

# THE OCCURRENCE OF GYPSUM AT IYOUKEEN COVE, CHICHAGOF ISLAND, ALASKA

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## EARLIER MINING OPERATIONS

### LOCATION AND EXTENT OF THE DEPOSIT

The occurrence on Chichagof Island of gypsum deposits of commercial grade and size was known prior to 1905. Active mining of the largest known deposit was commenced in 1906 and continued thereafter with but brief interruptions for a period of nearly 20 years, until the deposit was exhausted.<sup>1</sup>

This deposit was situated on Gypsum Creek, which enters deep water on Chatham Strait near the head of Iyoukeen Cove, on the east side of Chichagof Island, and was owned by the Pacific Coast Gypsum Co.

The lowest horizon from which gypsum was mined was at the 300-foot level. The workings on that level are said to have been about 600 by 800 feet in extent, and the quality of the product mined was excellent. On the 160-foot level the deposit is reported to have had a length of more than 1,000 feet and a width of about 500 feet, measured on a horizontal plane.<sup>2</sup> The gypsum produced throughout the life of the mine was of exceptional purity. The color ranged from white to light bluish gray. The gray gypsum was translucent, and some of it approached alabaster in texture and appearance. The crude gypsum was shipped to Puget Sound, where a mill was built that for many years supplied the market with a large percentage of the plaster products consumed on the Pacific coast. The productive capacity of the mine was over 100 tons of gypsum a day, and the total output was probably in the neighborhood of 500,000 tons.

<sup>1</sup> Brief references to the occurrence of gypsum at Iyoukeen Cove are given in the following Geological Survey publications: Mineral resources of Alaska, 1905: U. S. Geol. Survey Bull. 284, pp. 58-59, 1906. Mineral resources of Alaska, 1906: U. S. Geol. Survey Bull. 314, pp. 79-80, 1907. Mineral resources of Alaska, 1907: U. S. Geol. Survey Bull. 345, pp. 124-125, 1908. Mineral resources of Alaska, 1912: U. S. Geol. Survey Bull. 542, pp. 50-51, 1913. Gypsum deposits of the United States: U. S. Geol. Survey Bull. 697, pp. 47-48, 1920 (out of print but may be consulted at principal public libraries).

<sup>2</sup> These approximate measurements were furnished by Mr. M. S. Hudson, formerly mine foreman at Gypsum.

### DIFFICULTIES OF OPERATION

As this deposit was about a mile from the mouth of Gypsum Creek, shipping of the product mined involved the building of a railroad 1 mile in length, on which a steam-driven "dinky" engine was used, and the construction of a wharf 2,000 feet in length with storage bunkers on the seaward end. The mine workings below the level of Gypsum Creek were so situated with reference to the stream that twice during the life of the property the mine was flooded. An underground watercourse was also encountered following a channel in the conglomerate formation that overlay the gypsum deposit. To keep the water from entering the workings entailed heavy expense for pumping. The fact that profitable operations were possible at this locality in spite of the heavy costs involved in pumping water and in maintaining the railroad line and long wharf attests the high quality of the gypsum produced.

### RECENT DEVELOPMENTS

#### LOCATION AND GENERAL GEOLOGY

As the deposit at Gypsum Creek underlies the creek valley the surface is so thickly covered by modern stream gravel that bedrock outcrops are scarce. For this reason and because the old mine workings were confined almost wholly to the gypsum beds, the geology in the immediate vicinity of that deposit is somewhat obscure. It is known, however, that the underlying bedrock is cherty limestone and that a chert conglomerate overlies the gypsum beds.

Eastward from Gypsum Creek along the shore of Iyoukeen Cove evidences of additional gypsum deposits have been discovered, and at one locality development work has recently revealed the possibility of the occurrence of an extensive body. The deposit is about 1½ miles due east of the mine on Gypsum Creek and underlies an elevated bench land adjacent to the shore of Iyoukeen Cove. The property on which this deposit is found comprises eight claims, known as the Gypsum-Camel group, which is owned by Larson & Anderson, of Juneau, Alaska, and associates. The underlying bedrock formation at this locality is exposed at numerous places along the shore line of the property and comprises tilted beds of lime-chert breccia and yellowish and bluish-gray cherty limestone. The trend of the marine terrace that skirts the shore is slightly east of north.

#### EXPLORATORY WORK

Three tunnels have been driven in a westerly direction into the terrace at an altitude of about 15 feet above high-tide line. Tunnel 1, which is the southernmost tunnel, is about 130 feet in length. It

enters the terrace at the outcrop of a prominent bluff of yellowish calcareous breccia. Two faults, apparently of moderate displacement, were encountered in this tunnel, the first about 25 feet from the portal and the second about 70 feet. Between the portal and the first fault the material exposed is coarse breccia. Between the two faults a fine yellowish-white breccia is exposed, and from the second fault to the face, as it appeared in June, 1928, the tunnel was in homogeneous fine-grained light-gray to yellowish limestone.

Tunnel 2 starts at a point 600 feet north of tunnel 1 and has been driven a distance of 250 feet, approximately at right angles to the shore line and roughly parallel to tunnel 1. This tunnel throughout its length exposes material consisting of either solid gypsum or lumps of gypsum embedded in a claylike mass which is believed to be gypsite that has been formed by the disintegration of solid gypsum. The gypsum appears to be very pure in quality and resembles closely in appearance the white variety that was produced at the mine of the Pacific Coast Gypsum Co.

Tunnel 3 is 270 feet north of tunnel 2, and its general course is parallel to that of the other tunnels. The main section of this tunnel is about 225 feet in length. At 10 feet from the face a cross-cut has been driven N. 14° E. a distance of 25 feet. From a point 100 feet in from the portal a slope has been driven on the north side of the tunnel and at an angle of about 30° from the tunnel line. This slope inclines downward at an angle of about 12° and has a length of about 75 feet. From a point in the tunnel opposite the top of this incline a vertical shaft was sunk to a depth of 40 feet, from the bottom of which a drift was driven west for a distance of about 80 feet approximately parallel with the adit tunnel above.

For a distance of 130 feet from the portal tunnel 3 penetrates partly cemented fine-grained beach sand containing perfectly preserved marine shells. A continuous narrow band of small shells in this section of the tunnel shows that the sand stratum has an inclination toward the present beach of about 4 feet to 100 feet. At a distance of 130 feet from the portal a band of partly cemented coarse beach gravel from 2 to 3 feet thick that underlies the sand stratum appears in the walls of the tunnel at the floor level and continues with an upward inclination of about 14 feet to 100 feet to the face, where it occupies the upper third of the tunnel. At a point 160 feet from the portal solid gypsum is exposed at the floor level of the tunnel, and from that point to the face gypsum is exposed in both walls of the tunnel, either solid or as lumps embedded in gypsite clay. At the face the lower two-thirds of the tunnel is in solid gypsum.

At the time of the writer's visit to the property, in 1928, the presence of water in the incline below the tunnel level at the 100-foot

station prevented a complete examination. The sand and gravel strata were observed in the walls, however, occupying the same relative positions as in the tunnel above. The owners of the property report that the incline penetrated gypsum at a point 50 feet down from the top and continued in gypsum to the face, a distance of 25 feet. The vertical shaft at the 100-foot station has been filled and was inaccessible. The owners report that this shaft penetrated a foot of solid gypsum at the bottom, that in the drift which was driven west from that point solid gypsum was exposed in the floor for about 35 feet, and that thence to the face, a distance of 45 feet, the drift was entirely in gypsum.

About 300 feet northeast of the portal of tunnel 3 yellowish cherty limestone crops out on the shoreward side of the terrace. Immediately northeast of these limestone beds is a zone of yellowish limestone breccia that extends between 200 and 300 feet to the mouth of a small stream, where the breccia is in contact with folded beds of bluish-gray limestone. The strata of the breccia zone strike S. 70° E. and dip steeply to the southwest.

Geologic conditions have not been observed in the area lying inland from the shoreward face of the marine terrace. Within the limits of the Gypsum-Camel group this area consists wholly of bench land sloping gently upward from the shore terrace. It is covered by overburden and a thick growth of underbrush, and bedrock exposures are lacking.

#### SUMMARY OF INDICATIONS

Underground conditions, as revealed by the development work so far accomplished, indicate that tunnels 2 and 3 and the workings connected with No. 3 have penetrated the upper portion of a body of gypsum of undetermined extent. It also seems evident that this body of gypsum lies unconformably on tilted and folded beds of cherty limestone and limestone breccia and is overlain by partly consolidated beach gravel and sand of recent geologic age. The entire area described has been elevated since the marine sediments were deposited. It is also apparent that the geologic relations of the indicated body of gypsum at this locality are similar in all essential respects to those existing at the deposit on Gypsum Creek and that the gypsum itself is of similar type and quality.

A moderate amount of additional underground work should serve to demonstrate the continuity and extent of the gypsum deposit. Extension of tunnels 2 and 3 and the sinking of additional winzes therefrom are suggested as the logical program for such development. The low-lying bench land, which extends for a considerable distance back from the shore line, also affords favorable topographic condi-

tions for the drilling of the area beyond the limits of underground development.

If a body of gypsum of minable extent exists at this place conditions would be much more favorable for mining the deposit at low cost than at Gypsum Creek. Deep water sufficient for ocean-going vessels extends almost to the shore at this point, and a wharf would need to be only of sufficient size to accommodate bunkers and other requisites for loading. The bench land adjacent to the beach would afford an excellent site for a mine camp and also for a working shaft. The menace of flooding by surface water is absent at this locality.



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## SELECTED LIST OF GEOLOGICAL SURVEY PUBLICATIONS ON ALASKA

[Arranged geographically]

All these publications can be obtained or consulted in the following ways:

1. The reports are sold, at the prices indicated, by the Superintendent of Documents, Washington, D. C., to whom remittances should be sent by money order. No copies are available of those marked with an asterisk (\*); they may be consulted at many public libraries.

2. The maps whose price is stated are sold by the Geological Survey and not by the Superintendent of Documents. On an order for maps amounting to \$5 or more at the retail price a discount of 40 per cent is allowed.

3. Copies of all Government publications are furnished to the principal public libraries throughout the United States, where they can be consulted by those interested.

### GENERAL

#### REPORTS

\* The geography and geology of Alaska, by A. H. Brooks. Professional Paper 45, 1906, 327 pp.

The Alaskan mining industry in 1930 by Philip S. Smith. In Bulletin 836, 1932, — cents. The preceding volumes in this series and years covered are Bulletins 259, 1904, 15 cents; 284, 1905, 25 cents; 314, 1906, 30 cents; 345, 1907, 45 cents; 379, 1908, 50 cents; 442, 1909, 40 cents; 480, 1910, 40 cents; 520, 1911, 50 cents; 542, 1912, 25 cents; \* 592, 1913 (592-A, 15 cents); 622, 1914, 30 cents; 642, 1915, 35 cents; 662, 1916, 75 cents; \* 692, 1917 (692-A, 5 cents); \* 712, 1918; \* 714, 1919 (714-A, 25 cents); 722, 1920, 25 cents; 739, 1921, 25 cents; 755, 1922, 40 cents; 773, 1923, 40 cents; 783, 1924, 40 cents; 792, 1925, 25 cents; 797, 1926, 80 cents; 810, 1927, 50 cents; 813, 1928, 40 cents; 824, 1929, — cents.

Railway routes from the Pacific seaboard to Fairbanks, Alaska, by A. H. Brooks. In Bulletin 520, 1912, pp. 45-88. 50 cents.

Geologic features of Alaskan metalliferous lodes, by A. H. Brooks. In Bulletin 480, 1911, pp. 43-93. 40 cents.

Alaska coal and its utilization, by A. H. Brooks. Bulletin 442-J, reprinted 1914, pp. 47-100. 10 cents.

The preparation and use of peat as a fuel, by C. A. Davis. In Bulletin 442, 1910, pp. 101-132. 40 cents.

\* Methods and costs of gravel and placer mining in Alaska, by C. W. Purington. Bulletin 263, 1905, 273 pp.

\* Geographic dictionary of Alaska, by Marcus Baker (second edition, prepared by James McCormick). Bulletin 299, 1906, 690 pp.

Tin mining in Alaska, by H. M. Eakin. In Bulletin 622, 1915, pp. 81-94. 30 cents.

Antimony deposits of Alaska, by A. H. Brooks. Bulletin 649, 1916, 67 pp. 15 cents.

- The use of the panoramic camera in topographic surveying, by J. W. Bagley. Bulletin 657, 1917, 88 pp. 25 cents.
- Mineral springs of Alaska, by G. A. Waring. Water-Supply Paper 418, 1917, 114 pp. 25 cents.
- The future of Alaska mining, by A. H. Brooks. Bulletin 714-A, 1921, pp. 5-57. 25 cents.
- Preliminary report on petroleum in Alaska by G. C. Martin. Bulletin 719, 1921, 83 pp. 50 cents.
- The Mesozoic stratigraphy of Alaska, by G. C. Martin. Bulletin 776, 1926, 493 pp. 75 cents.
- The Upper Cretaceous flora of Alaska, by Arthur Hollick, with a description of the Upper Cretaceous plant-bearing beds, by G. C. Martin. Professional Paper 159, 1930, 123 pp., 87 pls. 80 cents.
- Glaciation in Alaska, by S. R. Capps. In Professional Paper 170, 1932, pp. 1-8. — cents.

*In preparation*

- Tertiary flora of Alaska, by Arthur Hollick.
- Igneous geology of Alaska, by J. B. Mertie, jr.

TOPOGRAPHIC MAPS

- Map of Alaska (A); scale, 1:5,000,000; 1931. 10 cents retail or 6 cents wholesale.
- Map of Alaska (C); scale, 1:12,000,000; 1929. 1 cent retail or five for 3 cents wholesale.
- Map of Alaska, showing distribution of mineral deposits; scale, 1:5,000,000; 1925. 20 cents retail or 12 cents wholesale.
- Index map of Alaska, including list of publications; scale, 1:5,000,000; 1929. Free on application.
- Relief map of Alaska (D); scale, 1:2,500,000; 1923. 50 cents retail or 30 cents wholesale.
- Map of Alaska (E); scale, 1:2,500,000; 1931. 25 cents retail or 15 cents wholesale.

SOUTHEASTERN ALASKA

REPORTS

- The Juneau gold belt, by A. C. Spencer, pp. 1-137, and A reconnaissance of Admiralty Island, by C. W. Wright, pp. 138-154. Bulletin 287, 1906, 161 pp. 75 cents.
- Reconnaissance on the Pacific Coast from Yakutat to Alsek River, by Eliot Blackwelder. In Bulletin 314, 1907, pp. 82-88. 30 cents.
- The Ketchikan and Wrangell mining districts, by F. E. and C. W. Wright. Bulletin 347, 1908, 210 pp. 60 cents.
- The Yakutat Bay region, Alaska, by R. S. Tarr and B. S. Butler. Professional Paper 64, 1909, 183 pp. 50 cents.
- Occurrence of iron ore near Haines, by Adolph Knopf. In Bulletin 442, 1910, pp. 144-146. 40 cents.
- Geology of the Berners Bay region, by Adolph Knopf. Bulletin 446, 1911, 58 pp. 20 cents.
- The Eagle River region, southeastern Alaska, by Adolph Knopf. Bulletin 502, 1912, 61 pp. 25 cents.

- The Sitka mining district, by Adolph Knopf. Bulletin 504, 1912, 32 pp. 5 cents.
- The earthquakes at Yakutat Bay, in September, 1899, by R. S. Tarr and Lawrence Martin. Professional Paper 69, 1912, 135 pp. 60 cents.
- \*A barite deposit near Wrangell, by E. F. Burchard. In Bulletin 592, 1914, pp. 109-117.
- Geology and ore deposits of Copper Mountain and Kasaan Peninsula, by C. W. Wright. Professional Paper 87, 1915, 110 pp. 40 cents.
- \*The structure and stratigraphy of Gravina and Revillagigedo Islands, by Theodore Chapin. In Professional Paper 120, 1918, pp. 83-100.
- \*Geology and mineral resources of the west coast of Chicagof Island, by R. M. Overbeck. In Bulletin 692, 1919, pp. 91-136.
- The Porcupine district, by H. M. Eakin. Bulletin 699, 1919, 29 pp. 20 cents.
- Notes on the Salmon-Unuk River region, by J. B. Mertie, jr. Bulletin 714-B, 1921, pp. 129-142. 10 cents.
- Marble resources of southeastern Alaska, by E. F. Burchard. Bulletin 682, 1920, 118 pp. 30 cents.
- Water-power investigations in southeastern Alaska, by G. H. Canfield. In Bulletin 722, 1922. 25 cents. Similar previous reports in Bulletins 642, 1916, 35 cents; 662, 1917, 75 cents; \*692, 1919; \*712, 1920; 714-B, 1921, 10 cents.
- Ore deposits of the Salmon River district, Portland Canal region, by L. G. Westgate. In Bulletin 722, 1922, pp. 117-140. 25 cents.
- Mineral deposits of the Wrangell district, by A. F. Buddington. In Bulletin 739, 1923, pp. 51-75. 25 cents.
- Mineral investigations in southeastern Alaska in 1924, by A. F. Buddington. In Bulletin 783, 1927, pp. 41-62. 40 cents. Similar report for 1923 in Bulletin 773, 1925, pp. 71-139. 40 cents.
- Aerial photographic surveys in southeastern Alaska, by F. H. Moffit and R. H. Sargent. In Bulletin 797, 1929, pp. 143-160. 80 cents.
- Geology of Hyder and vicinity with a reconnaissance of Chickamin River, southeastern Alaska, by A. F. Buddington. Bulletin 807, 1929, 124 pp. 35 cents.
- Geology and mineral deposits of southeastern Alaska, by A. F. Buddington and Theodore Chapin. Bulletin 800, 1929, 398 pp. 85 cents.
- The occurrence of gypsum at Iyookeen Cove, Chichagof Island, by B. D. Stewart. In Bulletin 824, 1931, pp. 173-177. — cents.
- Notes on the geography and geology of Lituya Bay, by J. B. Mertie, jr. In Bulletin 836, 1931, pp. —. — cents.
- Surface water supply of southeastern Alaska, by F. F. Henshaw. In Bulletin 836, 1932, pp. —. — cents.

*In preparation*

Geology and ore deposits of the Juneau district, by H. M. Eakin.

## TOPOGRAPHIC MAPS

- Juneau gold belt, Alaska; scale, 1:250,000; compiled. In Bulletin 287, 1906. 75 cents. Not issued separately.
- Juneau special (No. 581A); scale, 1:62,500; 1904, by W. J. Peters. 10 cents retail or 6 cents wholesale.
- Berners Bay special (No. 581B); scale, 1:62,500; 1908, by R. B. Oliver. 10 cents retail or 6 cents wholesale. Also contained in Bulletin 446, 1911, 20 cents.

- Kasaan Peninsula, Prince of Wales Island (No. 540A); scale, 1:62,500; by D. C. Witherspoon, R. H. Sargent, and J. W. Bagley. 10 cents retail or 6 cents wholesale. Also contained in Professional Paper 87, 1915, 40 cents.
- Copper Mountain and vicinity, Prince of Wales Island (No. 540B); scale, 1:62,500; by R. H. Sargent. 10 cents retail or 6 cents wholesale. Also contained in Professional Paper 87, 1915, 40 cents.
- Eagle River region; scale, 1:62,500; by J. W. Bagley, C. E. Giffin, and R. E. Johnson. In Bulletin 502, 1912, 25 cents. Not issued separately.
- Juneau and vicinity (No. 581D); scale, 1:24,000; 1918, by D. C. Witherspoon. 20 cents retail or 12 cents wholesale.
- Hyder and vicinity (No. 540C); scale, 1:62,500; 1927, by R. M. Wilson. 10 cents retail or 6 cents wholesale. Also published in Bulletin 807, 1929, 35 cents.
- Revillagigedo Island; scale, 1:250,000; 1931, by R. H. Sargent (preliminary edition). Free on application.

*In preparation*

Wrangell district; scale, 1:250,000, by R. H. Sargent.

CONTROLLER BAY, PRINCE WILLIAM SOUND, AND COPPER RIVER REGIONS

REPORTS

- Geology of the central Copper River region, by W. C. Mendenhall. Professional Paper 41, 1905, 133 pp. 50 cents.
- Geology and mineral resources of Controller Bay region, by G. C. Martin. Bulletin 335, 1908, 141 pp. 70 cents.
- Mineral resources of the Kotsina-Chitina region, by F. H. Moffit and A. G. Maddren. Bulletin 374, 1909, 103 pp. 40 cents.
- Mineral resources of the Nabesna-White River district, by F. H. Moffit and Adolph Knopf, with a section on the Quaternary, by S. R. Capps. Bulletin 417, 1910, 64 pp. 25 cents.
- Reconnaissance of the geology and mineral resources of Prince William Sound, by U. S. Grant and D. F. Higgins. Bulletin 443, 1910, 89 pp. 45 cents.
- Geology and mineral resources of the Nizina district, by F. H. Moffit and S. R. Capps. Bulletin 448, 1911, 111 pp. 40 cents.
- Headwater regions of Gulkana and Susitna Rivers, with accounts of the Valdez Creek and Chistochina placer districts, by F. H. Moffit. Bulletin 498, 1912, 82 pp. 35 cents.
- Coastal glaciers of Prince William Sound and Kenai Peninsula, by U. S. Grant and D. F. Higgins. Bulletin 526, 1913, 75 pp. 30 cents.
- The McKinley Lake district, by Theodore Chapin. In Bulletin 542, 1913, pp. 78-80. 25 cents.
- Geology of the Hanagita-Bremner region, Alaska, by F. H. Moffit. Bulletin 576, 1914, 56 pp. 30 cents.
- \* Mineral deposits of the Yakataga district, by A. G. Maddren. In Bulletin 592, 1914, pp. 119-153.
- \* The Port Wells gold-lode district, by B. L. Johnson. In Bulletin 592, 1914, pp. 195-236.
- \* Geology and mineral resources of Kenai Peninsula, by G. C. Martin, B. L. Johnson, and U. S. Grant. Bulletin 587, 1915, 243 pp.
- The gold and copper deposits of the Port Valdez district, by B. L. Johnson. In Bulletin 622, 1915, pp. 140-188. 30 cents.

- The Ellamar district, by S. R. Capps and B. L. Johnson. Bulletin 605, 1915, 125 pp. 25 cents.
- \* A water-power reconnaissance in south-central Alaska, by C. E. Ellsworth and R. W. Davenport. Water-Supply Paper 372, 1915, 173 pp.
- Copper deposits of the Latouche and Knight Island districts, Prince William Sound, by B. L. Johnson. In Bulletin 662, 1917, pp. 193-220. 75 cents.
- The Nelchina-Susitna region, by Theodore Chapin. Bulletin 668, 1918, 67 pp. 25 cents.
- The upper Chitina Valley, by F. H. Moffit, with a description of the igneous rocks, by R. M. Overbeck. Bulletin 675, 1918, 82 pp. 25 cents.
- \* Platinum-bearing auriferous gravel of Chistochina River, by Theodore Chapin. In Bulletin 692, 1919, pp. 137-141.
- \* Mining on Prince William Sound, by B. L. Johnson. In Bulletin 692, 1919. Similar previous reports in Bulletins \*592, 1914; 622, 1915, 30 cents; 642, 1916, 35 cents; 662, 1918, 75 cents.
- \* Mineral resources of Jack Bay district and vicinity, by B. L. Johnson. In Bulletin 692, 1919, pp. 153-173.
- \* Nickel deposits in the lower Copper River Valley, by R. M. Overbeck. In Bulletin 712, 1919, pp. 91-98.
- The Kotsina-Kuskulana district, by F. H. Moffit and J. B. Mertie, jr. Bulletin 745, 1923, 149 pp. 40 cents.
- The metalliferous deposits of Chitina Valley, by F. H. Moffit. In Bulletin 755, 1924, pp. 57-72. 40 cents.
- The occurrence of copper on Prince William Sound, by F. H. Moffit. In Bulletin 773, 1925, pp. 141-158. 40 cents.
- Notes on the geology of the upper Nizina River, by F. H. Moffit. In Bulletin 813, 1930, pp. 143-163. 40 cents.
- The Slana district, upper Copper River region, by F. H. Moffit. In Bulletin 824, 1931, pp. 111-124. — cents.

*In preparation*

Geology of the Chitina quadrangle, by F. H. Moffit.

TOPOGRAPHIC MAPS

- Central Copper River region; scale, 1:250,000; by T. G. Gerdine. In Professional Paper 41, 1905, 50 cents. Not issued separately. Reprint in Bulletin 498, 1912, 35 cents.
- Headwater regions of Copper, Nabesna, and Chisana Rivers; scale, 1:250,000; by D. C. Witherspoon, T. G. Gerdine, and W. J. Peters. In Professional Paper 41, 1905, 50 cents. Not issued separately.
- Controller Bay region (No. 601A); scale, 1:62,500; 1907, by E. G. Hamilton and W. R. Hill. 35 cents retail or 21 cents wholesale. Also published in Bulletin 335, 1908, 70 cents.
- Headwater regions of Nabesna and White Rivers; scale, 1:250,000, by D. C. Witherspoon, T. G. Gerdine, and S. R. Capps. In Bulletin 417, 1910, 25 cents. Not issued separately.
- Latouche Island, part of; scale, 1:21,120; by D. F. Higgins. In Bulletin 443, 1910, 45 cents. Not issued separately.
- Chitina quadrangle (No. 601); scale, 1:250,000; 1914, by T. G. Gerdine, D. C. Witherspoon and others. Sale edition exhausted. Also published in Bulletin 576, 1914, 30 cents.
- Nizina district (No. 601B); scale, 1:62,500, by D. C. Witherspoon and R. M. La Follette. In Bulletin 448, 1911, 40 cents. Not issued separately.

- Headwater regions of Gulkana and Susitna Rivers; scale, 1:250,000; by D. C. Witherspoon, J. W. Bagley, and C. E. Giffin. In Bulletin 498, 1912, 35 cents. Not issued separately.
- Prince William Sound; scale, 1:500,000; compiled. In Bulletin 526, 1913, 30 cents. Not issued separately.
- The Bering River coal field; scale, 1:62,500; 1915, by G. C. Martin. 25 cents retail or 15 cents wholesale.
- The Ellamar district (No. 602D); scale, 1:62,500; by R. H. Sargent and C. E. Giffin. In Bulletin 605, 1915, 25 cents. Not issued separately.
- Nelchina-Susitna region; scale, 1:250,000; by J. W. Bagley, T. G. Gerdine, and others. In Bulletin 668, 1918, 25 cents. Not issued separately.
- Upper Chitina Valley; scale, 1:250,000; by International Boundary Commission, F. H. Moffit, D. C. Witherspoon, and T. G. Gerdine. In Bulletin 675, 1918, 25 cents. Not issued separately.
- The Kotsina-Kuskulana district (No. 601C); scale, 1:62,500; 1922, by D. C. Witherspoon. 10 cents retail or 6 cents wholesale. Also published in Bulletin 745, 1923, 40 cents.
- Valdez and vicinity (No. 602B); scale, 1:62,500; 1929, by J. W. Bagley, C. E. Giffin, and R. H. Sargent. 10 cents retail or 6 cents wholesale.

*In preparation*

- Prince William Sound region; scale, 1:250,000; by J. W. Bagley, D. C. Witherspoon, and others.

COOK INLET AND SUSITNA REGION

REPORTS

- Geologic reconnaissance in the Matanuska and Talkeetna basins, by Sidney Paige and Adolph Knopf. Bulletin 327, 1907, 71 pp. 25 cents.
- \* The Mount McKinley region, by A. H. Brooks. Professional Paper 70, 1911, 234 pp.
- A geologic reconnaissance of the Iliamna region, by G. C. Martin and F. J. Katz. Bulletin 485, 1912, 138 pp. 35 cents.
- Geology and coal fields of the lower Matanuska Valley, by G. C. Martin and F. J. Katz. Bulletin 500, 1912, 98 pp. 30 cents.
- The Yentna district, by S. R. Capps. Bulletin 534, 1913, 75 pp. 20 cents.
- \* Geology and mineral resources of Kenai Peninsula, by G. C. Martin, B. L. Johnson, and U. S. Grant. Bulletin 587, 1915, 243 pp.
- The Willow Creek district, by S. R. Capps. Bulletin 607, 1915, 86 pp. 25 cents.
- The Broad Pass region, by F. H. Moffit and J. E. Pogue. Bulletin 608, 1915, 80 pp. 25 cents.
- The Nelchina-Susitna region, by Theodore Chapin. Bulletin 668, 1918, 67 pp. 25 cents.
- Platinum-bearing gold placers of Kahiltna Valley, by J. B. Mertie, jr. In Bulletin 692-D, 1919, pp. 233-264. 15 cents.
- \* Mining developments in the Matanuska coal fields, by Theodore Chapin. In Bulletin 714, 1921. (See also Bulletin 692-D, 1919, 15 cents; and Bulletin \*712, 1920.)
- \* Lode developments in the Willow Creek district, by Theodore Chapin. In Bulletin 714, 1921. (See also Bulletin 642, 1916, 35 cents; Bulletin 692-D, 1919, 15 cents; and Bulletin \*712, 1920.)



- Geology of the vicinity of Tuxedni Bay, Cook Inlet, by F. H. Moffit. In Bulletin 722, 1922, pp. 141-147. 25 cents.
- The Iniskin Bay district, by F. H. Moffit. In Bulletin 739, 1922, pp. 117-132. 25 cents.
- Chromite of Kenai Peninsula, by A. C. Gill. Bulletin 742, 1922, 52 pp. 15 cents.
- Geology and mineral resources of the region traversed by the Alaska Railroad, by S. R. Capps. In Bulletin 755, 1924, pp. 73-150. 40 cents.
- An early Tertiary placer deposit in the Yentna district, by S. R. Capps. In Bulletin 773, 1925, pp. 53-61. 40 cents.
- Mineral resources of the Kamishak Bay region, by K. F. Mather. In Bulletin 773, 1925, pp. 159-181. 40 cents.
- A ruby-silver prospect in Alaska, by S. R. Capps and M. N. Short. In Bulletin 783, 1927, pp. 89-95. 40 cents.
- The Iniskin-Chinitna Peninsula and the Snug Harbor district, Alaska, by F. H. Moffit. Bulletin 789, 1927, 71 pp. 50 cents.
- Geology of the upper Matanuska Valley, Alaska, by S. R. Capps, with a section on the igneous rocks, by J. B. Mertie, jr. Bulletin 791, 1927, 92 pp. 30 cents.
- Geology of the Knik-Matanuska district, Alaska, by K. K. Landes. In Bulletin 792, 1927, pp. 51-72. 25 cents.
- The Skwentna region, by S. R. Capps. In Bulletin 797, 1929, pp. 67-98, 80 cents.
- The Mount Spurr region, by S. R. Capps. In Bulletin 810, 1930, pp. 141-172. 50 cents.
- The Chakachamna-Stony region, by S. R. Capps. In Bulletin 813, 1930, pp. 97-123. 40 cents.
- The Lake Clark-Mulchatna region, by S. R. Capps. In Bulletin 824, 1931, pp. 125-154. — cents.

*In preparation*

- The Alaska Railroad route, by S. R. Capps.

## TOPOGRAPHIC MAPS

- Matanuska and Talkeetna region; scale, 1:250,000; by T. G. Gerdine and R. H. Sargent. In Bulletin 327, 1907, 25 cents. Not issued separately.
- Yentna district; scale, 1:250,000; by R. W. Porter. Revised edition. In Bulletin 534, 1913, 20 cents. Not issued separately.
- \*Mount McKinley region; scale, 1:625,000; by D. L. Reaburn. In Professional Paper 70, 1911. Not issued separately.
- \*Kenai Peninsula; scale, 1:250,000; by R. H. Sargent, J. W. Bagley, and others. In Bulletin 587, 1915. Not issued separately.
- \*Moose Pass and vicinity; scale, 1:62,500; by J. W. Bagley. In Bulletin 587, 1915. Not issued separately.
- The Willow Creek district; scale, 1:62,500; by C. E. Giffin. In Bulletin 607, 1915, 25 cents. Not issued separately.
- Lower Matanuska Valley (No. 602A); scale, 1:62,500; 1931, by R. H. Sargent. 10 cents retail or 6 cents wholesale.
- Nelchina-Susitna region; scale, 1:250,000; by J. W. Bagley. In Bulletin 668, 1918, 25 cents. Not issued separately.
- Iniskin-Chinitna Peninsula, Cook Inlet region; scale, 1:62,500; 1922, by C. P. McKinley, D. C. Witherspoon, and Gerald FitzGerald (preliminary edition). Free on application. Also published in Bulletin 789, 1927. 50 cents.

Iniskin Bay-Snug Harbor district, Cook Inlet region, Alaska; scale, 1:250,000; 1924, by C. P. McKinley and Gerald FitzGerald (preliminary edition). Free on application. Also published in Bulletin 789, 1927. 50 cents.

The Alaska Railroad route: Seward to Matanuska coal field; scale, 1:250,000; 1924, by J. W. Bagley, T. G. Gerdine, R. H. Sargent, and others. 50 cents retail or 30 cents wholesale.

The Alaska Railroad route: Matanuska coal field to Yanert Fork; scale, 1:250,000; 1924, by J. W. Bagley, T. G. Gerdine, R. H. Sargent, and others. 50 cents retail or 30 cents wholesale.

The Alaska Railroad route: Yanert Fork to Fairbanks; scale, 1:250,000; 1924, by J. W. Bagley, T. G. Gerdine, R. H. Sargent, and others. 50 cents retail or 30 cents wholesale.

Upper Matanuska Valley; scale, 1:62,500; by R. H. Sargent. In Bulletin 791, 1927, 30 cents. Not issued separately.

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Mount Spurr region; scale, 1:250,000; by R. H. Sargent, Gerald FitzGerald, E. C. Hamilton, W. S. Post, D. L. Reaburn, and K. W. Trimble.

Lake Clark-Mulchatna River region; scale, 1:250,000; by R. H. Sargent, Gerald FitzGerald, C. E. Giffin, and D. C. Witherspoon.

SOUTHWESTERN ALASKA

REPORTS

\* Geology and mineral resources of parts of Alaska Peninsula, by W. W. Atwood. Bulletin 467, 1911, 137 pp.

A geologic reconnaissance of the Iliamna region, by G. C. Martin and F. J. Katz. Bulletin 485, 1912, 138 pp. 35 cents.

Mineral deposits of Kodiak and the neighboring islands, by G. C. Martin. In Bulletin 542, 1913, pp. 125-136. 25 cents.

The Lake Clark-central Kuskokwim region, by P. S. Smith. Bulletin 655, 1917, 162 pp. 30 cents.

Beach placers of Kodiak Island, by A. G. Maddren. In Bulletin 692-E, 1919, pp. 299-319. 5 cents.

Sulphur on Unalaska and Akun Islands and near Stepovak Bay, by A. G. Maddren. In Bulletin 692-E, 1919, pp. 283-298. 5 cents.

The Cold Bay-Chignik district, by W. R. Smith and A. A. Baker. In Bulletin 755, 1924, pp. 151-218. 40 cents.

The Cold Bay-Katmai district, by W. R. Smith. In Bulletin 773, 1925, pp. 183-207. 40 cents.

The outlook for petroleum near Chignik, by G. C. Martin. In Bulletin 773, 1925, pp. 209-213. 40 cents.

Mineral resources of the Kamishak Bay region, by K. F. Mather. In Bulletin 773, 1925, pp. 159-181. 40 cents.

\* Aniakchak Crater, Alaska Peninsula, by W. R. Smith. In Professional Paper 132, 1925, pp. 139-149.

Geology and oil developments of the Cold Bay district, by W. R. Smith. In Bulletin 783, 1927, pp. 63-88. 40 cents.

Geology and mineral resources of the Aniakchak district, by R. S. Knappen. In Bulletin 797, 1928, pp. 161-223. 80 cents.

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- \* Herendeen Bay and Unga Island region; scale, 1:250,000; by H. M. Eakin. In Bulletin 467, 1911. Not issued separately.
- \* Chignik Bay region; scale, 1:250,000; by H. M. Eakin. In Bulletin 467, 1911. Not issued separately.
- Iliamna region; scale, 1:250,000; by D. C. Witherspoon and C. E. Giffin. In Bulletin 485, 1912. 35 cents. Not issued separately.
- Kuskokwim River and Bristol Bay region; scale, 1:625,000; by W. S. Post. In Twentieth Annual Report, pt. 7, 1900. \$1.80. Not issued separately.
- Lake Clark-central Kuskokwim region; scale, 1:250,000; by R. H. Sargent, D. C. Witherspoon, and C. E. Giffin. In Bulletin 655, 1917. 30 cents. Not issued separately.
- \* Cold Bay-Chignik region, Alaska Peninsula, 1924; scale, 1:250,000; by R. K. Lynt and R. H. Sargent (preliminary edition).
- Kamishak Bay-Katmai region, Alaska Peninsula, 1927; scale, 1:250,000; by R. H. Sargent and R. K. Lynt (preliminary edition). Free on application.
- Aniakchak district, Alaska Peninsula, 1927; scale, 1:250,000; by R. H. Sargent (preliminary edition). Free on application.
- Pavlof region, Alaska Peninsula, 1929; scale, 1:250,000; by C. P. McKinley (Nat. Geog. Soc. Expedition) (preliminary edition). Free on application.
- Goodnews Bay district, 1930; scale, 1:250,000; by R. H. Sargent and W. S. Post (preliminary edition). Free on application.

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Nushagak region; scale, 1:250,000; by Gerald FitzGerald.

## YUKON AND KUSKOKWIM BASINS

## REPORTS

- The Fortymile quadrangle, Yukon-Tanana region, by L. M. Prindle. Bulletin 375, 1909, 52 pp. 30 cents.
- Water-supply investigations in the Yukon-Tanana region, 1907 and 1908 (Fairbanks, Circle, and Rampart districts), by C. C. Covert and C. E. Ellsworth. Water-Supply Paper 228, 1909, 108 pp. 20 cents.
- Mineral resources of the Nabesna-White River district, by F. H. Moffit, Adolph Knopf, and S. R. Capps. Bulletin 417, 1910, 64 pp. 25 cents.
- \*Mount McKinley region, by A. H. Brooks, with descriptions of the igneous rocks of the Bonnifield and Kantishna districts, by L. M. Prindle. Professional Paper 70, 1911, 234 pp.
- The Bonnifield region, by S. R. Capps. Bulletin 501, 1912, 64 pp. 20 cents.
- A geologic reconnaissance of a part of the Rampart quadrangle, by H. M. Eakin. Bulletin 535, 1913, 38 pp. 20 cents.
- A geologic reconnaissance of the Fairbanks quadrangle, by L. M. Prindle, F. J. Katz, and P. S. Smith. Bulletin 525, 1913, 220 pp. 55 cents.
- The Koyukuk-Chandalar region, by A. G. Maddren. Bulletin 532, 1913, 119 pp. 25 cents.
- A geologic reconnaissance of the Circle quadrangle, by L. M. Prindle. Bulletin 538, 1913, 82 pp. 30 cents.
- Surface water supply of the Yukon-Tanana region, by C. E. Ellsworth and R. W. Davenport. Water-Supply Paper 342, 1915, 343 pp. 45 cents.

- Gold placers of the lower Kuskokwim, with a note on copper in the Russian Mountains, by A. G. Maddren. In Bulletin 622, 1915, pp. 292-360. 30 cents.
- Quicksilver deposits of the Kuskokwim region, by P. S. Smith and A. G. Maddren. In Bulletin 622, 1915, pp. 272-291. 30 cents.
- The Chisana-White River district, by S. R. Capps. Bulletin 630, 1916, 130 pp. 20 cents.
- The Yukon-Koyukuk region, by H. M. Eakin. Bulletin 631, 1916, 88 pp. 20 cents.
- The gold placers of the Tolovana district, by J. B. Mertie, jr. In Bulletin 662, 1918, pp. 221-277. 75 cents.
- Lode mining in the Fairbanks district, by J. B. Mertie, jr. In Bulletin 662, 1918, pp. 403-424. 75 cents.
- Lode deposits near the Nenana coal field, by R. M. Overbeck. In Bulletin 662, 1918, pp. 351-362. 75 cents.
- The Lake Clark-central Kuskokwim region, by P. S. Smith. Bulletin 655, 1918, 162 pp. 30 cents.
- The Cosna-Nowitna region, by H. M. Eakin. Bulletin 667, 1918, 54 pp. 25 cents.
- The Anvik-Andreafski region, by G. L. Harrington. Bulletin 683, 1918, 70 pp. 30 cents.
- The Kantishna district, by S. R. Capps. Bulletin 687, 1919, 118 pp. 25 cents.
- The Nenana coal field, Alaska, by G. C. Martin. Bulletin 664, 1919, 54 pp. \$1.10.
- \* The gold and platinum placers of the Tolstoi district, by G. L. Harrington. In Bulletin 692, 1919, pp. 339-351.
- \* Mineral resources of the Goodnews Bay region, by G. L. Harrington. In Bulletin 714, 1921, pp. 207-228.
- Gold lodes in the upper Kuskokwim region, by G. C. Martin. In Bulletin 722, 1922, pp. 149-161. 25 cents.
- The occurrence of metalliferous deposits in the Yukon and Kuskokwim regions, by J. B. Mertie, jr. In Bulletin 739, 1922, pp. 149-165. 25 cents.
- The Ruby-Kuskokwim region, by J. B. Mertie, jr., and G. L. Harrington. Bulletin 754, 1924, 129 pp. 50 cents.
- Geology and gold placers of the Chandalar district, by J. B. Mertie, jr. In Bulletin 773, 1925, pp. 215-263. 40 cents.
- The Nixon Fork country, by J. S. Brown. In Bulletin 783, 1927, pp. 97-144. 40 cents.
- Silver-lead prospects near Ruby, by J. S. Brown. In Bulletin 783, 1927, pp. 145-150. 40 cents.
- The Toklat-Tonzona River region, by S. R. Capps. In Bulletin 792, 1927, pp. 73-110. 25 cents.
- Preliminary report on the Sheenjek River district, by J. B. Mertie, jr. In Bulletin 797, 1929, pp. 99-123. 80 cents.
- The Chandalar-Sheenjek district, by J. B. Mertie, jr. In Bulletin 810, 1930, pp. 87-139. 50 cents.
- Mining in the Fortymile district, by J. B. Mertie, jr. In Bulletin 813, 1930, pp. 125-142. 40 cents.
- Geology of the Eagle-Circle district, by J. B. Mertie, jr. Bulletin 816, 1930, 168 pp. 50 cents.
- Mining in the Circle district, by J. B. Mertie, jr. In Bulletin 824, 1931, pp. 155-172. — cents.
- Geologic reconnaissance of the Dennison Fork district, by J. B. Mertie, jr. Bulletin 827, 1932, pp. —. — cents.

Tatonduk-Nation district, by J. B. Mertie, jr. In Bulletin 836, 1932, pp. —. — cents.

Eastern portion of Mount McKinley National Park, by S. R. Capps. In Bulletin 836, 1932, pp. —. — cents.

Kantishna district, by F. H. Moffit. In Bulletin 836, 1932, pp. —. — cents.

Mining developments in the Tatlanika and Totatlanika Basins, by F. H. Moffit. In Bulletin 836, 1932, pp. —. — cents.

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Geology of the Yukon-Tanana region, by J. B. Mertie, jr.

TOPOGRAPHIC MAPS

Circle quadrangle (No. 641); scale, 1:250,000; 1911, by T. G. Gerdine, D. C. Witherspoon, and others. 50 cents retail or 30 cents wholesale. Also in Bulletin 538, 1913, 20 cents.

Koyukuk and Chandalar region, reconnaissance map; scale, 1:500,000; by T. G. Gerdine, D. L. Reaburn, D. C. Witherspoon, and A. G. Maddren. In Bulletin 532, 1913, 25 cents. Not issued separately.

Fairbanks quadrangle (No. 642); scale, 1:250,000; 1911, by T. G. Gerdine, D. C. Witherspoon, R. B. Oliver, and J. W. Bagley. 50 cents retail or 30 cents wholesale. Also in Bulletin 337, 1908, 25 cents, and Bulletin 525, 1913, 55 cents.

Fortymile quadrangle (No. 640); scale, 1:250,000; 1902, by E. C. Barnard. 10 cents retail or 6 cents wholesale. Also in Bulletin 375, 1909, 30 cents.

Rampart quadrangle (No. 643); scale, 1:250,000; 1913, by D. C. Witherspoon and R. B. Oliver. 20 cents retail or 12 cents wholesale. Also in Bulletin 337, 1908, 25 cents, and part in Bulletin 535, 1913, 20 cents.

Fairbanks special (No. 642A); scale, 1:62,500; 1908, by T. G. Gerdine and R. H. Sargent. 20 cents retail or 12 cents wholesale. Also in Bulletin 525, 1913, 55 cents.

Bonnifield region; scale, 1:250,000; by J. W. Bagley, D. C. Witherspoon, and C. E. Giffin. In Bulletin 501, 1912, 20 cents. Not issued separately.

Iditarod-Ruby region; scale, 1:250,000; by C. G. Anderson, W. S. Post, and others. In Bulletin 578, 1914, 35 cents. Not issued separately.

Middle Kuskokwim and lower Yukon region; scale, 1:500,000; by C. G. Anderson, W. S. Post, and others. In Bulletin 578, 1914, 35 cents. Not issued separately.

Chisana-White River region; scale, 1:250,000; by C. E. Giffin and D. C. Witherspoon. In Bulletin 630, 1916, 20 cents. Not issued separately.

Yukon-Koyukuk region; scale, 1:500,000; by H. M. Eakin. In Bulletin 631, 1916, 20 cents. Not issued separately.

Cosna-Nowitna region; scale, 1:250,000; by H. M. Eakin, C. E. Giffin, and R. B. Oliver. In Bulletin 667, 1917, 25 cents. Not issued separately.

Lake Clark-central Kuskokwim region; scale, 1:250,000; by R. H. Sargent, D. C. Witherspoon, and C. E. Giffin. In Bulletin 655, 1917, 30 cents. Not issued separately.

Anvik-Andreafski region; scale, 1:250,000; by R. H. Sargent. In Bulletin 683, 1918, 30 cents. Not issued separately.

Marshall district; scale, 1:125,000; by R. H. Sargent. In Bulletin 683, 1918, 30 cents. Not issued separately.

Upper Tanana Valley region; scale, 1:250,000; 1922, by D. C. Witherspoon and J. W. Bagley (preliminary edition). Free on application.

- \* Lower Kuskokwim region; scale, 1:500,000; 1921, by A. G. Maddren and R. H. Sargent (preliminary edition).
- Ruby district; scale, 1:250,000; 1921, by C. E. Giffin and R. H. Sargent (preliminary edition). Free on application. Also in Bulletin 754, 1924, 50 cents.
- Innoko-Iditarod region; scale, 1:250,000; 1921, by R. H. Sargent and C. G. Anderson (preliminary edition). Free on application. Also in Bulletin 754, 1924, 50 cents.
- Nixon Fork region; scale, 1:250,000; 1926, by R. H. Sargent (preliminary edition). Free on application.
- Chandalar-Sheenjek district; scale, 1:500,000; by Gerald FitzGerald and J. O. Kilmartin. In Bulletin 810, 1930, 50 cents. Not issued separately.
- Goodnews Bay district, 1930; scale, 1:250,000, by R. H. Sargent and W. S. Post (preliminary edition.) Free on application.

## SEWARD PENINSULA

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- The Fairhaven gold placers, Seward Peninsula, by F. H. Moffit. Bulletin 247, 1905, 85 pp. 40 cents.
- The gold placers of parts of Seward Peninsula, including the Nome, Council, Kougarok, Port Clarence, and Goodhope precincts, by A. J. Collier, F. L. Hess, P. S. Smith, and A. H. Brooks. Bulletin 328, 1908, 343 pp. 70 cents.
- Geology of the Seward Peninsula tin deposits, by Adolph Knopf. Bulletin 358, 1908, 71 pp. 15 cents.
- Geology and mineral resources of the Solomon and Casadepaga quadrangles, Seward Peninsula, by P. S. Smith. Bulletin 433, 1910, 234 pp. 40 cents.
- A geologic reconnaissance in southeastern Seward Peninsula and the Norton Bay-Nulato region, by P. S. Smith and H. M. Eakin. Bulletin 449, 1911, 146 pp. 30 cents.
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- \* The gold and platinum placers of the Kiwalik-Koyuk region, by G. L. Harrington. In Bulletin 692, 1919, pp. 368-400.
- Metalliferous lodes of southern Seward Peninsula, by S. H. Cathcart. In Bulletin 722, 1922, pp. 163-261. 25 cents.
- The geology of the York tin deposits, by Edward Steidtmann and S. H. Cathcart. Bulletin 733, 1922, 130 pp. 30 cents.
- Pliocene and Pleistocene fossils from the Arctic coast of Alaska and the auriferous beaches of Nome, Norton Sound, by W. H. Dall. Professional Paper 125-C, 1921, 15 pp. 10 cents.

## TOPOGRAPHIC MAPS

- Seward Peninsula; scale, 1:500,000; compiled from work of D. C. Witherspoon, T. G. Gerdine, and others, of the Geological Survey, and all other available sources. In Water-Supply Paper 314, 1913, 45 cents. Not issued separately.
- Seward Peninsula, northeastern portion, reconnaissance map (No. 655); scale, 1:250,000; 1905, by D. C. Witherspoon and C. E. Hill. 50 cents retail or 30 cents wholesale. Also in Bulletin 247, 1905, 40 cents.

- Seward Peninsula, northwestern portion, reconnaissance map (No. 657); scale, 1:250,000; 1907, by T. G. Gerdine and D. C. Witherspoon. 50 cents retail or 30 cents wholesale. Also in Bulletin 328, 1908, 70 cents.
- Seward Peninsula, southern portion, reconnaissance map (No. 656); scale, 1:250,000; 1907, by E. C. Barnard, T. G. Gerdine, and others. 50 cents retail or 30 cents wholesale. Also in Bulletin 328, 1908, 70 cents.
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- Nulato-Norton Bay region; scale, 1:500,000; by P. S. Smith, H. M. Eakin, and others. In Bulletin 449, 1911, 30 cents. Not issued separately.
- Grand Central quadrangle (No. 646A); scale, 1:62,500; 1906, by T. G. Gerdine, R. B. Oliver, and W. R. Hill. 10 cents retail or 6 cents wholesale. Also in Bulletin 533, 1913, 60 cents.
- Nome quadrangle (No. 646B); scale, 1:62,500; 1906, by T. G. Gerdine, R. B. Oliver, and W. R. Hill. 10 cents retail or 6 cents wholesale. Also in Bulletin 533, 1913, 60 cents.
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- Solomon quadrangle (No. 646D); scale, 1:62,500; 1907, by T. G. Gerdine, W. B. Corse, and B. A. Yoder. 10 cents retail or 6 cents wholesale. Also in Bulletin 433, 1910, 40 cents.

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- A reconnaissance in northern Alaska in 1901, by F. C. Schrader, with notes by W. J. Peters. Professional Paper 20, 1904, 139 pp. 40 cents.
- Geology and coal resources of the Cape Lisburne region, by A. J. Collier. Bulletin 278, 1906, 54 pp. 15 cents.
- Geologic investigations along the Canada-Alaska boundary, by A. G. Maddren. In Bulletin 520, 1912, pp. 297-314. 50 cents.
- The Noatak-Kobuk region, by P. S. Smith. Bulletin 536, 1913, 160 pp. 40 cents.
- The Koyukuk-Chandalar region, by A. G. Maddren. Bulletin 532, 1913, 119 pp. 25 cents.
- The Canning River region of northern Alaska, by E. de K. Leffingwell. Professional Paper 109, 1919, 251 pp. 75 cents.
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- \*A reconnaissance of the Point Barrow region, by Sidney Paige and others. Bulletin 772, 1925, 33 pp.
- Summary of recent surveys in northern Alaska, by P. S. Smith, J. B. Mertie, jr., and W. T. Foran. In Bulletin 783, 1926, pp. 151-168. 40 cents.
- Geologic investigations in northern Alaska, 1925, by Philip S. Smith. In Bulletin 792, 1927, pp. 111-122. 25 cents.
- Surveys in northwestern Alaska in 1926, by Philip S. Smith. In Bulletin 797, 1928, pp. 125-142. 80 cents.
- Preliminary report on the Sheenjek River district, Alaska, by J. B. Mertie, jr. In Bulletin 797, 1928, pp. 99-123. 80 cents.
- The Chandalar-Sheenjek district, by J. B. Mertie, jr. In Bulletin 810, 1930, pp. 87-139. 50 cents.

Geography and geology of northwestern Alaska, by Philip S. Smith and J. B. Mertie, jr. Bulletin 815, 1930, 351 pp. \$1.

## TOPOGRAPHIC MAPS

Koyukuk River to mouth of Colville River, including John River; scale, 1:1,250,000; by W. J. Peters. In Professional Paper 20, 1904, 40 cents. Not issued separately.

Koyukuk and Chandalar region, reconnaissance map; scale, 1:500,000; by T. G. Gerdine, D. L. Reaburn, D. C. Witherspoon, and A. G. Maddren. In Bulletin 532, 1913, 25 cents. Not issued separately.

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Canning River region; scale, 1:250,000; by E. de K. Leffingwell. In Professional Paper 109, 1919, 75 cents. Not issued separately.

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