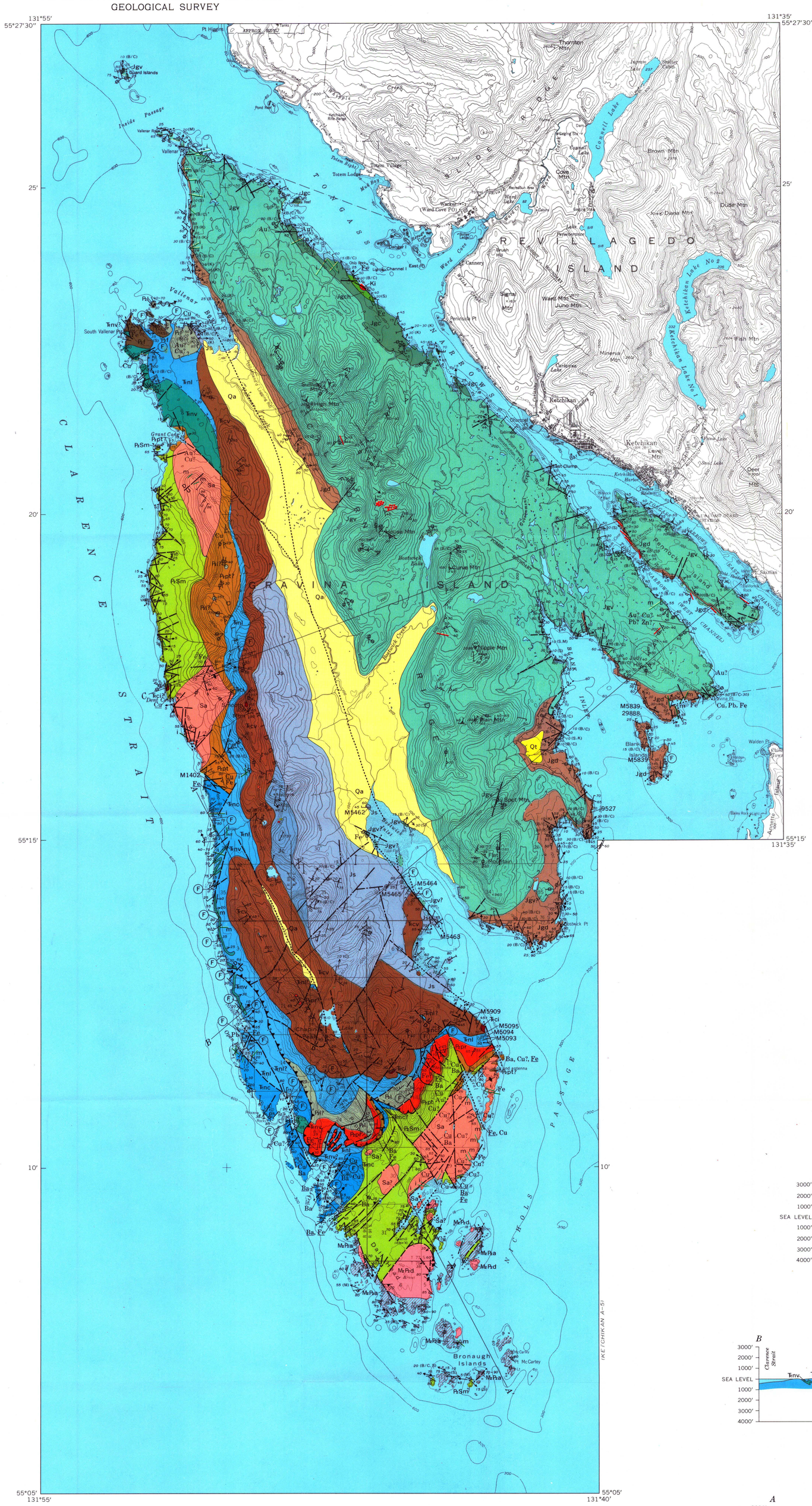



Base from U.S. Geological Survey 1:63,360 Ketchikan A–6, 1948, B–5, 1955, and B–6, 1954

TRUE NORTH
MAGNETIC NORTH
29°
APPROXIMATE MEAN DECLINATION, 1973

SCALE 1:63 360

1 ½ 0 1 2 3 MILES

1 .5 0 1 2 3 KILOMETERS

CONTOUR INTERVAL 100 FEET
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE AVERAGE RANGE OF TIDE IS APPROXIMATELY 12 FEET

Geology by H. C. Berg, 1969–70

## EXPLANATION

### QUATERNARY

**Qa | Qt**

Unconsolidated deposits
Qa, *alluvium*
Qt, *glacial-marine deposits*

### SOUTHWEST OF BOSTWICK–VALLENAR VALLEY

#### Upper Jurassic

**Js | Jc**

Slaty detrital rocks
Js, *siltstone and argillite; locally contains* Buchia
Jc, *conglomerate and grit*

#### Middle or Upper Jurassic

UNCONFORMITY

**Ꞓcv | Ꞓci**

Chapin Peak Formation
Ꞓcv, *altered basaltic volcanic rocks, chiefly pillow flows and volcanic breccia; subordinate to minor sedimentary rocks*
Ꞓci, *altered basic intrusive rocks, chiefly diabase and microgabbro*

DISCONFORMITY OR LOCAL UNCONFORMITY

**Ꞓnl | Ꞓnc | Ꞓnv**

Nehenta Formation
Ꞓnl, *calcareous member; mainly carbonaceous limestone and siltstone in lower part; mainly calcareous grit, conglomerate, and sandstone in upper part*
Ꞓnc, *conglomerate member; conglomerate, grit, and sandstone; minor limestone*
Ꞓnv, *volcanic member; altered basaltic pillow flows, tuff, and tuffaceous limestone; minor marble*

UNCONFORMITY

**MzPzd**

Metadiorite
*Mainly amphibolite-facies regionally metamorphosed plutonic rocks. Includes outcrops of unit* MzPza *too small to show at scale of map; may include unrecognized outcrops of unit* PzSm

**MzPza**

Gneiss and schist
*Mainly amphibolite-facies regionally metamorphosed bedded rocks. Includes apophyses of unit* MzPzd *too small to show at scale of map; may include unrecognized outcrops of unit* PzSm

**Pzl**

Limestone and dolomite
*Minor metachert, phyllite, and conglomerate. Probably mainly Devonian; may include rocks as old as Silurian*

**Pzpr | Pzpt**

Puppets Formation
Pzpr, *metarhyolite member*
Pzpt, *metatuff member*

**Pzf**

Recrystallized fragmental rocks
*In part tuffaceous. Minor metachert, dolomite, and fine-grained metasedimentary rocks. May include rocks as old as Silurian and as young as Devonian*

UNCONFORMITY

**Sa**

Altered leucocratic plutonic rocks
*Mainly trondhjemitic apophyses of the Annette pluton*

**PzSm**

Undivided metamorphosed bedded and intrusive rocks
*Mainly greenschist and epidote amphibolite (transitional) facies rocks of complex origin. Includes apophyses of unit* Sa *too small to show at scale of map; on southern Gravina Island may include unrecognized outcrops of units* MzPzd *and* MzPza

i,m

Dikes
i, *intermediate dike, probably mainly andesitic. Commonly aphanitic, locally amygdaloidal*
m, *mafic dike, probably mainly basaltic; may include lamprophyric and ultramafic rocks. Generally aphanitic; locally diabasic or amygdaloidal*

### NORTHEAST OF BOSTWICK–VALLENAR VALLEY

#### CRETACEOUS(?)

**Ki**

Intrusive rocks
*Mainly olivine-bearing gabbro-diabase and porphyritic diorite*

#### JURASSIC

**Jgch | Jgv | Jgc | Jgd**

Gravina Island Formation
Jgc, *phyllitic conglomerate, grit, and sandstone. Locally includes hornfels* (Jgch)
Jgv, *andesitic to basaltic metavolcanic rocks*
Jgd, *phyllitic detrital rocks. Includes "belemnite-bearing conglomerate, graywacke, and black slate" of Chapin (1918) and others (see text). Minor metavolcanic rocks*

#### TRIASSIC

Quartz vein
*Dots indicate clusters of veinlets*

### PALEOZOIC OR LOWER MESOZOIC

### UPPER PALEOZOIC OR LOWER MESOZOIC

### MIDDLE PALEOZOIC

### SILURIAN

### SILURIAN OR OLDER PALEOZOIC

## PLANAR AND LINEAR FEATURES

Symbols may be combined

Normal — Overturned

Contact, approximately located, showing dip
*Dotted where concealed; queried where doubtful or hypothetical*

Fault, showing dip, and rake of slickensides
*Faults without attitudes are presumed to be high angle. Dashed where approximately located; dotted where concealed; queried where doubtful or hypothetical.*
U, *upthrown side;* D, *downthrown side*

Thrust fault, showing dip
*Dashed where approximately located; queried where hypothetical*

Fault or lineament from aerial photographs
*Not checked on ground*

Elevated wave-cut cliff
*Interpreted from aerial photographs by W. H. Condon*

Minor fold — Open warps — Overturned syncline — Generalized attitude of overturned, isoclinal folds

Folds
*Showing, where appropriate, crestline, troughline, direction of dip of limbs, plunge, and dip of axial plane*

Inclined — Horizontal

Fold axes
*Beds too tightly folded to show individual folds*

Inclined — Overturned — Vertical — Horizontal

Strike and dip of beds
*Ball indicates top of beds known from sedimentary structures*

Inclined — Vertical — Horizontal — Parallel bedding and foliation

Strike and dip of foliation in metamorphosed bedded rocks

Inclined — Vertical

Strike and dip of foliation in intrusive rocks

Inclined — Vertical

Strike and dip of cleavage

Inclined — Horizontal

Bearing and plunge of lineation
*Includes bedding-cleavage intersection* (B/C); *alined minerals* (M); *striations (except slickensides)* (S); *rods and mullion structure* (R); *kink bands* (K); *and alined ellipsoidal clasts* (C)

Inclined — Vertical

Strike and dip of joint or joint set

Adit

Prospect (stone quarry on Pennock Island)
*Mainly pit or trench. On southern Gravina Island may include flooded or overgrown adits and other workings*

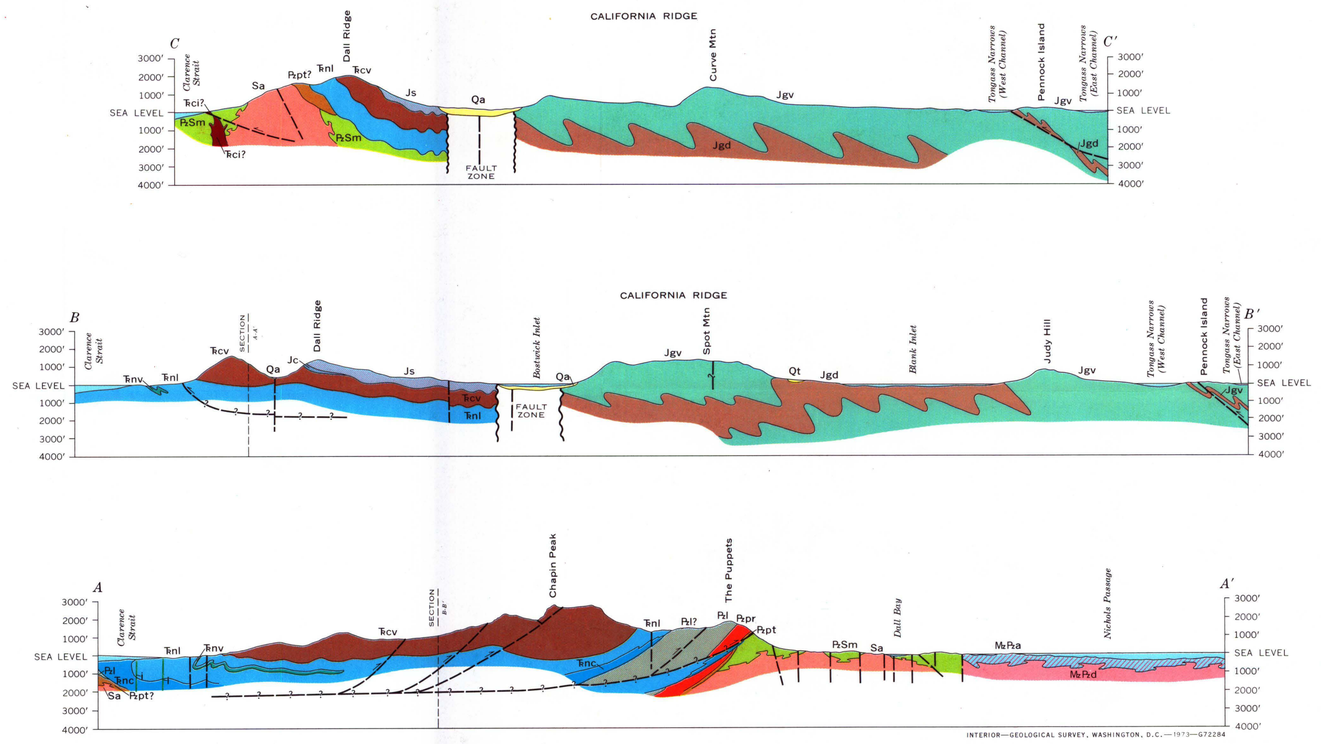
## MINERAL OCCURRENCES

Au, gold
Ba, barite
Cu, chalcopyrite, malachite, azurite, and other secondary copper minerals
Fe, pyrite or hematite
Pb, galena
U, radioactive mineral
Zn, sphalerite

Cu, Ba, Fe
Conspicuous mineral occurrence

Au?, Cu?, U?
Unverified mineral occurrence
*Not field checked during this investigation*

(F) :M5462
Fossil locality
*USGS locality number is designated for fossil localities discussed in text*




INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1973—G72284

# GEOLOGIC MAP AND DIAGRAMMATIC SECTIONS OF GRAVINA ISLAND, ALASKA