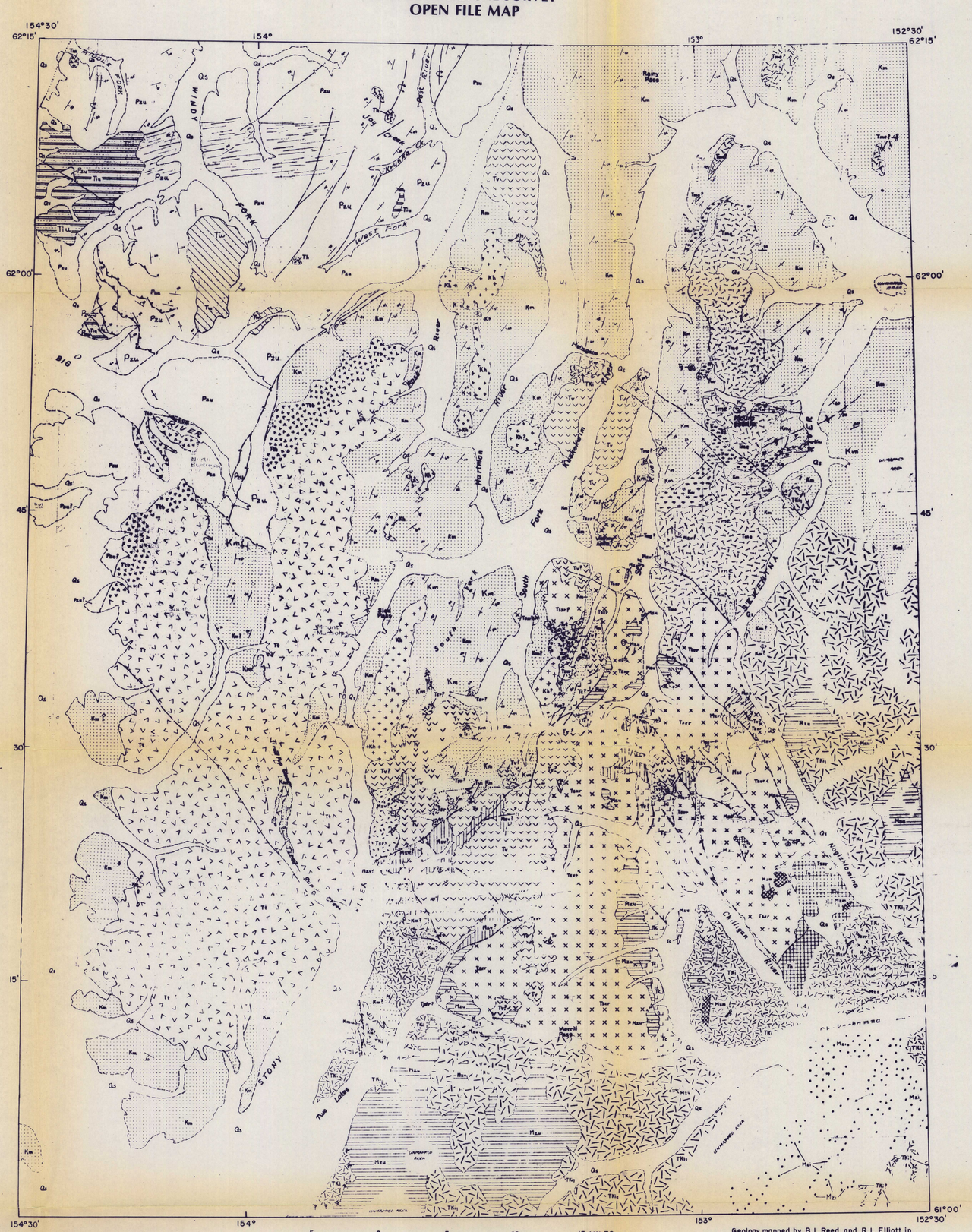
70-271

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP



Base from U.S. Geological Survey 1:250000
Topographic Series: McGrath, Talkeetna,
Lime Hills, Tyonek, Alaska, 1958

Geology mapped by B.L. Reed and R.L. Elliott in 1967; B.L. Reed and M.A. Lanphere in 1968; B.L. Reed, R.L. Elliott and R.J. May in 1969

EXPLANATION

SEDIMENTARY AND VOLCANIC ROCKS

INTRUSIVE ROCKS

Qs

Surficial deposits
Includes alluvium, talus, rock glaciers, and various morainal deposits. Bedrock outcrops are present in ravines and along cut banks of rivers

QUATERNARY

Tw

Windy Fork stock
Biotite- hornblende granite

Tiu

Unassigned felsic intrusive rocks
Undifferentiated medium-grained biotite and/or hornblende quartz monzonite, granodiorite, quartz diorite, and syenite

Dike swarm
Felsic and mafic dikes

Tsxr

Styx River batholith
Biotite granite and quartz monzonite; weathers light brown to dark yellowish orange; intrudes the Mount Estelle intrusive and granodiorite of the Nagishlamina River; query denotes questionable assignment

Age relationship uncertain

Tme

Mount Estelle pluton
Medium- grained hornblende- biotite granodiorite and quartz monzonite; query denotes questionable assignment

Tg

Gabbro
Medium- to fine- grained altered alkali gabbro

Tn

Granodiorite of the Nagishlamina River
Medium- grained hornblende- biotite granodiorite

Tt **Ttb**

Tired Pup batholith
Tt, biotite quartz monzonite with minor biotite granite; coarse- to medium- grained; subporphyritic, with phenocrysts of K- feldspar
Ttb, border facies; fine- to medium- grained leucocratic biotite granite with accessory fluorite; similar in composition to Windy Fork stock

Tsr

Granodiorite of the Stony River
Medium- grained biotite- hornblende granodiorite; query denotes questionable assignment

Tc

Chilligan River pluton
Medium- grained porphyritic biotite- hornblende quartz monzonite and granodiorite; phenocrysts of K- feldspar

Th

Hypabyssal intrusive rocks
Chiefly felsic igneous breccia

TERTIARY

CENOZOIC

Tvi **Tv** **Tvt**

Volcanic rocks
Tv, undifferentiated volcanic rocks; mafic and felsic flows, tuffs and flow breccias; query denotes questionable assignment
Tvt, tuffaceous rocks, shown locally
Tvi, volcanic intrusive centers, shown locally

Tm

Middle Fork stock
Medium- grained biotite quartz monzonite

TKi **TKi₁**

Unassigned intrusive rocks
TKi, undifferentiated felsic and mafic intrusive rocks
TKi₁, chiefly granite and quartz monzonite; rocks east of Skwentna River and south of Merrill Pass may be equivalent to Styx River batholith

CRETACEOUS OR TERTIARY

MESOZOIC OR CENOZOIC

Kh

Hartman River plutons
Chiefly hornblende- biotite quartz diorite, but includes granodiorite and quartz- bearing gabbro, diorite, and monzonite; granodiorites predominate north of Pass Fork; query denotes questionable assignment

Km **Kw**

Metasedimentary rocks
Km, undifferentiated metasedimentary rocks; slate, graywacke, siltstone, argillite and phyllite andalusite schist near contact with Hartman River intrusives, medium to dark gray; locally includes red weathering feldspathic wacke (Kw); query denotes questionable assignment
Kw, feldspathic wacke with interbeds of siltstone; locally calcareous; weathers reddish brown

CRETACEOUS (?)

Mzi

Unassigned intrusive rocks
Chiefly sphene- bearing quartz diorite and diorite

Mzm

Unassigned mafic rocks
Chiefly diorite and olivine and/ or hornblende gabbro; occurs as inclusions in Tertiary intrusive rocks; locally may be metamorphosed equivalent of unit Mzi

Mzu **Mzv** **Mzs**

Metavolcanic and metasedimentary rocks
Mzu, undifferentiated metavolcanic and metasedimentary rocks of pre-Cretaceous age; locally may include metasedimentary rocks (Km) of Cretaceous age
Mzv, predominantly metavolcanic rocks of pre-Cretaceous age; chiefly metabasalts and metaandesites; may be equivalent to Talkeetna Formation, locally includes subordinate metasedimentary rocks query denotes questionable assignment
Mzs, predominantly metasedimentary rocks of pre Cretaceous age locally includes subordinate metavolcanic rocks locally includes metasedimentary rocks (Km) of Cretaceous age

MESOZOIC

Pzu

Sedimentary rocks
Undifferentiated shale, siltstone argillite and limestone fossils (chiefly graptolites) collected from these rocks are Late Cambrian, Ordovician, Silurian and Devonian in age; locally includes Cretaceous metasedimentary rocks

PALEOZOIC

Contact
Dashed where approximately located, queried where doubtful, dotted where concealed

U
D

Fault
Dashed where approximately located, queried where doubtful, dotted where concealed; U, upthrown side; D, downthrown side

Thrust or reverse fault
Sawteeth on upper plate; dashed where approximately located; queried where doubtful

Shear zone
Dashed where approximately located, queried where doubtful; dotted where concealed

Overturned anticline
Showing approximate trace of axial plane; queried where doubtful

Syncline
Showing approximate trace of axial plane, dotted where concealed

Inclined vertical

Strike and dip of beds
Dashed symbol indicates attitude estimated from distant field observations or from aerial photographs

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Strike and dip of flow banding

PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF PART OF THE SOUTHERN ALASKA RANGE

By

B.L. Reed and R.L. Elliott

PLATE 1