Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: Alaska

DESCRIPTIVE REPORT.

Top = 3303
Sheet No. = 3304

Locality: Turnagain Arm

1912

Chief of Party: F.H. Hardy
Projection made by I.M. Dailey, Asst. July 1912

Projection checked by M. L. Button, Aid, July 1912

Cook Inlet Alaska

Turuagain Arm East end

Work done by I.M. Dailey, Asst.

August & September

F. H. Hardy Assistant

Chief of Party
Projection made by I. M. Dailey, Asst. June 1912

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Cook Inlet Alaska

Turnagain Arm West end

Work done by I. M. Dailey, Asst.

July & August

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F. H. Hardy Assistant

Chief of Party

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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

REPORT
TO ACCOMPANY TOPOGRAPHICAL SHEETS
OF
TURNAGAIN ARM.

Limits:—

These sheets include the shore line of Turnagain Arm from near Lat. 60° 55' N., Long. 150° 07' W., east of Chickaloon River, around the head of the Arm to Salt.

General character of the country:—

Except for the alluvial flats south of Burnt Island and near Salt & the glacial flats at the head of the Arm the country is very broken. The bare topped slaty mountains with their patches of snow present a forbidding appearance. This appearance is not deceptive. The strong tides and winds, impassable cliffs, dangerous quicksands of Chickaloon Flats and near the head of the Arm, coupled with what all agree was unusually bad weather made this the most difficult P. T. Survey I ever attempted.

The tree line seldom reaches 1200 ft., alders grow much higher. The lower slopes except where too steep are timbered. Spruce, hemlock and birch are the principal trees. As a rule the trees are small. Some cottonwood is found on the low lands and the vicinity of Salt. Near the old mining camps much of the country has been burnt over. Willows thrive in the marshes, wild rye and peas grow on the flats. Wild red currants are plentiful but saw no salmon berries.
General character of coast:

The shore line of Chickaloon Flats is very indefinite, the grass gradually giving place to the sand, attempted to show the grass line but the H. H. tides extend far beyond the line shown. There are large patches where the grass and the upper soil has been removed by outgoing ice. Tide runs containing several feet of water at H. T. and deep mud at low water are numerous. Waded Chickaloon River in hip boots at low tide, but prospectors ascend to the falls or rapids in dories with the tide in about two hours. By common saying this falls are twelve miles up the river. Also waded Big Indian Creek at the shore line but half a mile up found several feet of water at low tide.

The shore line of the flats near Salt are more definite and do not show signs of recent ice. The prevailing winds are out of the Arm but there is twice as much drift wood as on the Chickaloon Flats, much of it sawed timber, planks, slaps and railroad ties.

Nearly all the rest of the shore line is rocky cliffs sometimes 100 ft. high. As a general rule the cliffs decrease in height above the beach as one ascends the Arm. This is due in part at least to the greater elevation of the alluvial deposits near the head of the Arm. This difference is shown by the tides, only the summits of the spring tidal waves reach Alder.

Near Hope and the vicinity of Bird and Indian Creek are gravel banks from a few feet to fifty feet high.

Near the head of the Arm the shore line has been pushed far out from the bluffs and the filling in is still in progress. It looks as though in a very short time, as geological time is considered, the whole upper part of the Arm will be a flat valley with one or more rivers winding through it.

Harbors:

There are no harbors and Burnt Island is the best anchorage of any size. It is quitter for launches behind Gull Rock and by moving in with
high water and out with low, a launch can keep out of the currents which are strong at Burnt Island. Six-mile Creek can be entered at half tide and the wharf approached with high water.

Dangers:

There are rocks scattered off the cliffs but none far from shore. These off Bird and Snipers Points are to be guarded against when trying to dodge tide rips as they are at the edge of the channel.

A large share of Turnagain Arm is sand or mud bars and the rapidity with which the tide falls make it easy to get caught. Over the area shown by the western sheet these banks are little more than indicated. From the low shore it is often impossible to see the outer edge of the banks. There are no distinct points to be located by cants and the bore makes them unsafe at low tide. When the "Cannon" bore as it is locally known meets the spring tides the bore reaches 6 feet high and can be heard 20 to 30 minutes before it is abreast. Estimated speed to be about 6 miles per hour. The water runs out till the bore comes. The bore is highest over shoaling ground, subsiding over deep channels even when comparatively narrow. It is only the first few of rise that is dangerously sudden. The lower parts of the Arm are not safe for small boats when the wind is from the east. In a few minutes a gentle breeze may freshen to a gale and with a flooding tide a choppy sea rises almost at once. Weather is usually quiet and sunny.

The configuration of the sand banks causes some interesting tidal phenomena. Near the water is deeper near shore. Then the tide is half way out and the middle ground bars are by several feet the current changes with a rippling sound, and until low water flows rapidly towards the east. Near the Sunrise tidal station and between Windy Point and the small island west of it, there are whirlpools at certain stages of the flood tide. The one near
Kindy Point is about 100 meters in diameter and the center is notably depressed. Driftwood sucked under by the Sunrise whirl comes to the surface about a 100 meters below.

Between the island on which the Gravel is located and the main land there is a narrow channel bare at low water. I was there when the bore came in, they water came leaping over the stones from the west toward the east. A few minutes later the current changed and run like a mill race from the east toward the west. An hour and twenty minutes after the bore it was again strongly towards the east.

Streams:

There are no navigable streams. Twentymile and Glacier rivers are the largest, they break up into many shallow streams flowing between the bars of the upper Arm. Resurrection Creek has 2 mouths. This season the western one discharged more water than the eastern but the people in Hope say it was the other way last year. Do not know how far up the stream divides, sketched it in from what I could find out in Hope. There are hundreds of small streams tumbling down the steep slopes. Some are fed by snow but most of them depend on the nearly constant rain.

Roads and trails:

There is a wagon trail from Sunrise to Milo-34 on the railroad from Seward. The trail between Hope and Sunrise is crooked but fair for horses and man about. It is called a wagon road and when the soft places are frozen could be used for light wagons, the railroad is in use as far as Korn Creek, a gasoline bus runs during the summer and the roadbed is used for winter dog sledding. The trail to Knik is near the beach between Korn Creek and Indian Creek, ascending the latter to the divide.

Methods and adjustments:

Except on Chickaloon Flats the triangulation control was close. The
signal near Chickaloon River was determined by cut from △ Burnt and the traverse. When at the signal drew a line to △ Grand View, not on the shoot. When this line and the cut were laid off on a larger projection the signal was moved about 50 meters.

The saw-tooth rods with figures, sent with the alidades are not satisfactory except for near readings. Painted rods with dots and black wedges and red wedges which can be read twice as far. The projections were on sheets that had been at least a year on the Yukon, and hold their own much better than sheets new to the climate. The channels shown on the upper shoot are much more accurately sketched than the bars of the wider areas of the lower sheet. Owing to the rain and the lateness of the season the head of the Arm was done by sextant and plotted by protractors (see pencil marks showing limits of sextant work). For the same reasons used a 500 foot contour interval on the upper shoot. I failed to locate some of the mountains near Glacier Creek on account of the clouds. Looking up glacier Creek the first high summits are off the shoot. Near the head of the Arm are flats shown as marsh which except near the streams are fair walking. It is sand flooded at H. H. water and thinly covered with tall grass, from a distance this yellow grass resembles wheat field. Further inland is true marsh with thick grass which gives place to willows and alders.

Respectfully submitted

Assistant, C. & G. Survey.

F. M. Daily

Assistant, C. & G. Survey,
Chief of Party.
Topographical Sheet East End
Harwich Area
Drawn by Lutensky East
Resident
C. E. P. 0000
Topographic sheet

North Again from South East

By Survey

C.P.C. R.G.B.
Seattle, Wash.
Dec. 28, 1912

To the Superintendent,

Coast & Geodetic Survey,

Washington, D. C.

Sir:

I have the honor to inclose herewith Seasons Report, also

Plaine Table positions for topographic sheets of Turnigan Arm,

which have been received by you,

Very Respectfully

[Signature]

Ass't. C. & G. Survey

[Note: Report & statistics filed in office 1/13/13.]
Plane table positions.

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<th>Object and description</th>
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<th>Longitude</th>
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