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A REEXAMINATION OF THE CONTACTS AND OTHER FEATURES OF THE GRAVINA BELT, SOUTHEASTERN ALASKA--SUPPLEMENTAL DATA

By

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This brief report presents the complete set of data that were used in part of the interpretation of Gravina belt stratigraphic and other relationships published in a recent U.S. Geological Survey Circular (Brew and Karl, 1988). Space limitations prevented having the whole data table in that report, so only the information on the five most important localities studied was included.

This report includes the complete set of references for the table and a copy of the same locality map that accompanies the Circular article.

Table 1.--Compilation of studied localities in southeastern Alaska where Gravina belt rocks are in contact with older rocks of the Alexander-Wrangellia superterrane or with highly metamorphosed rocks of the western metamorphic belt of the Coast plutonic-metamorphic complex.

Map no.	Year(s) visited	Detailed examination?	Is contact exposed?	Are field relations compatible with fault (F) or stratigraphic relations with Alexander-Wrangellia superterrane (S); gradational into metamorphic rocks (G), and(or) fault contact with same (D)?	If fault, what type: vertical (V), high-angle reverse (R), thrust (T), high-angle normal (N), or low-angle normal (L)	Alexander-Wrangellia-derived clasts nearby in Gravina belt rocks	Sources of information (in addition to D.A. Brew and S.M. Karl, unpub. data)	Remarks
1a	1969,1985	Yes	No	F,S	V,R,N	Not known	Plafker and others,1979, 1988	Fossil locality 78APr136 (see ref.) is Cretaceous, not Triassic as originally reported. Locality is 1.6 km N. of N. end Dalasuga Is., Skagway A-1 quad.
1b	1969,1982	Yes	No	F,S	V,R,N	No	Plafker and others, 1979, 1988	Locality is at NE corner, Dalasuga Is., Skagway A-1 quad.
2	1983	No	Yes?	S		Yes	Redman, 1984	Redman reports stratigraphic contact with clasts of Jualin quartz diorite in overlapping sediments; we did not see the actual contact.
3	1982,1985	Yes	No	G,D	V,R		Brew and Ford, 1986	
4a	1971,1980	Yes	No	G,D	V,R,T		Ford and Brew, 1973	
4b	1986,1987	Yes	Yes	F,S	V,R,T			Locality is at Circle Point, west of Slocum Inlet; contact and adjacent rocks are deformed.
5a	1982	Yes	No	F,S	V,R,N	Yes	Barker, 1957; Lathram and others, 1965	Locality is 1.6 km W. of Symonds Point, Juneau B-3 quad.
5b	1982	Yes	No	F,S	V,R,N	Yes	Barker, 1957	Locality is 5.2 km ESE of Symonds Point, Juneau B-3 quad.
6	1982	No	Not known	F,S	T,R?	Yes	Lathram and others, 1965	Contact crosses creek at Accessible Point
7	1982	No	Yes?	F,S	T,R?	Yes	Lathram and others, 1965	Contact is at base of steep cliff formed by Triassic volcanic rocks.

Table 1.--Compilation of studied localities in southeastern Alaska where Gravina belt rocks are in contact with older rocks of the Alexander-Wrangellia superterrane or with highly metamorphosed rocks of the western metamorphic belt of the Coast plutonic-metamorphic complex--Continued.

Map no.	Year(s) visited	Detailed examination?	Is contact exposed?	Are field relations compatible with fault (F) or stratigraphic relations with Alexander-Wrangellia superterrane (S); gradational into metamorphic phic rocks (G), and(or) fault contact with same (D)?	If fault, what type: vertical (V), high-angle reverse (R), thrust (T), high-angle normal (N), or low-angle normal (L)	Alexander-Wrangellia-derived clasts nearby in Gravina belt rocks	Sources of information (in addition to D.A. Brew and S.M. Karl, unpub. data)	Remarks
8		No	No?	F,S	R,N	Not known	Lathram and others, 1965; R.A. Loney, U.S. Geological Survey, oral commun., 1982	
9a	1982	Yes	No	F,S	V,R,N	Yes	Loney, 1964	Locality is 0.4 km E. of N. end of Good Is., Sumdum B-6 quad.
9b	1982	Yes	No	F,S	V	Yes	Loney, 1964	Locality is 2.0 km NW of N. end of Good Is., Sumdum B-6 quad.
9c	1982	Yes	No	F	V	Yes	Loney, 1964	Locality is 3.2 km NW of Gambier Bay entrance light, Sumdum B-6 quad.
10a	1982	No	No?	F	V	Yes	Loney, 1964	Locality is 4.0 km SW of False Point Pybus, Sumdum B-6 quad.
10b	1982	Yes	No	F,S	V	Yes	Loney, 1964	Locality is 7.0 km NW of Point Pybus, Sumdum B-6 quad.
10c	1982	Yes	No	F,S	V	Yes	Loney, 1964	Locality is 7.7 km NW of Point Pybus, Sumdum B-6 quad.
10d	1982	Yes	No	F,S	V	Yes	Loney, 1964	Locality is 9.1 km NW of Point Pybus, Sumdum B-6 quad.
10e	1982	Yes	No	F,S	V	Yes	Loney, 1964	Locality is 9.6 km NW of Point Pybus, Sumdum B-6 quad.
10f	1982	Yes	No	F,S	V	Yes	Loney, 1964	Locality is 1.6 km SW of Grave Is., Sumdum B-6 quad.

Table 1.--Compilation of studied localities in southeastern Alaska where Gravina belt rocks are in contact with older rocks of the Alexander-Wrangellia superterrane or with highly metamorphosed rocks of the western metamorphic belt of the Coast plutonic-metamorphic complex--Continued.

Map no.	Year(s) visited	Detailed examination?	Is contact exposed?	Are field relations compatible with fault (F) or stratigraphic relations with Alexander-Wrangellia superterrane (S); gradational into metamorphic rocks (G), and(or) fault contact with same (D)?	If fault, what type: vertical (V), high-angle reverse (R), thrust (T), high-angle normal (N), or low-angle normal (L)	Alexander-Wrangellia-derived clasts nearby in Gravina belt rocks	Sources of information (in addition to D.A. Brew and S.M. Karl, unpub. data)	Remarks
11	1974	No	No	G			Brew and Grybeck, 1984	
12a	1969	No	No	G,D	V,R,N			Locality is 3.2 km SSE of Point Hobart, Sumdum B-5 quad.
12b	1969	Yes	No	G,D	V,R,N			Locality is 7.6 km ENE of Fort Point, Sumdum B-5 quad.
13	1969	Yes	No	G,D	V,R,N			
14	1982	Yes	No	F,S	V,R,T,N,L	Not known	Brew and others, 1984	Relation of inferred Gravina belt equivalents to older rocks very uncertain.
15	1981	No	Not known	G,D	V,R,T,N,L		Brew and others, 1984	
16	1978	No	Not known	G,D	V,R,N		Brew and others, 1984	
17	1987	No	Not known	G,D	V,R,N		Berg, Elliott, and others, 1978a; C.M. Rubin, Caltech, oral commun., 1987; Rubin and Saleeby, 1987	
18	1987	Yes	No	F,S	V,R,N	Yes	Berg, 1973	Contact concealed by beach.

Table 1.--Compilation of studied localities in southeastern Alaska where Gravina belt rocks are in contact with older rocks of the Alexander-Wrangellia superterrane or with highly metamorphosed rocks of the western metamorphic belt of the Coast plutonic-metamorphic complex--Continued.

Map no.	Year(s) visited	Detailed examination?	Is contact exposed?	Are field relations compatible with fault (F) or stratigraphic relations with Alexander-Wrangellia superterrane (S); gradational into metamorphic phic rocks, and(or) fault contact with same (D)?	If fault, what type: vertical (V), high-angle reverse (R), thrust (T), high-angle normal (N), or low-angle normal (L)	Alexander-Wrangellia-derived clasts nearby in Gravina belt rocks	Sources of information (in addition to D.A. Brew and S.M. Karl, unpub.data)	Remarks
19a	1987	Yes	No	F,S	?	Yes	Berg, 1973	Contact and basal conglomerate sought byt not found; locality is 4.0 km SE of Dent Cove, Ketchikan B-6 quad; actual contact may be at base of the siltstone and argillite unit (Js) of Berg (19/3) and not at base of conglomerate and grit unit (Jc)
19b	1987	Yes	No	F,S	V,R,N	Yes	Berg, 1973	Locality is 1.2 km north of Downdraft Lake, Ketchikan A-6 quad.
20	1987	Yes	No	F,S	V,R,N	Yes	Berg, 1972; C.M. Rubin, Caltech, oral commun., 1987	
21a	1980	Yes	No	S		No	Muffler, 1967; Brew and others, 1984	Locality is 4.8 km SE of Point Hamilton, Petersburg D-6 quad; concealed by Tertiary Kootznahoo Fm.
21b	1980	Yes	No	S		No	Muffler, 1967; Brew and others, 1984	Locality is 3.2 km N. of Kadak Bay, Port Alexander D-1 quad.

REFERENCES CITED

Barker, Fred, 1957, Geology of the Juneau (B-3) quadrangle, Alaska: U.S. Geological Survey Geologic Quadrangle Map GQ-100, 1 sheet, scale 1:63,360.

Berg. H.C.. 1972, Geologic map of Annette Island, Alaska: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-684, scale 1:63,360.

Berg, H.C., 1973, Geology of Gravina Island, Alaska: U.S. Geological Survey Bulletin 1373, 41 p.

Berg, H.C. Elliott, R.L., Smith, J.G., and Koch, R.D., 1978, Geologic map of the Ketchikan and Prince Rupert quadrangles, Alaska: U.S. Geological Survey Open-File Report 78-73A, 1 sheet, scale 1:250,000.

Brew, D.A., and Ford, A.B., 1986, Preliminary reconnaissance geologic map of the Juneau, Taku River, Atlin and part of the Skagway 1:250,000 quadrangles, southeastern Alaska: U.S. Geological Survey Open-File Report 85-395, 23 p.

Brew, D.A., and Grybeck, Donald, 1984, Geology of the Tracy Arm-Fords Terror wilderness study area and vicinity, in U.S. Geological Survey and U.S. Bureau of Mines, Mineral resources of Tracy Arm-Fords Terror wilderness study area and vicinity, Alaska: U.S. Geological Survey Bulletin 1525, p. 19-52.

Brew, D.A., and Karl, S.M., 1988, A reexamination of the contacts and other features of the Gravina belt, southeastern Alaska, in Galloway, J.P., and Hamilton, T.D., eds., Geologic studies in Alaska by the U.S. Geological Survey during 1987: U.S. Geological Survey Circular 1016, p. 143-146.

Brew, D.A., Ovenshine, A.T., Karl, S.M., and Hunt, S.J., 1984, Preliminary reconnaissance geologic map of the Petersburg and parts of the Port Alexander and Sumdum 1:250,000 quadrangles, southeastern Alaska: U.S. Geological Survey Open-File Report 84-405, 2 sheets, 43 p. pamphlet.

Ford, A.B., and Brew, D.A., 1973, Preliminary geologic and metamorphic-isograd map of the Juneau B-2 quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-527, 1 sheet, scale 1:31,680.

Lathram, E.H., Pomeroy, J.S., Berg, H.C., and Loney, R.A., 1965, Reconnaissance geology of Admiralty Island, Alaska: U.S. Geological Survey Bulletin 1181-R, p. R1-R48, 2 pls., scale 1:250,000.

Loney, R.A., 1964, Stratigraphy and petrography of the Pybus-Gambier area, Admiralty Island, Alaska: U.S. Geological Survey Bulletin 1178, 103 p.

Muffler, L.J.P., 1967, Stratigraphy of the Keku Islets and neighboring parts of Kuiu and Kupreanof Islands, southeastern Alaska: U.S. Geological Survey Bulletin 1241-C, p. C1-C52.

Plafker, George, Blome, C.D., and Silberling, N.J., 1988, Reinterpretation of lower Mesozoic rocks on the Chilkat Peninsula: Closer links with Wrangellia: Geology (In press).

Plafker, George, Hudson, T.L., and Silberling, N.J., 1979, Late Triassic fossils from a sequence of volcanic and sedimentary rocks on the Chilkat Peninsula, southeastern Alaska, in Johnson, K.M., and Williams, J.R., eds., The United States Geological Survey in Alaska: Accomplishments during 1978: U.S. Geological Survey Circular 804-B, p. B107-B110.

Redman, Earl, 1984, An unconformity with associated conglomeratic sediments in the Berners Bay area of southeastern Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 86, p. 1-4.

Rubin, C.M., and Saleeby, J.B., 1987, The inner boundary of the Alexander terrane in southern SE Alaska, Part 1: Cleveland Peninsula to southern Revillagigedo Island (abs.): Geological Society of America Abstracts with Programs, v. 19, no. 7, p. 826.

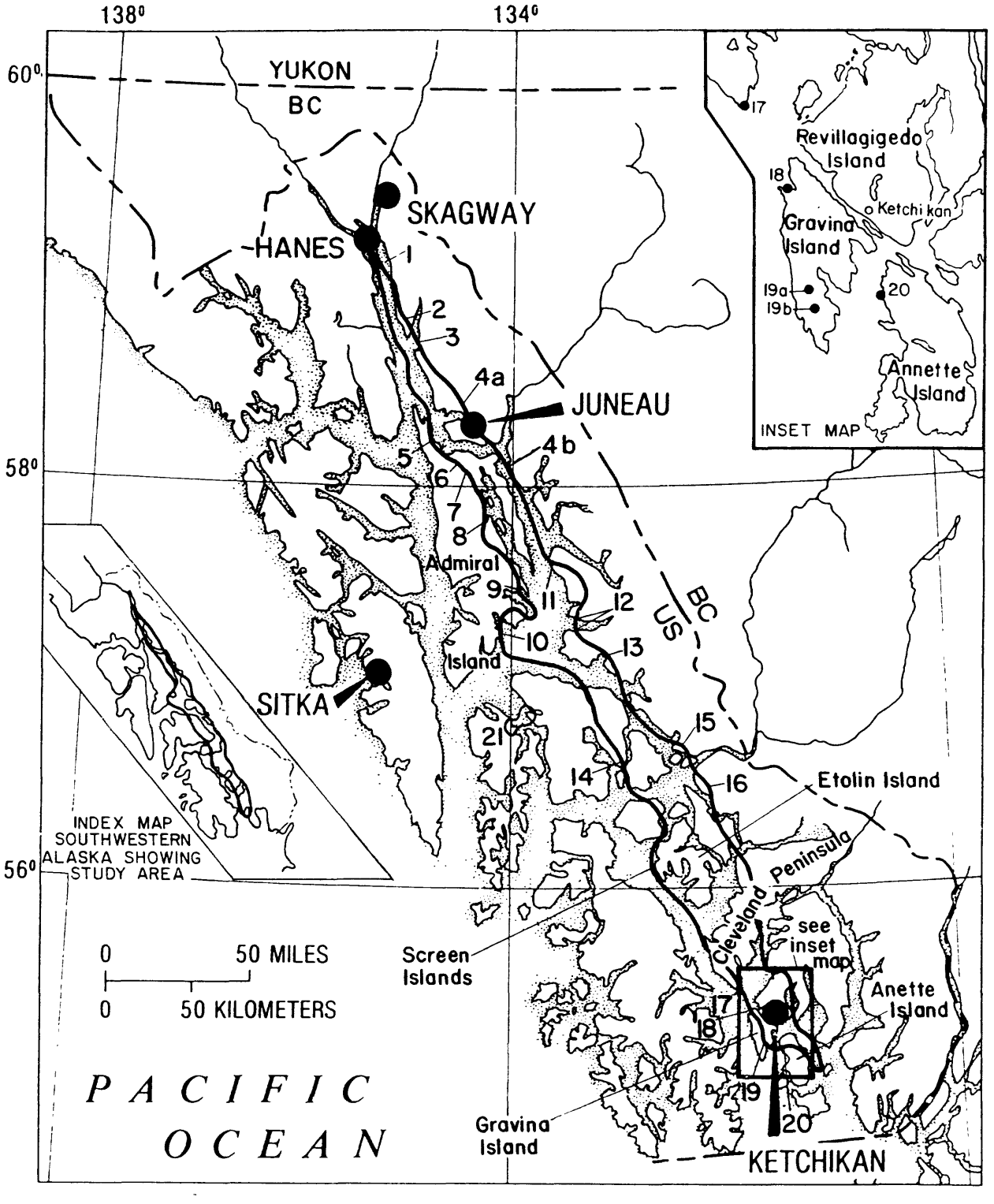

Figure 1. Distribution of Gravina belt rocks in southeastern Alaska outlined by heavy line. Numbered localities are referred to in table 1.