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BREW, D.A. (COMPILER), Geologic Map of the Craig, Dixon Entrance, and Parts of the Ketchikan and Prince Rupert Quadrangles, Southeastern Alaska

Base from U.S.G.S Topographic Series, Ketchikan, 1955; Craig, 1957; Dixon Entrance, 1959; Prince Rupert, 1959
Universal Transverse Mercator projection

Geology compiled in 1992 and 1993 from sources shown on index map

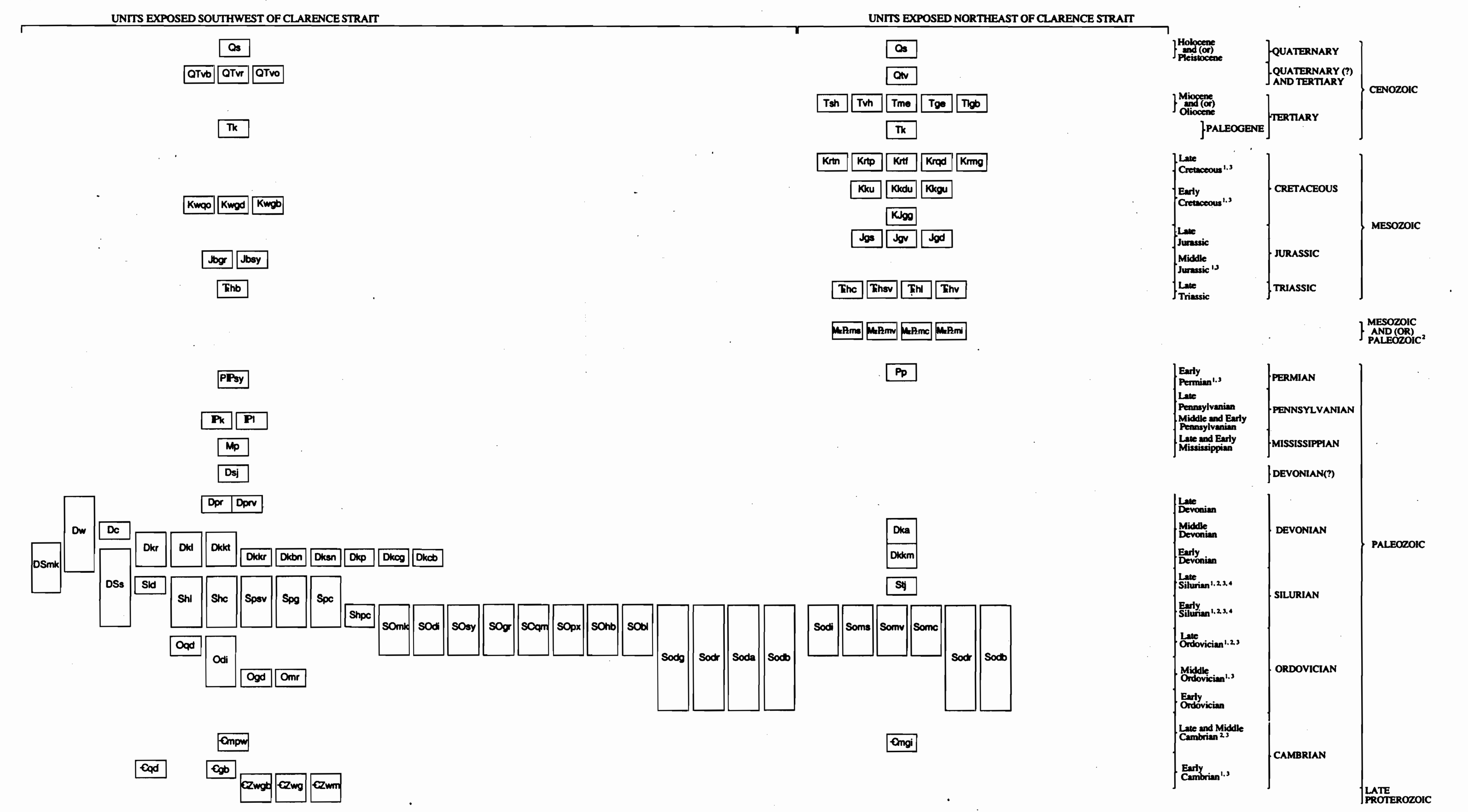
SCALE 1:250,000

GEOLOGIC MAP OF THE CRAIG, DIXON ENTRANCE, AND PARTS OF THE KETCHIKAN AND PRINCE RUPERT QUADRANGLES, SOUTHEASTERN ALASKA

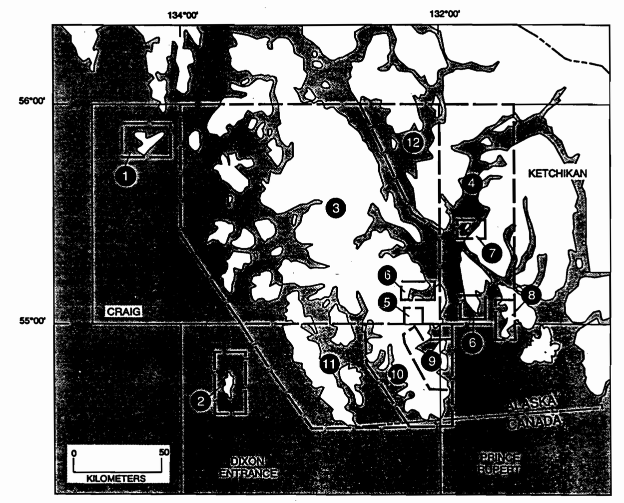
Compiled By
David A. Brew
1995

Geologic map of the Craig, Dixon, Entrance and parts of the Ketchikan and Prince Rupert Quadrangles, Southeastern Alaska
By David A. Brew (compiler)

CORRELATION OF MAP UNITS
(SEE DESCRIPTON OF MAP UNITS FOR SPECIFIC UNIT AGE ASSIGMENTS)



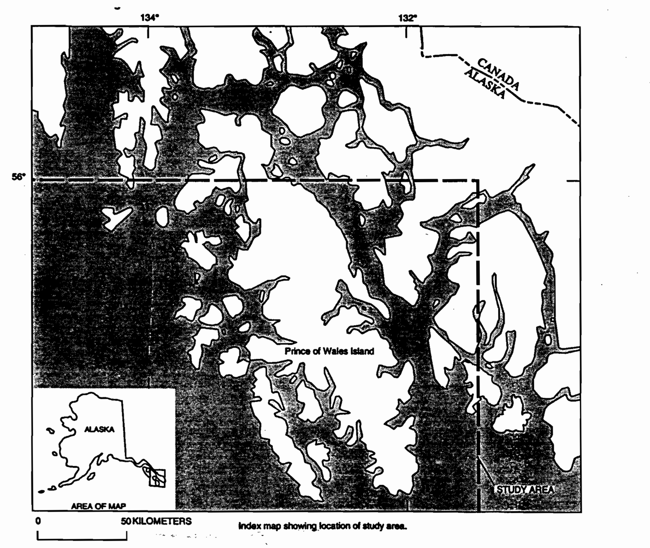
Notes 1. Some are emplacement ages
2. Some are metamorphic ages
3. Some are chronometric units
4. Age scheme follows Berry and Boucot, (1970)



EXPLANATION

1. George Moerlein (written commun. to G.D. Eberlein, 1981)
2. Clark and others (1971)
3. Eberlein and others (1983)
4. Berg and others (1988)
5. Redman (1982)
6. Gehrels and others (1987)
7. Sullivan (1991)
8. Horton and others (1992) and Karl (1992)
9. MacKevett (1963)
10. Gehrels and Saleeby (1986) and Gehrels (1992)
11. Gehrels (1991)
12. Berg and others (1976)

Index map showing sources of geologic mapping, 1983-1992



Index map showing location of study area.

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BRIEF DESCRIPTION OF MAP UNITS

UNITS EXPOSED SOUTHWEST OF CLARENCE STRAIT

Qs — **Surficial deposits (Holocene and (or) Pleistocene)**--Alluvium, colluvium, tidal mudflat deposits, and some possible glaciofluvial deposits

Extrusive volcanic rocks (Quaternary? and Tertiary)--As mapped, divided into:

QTvb — **Basaltic to rhyolitic breccia and tuff**

QTvr — **Rhyolite and dacite**

QTvo — **Olivine basalt and andesite**

Tk — **Kootznahoo Formation (Paleogene)**--Sandstone, conglomeratic sandstone, and conglomerate

Intrusive rocks of Chilkat-Prince of Wales plutonic province (Early Cretaceous)--As mapped, divided into:

Kwqo — **Hornblende quartz monzodiorite with minor tonalite, granodiorite, quartz diorite, diorite, quartz monzonite, and monzodiorite**

Kwgd — **Hornblende granodiorite, hornblende diorite, and biotite-hornblende monzodiorite**

Kwgb — **Gabbro**

Intrusive rocks of Bokan Mountain plutonic province (Middle Jurassic)--As mapped, divided into:

Jbgr — **Peralkaline granite of Bokan Mountain**

Jbsy — **Syenite of Dora Bay**

Hyd(?) Group (Late Triassic?)--Consists of:

TRhb — **Oligomictic breccia**

PIPsy — **Leucosyenite of Klawock and Sukkwan Island (Early Permian and Late Pennsylvanian)**--Biotite- and hornblende-bearing syenite

IPk — **Klawak Formation (Middle and Early Pennsylvanian)**--Sandstone, siltstone, and minor limestone and chert-pebble conglomerate

IPl — **Ladrones Limestone (Middle and Early Pennsylvanian)**--Massive and sublithographic limestone and minor dolomite

Mp — **Peratrovich Formation (Late and Early Mississippian)**--Limestone with dark-gray chert nodules and beds that grade downward to bedded chert

Dsj — **St. Joseph Island Volcanics (Devonian?)**--Massive, locally amygdaloidal and pillowed basalt flows

Dpr — **Port Refugio Formation (Late Devonian; Famennian)**--Massive to thick- and thin-bedded, volcanic-detritus-rich graywacke, mudstone, siltstone, and minor polymictic conglomerate, black pyritic siltstone, calcareous siltstone, pillow basalt, tuff, fossiliferous limestone, and quartzofeldspathic arenite. Locally includes:

Dprv — **Volcanic rocks**--Agglomerate, pillow basalt, and aquagene tuff

Dw — **Wadleigh Limestone (Late to Early Devonian; Famennian to Emsian)**--Massive and thick- to medium-bedded limestone, minor argillaceous limestone and calcareous shale

Dc — **Coronados Volcanics (Middle Devonian)**--Fragmental basalt interbedded with fossiliferous limestone and amygdaloidal pillows

BRIEF DESCRIPTION OF MAP UNITS--CONTINUED

Karheen Formation and associated rocks (Middle? and Early Devonian)--As mapped, divided into:

Dkr — **Rhyolite of Kasaan Island (Middle? and Early Devonian)**

Dkl — **Limestone of Kasaan Island (Middle? and Early Devonian)**

Dkkt — **Turbidite-facies rocks (Middle? and Early Devonian)**--Mudstone, siltstone, shale, sandstone, conglomerate, and minor limestone

Dkkr — **Redbed-facies rocks (Early Devonian)**--Sandstone, shale, conglomerate, and minor well-bedded platy limestone

Dkbn — **Breccia of northeastern Noyes Island (Early Devonian)**--Olistostromal blocks and breccia beds of limestone rich in shelly fossils and conodonts in matrix of graptolite- and plant-bearing shale

Dksn — **Sedimentary rocks of Port Nicholas area (Early Devonian)**--Sandstone overlain by limestone and graptolitic shale

Dkp — **Plagioclase-porphyritic dacite(?), andesite, and diorite(?) (Early Devonian)**--Small plugs and associated(?) flows, breccias, and dikes

Dkcg — **Conglomerate-facies rocks (Early Devonian)**--Polymictic conglomerate, conglomeratic sandstone, sandstone, siltstone, and volcanic rocks

Dkcb — **Siltstone, sandstone, polymictic conglomerate, and limestone of Clover Bay (Early? Devonian)**--Calcareous well-bedded sandstone, siltstone with subordinate gray argillaceous limestone and mudstone

DSmk — **Metamorphic rocks at Klakas Inlet (Early Devonian and Silurian)**--Semischist, greenstone, and leucodiorite

DSs — **Sedimentary rocks of Staney Creek and Tuxekan Passage area (Early Devonian? and Late and Early Silurian)**--Limestone, sandstone, mudstone, and polymictic conglomerate

Sld — **Leucodiorite at Kassa Inlet (Late Silurian)**--Medium- to coarse-grained melanite(?)-sphene-arfvedsonite leucodiorite

Heceta Limestone (Late and Early Silurian)--As mapped, divided into:

Shl — **Limestone, minor limestone breccia, sandstone, mudstone, and polymictic conglomerate**

Shc — **Polymictic conglomerate**

Bay of Pillars Formation (Late and Late? and Early Silurian)--As mapped, divided into:

Spsv — **Sedimentary and volcanic rocks**--Graywacke, and mudstone turbidites, polymictic conglomerate, minor limestone, andesitic to basaltic volcanic flows, breccia, and tuff

Spg — **Volcaniclastic graywacke and mudstone turbidites and minor limestone**

Spc — **Conglomerate, agglomerate, and volcanic breccia**

Shpc — **Polymictic conglomerate between Heceta Limestone and Bay of Pillars Formation (Early? Silurian)**--Polymictic pebble and cobble conglomerate and other clastic rocks

Intrusive and related rocks of younger part of the Cape Chacon plutonic province (Early Silurian and Late Ordovician)--As mapped, divided into:

SOmk — **Metamorphic rocks at Kendrick Bay**

SOdi — **Diorite, quartz diorite, gabbro, hornblendite, leucogabbro, trondhjemite, pyroxenite, and migmatite**

SOsy — **Quartz syenite and granite**

SOgr — **Granite**

SOqm — **Unfoliated and foliated quartz monzonite and granite**

SOpx — **Pyroxenite, hornblendite, and gabbro**

SOhb — **Hornblendite**

SObl — **Andesitic breccia of Luck Creek (Early Silurian and Late Ordovician)**--Angular fragments of porphyritic andesite in a matrix of hornblende-diopsidic augite crystal tuff of andesitic composition

Descon Formation (Early Silurian to Early Ordovician)--As mapped, divided into:

SOdg — **Volcaniclastic graywacke, siltstone, mudstone turbidites, and minor sedimentary breccia, limestone, and polymictic conglomerate**

SOdr — **Dacitic to rhyolitic volcanic rocks**

SOda — **Andesitic to dacitic volcanic rocks**

SOdb — **Basaltic to andesitic volcanic rocks**

Intrusive and related rocks of older part of the Cape Chacon plutonic province (Late and Middle Ordovician)--As mapped, divided into:

Oqd — **Hornblende quartz diorite, diorite, and quartz monzonite (Late Ordovician)**

Odi — **Foliated and layered hornblende diorite and quartz diorite, heterogeneous diorite and gabbro, and minor foliated granodiorite (Late and Middle? Ordovician)**

Ogd — **Foliated hornblende granodiorite, chlorite leucogranodiorite, and quartz-porphyritic granodiorite (Middle Ordovician)**

Omr — **Metamorphic rocks at Ruth Bay (Middle Ordovician)**

Єmpw — **Metamorphic rocks on eastern Prince of Wales Island (Late and Middle Cambrian)**--Foliated, slightly layered, metamorphosed diorite, microdiorite, quartz diorite, gabbro, microgabbro, and hornblendite

BRIEF DESCRIPTION OF MAP UNITS--CONTINUED

Intrusive rocks of southern Dall Island plutonic province (Early Cambrian)--As mapped, divided into:

Єqd — **Foliated, lineated, and gneissic biotite-hornblende quartz diorite, granodiorite, and minor diorite**--Includes diorite unit of Gehrels (1991)

Єdi — **Foliated and layered biotite-hornblende diorite and quartz diorite**

Єgb — **Hornblende gabbro, microgabbro, and quartz diorite**

Wales Group (Early Cambrian? and Late Proterozoic)--As mapped, divided into:

ЄZwgb — **Metagabbro south of Kassa Inlet**

ЄZwg — **Greenstone, greenschist, black phyllite, quartz-sericite schist, metakeratophyre, and minor marble**

ЄZwm — **Marble and minor calcsilicate rocks**

UNITS EXPOSED NORTHEAST OF CLARENCE STRAIT

Qs — **Surficial deposits (Holocene and (or) Pleistocene)**--Alluvium, colluvium, tidal mudflat deposits, and some glaciofluvial deposits

QTv — **Extrusive volcanic rocks (Quaternary? and Tertiary)**--Basalt and andesite

Intrusive and related rocks of Kuiu-Etolin volcanic-plutonic province (Miocene and (or) Oligocene)--As mapped, divided into:

Tsh — **Hornfelsed sedimentary rocks**

Tvh — **Hornfelsed volcanic rocks**

Tme — **Migmatitic granitic rocks of southern Etolin Island**

Tge — **Granitic rocks of southern Etolin Island**

Tlgb — **Leucogabbro near Ketchikan**

Tk — **Kootznahoo Formation (Paleogene)**--Conglomerate, sandstone, siltstone, shale, and minor lignite

Intrusive and related rocks of Admiralty-Revillagigedo plutonic province (Late Cretaceous)--As mapped, divided into:

Krtn — **Nonfoliated plagioclase-porphyritic (hornblende-)(epidote-)garnet-biotite tonalite, quartz diorite, and minor granodiorite**

Krtp — **Porphyritic, foliated biotite tonalite, quartz diorite, and granodiorite**

Krtf — **Foliated to massive hornblende-biotite tonalite and granodiorite, quartz monzonite, and quartz diorite**

Krqd — **Quartz diorite**

Krmg — **Migmatite**

Intrusive rocks of Klukwan-Duke plutonic province (Early Cretaceous)--As mapped, divided into:

Kku — **Ultramafic rocks, mainly dunite, peridotite, clinopyroxenite, and hornblendite**

Kkdu — **Dunite, pyroxenite, and peridotite at Union Bay**

Kkgu — **Gabbro and diorite at Union Bay**

Sedimentary, volcanic, and related rocks of Gravina belt--As mapped, divided into:

KJgg — **Gravina Island Formation (Early Cretaceous and Late Jurassic)**--Sedimentary and minor volcanic rocks

Jgs — **Sedimentary and minor volcanic rocks (Late and Middle Jurassic)**

Jgv — **Andesitic to basaltic volcanic and volcaniclastic rocks and minor sedimentary rocks (Late and Middle Jurassic)**

Jgd — **Altered diorite and quartz diorite (Late and Middle Jurassic)**

Hyd Group (Late Triassic)--As mapped, divided into:

TRhc — **Chapin Peak Formation**--Basaltic volcanic and minor sedimentary rocks

TRhsv — **Sedimentary and mafic volcanic rocks**

TRhl — **Limestone and dolomite**

TRhv — **Felsic volcanic rocks**

Metamorphosed sedimentary, volcanic, and intrusive rocks (Mesozoic and (or) Paleozoic)--As mapped, divided into:

MzPzms — **Metasedimentary rocks**--Metamorphosed pelitic and semipelitic flysch with minor interlayered basaltic and (or) andesitic volcanic or volcaniclastic rocks

MzPzmv — **Metavolcanic rocks**--Metamorphosed marine andesitic and basaltic lava flows, agglomerate, and tuff, together with minor pelitic and semipelitic flysch

MzPzmc — **Metapolymictic conglomerate**

MzPzmi — **Metaintrusive rocks**

Pp — **Pybus(?) Formation (Early Permian)**--Light-brown weathering, massive to laminated, light-gray, dark-gray, and bluish-gray marble, together with minor phyllite, semischist, meta-polymictic conglomerate or sedimentary breccia, and quartzite-or-felsic-volcanic-rock fragmental schist and semischist

Karheen Formation and associated rocks--As mapped, divided into:

Dka — **Andesitic flows and breccia (Middle? Devonian)**

Dkkm — **Mudstone-and-siltstone-facies rocks (Middle(?) and Early Devonian)**

Stj — **Trondhjemite, diorite, and granite of Annette Island (Late Silurian)**--Medium- to coarse-grained, light gray, generally leucocratic (chlorite-)(biotite-)(hornblende) tronjhemite, quartz diorite, diorite, granite, quartz monzonite, and granodiorite

Intrusive rocks of younger part of the Cape Chacon plutonic province (Early Silurian and Late Ordovician)--Consists of:

SOdi — **Diorite, quartz, diorite, gabbro, hornblendite, leucogabbro, trondhjemite, pyroxenite, and migmatite**

Metamorphosed rocks on Cleveland Peninsula (Silurian and (or) Ordovician)--As mapped, divided into:

SOms — **Metasedimentary rocks**--Metamorphosed mudstone, siltstone, sandstone, grit, conglomerate, and minor limestone

SOmv — **Metavolcanic rocks**--Metamorphosed andesitic and basaltic metatuff and agglomerate with minor pelitic rocks and limestone

SOmc — **Metacarbonate rocks**--Metamorphosed limestone; now fine-grained gray marble

Descon Formation (Early Silurian to Early Ordovician)--As mapped, divided into:

SOdr — **Dacitic to rhyolitic volcanic rocks**

SOdb — **Basaltic to andesitic volcanic rocks**

Єmgi — **Metamorphic rocks on southern Gravina Island (Late and Middle Cambrian)**--Foliated, slightly layered, metamorphosed diorite, microdiorite, quartz diorite, gabbro, microgabbro, and hornblendite

Contact--Dotted where concealed

High-angle fault--Dotted where concealed

Low-angle or contractional fault--Sawteeth on upper plate; dotted where concealed

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.