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DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

GEORGE ORIS SMITH, DIRECTOR

BULLETIN 607

THE
WILLOW CREEK DISTRICT

ALASKA
PROPERTY OF
The Alaska Agricultural College
and School of Mines

BY
STEPHEN R. CAPPS

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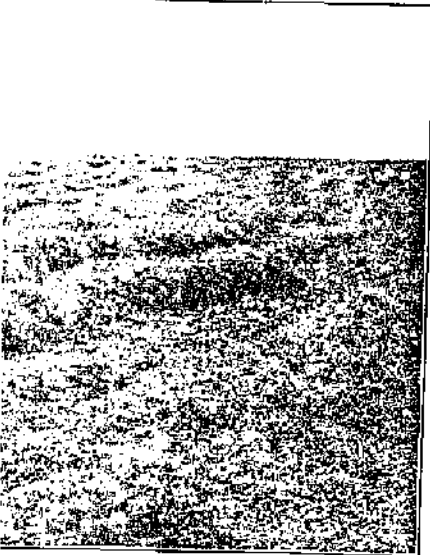
SUPPLIES AND TRANSPORTATION.

The Willow Creek district is always approached by way of the village of Knik, which is the center of supplies for this region. Although Knik is situated on Knik Arm, an embayment of Cook Inlet, it is on the shallow upper portion of the inlet and can be reached by boat only at high tide. When the tide is out no water is visible from the village, which then looks out upon miles of barren mud flats cut by an irregular network of tidal channels. At high tide boats drawing several feet of water may reach the town by following one of the deeper channels. During about half the year the upper part of Cook Inlet is closed to navigation on account of the ice which forms in it. The head of the inlet is made brackish by the large quantity of fresh water which it receives from Susitna, Matanuska, and other rivers, and on this brackish water ice forms more readily than on the normal salt water. The mean tidal range is about 30 feet, and in the rapid currents formed by the tides the ice is carried back and forth and renders navigation impossible during the winter. During this time the village maintains communication with the coast by way of a trail which crosses the divide at the head of Crow Creek, passes around the head of Turnagain Arm, and thence follows the general course of the railroad to Seward. The mail is brought over this route by dog trains, but the other traffic is so small as to be negligible.

During the open season practically all travelers to Knik go by ocean steamer to Knik Anchorage, near the mouth of Ship Creek, about 18 miles below the town. From the anchorage freight is lightered by scows to Knik and passengers are transferred by launch. In 1913, between May and November, one steamship, plying from Seattle through southeastern Alaska to ports on the Gulf of Alaska and Cook Inlet, made trips every three weeks to Knik Anchorage. The passenger rate in 1913 between Seattle and Knik Anchorage was \$55 each way. The freight rate varied with the class of material shipped but was \$30 each for horses and from \$15 to \$26 a ton for groceries and provisions. Wharfage at Seattle was not included in these charges, and the additional cost of transportation from Knik Anchorage to Knik was \$2 each for passengers, \$8 a head for horses, and 30 to 40 per cent of the freight rate from Seattle to Knik Anchorage for supplies.

Two routes were formerly in general use between Knik and the mines in the Willow Creek district, both of which followed the shore of Knik Arm in a northeasterly direction as far as the mouth of Cottonwood Creek, 6 miles from Knik. From Cottonwood the Bald Mountain trail extends northward across the lowlands, crosses Bald Mountain Ridge into the head of Wet Gulch, follows Wet Gulch to its mouth, and thence goes up Willow Creek. One branch extends up Craigie Creek valley, and another crosses the divide to the Little

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TOP OF BALD MOUNTAIN RIDGE.



TOP OF BALD MOUNTAIN RIDGE.

Susitna basin, follows down Hatcher Creek, and ends at the mines on upper Fishhook Creek. The portion of this trail which lies in the mountains affords good footing, but the stretch between Cottonwood and Bald Mountain Ridge is said to be soft in summer. The lowland portion is now little used. The other route was the old Carle wagon road, which extended from Cottonwood northeastward to Little Susitna River, several miles below the canyon, and after crossing that stream kept on its west side to Fishhook Creek, which it followed up to the mines. The Carle road has now been displaced by a new wagon road completed by the Alaska Road Commission in 1913. This road follows the general course of the Carle road from Knik for 23 miles, but keeps to the right of Little Susitna River as far as the canyon, crosses it in the canyon, and extends up the west bank of the stream and up Fishhook Creek to the mines. This road is well graded, is furnished with good bridges, and is now used for practically all summer travel to the Willow Creek district as well as for winter travel to points in the Fishhook and Little Susitna valleys. The winter road for sledding to the Willow Creek basin leads northward from Knik, skirts the west end of Bald Mountain Ridge, and proceeds up Willow Creek.

The summer freight rate by wagon to upper Fishhook Creek from Knik is from 4 to 5 cents a pound.¹ Supplies for the Willow Creek basin must be transported by pack train from Fishhook Creek, at a considerable additional expense. In winter freight may be sledded to the camps by either the new wagon road or the Willow Creek winter road, at about half the cost of summer transportation. The district will be made readily accessible by the Government railroad from Seward to Fairbanks, construction of which has been begun. This railroad will pass close to the southern margin of the district, and the distance to Seward, its coastal terminal, will be about 165 miles.² The plan includes a branch line into the Matanuska coal field, with another tidewater terminal at the mouth of Ship Creek near the entrance to Knik Arm, which will be available during the season of open navigation on Cook Inlet.

GEOLOGY.

PRINCIPAL FEATURES.

The areal distribution of the geologic formations of the Willow Creek district is shown on the accompanying map (Pl. III, in pocket) and the relations of the various rock formations to one another are represented in a generalized form in figure 2. The details of distribution of the different formations as shown on the geologic map differ somewhat from those shown on earlier published maps of this district, more accurate representation having been made possible by

¹ Railway routes in Alaska; Alaska Railroad Comm. Rept., House Doc. No. 1346, pts. 1 and 2, 623 Cong., 3d sess., 1913.

the longer time available for studies and by the completion of a previously published. The Willow Creek part of a large area that was surveyed, and only a short time less, the main subdivisions ma

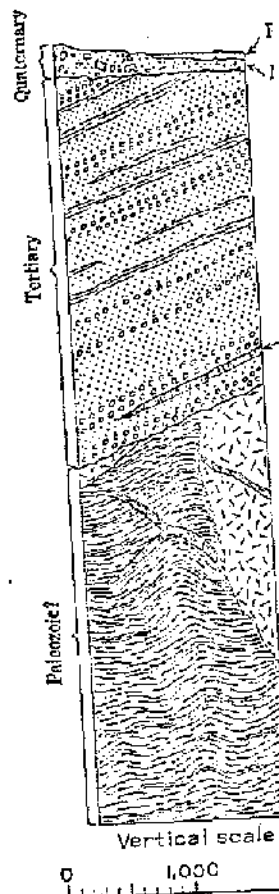


FIGURE 2.—Generalized column

Katz³ are adopted here. Bald Mountain Ridge and Willow Creek district and Mountain region. They contain garnetiferous mica schists

² Pease, Sibley, and Knopf, Adolphi, Alaska, U. S. Geol. Survey Bull. 327, 1911.
³ Katz, F. J., A reconnaissance of the 1911.