

Route 38—Ruby-Long Cripple Trail (6 miles road, 24 miles sled road, 60 miles trail).—The work of the past season consisted of an extension of the wagon road previously constructed about 3 miles. The 6 miles now completed can be used to connect with the summer road in use over the ridge. Considerable work will still be necessary to complete the road the entire distance. A small amount of maintenance work was done in May, 1915, consisting of thawing out and opening up culverts and ditches. The total expenditure during the year was \$9,020.20.

NOME DISTRICT.

Mr. DANIEL A. JONES, superintendent,

Route 8—Nome-Council Road (approximately 82 miles, 57 completed).—The work of the year was devoted chiefly to continuing the repairs made necessary by the storm of the late fall of 1913. The section from Nome to Fort Davis, $3\frac{1}{4}$ miles in length, was largely resurfaced with clay and gravel, and new bridges were constructed on Rucker, Peluk, Martin, and Bering Creeks. The cost of surfacing averaged 20 cents per linear foot. The cost of ditching with the road machine averaged 3 cents per linear foot. All of the repairs averaged \$964 per mile on the entire section. 2183.00

Additional instrumental work on the survey of the Cape Nome section (see annual report 1914, p. 19), cost \$100; no construction work was undertaken. The territorial road commissioner for the second judicial division contemplates the reconstruction of this section this year. 100.00

The cost of the operation of the Port Safety Ferry was \$599.85, of which \$99.85 was expended for the maintenance of the scow and cable. The cost of the operation of the Bonanza Ferry was \$462.40, of which \$87.40 was expended for the maintenance of the scow.

The work of the year on the Solomon East Fork section included the construction of 7,600 feet of brush corduroy and 6,000 feet of gravel surfacing. The work was confined to the section between Solomon and Shovel Creek, 7 miles in length, and its cost averaged \$726.70 per mile. No work was done on the East Fork-Fox River section of this route. 5086.90

Repairs to the Fox River-Council section, which is entirely corduroy, over extremely soft ground, cost \$89.66 per mile. This is less than the average annual cost for maintenance of work of this class.

Route 13A—Nome-Bessie Road (3.3 miles).—This route is considered one of the most important in the Territory, and in the tonnage carried it easily ranks first. Attention has been invited to this in previous reports. (See annual report 1911, p. 21.) The average freight movement over this road is conservatively estimated at 30 tons daily throughout the year. The summer freight rate has been reduced more than \$5 per ton since this road was constructed, and it is safe to say that this route is saving \$150 per day during the summer to the mining operators using it. The annual saving on summer freight is, therefore, between \$22,000 and \$25,000. Two caterpillar traction engines and several auto trucks of capacities as high as 4 tons are now using the road. One load of 25 tons hauled by a traction engine was observed. The work of the past year was devoted to

maintenance and improvement. Gravel surfacing 16 feet wide and, varying with the character of the soil, from 12 to 20 inches in depth cost 60 cents per linear foot, or approximately 81 cents per cubic yard of gravel in place. The average cost of maintenance and small repairs amounted to \$166.30 per mile.

Route 13B—Bessie-Banner Road (3.5 miles).—General repairs and maintenance averaged \$79.48 per mile.

Route 13C—Bessie-Little Creek Road (1.25 miles).—General repairs and maintenance averaged \$151.52 per mile.

Route 13D—Bessie-Dry Creek Road (1.25 miles).

Route 13E—Dry Creek-Newton Road (0.3 miles).

No work was done on these routes during the year.

Route 13F—Nome-Osborne Road (8 miles).—The repairs to this road were confined to urgently necessary repairs to culverts and to the clearing of the ditches. The cost of the work averaged \$46.50 per mile.

Route 13G—Grass Gulch Road (1.75 miles).—No work was done on this road during the year.

Route 13H—Center Creek Road (1.6 miles).—Five hundred feet of new road was constructed as an extension to this route. The road was built by laying gravel from adjacent tailing piles to a depth of about 12 inches and a width of 12 feet, and plowing ditches on each side. The cost of the work averaged 60 cents per linear foot of road.

The cost of general repairs to and maintenance of the remainder of the road averaged \$175 per mile. $300.00 + 280.00$

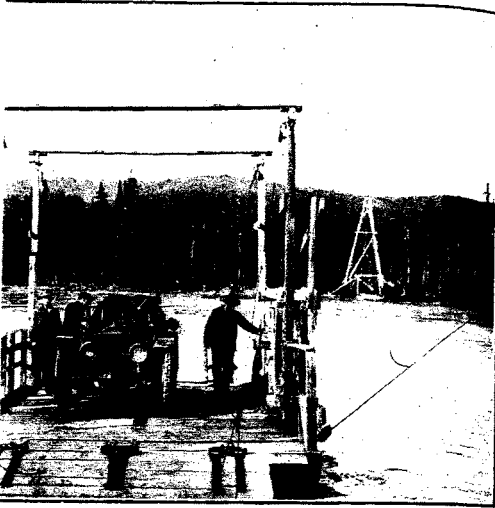
Route 13I—Nome River Road (5 miles).—The only work done on this road during the year was cleaning the culverts during the spring break-up. The cost of this work averaged \$16.20 per mile. A ferry was constructed beyond the present limits of the constructed road and charged to this route. The ferry was located near the site of the former railroad bridge on Nome River. The scow is 18 by 5 feet by 20 inches and was built at a cost of \$120. The cost of installing the ferry and grading the approaches amounted to \$79.75. These expenditures are in addition to the time of the ferryman, who gave his labor for the privilege of operating the ferry. This road will require considerable improvement this year.

Route 13J—Wonder-Flat Creek Road (2 miles).—The cost of general repairs and maintenance work on this route averaged \$40.37 per mile.

Route 13K—Bessie-Buster Road (7.6 miles).—The work of the year was confined to repairs to the 2.5 miles of section between Bessie and Dexter Summit. The cost of the work averaged \$184.80 per mile.

Route 18—Kaltag-Solomon Trail (248 miles).—The permanent staking on this trail has been badly damaged at various times by the ocean storms, which drives the waves over the trail in many places, washing out the stakes and obstructing the trail with driftwood. Permanent wooden stakes were set every 100 feet from Nome 33 miles eastward. The stakes were chiefly sawed lumber 1 by 3 inches in dimensions, but driftwood was used when available. The cost of the work is given below. The item "labor" includes the labor of clearing away driftwood, which was done in conjunction with setting the stakes.

PLATE 5



THE TANANA, McCARTY.

453 pieces 1 by 3 inches by 14 feet (1,515.5 feet b. m.).....	\$75.78
Freight on above from Nome.....	26.45
Labor.....	542.50
Hire of animals.....	176.00
Total.....	820.73
Average per mile (33 miles).....	24.87

The section of the trail from Walla Walla to Bonanza was staked over the ice with 3 inch spruce stakes 9 feet long, at an average cost of \$4 per mile. Similar staking over Golofnin Bay cost \$3.34 per mile. The land trail from Bluff to the head of Norton Bay was cleared and staked at the following average cost per mile:

22 miles, clearing through brush and permanent staking.....	\$9.50
11 miles, clearing through willow and small spruce.....	5.45
4.2 miles, clearing through driftwood and debris.....	27.45
Repairing small bridge and 1 mile of guardrail.....	25.25
Three light pole bridges 20 feet long and 8 feet wide averaged, each.....	25.00

Route 21—Unalaklik-St. Michael Trail (65 miles).—The trail across the bay from St. Michael to the 5-mile point was staked by the quartermaster at Fort St. Michael with stakes furnished by the board. The description and cost of stakes is given under "Flagging trails."

Route 25A—Cripple River Road (13.5 miles, total A and B).

Route 25B—Penny River Road.

Route 25C—Nome-Wireless Road (0.25 miles).

No work was undertaken on these routes during the year.

Route 25D—Mouth of Center Creek Road (2 miles).—The work of the year included minor repairs and the construction of 1,875 linear feet of new road, of which 1,000 feet is a branch. The work consisted of ditching and surfacing with gravel hauled from mine tailing piles. The cost of the work averaged \$1,452 per mile.

Route 25E—Submarine Pay Streak Road (1 mile).—No work was done on this route, as its improvement is considered advisable only in connection with more extensive construction that can not be undertaken with the present funds.

Route 25F—Anvil-Glacier Road (3 miles).—The work of the year included the maintenance of and repairs to 1.5 miles of this road. The work averaged \$242.12 per mile in cost.

Route 25G—Snake River Extension Road (3 miles).—The work of the year included general repairs and the improvement of approximately 1 mile by laying willow corduroy and surfacing with gravel. The total cost amounted to \$2,901.32.

A suspension foot bridge, with a span of 200 feet, was constructed on Snake River at the mouth of Boulder Creek. The cost of the bridge was \$180.10.

An extension of road to Bangor Creek, a distance of approximately 4 miles, is contemplated as soon as funds can be made available.

Route 25H—Otter Creek Road (1.25 miles)—No work was undertaken on this route during the year.

Route 26—Candle-Candle Creek Road (5 miles).—Two thousand six hundred linear feet of willow corduroy with gravel surfacing was laid on this route this year. The cost of the work averaged \$5,910.18 per mile, the high cost being largely due to the long distance the gravel had to be hauled, but partly to the high cost of labor and supplies in the Candle Creek mining camp. Four culverts were con-

structed, at a cost of \$5.90 each, and a small bridge cost \$96.84.

Route 27—Deering-Inmachuck Road (25 miles).—four hundred and twenty linear feet of willow corduroy surfacing was laid during the year. The cost of the surfacing averaged \$4,224 per mile. The ditching mile. This work was made necessary by a relocation town of Deering. The work also necessitated moving the lagoon, which was accomplished at a cost of \$257.

Route 28—Dahl Creek-Candle Trail (140 miles).—No work was done on this route during the year. Except between C and Inmachuck, the travel over this trail is very light.

Route 37—Topkok-Candle Trail (141 miles).—The work consisted of repairs to the permanent staking and ten or flagging, as described under "Flagging trails," where staking has been badly damaged. The cost of the work was \$2.95 per mile over the entire route.

Route 41—Klery Creek Road (0.75 mile).

Route 42—St. Michael-Kotlik Trail (approximately 1 mile).

No work was done on either of these routes during the year.

Flagging trails.—Routes of travel not permanently staked for the guidance of travel during the past year were regularly used and partly staked. The cost of staking has been noted under the several routes covered, owing to their brief importance or to the variations in the most suitable line of travel, depending on conditions, are flagged each year instead of being permanently staked.

The cost of the preparation of the lath and streamers for flagging trails for the year is as follows:

209 bundles of lath, 100 per bundle.....	\$23.00
223 1/2 yards red calico at 7 cents and 300 yards at 8 1/2 cents.....	20.00
Cutting and sewing 20,900 streamers.....	10.00
Tacking streamers to lath.....	10.00
Tacks and rope for tying bundles.....	10.00
Hauling material.....	10.00

Total (20,900 flags).....
Per hundred.....

The trails temporarily staked were as follows, the cost being approximate:

Kiana-Klery Creek, 9 miles, staked with spruce stakes, including stakes, \$16.50 per mile. Davidson's Landing, 50 miles (the stakes were furnished gratis by Mr. I. Teller), staked with flags; cost of placing stakes, \$1 per mile. Teller-Cape Wainwright, 60 miles, staked with flags and labor cost, \$1 per mile. Teller-Hot Springs, 60 miles, staked with willow stakes; cost, \$1 per mile. Isaacs Point-Koivuk, 18 miles, staked with spruce stakes; cost, \$4.32 per mile. Mountain, 18 miles, staked with flags; cost, \$3 per mile. Approximately 100 miles of local trails in the vicinity of Norton Sound were staked without charge by interested persons, the stakes being noted under the several numbered routes, amounting to approximately 465 miles, and the average cost was \$3.34 per

et (1,515.5 feet b. m.).....	\$75.78
.....	28.45
.....	542.50
.....	176.00
.....	820.73
.....	24.87

l from Walla Walla to Bonanza was staked with spruce stakes 9 feet long, at an average cost of staking over Golofnin Bay cost \$3.34 per mile from Bluff to the head of Norton Bay was the following average cost per mile:

and permanent staking.....	\$9.50
ow and small spruce.....	5.45
wood and débris.....	27.45
nile of guardrail.....	25.25
long and 8 feet wide averaged, each.....	25.00

St. Michael Trail (65 miles).—The trail from St. Michael to the 5-mile point was staked by the board. The cost of staking and the cost of staves furnished by the board and cost of staves is given under the following:

River Road (13.5 miles, total A and B).
Over Road.

Wireless Road (0.25 miles).

Work done on these routes during the year.

Center Creek Road (2 miles).—The work of the year consisted of repairs and the construction of 1,875 linear feet of which 1,000 feet is a branch. The work consisted of surfacing with gravel hauled from mine tailing. The work averaged \$1,452 per mile.

The Pay Streak Road (1 mile).—No work was done on this road. No improvement is considered advisable only where extensive construction that can not be made with present funds.

Lacier Road (3 miles).—The work of the year consisted of repairs and repairs to 1.5 miles of this road. The cost was \$242.12 per mile in cost.

River Extension Road (3 miles).—The work of the year consisted of repairs and the improvement of approximately 1.5 miles of willow corduroy and surfacing with gravel. The cost was \$2,901.32.

A bridge, with a span of 200 feet, was constructed at the mouth of Boulder Creek. The cost of the bridge was \$1,000.

Work done to Bangor Creek, a distance of approximately 1.5 miles, as soon as funds can be made available.

Creek Road (1.25 miles).—No work was done on this road during the year.

Candle Creek Road (5 miles).—Two thousand feet of willow corduroy with gravel surfacing was laid during the year. The cost of the work averaged \$5,910.10 per mile. The cost being largely due to the long distance to the work, but partly to the high cost of labor and supplies at the Creek mining camp. Four culverts were constructed, at a cost of \$5.90 each, and a small bridge over Mud Creek at a cost of \$96.84.

constructed, at a cost of \$5.90 each, and a small bridge over Mud Creek at a cost of \$96.84.

Route 27—Deering-Inmachuck Road (25 miles).—Two thousand four hundred and twenty linear feet of willow corduroy with gravel surfacing was laid during the year. The cost of the corduroy and surfacing averaged \$4,224 per mile. The ditching cost \$892 per mile. This work was made necessary by a relocation just out of the town of Deering. The work also necessitated moving a bridge over the lagoon, which was accomplished at a cost of \$257.10.

Route 28—Dahl Creek-Candle Trail (140 miles).—No work was done on this route during the year. Except between Candle and the Inmachuck, the travel over this trail is very light.

Route 37—Topkok-Candle Trail (141 miles).—The work of the year consisted of repairs to the permanent staking and temporary staking or flagging, as described under "Flagging trails," where the permanent staking has been badly damaged. The cost of the work averaged \$2.95 per mile over the entire route.

Route 41—Klery Creek Road (0.75 mile).

Route 42—St. Michael-Kotlik Trail (approximately 70 miles).

No work was done on either of these routes during the year.

Flagging trails.—Routes of travel not permanently marked were flagged for the guidance of travel during the past winter. Some flagging on routes regularly used and partly staked with permanent stakes has been noted under the several routes concerned. Other routes, owing to their brief importance or to the variation from year to year of the most suitable line of travel, depending on weather conditions, are flagged each year instead of being permanently staked.

The cost of the preparation of the lath and streamer flags used this year is as follows:

209 bundles of lath, 100 per bundle.....	\$313.50
234 yards red calico at 7 cents and 300 yards at 8½ cents.....	89.63
Cutting and sewing 20,900 streamers.....	104.50
Packing streamers to lath.....	156.75
Packs and rope for tying bundles.....	7.24
Hauling material.....	10.45
Total (20,900 flags).....	682.07
Per hundred.....	3.26

The trails temporarily staked were as follows, the mileage in each case being approximate:

Kiana-Klery Creek, 9 miles, staked with spruce stakes; total cost, including stakes, \$16.50 per mile. Davidson's Landing-Taylor Creek, 40 miles (the stakes were furnished gratis by Mr. D. W. Johnson); cost of placing stakes, \$1 per mile. Teller-Cape Wooly, 40 miles, staked with flags; cost of freight on flags and labor of placing, \$3.75 per mile. Teller-Hot Springs, 60 miles, staked with cottonwood and willow stakes; cost, \$1 per mile. Isaacs Point-Koyukuk River, 14 miles, staked with spruce stakes; cost, \$4.32 per mile. Chinik-White Mountain, 18 miles, staked with flags; cost, \$3 per mile. Approximately 100 miles of local trails in the vicinity of Nome were staked without charge by interested persons, the stakes being furnished by the board. The total mileage of temporary staking, including that noted under the several numbered routes, amounted to approximately 465 miles, and the average cost was \$3.34 per mile.

STATEMENT OF RECEIPTS AND DISBURSEMENTS.

This report covers vouchers received and placed in the account, including June 30, 1915.

Balance on hand July 1, 1914:	
Appropriation "Military and post roads, bridges and trails" (act Mar. 2, 1913).....	\$1, 838.28
Alaska fund.....	4, 524.25
Received from the Treasurer of the United States:	
Appropriation "Military and post roads, bridges and trails" (act Apr. 27, 1914).....	125, 000.00
Alaska fund.....	171, 824.31
Corrections of vouchers:	
Alaska fund.....	43.40
Special appropriations.....	14.00
Sales of property, Alaska fund.....	827.14
Total.....	304, 071.38
Deposited to credit Treasurer of the United States.....	13.00
	304, 058.38
Disbursed as per tabulated statement below.....	284, 755.12
Balance cash on hand.....	19, 303.26

Expenditures in detail.

Routes, etc.	Wagon roads, bridges, and trails, Alaska fund.	Construction and maintenance of military and post roads, bridges, etc., Alaska.	Total.
Offices.....	\$9, 405.97	\$4, 547.37	\$13, 953.34
Route 2.....	2, 293.73	3, 826.03	6, 119.76
Route 3.....	514.82	1, 527.66	2, 042.48
Route 4A.....	905.21	21.00	926.21
Route 4B, first section.....	8, 525.53	11, 359.22	19, 884.75
Route 4B, second section.....	5, 761.26	9, 679.61	15, 440.87
Route 4C.....	1, 926.67	3, 588.08	5, 514.75
Route 4D.....	5, 705.85	1, 564.86	7, 270.71
Route 4E.....	3, 254.01	5, 158.03	8, 412.04
Route 4F.....	2, 438.57	1, 924.81	4, 363.38
Route 4G.....	2, 193.80	99.66	2, 293.46
Route 4H, first section.....	15, 389.90	4, 167.12	19, 557.02
Route 4H, second section.....	9, 194.95	9, 078.30	18, 273.25
Route 4I.....	15, 545.06	4, 215.12	19, 760.18
Route 4J.....	6, 849.50	5, 106.94	11, 956.44
Route 4K.....	5, 590.39	4, 368.90	9, 959.29
Route 5.....	1, 621.42	99.66	1, 721.08
Route 6A.....	4, 260.45	3, 899.30	8, 159.75
Route 6B.....	8, 315.95	4, 168.99	12, 484.94
Route 7A.....	509.48	53.75	563.23
Route 7B.....	303.80	10.00	313.80
Route 7C.....	113.00	10.00	123.00
Route 7D.....	591.20	31.25	622.45
Route 7E.....	2, 795.43	638.96	3, 434.39
Route 7F.....	622.22	10.00	632.22
Route 7G.....	4, 397.11	5, 406.95	9, 804.06
Route 7H.....	431.17	416.50	847.67
Route 8.....	287.32	2, 775.00	3, 062.32
Route 9.....	981.86		981.86
Route 10.....	63.00	513.96	576.96
Route 11A.....	931.40	2, 971.85	3, 903.25
Route 12.....	124.05	171.50	295.55
Route 13A.....	268.50	14.40	282.90
Route 13B.....	109.00	299.90	408.90
Route 13C.....	169.25	492.10	661.35
Route 13F.....	199.75	23.00	222.75
Route 13I.....	184.00	41.00	225.00
Route 13J.....	50.00	381.25	431.25
Route 13K.....			

Expenditures in detail—Continued

Routes, etc.	Wagon roads, bridges, and trails, Alaska fund.
Route 14.....	\$3, 451.00
Route 15.....	38.00
Route 16.....	34.00
Route 17.....	1, 058.00
Route 18.....	54.00
Route 19.....	21.00
Route 21.....	1, 141.00
Route 22.....	3.00
Route 24.....	
Route 25.....	
Route 25A.....	2.00
Route 25C.....	6.00
Route 25D.....	9.00
Route 25F.....	29.00
Route 25G.....	42.00
Route 25, Sinrock Ferry.....	63.00
Route 26.....	42.00
Route 27.....	74.00
Route 30.....	2, 611.00
Route 32B.....	67.00
Route 35.....	4, 999.00
Route 38.....	2, 511.00
Route 39.....	10.00
Route 40.....	2, 223.00
Nizina Bridge.....	3, 711.00
Flagging trails.....	37.00
Route 42.....	8.00
Route 43.....	3.00
Dike.....	86.00
Autotrucks.....	4, 331.00
Chisana Trail.....	1, 081.00
Taylor Creek Bridge.....	47.00
Skagway survey.....	41.00
Valdez-Fairbanks survey.....	
Mineral Creek Trail.....	11.00
Nizina Trail.....	
Route 45.....	
Total.....	157, 900.00

DISTRIBUTION OF EXPENDITURE

- I. Construction, repairs, and maintenance, roads, etc.:
 - Salaries, wages, and other compensation, personal.....
 - Compensation for services other than personal—
 - Transportation of persons.....
 - Subsistence of persons in traveling status.....
 - Subsistence of persons not in traveling status.....
 - Transportation of things, freight, etc.....
 - Subsistence and care of animals.....
 - Communication service (telegraph, telephone, printing, maps, etc.....)
 - Furnishing electric light.....
 - Other nonpersonal service (hire of horses and forage and other supplies for animals.....)
 - Materials for bridges, culverts, etc.....
 - Supplies—
 - Stationery and drafting supplies.....
 - Fuel (coal and wood).....
 - Cleaning and toilet supplies.....
 - Forage and other supplies for animals.....
 - Provisions.....
- II. Repair of property and equipment used:
 - Salaries, wages, and other compensation, personal.....
 - Services, nonpersonal.....
 - Materials.....
 - Supplies.....

RECEIPTS AND DISBURSEMENTS.

Others received and placed in the account,

and post roads, bridges and trails" (act	\$1,838.28
of the United States:	4,524.25
of post roads, bridges and trails" (act Apr.	125,000.00
	171,824.31
	43.40
	14.00
	827.14
of the United States	304,071.38
	13.00
Amount below	304,058.38
	284,755.12
	19,303.26

Expenditures in detail.

Wagon roads, bridges, and trails, Alaska fund.	Construction and maintenance of military and post roads, bridges, etc., Alaska.	Total.
\$9,405.97	\$4,547.37	\$13,953.34
2,293.73	3,826.03	6,119.76
514.82	1,527.66	2,042.48
905.21	21.00	926.21
8,525.53	11,359.22	19,884.75
5,761.26	9,679.61	15,440.87
1,926.67	3,588.08	5,514.75
5,705.85	1,564.86	7,270.71
3,254.01	5,158.03	8,412.04
2,438.57	1,924.81	4,363.38
2,193.80	99.66	2,293.46
15,389.90	4,167.12	19,557.02
9,194.85	9,078.30	18,273.25
15,545.06	4,215.12	19,760.18
6,849.50	5,106.94	11,956.44
5,590.39	4,368.90	9,959.29
1,621.42	3,899.30	5,520.72
4,260.45	4,168.99	8,429.44
8,315.95	53.75	8,369.70
509.48	10.00	519.48
303.80	10.00	313.80
113.00	10.00	123.00
591.20	31.25	622.45
2,795.43	638.96	3,434.39
622.22	10.00	632.22
4,397.11	5,406.95	9,804.06
431.17	416.50	847.67
287.32	2,775.00	3,062.32
981.86	578.96	1,560.82
63.00	513.96	576.96
931.40	2,971.85	3,903.25
124.05	171.50	295.55
268.50	14.40	282.90
109.00	299.90	408.90
169.25	492.10	661.35
199.75	23.00	222.75
184.00	41.00	225.00
50.00	381.25	431.25

Expenditures in detail—Continued.

Routes, etc.	Wagon roads, bridges, and trails, Alaska fund.	Construction and maintenance of military and post roads, bridges, etc., Alaska.	Total.
Route 14		\$90.00	\$90.00
Route 15	\$3,452.57	4,235.40	7,687.97
Route 16	387.44		387.44
Route 17	346.50	10.00	356.50
Route 18	1,058.00		1,058.00
Route 19	540.49	488.50	1,028.99
Route 21	219.00		219.00
Route 22	1,144.53	2,398.63	3,543.21
Route 24	33.50	208.80	242.30
Route 25		60.30	60.30
Route 25A		7.50	7.50
Route 25C	25.00		25.00
Route 25D	62.25		62.25
Route 25E	90.43	350.75	441.18
Route 25F	292.93	2,770.43	3,063.36
Route 25G	937.30	150.00	1,087.30
Route 25, Sinrock Ferry	633.05	2,319.63	2,952.68
Route 26	421.44	2,484.68	2,906.12
Route 27	749.37	1,905.06	2,654.43
Route 30	2,619.48		2,619.48
Route 32B	675.98	3,982.01	4,657.99
Route 35	4,994.18	3,871.02	8,865.20
Route 38	2,519.78	727.78	3,247.56
Route 39	102.74	2,689.30	2,792.04
Route 40	2,233.86		2,233.86
Nizina Bridge	3,710.99	548.40	4,259.39
Flagging trails	375.50		375.50
Route 42	35.25		35.25
Route 43	863.52	414.63	1,278.15
Dike	4,353.48	1,300.60	5,654.08
Autotrucks	1,081.02	14.00	1,095.02
Chilsana Trail	31.25	91.00	122.25
Taylor Creek Bridge	472.20	145.50	617.70
Skagway survey	494.03	1,900.44	2,394.47
Valdez-Fairbanks survey		515.50	515.50
Mineral Creek Trail	112.15	697.05	809.20
Nizina Trail	52.00		52.00
Route 45			
Total	157,915.84	126,839.28	284,755.12

DISTRIBUTION OF EXPENDITURES.

I. Construction, repairs, and maintenance, roads, etc.:	
Salaries, wages, and other compensation, personal service	\$178,908.64
Compensation for services other than personal—	
Transportation of persons	2,101.85
Subsistence of persons in traveling status	1,770.74
Subsistence of persons not in traveling status	9,371.39
Transportation of things, freight, etc.	14,241.26
Subsistence and care of animals	825.68
Communication service (telegraph, telephone, and postage)	408.73
Printing, maps, etc.	40.28
Furnishing electric light	164.24
Other nonpersonal service (hire of horses and dogs)	14,674.24
Materials for bridges, culverts, etc.	10,161.57
Supplies—	
Stationery and drafting supplies	374.79
Fuel (coal and wood)	1,514.26
Cleaning and toilet supplies	39.38
Forage and other supplies for animals	14,402.30
Provisions	19,329.16
II. Repair of property and equipment used:	
Salaries, wages, and other compensation, personal services	120.15
Services, nonpersonal	498.90
Materials	494.47
Supplies	711.06

ANNUAL REPORT OF THE
Board of Road Commissioners
for Alaska ✓

1916



WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

Route 6A—Willow Creek-Tonsina Road (24 miles).—General repairs and maintenance constituted the chief work of the year on this route, and embraced filling ruts and leveling road with a road machine, removing windfalls and rebuilding culverts which had been destroyed by fire. In addition, 190 linear feet of log cribbing was constructed, on the grade 1 mile from the Tonsina River, to protect the road from drifting sand; the cost of this work was \$462.

The total cost of work on this route averaged \$61.96 per mile.

Route 6B—Tonsina-Chitina Road (15 miles).—The usual maintenance and repair work was performed on this section in 1915, and in addition the following improvements were made:

A substantial surfacing of gravel and broken rock, 6 to 10 inches in depth and 9½ to 12 feet wide, was laid on 6,705 linear feet of road at an average cost of \$719.24 per mile. Twenty-four culverts, with a total length of 149 feet, were constructed, at a cost of \$2.03 per linear foot. Two miles of side hill cut was widened 4 feet, at a cost of \$486.50.

A low brush and gravel dike, 272 feet in length, was constructed across the head of a slough of the Tonsina River, above the bridge, to divert into the main channel a flow which was threatening the road. This dike cost \$675.50.

The total cost of all work on this route was \$8,040.29.

SOUTHWESTERN DISTRICT.

(Mr. ANTON EIDE, Superintendent.)

Route 10—Seward-Kenai Lake Road (14 miles).—Maintenance work by the board on this route was confined to the early part of the year, and included minor repairs to bridges, removing driftwood from bridges, and repairing corduroy.

During October and November, 1915, \$3,400 was expended on this route by the Territorial road commissioner for the third judicial division, under the immediate supervision of Mr. Eide. The work was done by contract, and embraced relocating on the right of way of the Government railroad, approximately 1.8 miles of the road between mileposts 1 and 3, and straightening, widening, and repairing the old road between mileposts 3 and 5.

In May of this year the work of reconstructing the pile bridge over Resurrection River was commenced. Three 75-foot truss spans were erected over the main stream, and the south pile trestle approach was extended 200 feet. The cost of this work to June 30 was \$2,616.10. The bridge was completed in August at a total cost of approximately \$4,700.

*Route 12—Mile 34 A. N. R. R.-Hope Road (31 miles road, 9 miles sled road).*¹—The year's work on this route was entirely maintenance, and comprised the removal of fallen trees, repairing culverts and corduroy, and cleaning out cuts.

Route 19—Kern Creek-Knik Trail (86 miles).—About 13 miles of this trail, following the steep slopes of the mountains along Turnagain Arm, through heavy vegetation, was seriously damaged during the summer of 1915 by forest fires, which destroyed the greater part of

¹The mileage of this route has been erroneously carried in previous reports as 40 miles road.

the retaining walls and bridges. The work of repair was carried on during September and October, 1915, at an average cost of \$178.26 per mile for the 13 miles covered.

Travel over this route during the past winter was unusually heavy, owing to increases in the mail service and in the activities of the Alaskan Engineering Commission, making some additional work necessary to improve the trail, and keep it free from snowslides and dangerous ice formations. This work covered 34 miles and cost \$30.41 per mile.

Route 20A—Knik-Susitna Trail (30 miles).—The work done on this route covered 15 miles and comprised the removal of windfalls and a small amount of grading. The total expense for the section worked over averaged \$13.35 per mile.

Route 20B—Susitna-Rainy Pass Trail (127 miles).—The only work done on this route during the year was the relocation of about 1 mile of trail between Happy River and Rainy Pass to eliminate several severe grades.

Route 20C—Rainy Pass-Tacotna Trail (130 miles).

Route 20D—Tacotna-Kaltag Trail (145 miles).

No work was undertaken on these routes during the year.

Route 24—Mile 29 A. N. R. - Moose Pass Road (15 miles road, 14.5 miles sled road).—The work of the year was devoted to the improvement of the first 15 miles of this route to wagon road standards, at a cost of \$520.76 per mile. The average unit costs were:

Clearing and grubbing, per acre.....	\$150. 00
Excavation, rock, per cubic yard.....	1. 50
Corduroy, per linear foot.....	. 42
Culverts, each.....	6. 00

Route 32A—Tacotna-Flat Creek Trail (87 miles).—No work was done on this route during the year.

Route 35—Knik-Willow Creek Road (34 miles road, 1½ miles sled road).—The work on this route during the year was limited to necessary maintenance, including cleaning out ditches, constructing new culverts, and laying 1,167 linear feet of corduroy.

An expenditure of \$300 was made in constructing a branch sled road, 1.5 miles long, from mile 32 up the Little Susitna Valley, to serve a number of mines and prospects in process of development in the Archangel Creek Valley.

YUKON DISTRICT.

(Mr. R. J. SOMMERS, Superintendent.)

Route 4J—Richardson-Salchaket Road (30 miles).—The work on this route during the year was chiefly maintenance, including repairing and rebuilding culverts, cleaning out drainage ditches, and filling ruts. Between mileposts 301 and 302 a portion of the road was relocated in order to place it on higher ground and to eliminate a steep grade in sandy soil which had given much trouble. This relocation necessitated 4,400 feet of new construction, which cost \$2,116.35. Unit costs of the new work were:

Clearing and grubbing, per acre.....	\$90. 00
Ditching and grading, per linear foot.....	. 37
Corduroy, per linear foot.....	. 50
Pole culverts, each.....	10. 00



OLE MARTIN BRIDGE. ROUTE 10, SEWARD-K...

The cost of maintenance on the remainder of the road averaged \$396.07 per mile.

Route 4K—Salchaket-Fairbanks Road (40 miles).—The work of the year consisted chiefly of general repairs and maintenance covering the entire route, particular attention being devoted to culverts, bridges, and drainage ditches. A new ferry scow, 36 by 16 by 3 feet, was built at Salchaket at a cost of \$907.62, and an approach 16 feet wide and 100 feet long, built of logs and filled with brush and gravel, was constructed at a cost of \$218.50. During March of this year, a bridge was built over a slough at milepost 347 to replace an old bridge which had become unsafe. It consists of two 40-foot spans, with a central gravel-filled pier, and cost \$1,693.59.

The average expenditure for maintenance on this route was \$325.38 per mile.

Route 5—Ester-Fort Gibbon Sled Road (148 miles).—The work of the past year on this route consisted of removing windfalls, grading approaches to streams not bridged, and the construction of 8 new bridges from 15 to 102 feet in length. The cost of the work averaged \$18.30 per mile.

Route 7A—Summit-Cleary Road (11 miles).

Route 7B—Fox-Olmes Road (13 miles).

Route 7C—Summit-Fairbanks Creek Road (11 miles).

Route 7D—Ester Creek Road (13 miles).

Route 7E—Vault Creek Road (2 miles).

Route 7F—Vault Creek-Treasure Creek Road (1.5 miles).

Route 7G—Fairbanks-Gilmore Road (13 miles).

Route 7H—Little Eldorado Creek Road (1.5 miles).

Route 7I—Gilmore-Summit Road (6 miles).

By an agreement with the Territorial road commissioner for the fourth judicial division, these routes, which, with 7J and 7K, comprise the local road system around Fairbanks, were turned over to him for maintenance. The expenditures by the board on these routes were for inspection trips by members and employees of the board and for the settlement of a claim for timber furnished in 1914 for rebuilding the Newcomb Slough Bridge.

Route 7J—Fairbanks-Chena Hot Springs Sled Trail (64 miles).—The work of the year covered the entire route and comprised the repair of bridges and culverts, and the removal of windfalls, slides, and other obstacles.

Route 7K—Olmes-Livengood Sled Road (54 miles).—Promising developments in the Tolovana mining district in 1914 and 1915 gave rise to a demand for better transportation facilities, and in response to this demand, a project was adopted for a sled road connecting Livengood with Fairbanks. After a preliminary reconnaissance of the available routes, that from Olmes, on route 7B, to Livengood was chosen. A location survey was made by Mr. R. A. Jackson in July and August, at a field cost of \$1,781.12, or \$33.10 per mile. Construction work was started in August and completed December 31. Permanent bridges were built over all streams except the Tolovana River. The total cost of the work, including the preliminary reconnaissance and the location, was \$17,056.30, of which \$4,997.50 was contributed by local interests through the Fairbanks Commercial Club. It is estimated that approximately 1,000 tons of freight passed over this road during the winter of 1915-16.

Route 9—Rampart-Eureka Road (6.5 miles road, 21.5 miles sled road).—Annual maintenance of the wagon-road section constituted the year's work on this route. Six hundred linear feet of corduroy was laid, bridges and culverts were repaired, and additional ditching was done where necessary. The average cost of the work was \$146.86 per mile for the 6.5 miles covered.

Route 11—Eagle-Fortymile road (19.5 miles road, 60 miles sled road).—Work done on this route during the year comprised ditching, filling ruts, repairs to bridges and culverts, and slight relocations of the road between mileposts 1-2 and 9-10, which resulted in a material reduction of grade.

Route 15—Circle-Miller House Road (49 miles).—Annual maintenance on this route was performed in July and August and included laying 1,350 feet of corduroy and the construction of 124 culverts and 11 bridges, with an aggregate length of 380 feet. Corduroy in place cost 60 cents per linear foot. The average cost of the work was \$125 per mile.

Route 16—Chatanika-Miller House Sled Road (81 miles).—The work of maintenance on this route was done during September and embraced the removal of slides and fallen timber and minor repairs to bridges. In addition, the Eagle and 12-mile summits were permanently staked with tripods at 100-foot intervals.

Route 17—Fort Gibbon-Kaltaq Trail (257 miles).—Work done on this route was confined to temporary staking for the guidance of winter travel. It was done by contract at a cost of \$300.

Route 17A—Lewis Landing-Dishkaket Trail (108 miles).

Route 17B—Nulato-Dishkaket Trail (90 miles).

No work was done on these routes during the year.

Route 22—Hot Springs-Sullivan Creek Road (9 miles wagon road, 6 miles trail).—The work of the year on this route was entirely maintenance and consisted chiefly of repairs to bridges, culverts, and corduroy.

Route 23A—Chatanika-Beaver Trail (120 miles).

Route 23B—Beaver-Chandler Sled Road (75 miles).

No work was undertaken on these routes during the year.

Route 29—Fort Gibbon-Koyukuk Trail (100 miles).—The new construction from Fort Gibbon to milepost 38 constituted the year's work on this route. All timbered sections were cleared to a width of 8 feet, and all open country was staked at intervals of 100 feet. Stumps, niggerheads, and other obstacles to traffic were removed, and permanent bridges were built over all streams. Clearing and staking cost \$27.73 per mile, and the total expenditure averaged \$50.70 per mile.

Route 30—Hot Springs Landing-Eureka Road (32 miles).—The greater portion of the year's work was performed on the section from the steamboat landing to Hot Springs and embraced cleaning ditches and filling ruts, replacing corduroy, and repairing bridges and culverts. On the remainder of the road a small amount of work was done, consisting principally of repairs to bridges and culverts.

Route 31—Salchaket-Caribou Creek Sled Road (46 miles).—No work was done on this route during the year.

Route 32B—Iditarod-Flat Creek Road (8 miles)

Route 33A—Otter Creek Towpath (22 miles).

Route 33B—Summit-Otter Creek Road (6 miles)

The work of the year on these routes comprised the main Iditarod-Flat Creek Road. were repaired, 4,005 linear feet of corduroy was of road graveled. The work was done under United States Commissioner G. G. Geraghty. ture was \$3,970.88, including local donations hire to the extent of \$956.

Route 38—Ruby-Long-Cripple Trail (6 miles road, 60 miles trail).—Annual maintenance work on this section embraced repairing and cleaning out culverts and filling all low places in the roadbed. This section covered 13 miles between mileposts 6 and 19. The repair of side-hill cuts, which had been badly damaged by spring break-up and summer rains. A small amount of work was done in removing windfalls from the Long-Poor section.

The development of the mining districts has been accompanied by a constantly increasing demand for facilities for transportation. To meet this need, work is now in progress of improving to wagon-road stations from milepost 6 to Long.

Bridge over Chena Slough, Fairbanks.—Early in the year plans for a 300-foot-span steel truss bridge, to be constructed over Chena Slough at the junction of the Valdez-Fairbanks Road with the Fairbanks River, the various mail routes leading out of Fairbanks, and the construction of a steel bridge of this length was reached. A study of local conditions. The possibility of a steel bridge of this length, was considered, but it was rejected because of the expense of constructing piers to withstand the extreme floods, more particularly because of the necessity for piers free in order to prevent the formation of ice jams and flooding of the city of Fairbanks.

The services of Mr. O. A. Hall as designing engineer and the work of designing was started in June, 1911, and the plans were more than 50 per cent complete in the fire which destroyed the offices of the board. As a result they were not finally completed until

In March of this year a contract for the fabrication of steel was let to the Penn Bridge Co., Beston, Pa. The steel called for by this contract, together with the other material, has been delivered in Fairbanks, and the construction of the piers is now in progress. The bridge will be completed by hired labor during the coming winter.

NOME DISTRICT.

(Mr. DANIEL A. JONES, Superintendent.)

Route 8—Nome-Council Road (approximately 10 miles constructed).—The work of the season on the Nome-Council Road was maintenance, and consisted of cleaning out

Road (6.5 miles road, 21.5 miles sled) of the wagon-road section constituted. Six hundred linear feet of corduroy were repaired, and additional ditching.

The average cost of the work was *niles covered*.
road (19.5 miles road, 60 miles sled) route during the year comprised ditching, and culverts, and slight relocations of 2 and 9-10, which resulted in a material

louse Road (49 miles).—Annual main- formed in July and August and included and the construction of 124 culverts and e length of 380 feet. Corduroy in place. The average cost of the work was \$125

er House Sled Road (81 miles).—The s route was done during September and des and fallen timber and minor repairs the Eagle and 12-mile summits were pods at 100-foot intervals.

itlag Trail (257 miles).—Work done on temporary staking for the guidance of by contract at a cost of \$300.

g-Dishkaket Trail (108 miles).

aket Trail (90 miles).

se routes during the year.

ullivan Creek Road (9 miles wagon road), the year on this route was entirely main- fly of repairs to bridges, culverts, and

aver Trail (120 miles).

lar Sled Road (75 miles).

on these routes during the year.

oyukuk Trail (100 miles).—The new con- n to milepost 38 constituted the year's imbered sections were cleared to a width ntry was staked at intervals of 100 feet. other obstacles to traffic were removed, re built over all streams. Clearing and ile, and the total expenditure averaged

Landing-Eureka Road (32 miles).—The s work was performed on the section from lot Springs and embraced cleaning ditches corduroy, and repairing bridges and cul- of the road a small amount of work was of repairs to bridges and culverts.

ibou Creek Sled Road (46 miles).—No work ring the year.

Route 32B—Iditarod-Flat Creek Road (8 miles).

Route 33A—Otter Creek Towpath (22 miles).

Route 33B—Summit-Otter Creek Road (6 miles).

The work of the year on these routes comprised general maintenance of the main Iditarod-Flat Creek Road. Bridges and culverts were repaired, 4,005 linear feet of corduroy was laid, and 2,885 feet of road graveled. The work was done under the supervision of United States Commissioner G. G. Geraghty. The total expenditure was \$3,970.88, including local donations of money and team hire to the extent of \$956.

Route 38—Ruby-Long-Cripple Trail (6 miles road, 24 miles sled road, 60 miles trail).—Annual maintenance work on the wagon road section embraced repairing and cleaning out culverts, opening drains, and filling all low places in the roadbed. Work on the sled-road section covered 13 miles between mileposts 6 and 19 and comprised the repair of side-hill cuts, which had been badly damaged by the spring break-up and summer rains. A small amount of work was done in removing windfalls from the Long-Poorman Trail.

The development of the mining districts tributary to Ruby has been accompanied by a constantly increasing necessity for better facilities for transportation. To meet this necessity, the work is now in progress of improving to wagon-road standards the sled road from milepost 6 to Long.

Bridge over Chena Slough, Fairbanks.—Early in 1915 work was commenced on plans for a 300-foot-span steel bridge, with Petit trusses, to be constructed over Chena Slough at Fairbanks, connecting the Valdez-Fairbanks Road with the Fairbanks local roads and the various mail routes leading out of Fairbanks. The decision to construct a steel bridge of this length was reached only after careful study of local conditions. The possibility of building piers in the channel, allowing the use of wooden or combination spans of shorter length, was considered, but it was rejected because of the difficulty of constructing piers to withstand the extremely heavy ice run, and more particularly because of the necessity for leaving the channel free in order to prevent the formation of ice jams and the consequent flooding of the city of Fairbanks.

The services of Mr. O. A. Hall as designing engineer were secured, and the work of designing was started in June, 1915. In July, when the plans were more than 50 per cent completed, they were burned in the fire which destroyed the offices of the board at Valdez, and as a result they were not finally completed until November.

In March of this year a contract for the fabrication of the structural steel was let to the Penn Bridge Co., Beaver Falls, Pa. The steel called for by this contract, together with all other necessary material, has been delivered in Fairbanks, and the work of constructing the piers is now in progress. The bridge will be erected by hired labor during the coming winter.

NOME DISTRICT.

(Mr. DANIEL A. JONES, Superintendent.)

Route 8—Nome-Council Road (approximately 82 miles; 57 constructed).—The work of the season on the Nome-Fort Davis section was maintenance, and consisted of cleaning out ditches and culverts

Route 13J—Wonder-Flat Creek Road (2 miles).—Maintenance and improvement on this route included the construction of 925 linear feet of ditch and surfacing 3,050 linear feet with gravel. The total expenditure was \$641.

Route 13K—Bessie-Buster Road (7.6 miles).—In addition to general maintenance work, five new culverts were constructed and 500 feet of gravel-surfaced willow corduroy was laid. The total cost was \$425.95.

Route 18—Kaltag-Solomon Trail (248 miles).—The work of the year included general maintenance of the entire route, in addition to staking 38 miles of new trail, widening 12 miles of clearing through timber, and grading 1,080 feet of trail around the bluff east of Walla Walla. The total cost of the work averaged \$9.20 per mile.

Route 21—Unalaklik-St. Michael Trail (approximately 65 miles).—Eighteen miles of this trail was temporarily staked on the ice, and the permanent stakes on the remainder of the trail were repaired and replaced where necessary. A cable carrying a bos'n's chair was placed across the Klickatarick River at an expense of \$60, to afford a safe crossing for the mail in the early fall and late spring.

Route 25A—Cripple River Road (13.5 miles, total A and B).

Route 25B—Penny River Road.

Route 25C—Nome-Wireless Road (0.25 mile).

No work was done on these routes during the year.

Route 25D—Mouth of Center Creek (2 miles).—The work of the year on this route was general maintenance including resurfacing 1,650 linear feet with gravel and cleaning and widening 1,545 linear feet of ditches. The total expenditure was \$602.84.

Route 25E—Submarine-Paystreak Road (1 mile).—No work was done on this route during the year.

Route 25F—Anvil-Glacier Road (3 miles).—Maintenance and repair work on $1\frac{1}{2}$ miles averaged \$61.67 per mile in cost.

Route 25G—Snake River Extension Road (3 miles).—The work of the year on this route was devoted to general maintenance. The total expenditure was \$248.

The suspension footbridge over Snake River at the mouth of Boulder Creek was destroyed by ice during the spring; it will be replaced this year.

Route 25H—Otter Creek Road (1.25 miles).—No work was undertaken on this route during the year.

Route 25—Sinrock Ferry.—The total cost of maintaining and operating this ferry was \$257.36.

Route 26—Candle-Candle Creek Road (5 miles).—This road is built on a hillside on the left bank of Candle Creek, over tundra which covers a glacial formation. A cross section exposed by the hydraulic operations of a mining company near the road shows 2 feet of moss and tundra, 40 feet of clear ice, and 6 feet of gravel overlying the bedrock. The only practicable construction on such a formation involves the use of willow corduroy with gravel surfacing. A portion of the road has been so constructed, and willows are now being cut for the continuance of the work. These willows will be hauled during the winter and the work of laying and surfacing will be undertaken next spring.

Route 27—Deering-Inmachuck Road (25 miles).—The original work on this route was very light, and for economy of construction the Inmachuck River was crossed and recrossed many times at fords which become impassable during high water. The work of the past year was devoted to the construction of short sections of road on the left bank to eliminate some of these crossings. One fill 625 feet long and averaging 2 feet in height was made, 1,235 linear feet of willow corduroy was laid, and 2,514 cubic yards of gravel was hauled for surfacing this corduroy and resurfacing other sections.

Route 28—Dahl Creek-Candle Trail (140 miles).—The work done on this route is included under flagging trails.

Route 37—Topkok-Candle Trail (141 miles).—One hundred and thirty-two miles of this route were covered in maintenance during the year. All broken permanent stakes were replaced, 16 miles of new trail was staked, 6½ miles of new trail cut through timber, and 3 miles of old trail cleared of willows. The expense averaged \$6.82 per mile for the distance covered.

Route 41—Klery Creek Road (0.75 mile).—No work was done on this route during the year.

Route 42—St. Michael-Kotlik Trail (approximately 70 miles).—Temporary staking of portions of this route which are on the ice and not permanently staked, and inspection of the route cost \$504.30.

Taylor Creek Bridge.—The 160-foot suspension footbridge across Taylor Creek was taken out by the ice in the spring of 1916. It was replaced in June at a cost of \$214.49.

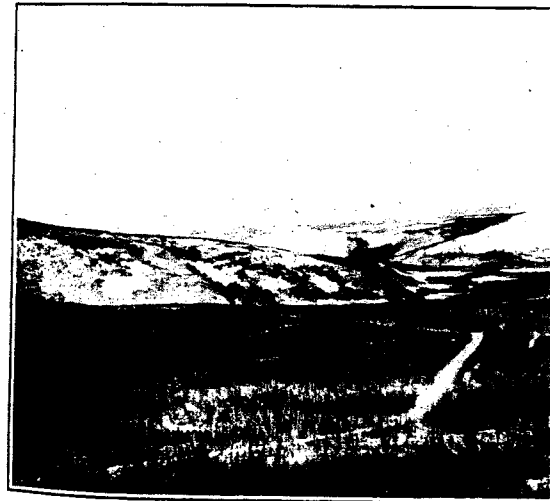
Snake River Bridge.—In 1915 a project was adopted for a bridge over Snake River at Nome, consisting of two 100-foot combination Pratt truss spans, with 360 feet of pile trestle approaches. Construction was started in June, 1916, and the expenditure to the close of the fiscal year was \$2,357.82. The bridge has been completed, but no report has yet been received of the total cost.

Flagging Trails.—For the guidance of travelers during the winter months, the principal routes of travel in the Seward Peninsula which are not permanently marked are temporarily staked or flagged. The necessity for this work and the methods employed have been described in previous reports. During the past winter 540 miles of trail were flagged, at an average cost of \$6.04 per mile.

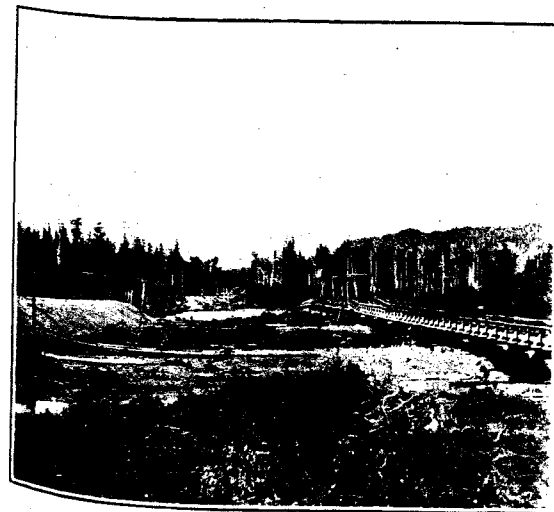
STATEMENT OF RECEIPTS AND DISBURSEMENTS.

This report covers vouchers received and placed in the account, including June 30, 1916.

Balance on hand July 1, 1915.....	\$19, 303. 26
Received from the Treasurer of the United States:	
Appropriation "Military and post roads, bridges, and trails" (act Mar. 4, 1915).....	165, 000. 00
Alaska fund.....	164, 402. 30
Corrections of vouchers:	
Alaska fund.....	11. 73
Special appropriation.....	6, 140. 25
Sales of property, Alaska fund.....	
Total.....	354, 857. 90
Disbursed as per tabulated statement below.....	300, 720. 63
Balance on hand.....	54, 137. 26



OLNES-LIVENGOOD SLED ROAD



RESURRECTION BRIDGE, ROUTE 10, SEWARD PENINSULA

Expenditures in detail.

Routes, etc.	Wagon roads, bridges, and trails, Alaska fund.	Construction and maintenance of military and post roads, bridges, etc., Alaska.	Total.
Offices.....	\$8,578.27	\$9,800.02	\$18,378.29
Route 1.....	217.75	4,952.78	5,170.53
Route 2.....	4,532.37	4,099.40	8,631.77
Route 3.....	1,715.77	3,774.97	5,490.74
Route 4.....	2,359.50		2,359.50
Route 4A.....	5,000.00	12,523.05	17,523.05
Route 4B, first section.....	2,384.80	9,000.78	11,385.58
Route 4B, second section.....	2,147.75	3,555.55	5,703.30
Route 4C.....	7,392.69	5,118.32	12,511.01
Route 4D.....	2,925.75	164.25	3,090.00
Route 4E.....	2,878.52	5,658.78	8,537.30
Route 4F.....	4,102.88	1,672.15	5,775.03
Route 4G.....	6,255.17	11,677.30	17,932.47
Route 4H, first section.....	17,044.04	2,631.58	19,675.62
Route 4H, second section.....	15,223.11	2,980.23	18,203.34
Route 4I.....	1,997.82	8,704.93	10,702.75
Route 4J.....	6,558.26	9,058.16	15,616.42
Route 4K.....	154.63	737.68	892.31
Valdez office addition.....	2,200.67	675.87	2,876.54
Route 5.....	1,252.00	235.05	1,487.05
Route 6A.....	4,599.78	3,440.51	8,040.29
Route 6B.....	1,742.41	113.50	1,855.91
Route 7A.....	1,499.27	2.00	1,501.27
Route 7B.....		12.50	12.50
Route 7C.....	5.00	12.50	17.50
Route 7D.....	205.01	14.50	219.51
Route 7E.....	64.25	99.00	163.25
Route 7F.....	4,332.14	7,726.66	12,058.80
Route 7G.....	1,795.20	6,284.41	8,079.61
Route 7H.....	109.08	845.53	954.61
Route 7I.....	1,431.39	426.73	1,858.12
Route 7J.....	223.00	1,078.25	1,301.25
Route 7K.....	858.67	1,735.58	2,594.25
Route 8.....	14.00		14.00
Route 9.....	439.62	123.90	563.52
Route 10.....	125.00	231.75	356.75
Route 11A.....	185.00	363.00	548.00
Route 11B.....	8.50	145.75	154.25
Route 11C.....	53.50	49.93	103.43
Route 11D.....	68.00		68.00
Route 11E.....	53.00	2,162.85	2,215.85
Route 11F.....	46.75	633.50	680.25
Route 11G.....	85.75	420.95	506.70
Route 11H.....	70.08	1,447.52	1,517.60
Route 11I.....	562.90	5,561.45	6,124.35
Route 11J.....	304.50	170.56	475.06
Route 11K.....	737.10		737.10
Route 12.....	1,267.82	1,014.50	2,282.32
Route 13.....	1,173.04	2,304.45	3,477.49
Route 14.....	63.90	192.10	256.00
Route 15.....	178.30	17.60	195.90
Route 16.....	136.50	17.60	154.10
Route 17.....	21.00	17.60	38.60
Route 18.....	188.49	27.00	215.49
Route 19.....	36.87	2,283.33	2,320.20
Route 20.....	332.88	7,478.58	7,811.46
Route 21.....	7.73		7.73
Route 22.....	677.16	386.68	1,063.84
Route 23.....	12.93	52.00	64.93
Route 24.....	98.56	248.00	346.56
Route 25.....	50.00	204.00	254.00
Route 25A.....	70.50		70.50
Route 25B.....	624.40	157.90	782.30
Route 25C.....	298.00	70.00	368.00
Route 25D.....	95.50	3,607.55	3,703.05
Route 25E.....	1,920.76	6.00	1,926.76
Route 25F.....	176.27	823.73	1,000.00
Route 25G.....	50.00		50.00
Route 25H.....	91.35		91.35
Route 25I.....	2,969.92	53.36	3,023.28
Route 25J.....	145.38	2,656.89	2,802.27
Route 25K.....	591.04	3,291.16	3,882.20
Route 25L.....	99.70	80.00	179.70
Route 25M.....	1,239.84	612.99	1,852.83
Route 25N.....	92.50	102.45	194.95
Route 25O.....	298.80		298.80
Flagging trails.....	2,484.98	2,229.82	4,714.80

ANNUAL REPORT OF THE
Board of Road Commissioners
for Alaska ✓

1917



WASHINGTON
GOVERNMENT PRINTING OFFICE
1917

surfaced with gravel. A short pile bridge was built over the glacial stream near mile 202, and a dike 700 feet in length was constructed for the purpose of confining the stream to its present channel. The average cost of all work was \$306.72 per mile.

Route 4H—Delta River-McCarty Road (73.4 miles).—The work performed on this route during the year embraced the removal of slides, repairing bridges damaged by high water, grading 2 miles with a grader, and surfacing 1 mile with gravel.

The bridge over the glacier stream near Miller's was lengthened by the construction of two 60-foot spans and 66 feet of approach. The added spans are of the new pony truss type, with steel lower chords and native timber compression members. The cost of this work, exclusive of freight, was as follows:

Material	\$1,714.10
Labor:	
Cutting and getting out timber	831.29
Whipsawing timber	416.10
Constructing piers	506.30
Framing trusses	143.29
Erecting trusses	107.43
Placing floor system	206.15
Total	3,924.66

To confine this stream to its present channel, a dike 585 feet long and 5 feet high was constructed, with its upstream slope protected by a heavy layer of brush secured at the top to the dike and weighted with rock held in place by wire netting. The total cost of the dike was \$588.73.

Route 4I—McCarty-Richardson Road (20.6 miles).—In addition to general repairs to the road between McCarty and Shaw Creek, the work of the year was confined chiefly to the ferry and bridges in the vicinity of McCarty.

A new ferry scow, 16 by 35 by 3 feet, was constructed of native whipsawed lumber, at a cost of \$778.95.

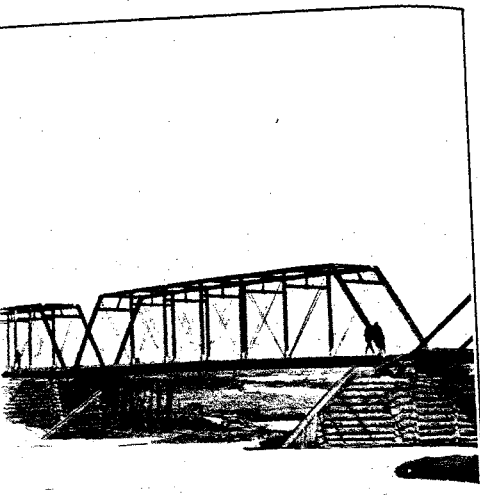
Improvements to the bridge over the north slough near McCarty included replacing the existing 30-foot span by a standard 60-foot pony truss span, reerecting the 30-foot span north of the new 60-foot span, and constructing 56 feet of pile trestle approach. The total cost of this work was \$1,027.97, exclusive of freight from Seattle.

A pile bridge, 204 feet in length, constructed over the middle McCarty Slough, cost \$828.37.

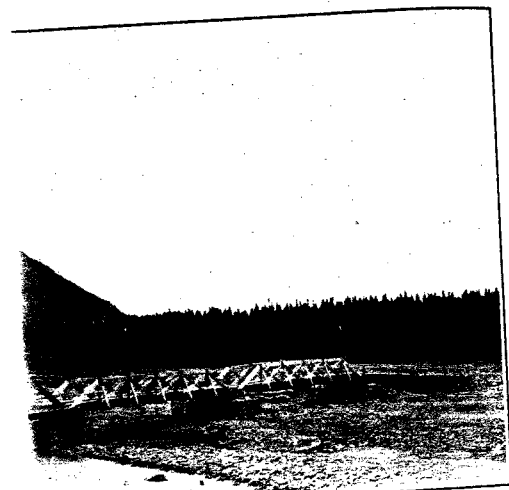
Route 6A—Willow Creek-Tonsina Road (24 miles).—The greater part of this route was graded with a road grader during the year. Culverts were repaired and new ones built where necessary; ditches were cleaned out and a small amount of gravel surfacing placed. During May and June of this year two maintenance men, with a team, were employed in dragging the road, repairing culverts, etc. The cost of the year's work averaged \$328.27 per mile.

This route, which traverses naturally good soil, is now in good condition and should require little work in the near future outside of that performed by a small maintenance crew.

Route 6B—Tonsina-Chitina Road (15 miles).—Ordinary maintenance work was done on this route, but the chief expenditure was devoted to improvement, which is expensive, because of the rugged



IE, VALDEZ-FAIRBANKS ROAD.



M NEAR MILLERS, VALDEZ-FAIRBANKS ROAD.

and difficult country through which the road runs. The long grade leading to the Tonsina River Valley was widened and surfaced, involving the construction of 1,760 linear feet of corduroy, costing 78 cents per foot, and the removal of 1,400 cubic yards of solid rock, which was made use of in surfacing 5,570 linear feet of the road. Approximately 3,500 cubic yards of gravel surfacing was placed, at an average cost of \$1.10 per cubic yard. In addition, ditches were cleaned, slides removed, culverts repaired, driftwood removed from the Tonsina River Bridge, and 1 1/2 miles of road graded.

The dike constructed last year above the Tonsina Bridge (see annual report for 1916, p. 11) was partly destroyed by high water during the summer of 1916. It was rebuilt and strengthened this spring, and has successfully withstood the high water and accomplished its purpose.

Chisana Trail.—This is a winter trail from McCarty, on the Copper River & Northwestern Railroad, to the Chisana mining district. The best route for travel varies from year to year, and the trail is marked each winter with temporary stakes. The staking last fall was done under the supervision of local parties, \$500 being expended by the board and \$500 contributed by interested persons in the vicinity.

SOUTHWESTERN DISTRICT.
(Mr. ANTON EIDE, Superintendent.)

Route 10—Seward-Kenai Lake Road (14 miles).—The work of improvement on this route begun in 1915 by the Territorial road commissioner was continued by the board during the past year. The first 3 miles were improved, and extensive new construction was undertaken between mileposts 3 and 7. A total of 4.4 miles was graded with the road grader, 0.8 mile graveled, 520 feet of bridges redecked, and 7 new culverts constructed. The work was greatly hampered by very heavy rains and high water. Unit costs of various classes of work were:

Clearing and grubbing (heavy), per acre.....	\$230.00
Grading, per linear foot.....	2.50
Redecking bridges, per linear foot.....	1.00
Graveling, per linear foot.....	1.00

Maintenance work during the spring, embracing the repair of washouts, surfacing soft spots, and dragging, cost \$1,339.60.

The reconstruction of the bridge over Resurrection River (annual report, 1916, p. 11) was completed during July. The three 75-foot spans are of Douglas fir and the remainder of the bridge of native spruce timber. An itemized statement of the field cost is given below; freight on material obtained in Seattle is not included.

Material:	
Piling.....	600.00
Fir lumber.....	600.00
Native lumber.....	100.00
Rods, bolts, etc.....	30.00
Drift bolts and spikes.....	10.00
Dynamite, fuse, and caps.....	2.33
Tools.....	2.33
Total.....	2,332.00

Driving piles:
Rent of driver with fuel and oil.....
Labor.....

Planking and capping piers and lowering approaches
Getting out stringers and caps for approaches.....
Framing and raising trusses.....
Placing stringers and decking.....
Placing hand and guard rails.....
Cutting and blasting out old trestle.....

Total.....

A 72-foot Howe truss span of native spruce a stream near the Ole Martin ranch. The det

Getting out timber for crib abutments and lower choru
Constructing abutments.....
9,500 feet b. m. native lumber, at \$22 per M.....
Rods, bolts, and spikes.....
Framing and raising trusses.....
Placing decking and handrails.....

Total.....

Route 12—Mile 34 A. N. R. R.-Hope Road sled road).—The usual maintenance work on t included the widening of the road, cleaning linear feet of bridges at a cost of \$2.75 per foot. On the sled-road section a small amount of w pally in removing windfalls. The total cost w \$514 was expended in repairing and protectin spring.

Route 19—Kern Creek-Knik Trail (86 mile mer of 1916, forest fires and landslides caused stroyed a large part of this trail along Turna of repairing this damage covered about 20 n moving slides, replacing and repairing bridg ng windfalls and rebuilding cribbing. Durin were employed on the Turnagain Arm section it, and keeping it clear of slides and dangerous

Upon completion of the new Government t to Matanuska the larger part of this route c until the gap between Kern Creek and Ancho traffic over it will be very heavy.

Route 20A—Knik-Susitna Trail (30 miles).

Route 20B—Susitna-Rainy Pass Trail (127 Two hundred and fifty dollars was expended the year, chiefly in clearing windfalls and b which are difficult to cross during the spring a

Route 20C—Rainy Pass-Tacotna Trail (130

Route 20D—Tacotna-Kaltag Trail (145 mile No work was done on these routes during the

Route 24—Mile 29 A. N. R. R.-Moose Pass The improvement of 14.5 miles of sled road to constituted the work of the year on this rou down, the road bed was widened and draine

gh which the road runs. The long grade over Valley was widened and surfaced, in- of 1,760 linear feet of corduroy, costing removal of 1,400 cubic yards of solid rock. n surfacing 5,570 linear feet of the road. e yards of gravel surfacing was placed, at per cubic yard. In addition, ditches were culverts repaired, driftwood removed from , and 1½ miles of road graded. last year above the Tonsina Bridge (see . 11) was partly destroyed by high water 1916. It was rebuilt and strengthened this ally withstood the high water and accom-

s a winter trail from McCarty, on the Cop- n Railroad, to the Chisana mining district. l varies from year to year, and the trail is h temporary stakes. The staking last fall rvision of local parties, \$500 being expended , contributed by interested persons in the

UTHWESTERN DISTRICT.

ANTON EIDE, Superintendent.)

Enai Lake Road (14 miles).—The work of oute begun in 1915 by the Territorial road ued by the board during the past year. The roved, and extensive new construction was ileposts 3 and 7. A total of 4.4 miles was rader, 0.8 mile graveled, 520 feet of bridges culverts constructed. The work was greatly y rains and high water. Unit costs of various

avy), per acre.....	\$230.00
.....	.12
ear foot.....	2.50
.....	.19

during the spring, embracing the repair of ft spots, and dragging, cost \$1,339.60. f the bridge over Resurrection River (annual as completed during July. The three 75-foot fir and the remainder of the bridge of native emized statement of the field cost is given erial obtained in Seattle is not included.

.....	\$237.60
.....	693.40
.....	659.41
.....	600.00
.....	105.50
.....	83.00
.....	10.00
.....	2,338.91

Driving piles:

Rent of driver with fuel and oil.....	\$160.00	
Labor.....	753.67	\$913.67
Planking and capping piers and lowering approaches.....		330.00
Getting out stringers and caps for approaches.....		317.00
Framing and raising trusses.....		340.00
Placing stringers and decking.....		325.20
Placing hand and guard rails.....		107.40
Cutting and blasting out old trestle.....		50.00
Total.....		4,722.18

A 72-foot Howe truss span of native spruce was constructed over a stream near the Ole Martin ranch. The detailed cost was:

Getting out timber for crib abutments and lower chord.....	\$52.50
Constructing abutments.....	23.00
9,500 feet b. m. native lumber, at \$22 per M.....	209.00
Rods, bolts, and spikes.....	47.83
Framing and raising trusses.....	55.00
Placing decking and handrails.....	30.00
Total.....	417.33

Route 12—Mile 34 A. N. R. R.—Hope Road (31 miles road, 9 miles sled road).—The usual maintenance work on the wagon-road section included the widening of the road, cleaning ditches, redecking 420 linear feet of bridges at a cost of \$2.75 per foot, and general repairs. On the sled-road section a small amount of work was done, principally in removing windfalls. The total cost was \$4,526.35, of which \$514 was expended in repairing and protecting the road during the spring.

Route 19—Kern Creek-Knik Trail (86 miles).—During the summer of 1916, forest fires and landslides caused by excessive rains destroyed a large part of this trail along Turnagain Arm. The work of repairing this damage covered about 20 miles, and included removing slides, replacing and repairing bridges and culverts, clearing windfalls and rebuilding cribbing. During the winter two men were employed on the Turnagain Arm section of the trail, repairing it, and keeping it clear of slides and dangerous accumulations of ice.

Upon completion of the new Government railroad from Seward to Matanuska the larger part of this route can be abandoned, but until the gap between Kern Creek and Anchorage is closed winter traffic over it will be very heavy.

Route 20A—Knik-Susitna Trail (30 miles).

Route 20B—Susitna-Rainy Pass Trail (127 miles).

Two hundred and fifty dollars was expended on route 20A during the year, chiefly in clearing windfalls and bridging small streams which are difficult to cross during the spring and fall.

Route 20C—Rainy Pass-Tacotna Trail (130 miles).

Route 20D—Tacotna-Kaltag Trail (145 miles).

No work was done on these routes during the year.

Route 24—Mile 29 A. N. R. R.—Moose Pass Road (29.5 miles).—The improvement of 14.5 miles of sled road to wagon road standards constituted the work of the year on this route. Grades were cut down, the road bed was widened and drained, culverts were con-

structed, and corduroy laid where necessary. The average cost of the work was \$592.64 per mile. The average unit costs were:

Clearing and grubbing, per acre.....	\$120.00
Ditching and grading, per linear foot.....	.07
Corduroy, per linear foot.....	.60

Route 32A—Tacotna-Flat Creek Trail (87 miles).—No work was done on this route during the year.

Route 35—Knik-Willow Creek Road (34 miles).—General repairs were made to the entire route during the year. A small amount of corduroy was laid, and a quantity of culvert timber was cut and hauled for future use on the section above timber line. One mile of new road was constructed to reduce a steep grade at mile 33.

A standard 60-foot pony truss bridge of native spruce was constructed over the Little Susitna River, replacing an old stringer bridge. The cost was as follows:

Material (steel and hardware, Seattle)	\$408.00
Cutting and hewing timber.....	478.80
Hauling steel, etc., to bridge site.....	70.00
Constructing and filling timber abutments.....	75.00
Framing and raising trusses and placing decking.....	280.00

Total

1,312.13

The freight on steel and hardware from Seattle is not included in the above total.

Extensive improvement work on this road is now in progress from Wasilla, where it crosses the new Government railroad, in order that it may better serve the growing needs of the Willow Creek mining district.

Route 35A—Archangel extension (2 miles).—This route will connect mile 32 on the Knik-Willow Creek Road with the Archangel Creek Valley, where a number of lode mines are developing. The entire road will be above timber line, necessitating the transportation of all culvert material and wood for fuel from considerable distances, and thus increasing the cost. A total of \$1,003.50 was expended during the past year, and the work of completing the road is now in progress.

McDougall-Cache Creek Trail.—This trail leads from McDougall on the Yentna River, to the Cache Creek placer mining district, a distance of approximately 30 miles, and was constructed by operators in the district. During September and October, 1916, a location for a wagon road following the same general route was made and a bridge 120 feet long was constructed over Cache Creek, at a total cost of \$1,329.15.

Travel to and from this district is dependent upon uncertain and slow, small boat service from Anchorage up the Susitna and Yentna Rivers. Upon the completion of the Government railroad a more suitable route will lead from some point on the railroad near Talkeetna overland to Cache Creek. A reconnaissance of this route is now being made, with a view to the probable construction of a sled road if a suitable location is found.

Palmer-Mile 26 survey.—During the late fall of 1916 a location survey was made for a road 8 miles in length from Palmer, on the Government railroad, to mile 26 on the Knik-Willow Creek Road,

to serve a considerable number of farmers who have taken up homesteads along the proposed route. The cost of the survey was \$96.20. Construction of the road is now under way.

YUKON DISTRICT.

(Mr. R. J. SOMMERS, Superintendent.)

Route 4J—Richardson-Salchaket Road (30 miles).—Extensive improvement of that portion of the road between mileposts 312 and 330, except 1 mile, constituted the work of the year on this route. The road was straightened, widened to 30 feet, and graded with a road grader. A change in the location was made between mileposts 318 and 319, involving the construction of approximately a quarter of a mile of new road around a steep bluff. The old road at this point was located on the flat along the Tanana River, where it was subject to overflow during high water. Two other short relocations were also made, the road in each case being shifted from the flat to the hillside, where better soil and drainage could be obtained. Sixty-eight culverts were constructed at an average cost of \$20 each, and 560 linear feet of corduroy was laid at a cost of \$60 per foot. The average cost of all the work was \$1,955.95 per mile for the 17 miles improved.

Route 4K—Salchaket-Fairbanks Road (40 miles).—Eighteen and a half miles of this road, from mile 352 to mile 370, were reconstructed during the year. The road was widened, straightened, and graded with a road grader; fills were made across small swales, and 8,470 linear feet of drainage ditch constructed. Sixty-one culverts, two 36-foot pony truss bridges, and seven 16-foot stringer bridges were built, and 4,050 linear feet of corduroy laid.

Owing to the continuous cutting away of the road near mile 357, a relocation was made between mileposts 353 and 360. The new location is 0.5 mile longer than the old road, but it is on higher ground, with better soil conditions, and is well back from the river. This relocation also eliminated about 3 miles of narrow corduroy which is subject to overflow by the Tanana River during high water, and which could not be satisfactorily repaired except at great expense.

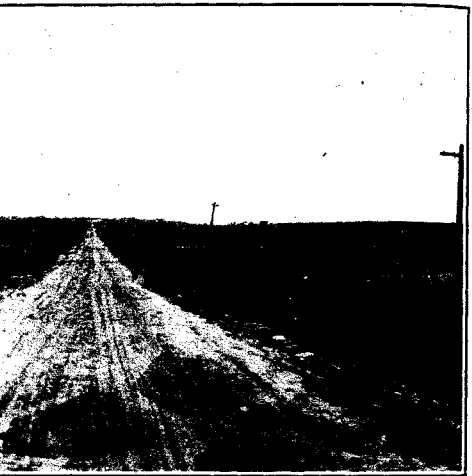
Average unit costs of the work were:

Clearing and grubbing to 30-foot width, per mile.....	\$289.20
Grading, including small fills, per mile.....	1,289.36
Drainage ditches, per foot.....	.15
Corduoy, per foot.....	.60
Culverts, each.....	20.00
Bridges, 16-foot, each.....	40.00
Bridges, 36-foot, each.....	200.00

Route 5—Ester-Fort Gibbon Sled Road (148 miles).—The year's work on this route consisted of general repairs and maintenance. Slides, windfalls, and stumps were removed between the 12 and 49 mileposts and 4 bridges, ranging in length from 19 to 31 feet, were constructed, at an average cost of \$5 per foot, the high cost being due to the scarcity of suitable timber. Repairs to bridges near Hot Springs cost \$157. Seven bridges near Tanana, varying from 18 to 36 feet in length, were reconstructed with sawed lumber, at a cost of \$858.78.



WILLAR TRACTOR, ESTER CREEK ROAD.



ME-BESSIE ROAD.

Route 7A—Summit-Cleary Road (11 miles).

Route 7B—Fox-Olnes Road (13 miles).

Route 7C—Summit-Fairbanks Creek Road (11 miles).

Route 7E—Vault Creek Road (2 miles).

Route 7F—Vault Creek-Treasure Creek Road (1.5 miles).

Route 7H—Little Eldorado Creek Road (1.5 miles).

Route 7I—Gilmore-Summit Road (6 miles).

These routes were maintained by the Territorial road commissioner for the fourth judicial division, and no work was done on them by the board.

Route 7D—Ester Creek Road (13 miles).—The work of the year on this route consisted of the improvement of 2,000 feet of the road on mile 3, where it traverses a mattress of decayed vegetable matter, or peat, several feet deep, for a distance of over 0.5 mile. Two thousand feet of corduroy was laid and covered, at a cost of 85 cents per foot. Four bridges, with an aggregate length of 89 feet, were built, at a cost of \$239.

During the present year the improvement of the road is being continued as far as the Government experimental farm.

Route 7G—Fairbanks-Gilmore Road (13 miles).—The work done by the board on this route was confined to the construction of a pile bridge over Noyes slough to replace a 70-foot Howe truss span, which collapsed. A part of the material from the old bridge was used in the new construction, and other material was furnished by the Territorial road commissioner, who also performed general maintenance work on the road.

Route 7J—Fairbanks-Chena Hot Springs Trail (64 miles).

Route 7K—Olnes-Livengood Sled Road (54 miles).

No work was done on these routes during the year.

Route 9—Rampart-Eureka Road (6.5 miles road, 21.5 miles sled road).—General maintenance work on this route was carried on during July and August, and included redecking 19 culverts and 3 bridges, the reconstruction of 2 bridges, aggregating 54 feet in length, and widening and repairing the road between the 6 and 10 mileposts.

Route 11A—Eagle-O'Brien Creek Road (17 miles).

Route 11B—O'Brien Creek-Fortymile Sled Road (30 miles).

Work on these routes during the year consisted of general repairs and maintenance. On the wagon-road section, culverts were rebuilt, bridges repaired, and one new bridge constructed, ditches cleaned and extended, and a small amount of gravel surfacing placed. Maintenance work on the sled-road section included the removal of rock slides, widening the road, and ditching some sections.

Route 11C—Steel Creek-Jack Wade Road (2.5 miles).

Route 11D—Canyon Creek-Walkers Fork Sled Road (10 miles).

No work was done on these routes during the year.

Route 11E—Eagle-Seventy Mile Sled Road (20 miles).—A total of \$502 was expended on this route, chiefly in constructing three bridges, repairing culverts and bridges, and ditching.

Route 15—Circle-Miller House Road (49 miles).—Annual maintenance work on 34 miles of this route was performed during the summer and included cleaning and constructing ditches, laying 1 mile of light corduroy, repairing damage caused by washouts, and re-

decking and repairing culverts and bridges. The average cost of the work was \$137 per mile for the 34 miles on which work was done.

Route 16—Chatanika-Miller House Sled Road (81 miles).—The year's work on this route consisted chiefly in repairing bridges and removing slides. Six bridges were repaired, and one new bridge 24 feet long was constructed. The total cost of the work was \$500.

Route 17—Fort Gibbon-Kaltag Trail (257 miles).—The temporary staking of this trail for the guidance of winter travel was done by contract, at a cost of \$300.

Route 17A—Lewis Landing-Dishkaket Trail (108 miles).

Route 17B—Nulato Dishkaket Trail (90 miles).

No work was done on these routes during the year.

Route 22—Hot Springs-Sullivan Creek Road (9 miles wagon road, 6 miles trail).—The work of the year on this route was confined to the wagon-road section. Bridges, culverts, and corduroy were repaired, ditches were cleaned, and a small amount of new ditching was done. Grading was done on sections between Kemperville and Sullivan Creek where the road had settled and a grader could be used to advantage. The average cost of the work was \$127 per mile.

Route 23A—Chatanika-Beaver Trail (120 miles).

Route 23B—Beaver-Chandler Sled Road (25 miles).

Route 29—Fort Gibbon-Koyukuk Trail (100 miles).

No work was undertaken on these routes during the year.

Route 30—Hot Springs Landing-Eureka Creek Road (32 miles).—The year's work on this route was confined to the section between the Landing and Hot Springs, and comprised laying 180 feet of corduroy, cleaning ditches, filling ruts, and repairing several small bridges and culverts.

Route 31—Salchaket-Caribou Creek Sled Road (46 miles).—No work was done on this route during the year.

Route 32B—Iditarod-Flat Creek Road (8 miles).

Route 33A—Otter Creek Towpath (22 miles).

Route 33B—Summit-Otter Creek Road (6 miles).

The work of the year on these routes was devoted to maintenance on the main Iditarod-Flat Creek Road, with some improvements on the first 6 miles of that road. Bridges and culverts were repaired, 4,010 linear feet of corduroy laid, and 9,481 feet of road graveled. The total expenditure was \$4,500.

Route 38—Ruby-Long Creek Road (19.5 miles road, 10.5 miles sled road).—The year's work on this route embraced repairs to the main street of Ruby, the maintenance and improvement of the 6 miles of wagon road previously constructed, and the improvement to wagon road standards of approximately 13.5 miles of sled road.

The extension of the road which forms the main street of Ruby (not an incorporated town) was reconstructed for a distance of 1,300 feet, or practically its entire length. The steep approaches at either end of the street were graded down and ditched and the entire street was surfaced with rock. Six culverts were constructed, the material for five of which was furnished by adjacent property owners. The total cost of this work was \$1,501.09.

From Ruby to milepost 6 extensive maintenance and improvement work was done. Sidehill cuts were widened, holes filled, corduroy



OF RUBY-LONG CREEK ROAD.

repaired and renewed, and 240 linear feet of road surfaced with rock. The average cost of the work was \$466.84 per mile.

From the 6 milepost to a point 0.5 mile beyond the 19 milepost, a wagon road was completed, largely following the old sled road. The work was accomplished under very trying weather conditions, the rainfall throughout the summer being without precedent in the history of Ruby. This heavy rainfall greatly increased the difficulty of overcoming the miles of glacial muck formation traversed, and was chiefly responsible for the unusually high cost of the work.

In the construction of the new road 183 culverts were constructed, 24,506 linear feet of corduroy laid, 46,603 linear feet of road graded and ditched, and two bridges having a total length of 298 feet built. The road varies in width from 16 to 30 feet, according to the formation of the ground. All of the culverts, with the exception of 12, were constructed of poles secured on the ground. Pole or brush corduroy was used, depending upon the timber available where required.

Average costs of the work were:

Clearing, grubbing, and grading, per linear foot.....	\$0.78
Corduoy, per linear foot.....	.90
Culverts, each.....	27.88
Bridges, per linear foot.....	1.81

A permanent cache or warehouse 16 by 48 by 10 feet, with a corrugated iron gable roof, was constructed near the 19 milepost for the storage of supplies, equipment, and forage, no building being available for the purpose along the entire length of the road. The cost was \$484.61.

Maintenance work during the past spring on the entire 19.5 miles of wagon road comprised thawing ice out of culverts, opening channels under bridges, and repairing damage done to the new work during the break-up. The soil in this region cuts very rapidly when the moss is removed, and it is subjected to the action of running water, and a large part of the corduroy was seriously threatened by cutting ditches. Where this was found to be the case, the inner sides of the ditches were thoroughly revetted with moss and sod covered with earth. It is thought that in the future any damage from this source can be largely eliminated by leaving a wider berm—at least 5 feet—between the ends of the corduroy and the inner edges of the ditches, and this will be done. The cost of this spring work can not be given, as part of the expenditures had not been reported at the close of the period of this report.

Prior to last year the prevailing summer freight rate from Ruby to Long Creek was 7 cents a pound, the freight being hauled over ridges which in wet weather became almost impassable, horses often sinking to their bellies in the mud. At the present time light motor trucks are delivering freight in ton lots at the 20 milepost under favorable weather conditions, for $1\frac{1}{2}$ to $1\frac{1}{2}$ cents a pound, and the rate to Long City when the road is completed will probably not exceed 2 to $2\frac{1}{2}$ cents per pound, the saving resulting directly from the road thus amounting to at least \$70 per ton.

The work of completing the road to Long Creek is now in progress. A further extension from Long Creek to Poorman, a distance of approximately 24 miles, is urgently needed, but its construction will be expensive and can not be undertaken by the board with the funds now available or in prospect.

Route 32B—Long Creek-Cripple Trail (60 miles).—The work of the year on this route embraced the construction of a 25-foot bridge over Ophir Creek, repairing the bridge over Monument Creek, and filling in washouts between the Solatna River and Poorman. The total cost was \$196.

Route 46—Kantishna Trail (75.75 miles).—This is a trail constructed during the past winter from the Thirty-mile Roadhouse, 26 miles from Nenana on the proposed route of the new Government railroad, to the Kantishna mining district. From the initial point to the Toklat River, 26 miles, an old Indian or prospectors' trail was followed. This trail was widened where necessary, and tripods were placed at intervals of 200 feet in open country for the guidance of travel.

From the Toklat River to Diamond City, 37.75 miles, the work was entirely new construction. The trail was cleared for a width of 8 feet through all timbered sections, trees being cut as close to the ground as the depth of snow permitted, and other obstacles to traffic removed. All open country was staked with tripods, and 10 permanent bridges, aggregating 315 feet in length, were constructed.

Between Diamond City and Glacier, the terminus of the route (12 miles), the location follows an old trail, which was widened and straightened where most necessary.

The work was done during February and March of this year under the efficient supervision of Mr. Thomas Lloyd. The total cost was \$4,571.63.

Route 47—Coldfoot-Wiseman Sled Road (11.25 miles).—This is a winter sled road from Coldfoot, the ordinary head of navigation on the Koyukuk River for light-draft boats, to Wiseman, which is the supply point for the Koyukuk mining district. Freight is landed at Coldfoot during the summer and a small amount is transported to Wiseman on small gasoline or poling boats or on horse scows. The greater part of the freight, however, is stored at Coldfoot and hauled to Wiseman and the adjacent producing creeks during the winter.

Construction work was carried on during September and comprised clearing and grubbing over the entire distance, and the construction of 3 foot bridges, with a total length of 445 feet, and 18 wagon bridges, aggregating 384 feet in length.

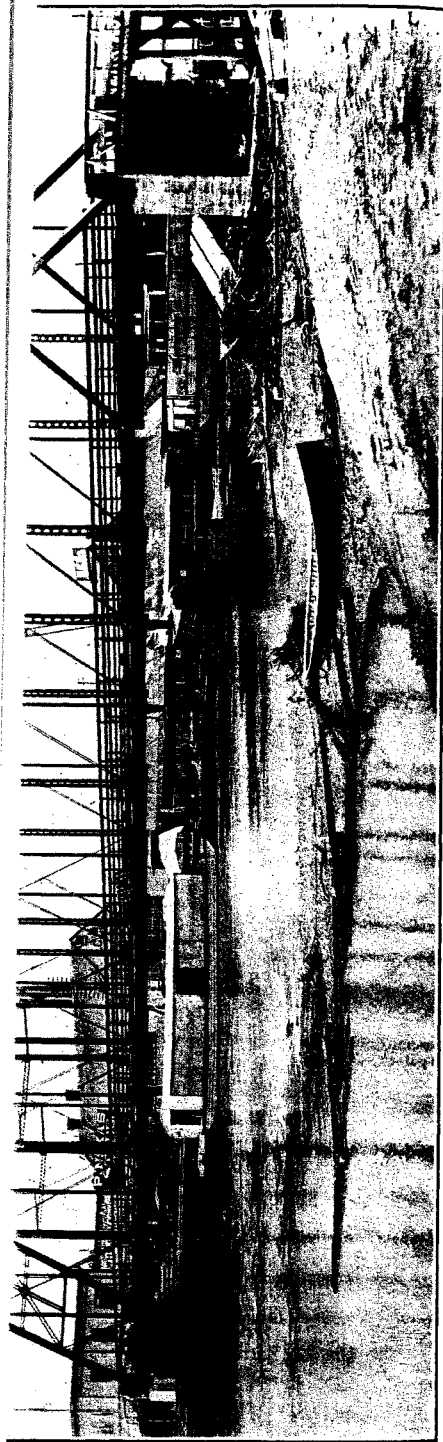
The total cost of the work was \$5,000, or \$444.44 per mile.

Eagle-Circle Mail Trail.—A total of \$206 was expended on this trail during the year. The work consisted of grading approaches to streams and widening and clearing the trail between mileposts 6 and 10 and between mileposts 15 and 22 north of Eagle.

Bridge over Chena Slough, Fairbanks.—The project for this bridge was described in the annual report for 1916 (p. 15). The superstructure is a 300-foot steel span, with Petit trusses, designed for a uniform live load of 50 pounds per square foot or for two 8-ton motor trucks passing. The abutments are of concrete, each consisting of two columns with stepped reinforced footings, supported on piles. The columns are connected at the top by a reinforced concrete curtain wall. The north approach is a framed trestle 180 feet in length; the south approach, constructed by the city of Fairbanks, is combined earth fill and trestle.

Excavation for the abutments was commenced August 9, 1916, being delayed until that date by the difficulty of securing proper lumber

BRIDGE OVER CHENA SLOUGH, FAIRBANKS.



Route 13H—Center Creek Road (1.37 miles).—The cost of resurfacing 625 feet of this road with gravel was \$386.84.

Route 13I—Nome River Road (5 miles).—The protection of this road during the spring break-up cost \$13.05 per mile. No other work was done during the year.

Route 13J—Wonder-Flat Creek Road (2 miles).—General repairs and maintenance on this route cost \$178.05 per mile.

Route 13K—Bessie-Buster Road (5 miles).—The work of the year on this route consisted of general maintenance and surfacing 1 mile with gravel 12 inches thick, at a cost of \$0.36 per foot.

Route 18—Kaltag-Solomon Trail (248 miles).—On the Topkok-Unalaklik section of this trail 2,818 permanent stakes, each 3 inches in diameter at the butt and 9 feet long, were cut and set. In addition the permanent stakes on 79 miles were repaired and reset where necessary and 4½ miles of new trail cleared through timber. The total cost was \$961.85.

Route 21—Unalaklik-St. Michael Trail (approximately 65 miles).—The temporary staking of 18 miles on the ice between St. Michael and Klikitarick cost \$16. The remainder of the work embraced restaking 27 miles with permanent stakes and the construction of a light tram over the Golsovia River, at a total cost of \$381.40.

Route 25A—Cripple River Road (13.5 miles, total A and B).

Route 25B—Penny River Road.

Route 25C—Nome-Wireless Road (0.25 mile).

No work was done on these routes during the year.

Route 25D—Mouth of Center Creek Road (2 miles).—General maintenance and repairs on this road cost \$87.66 per mile.

Route 25E—Submarine Paystreak Road (2.5 miles).—As originally built this road extended from near the mouth of Snake River for a distance of approximately 1 mile along the submarine paystreak. A total of only \$620.84 has been expended on it since its location in 1907, and no work has been done on it for several years. At the present time a new road, following a better location, is being constructed from the Snake River bridge to the submarine paystreak. This road will be designated by the same name and route number as the old road, which has been abandoned.

The work of the year consisted chiefly in the construction of fills leading to the Snake River bridge approaches, containing 1,460 cubic yards of material. A branch road 1,200 feet in length was also constructed from the west approach to a point near the mouth of Snake River. The total cost of all work was \$1,765.07.

Route 25F—Anvil-Glacier Road (3 miles).—General repairs to this route included cleaning ditches and hauling 480 cubic yards of gravel surfacing. The average cost was \$395.85 per mile.

Route 25G—Snake River Extension Road (3 miles).—The work of the year on this route embraced general repairs and the surfacing of 2,380 linear feet of road with gravel. A suspension foot bridge over Snake River at the mouth of Boulder Creek, having a span of 130 feet, and two 18-foot bridges over Sledge Creek were constructed at a cost of \$294.73. The material used was largely obtained from the old Snake River bridge.

Route 25H—Otter Creek Road (1.25 miles).—No work was done on this route during the year.

Route 25—Sinrock Ferry.—The total cost of erecting this ferry was \$321.90, of which \$71. minor repairs to the scow.

Route 26—Candle-Candle Creek Road (5 miles).—This route consisted of cutting and tying 3,300 of willows, which were hauled and distributed during the winter for use in constructing corduroy this year.

Route 27—Deering-Inmachuck Road (25 miles).—General maintenance covering the whole route, together with the construction of a bridge on the left bank of the Inmachuck River, eliminating the ferry of the river, constituted the work of the past year. The bridge over the lagoon near Deering had been removed and replaced by piles. Eight new bridges were constructed, 0.5 mile of road graded and ditched, and corduroy laid and graveled.

Route 28—Dahl Creek-Candle Trail (140 miles).—General replacement, where necessary, of permanent stakes along the entire length of the route cost \$1 per mile.

Route 37—Topkok-Candle Trail (141 miles).—General replacement of this route were restaked with permanent stakes through timber, at a total cost of \$460.

Route 42—St. Michael-Kotlik Trail (approximately 40 miles).—Those portions of this route not on the ice were restaked with permanent stakes, 40 to the mile. The work was done at a cost of \$350.

Route 49—Davidsons Landing-Taylor Creek Road (approximately 10 miles).—This road extends from the mouth of the Marys River to Taylor Creek, in the Kougarak district. Light construction work was undertaken, covering the entire length of the route, and consisting of clearing out creek crossings by grading, and laying gravel-surfacing over soft spots. Since the work was done the weight of haul loads 1,500 pounds greater than that of the old road improvement was made.

Marshall Road.—This road when completed will be a tributary slough of the Yukon to the placer district and will be about 3 miles in length. The work of the past year consisted of cutting and hauling 2 miles of corduroy. Only a part of the account for this work have been received, and the total cost can not be determined.

This project has been taken over and will be completed by the Territorial road commission.

Flagging trails.—Approximately 550 miles of trails were those permanently marked, were temporarily marked for the guidance and safety of winter travel. The cost of inspection trips by the superintendent was \$4,225.30.

Snake River Bridge.—The construction of this bridge, as reported in report 1916, p. 18) was begun June 17 and completed in 1916. Nearly all of the material used, including the steel, had to be obtained and shipped from Seattle. The cost of the steel was \$1,200,000. The two 100-foot spans are of the cantilever type. All truss timbers, stringers, and planks are

k Road (1.37 miles).—The cost of resurfacing with gravel was \$386.84.

Road (5 miles).—The protection of this k-up cost \$13.05 per mile. No other work

Creek Road (2 miles).—General repairs at a cost of \$178.05 per mile.

r Road (5 miles).—The work of the year general maintenance and surfacing 1 mile at a cost of \$0.36 per foot.

on Trail (248 miles).—On the Topkok trail 2,818 permanent stakes, each 3 inches by 9 feet long, were cut and set. In addition 79 miles were repaired and reset where new trail cleared through timber. The

t. Michael Trail (approximately 65 miles).—The marking of 18 miles on the ice between St. Michael and Golsovia River, at a total cost of \$381.40.

er Road (13.5 miles, total A and B).

ess Road (0.25 mile).—General repairs to these routes during the year.

Center Creek Road (2 miles).—General repairs to this road cost \$87.66 per mile.

Paystreak Road (2.5 miles).—As originally constructed from near the mouth of Snake River to the submarine paystreak, approximately 1 mile along the submarine paystreak 0.84 has been expended on it since its location has been done on it for several years. At present, following a better location, is being connected to the submarine paystreak by the same name and route number as the old road, which has been abandoned.

isted chiefly in the construction of fills for bridge approaches, containing 1,460 cubic feet of gravel. A road 1,200 feet in length was also constructed to a point near the mouth of Snake River. The work was \$1,765.07.

r Road (3 miles).—General repairs to this road and hauling 480 cubic yards of gravel at a cost of \$395.85 per mile.

Extension Road (3 miles).—The work of the year consisted of general repairs and the surfacing of the road with gravel. A suspension foot bridge over the river at Boulder Creek, having a span of 130 feet, was constructed at a cost of \$1,000. The material used was largely obtained from the

Road (1.25 miles).—No work was done on

Route 25—Sinrock Ferry.—The total cost of maintaining and operating this ferry was \$321.90, of which \$71.90 was expended for minor repairs to the scow.

Route 26—Candle-Candle Creek Road (5 miles).—The year's work on this route consisted of cutting and tying 3,382 fifty-pound bundles of willows, which were hauled and distributed along the road during the winter for use in constructing corduroy this year.

Route 27—Deering-Inmachuck Road (25 miles).—General maintenance covering the whole route, together with some new construction on the left bank of the Inmachuck River, eliminating seven crossings of the river, constituted the work of the past year. The center pier of the bridge over the lagoon near Deering had been undermined and was removed and replaced by piles. Eight new culverts were constructed, 0.5 mile of road graded and ditched, and 2,700 feet of corduroy laid and graveled.

Route 28—Dahl Creek-Candle Trail (140 miles).—The repair and replacement, where necessary, of permanent stakes throughout the entire length of the route cost \$1 per mile.

Route 37—Topkok-Candle Trail (141 miles).—Twenty-six miles of this route were restaked with permanent stakes and 3 miles cleared through timber, at a total cost of \$460.

Route 42—St. Michael-Kotlik Trail (approximately 70 miles).—Those portions of this route not on the ice were marked with permanent stakes, 40 to the mile. The work was done by contract and cost \$350.

Route 49—Davidsons Landing-Taylor Creek Road (40 miles; 24 miles constructed).—This road extends from the head of navigation on Marys River to Taylor Creek, in the Kougarok mining district. Only light construction work was undertaken, covering the first 24 miles of the route, and consisting of clearing out the road, eliminating creek crossings by grading, and laying gravel-surfaced willow corduroy over soft spots. Since the work was done teams have been able to haul loose loads 1,500 pounds greater than the average before the improvement was made.

Marshall Road.—This road when completed will extend from a tributary slough of the Yukon to the placer mines of the Marshall district and will be about 3 miles in length. The work done during the past year consisted of cutting and hauling poles for approximately 2 miles of corduroy. Only a part of the accounts covering this work have been received, and the total cost can not be reported.

This project has been taken over and will be completed this year by the Territorial road commission.

Flagging trails.—Approximately 550 miles of trails, in addition to those permanently marked, were temporarily staked or flagged for the guidance and safety of winter travel. The total cost, including cost of inspection trips by the superintendent of the district, was \$4,225.30.

Snake River Bridge.—The construction of this bridge (see annual report 1916, p. 18) was begun June 17 and completed August 19, 1916. Nearly all of the material used, including piles, lumber, and steel, had to be obtained and shipped from Seattle, largely increasing the cost. The two 100-foot spans are of the combination Pratt truss type. All truss timbers, stringers, and planks are Douglas fir.

The total cost, including the expenditure reported last year, was \$16,949.93, distributed as follows:

Material.....	\$5,646.72
Equipment.....	400.21
Freight on material and equipment.....	3,441.05
Engineering.....	600.00
Labor.....	6,188.39
Hire of animals.....	453.31
Miscellaneous (fuel, telegraph, etc.).....	220.25
Total.....	16,949.93

Of the above amount \$526.50 was expended during the winter in protecting the piers by cutting away the ice and placing riprap around them.

ACCOUNTING.

The expenditures of the Alaska Road Commission during the fiscal year July 1, 1916, to June 30, 1917, amounted to \$576,747.90, of which \$76,716.15 was received from the Alaska fund, \$500,000 from a special appropriation made by Congress, and \$31.75 from collections reverting to that fund.

As the Territory of Alaska covers approximately 590,000 square miles, and road work is done in all parts thereof, it is, of course, impossible for the disbursing officer to make all disbursements personally, although all accounts eventually pass through his office and are verified there before being forwarded to the War Department.

In order to pay promptly all accounts in outlying districts, each superintendent, one at Nome, Fairbanks, Seward, and a disbursing clerk at Ruby, acts as disbursing agent for his district.

Checks on local banks or commercial companies are given by the local disbursing agent for bills as they are incurred, and at the end of each month the total amount of checks cashed in payment of bills is telegraphed and the disbursing officer issues a Treasury check to cover the overdraft.

Proper vouchers to offset the overdrafts are forwarded by the superintendents, who are held responsible for a proper accounting for the indebtedness incurred by them.

The above system has been in operation for several years and has proven satisfactory and has enabled prompt settlement of accounts.

On June 11, 1917, the main office of the commission was moved from Valdez, where it had been for several years, to Juneau, the capital of the Territory. This transfer became necessary on account of certain additional duties being assigned to Lieut. Col. Davison, secretary and disbursing officer, in connection with the militia affairs of the Territory, which required his presence at the capital.

The office at Valdez was left in charge of a disbursing clerk, who handles all accounts of the Valdez-Chitina-Fairbanks Road.

On June 29, 1917, at a meeting of the entire board, funds to the amount of \$420,000 were allotted for various projects in the Territory for the period July 1, 1917, to June 30, 1918. Several small allotments have been made since that date.

The following statement shows in detail the receipts and disbursements from July 1, 1916, to June 30, 1917, inclusive:

STATEMENT OF RECEIPTS AND DISB

This report covers vouchers received and including June 30, 1917:

Balance on hand July 1, 1916.....	
Received from the Treasurer of the United States	
Appropriation "Military and post roads, brid	
(act Aug. 29, 1916).....	
Alaska fund.....	
Correction of vouchers:	
Alaska fund.....	
Special appropriation.....	
Sales of property, Alaska fund.....	
Total.....	

Disbursed as per tabulated statement below.....

Balance on hand.....

Expenditures in detail.

Routes, etc.	Wage br and Alas
Offices.....	\$2
Auto trucks.....	3
Route 1.....	
Route 2.....	1
Route 3.....	
Route 4A.....	
Route 4B, first section.....	4
Route 4B, second section.....	3
Route 4B, third section.....	3
Route 4C.....	1
Route 4D.....	7
Route 4E.....	1
Route 4F.....	
Route 4G.....	
Route 4H, first section.....	2
Route 4H, second section.....	2
Route 4I.....	2
Route 4J, first section.....	
Route 4J, second section.....	
Route 4K, first section.....	2
Route 4K, second section.....	2
Tazlina Bridge.....	
Route 5.....	
Route 6A.....	1
Route 6B, first section.....	1
Route 6B, second section.....	1
Route 7A.....	
Route 7B.....	
Route 7C.....	
Route 7D.....	
Route 7E.....	
Route 7F.....	
Route 7G.....	
Route 7H.....	
Route 7I.....	
Route 7J.....	
Route 7K.....	
Route 8.....	
Route 9.....	
Route 10.....	
Route 11A.....	
Route 11B.....	
Route 11E.....	
Eagle-Circle Mail Trail.....	
Route 12.....	
Route 13.....	

the expenditure reported last year, was follows:

.....	\$5,646.72
.....	400.21
ment.....	3,441.05
.....	600.00
.....	6,188.39
.....	453.31
etc.).....	220.25
.....	16,949.98

26.50 was expended during the winter in ng away the ice and placing riprap around

ACCOUNTING.

Alaska Road Commission during the fiscal 30, 1917, amounted to \$576,747.90, of which om the Alaska fund, \$500,000 from a spe- v Congress, and \$31.75 from collections re-

aska covers approximately 590,000 square ne in all parts thereof, it is, of course, im- y officer to make all disbursements person- eventually pass through his office and are forwarded to the War Department. tly all accounts in outlying districts, each me, Fairbanks, Seward, and a disbursing ursoring agent for his district. or commercial companies are given by the bills as they are incurred, and at the end nount of checks cashed in payment of bills sbursing officer issues a Treasury check to

et the overdrafts are forwarded by the su- ld responsible for a proper accounting for by them.

een in operation for several years and has as enabled prompt settlement of accounts. main office of the commission was moved ad been for several years, to Juneau, the This transfer became necessary on account ies being assigned to Lieut. Col. Davison, ficer, in connection with the militia affairs quired his presence at the capital. s left in charge of a disbursing clerk, who Valdez-Chitina-Fairbanks Road.

meeting of the entire board, funds to the allotted for various projects in the Terri- 1, 1917, to June 30, 1918. Several small le since that date.

it shows in detail the receipts and disburse- to June 30, 1917, inclusive:

STATEMENT OF RECEIPTS AND DISBURSEMENTS.

This report covers vouchers received and placed in the account, including June 30, 1917:

Balance on hand July 1, 1916.....	\$54,137.28
Received from the Treasurer of the United States:	
Appropriation "Military and post roads, bridges, and trails" (act Aug. 29, 1916).....	500,000.00
Alaska fund.....	50,000.00
Correction of vouchers:	
Alaska fund.....	1.00
Special appropriation.....	31.75
Sales of property, Alaska fund.....	2,875.40
Total.....	606,545.43
Disbursed as per tabulated statement below.....	576,747.90
Balance on hand.....	29,797.53

Expenditures in detail.

Routes, etc.	Wagon roads, bridges, and trails, Alaska fund.	Construction and maintenance of military and post roads, bridges, etc., Alaska.	Total.
Offices.....	\$2,536.93	\$13,414.08	\$15,951.01
Auto trucks.....	3,542.32	2,394.74	5,937.06
Route 1.....	50.00	626.09	676.09
Route 2.....	1,939.30	10,724.13	12,663.43
Route 3.....	236.35	3,126.89	3,363.24
Route 4A.....	251.10	932.01	1,183.11
Route 4B, first section.....	4,321.20	12,312.20	16,633.40
Route 4B, second section.....	3,201.12	10,211.11	13,412.23
Route 4B, third section.....	3,120.00	10,200.00	13,320.00
Route 4C.....	1,087.60	10,140.82	11,228.42
Route 4D.....	5,041.38	12,490.30	17,532.18
Route 4E.....	1,550.25	13,107.41	14,657.66
Route 4F.....	928.09	11,684.02	12,612.11
Route 4G.....	670.47	11,077.12	11,747.59
Route 4H, first section.....	2,320.32	13,322.19	15,642.51
Route 4H, second section.....	2,232.44	11,414.10	13,646.54
Route 4I.....	2,919.94	6,251.37	9,171.31
Route 4J, first section.....	422.33	17,452.50	17,874.83
Route 4J, second section.....	332.30	10,541.41	10,873.71
Route 4K, first section.....	2,025.42	15,511.25	17,536.67
Route 4K, second section.....	2,027.20	12,500.32	14,527.52
Tazlina Bridge.....	74.05	17,550.75	17,624.80
Route 5.....	43.00	2,584.35	2,627.35
Route 6A.....	1,693.43	6,185.08	7,878.51
Route 6B, first section.....	1,409.11	10,528.04	11,937.15
Route 6B, second section.....	1,306.12	8,608.40	9,914.52
Route 7A.....	9.10	.....	9.10
Route 7B.....	9.09	.....	9.09
Route 7C.....	9.09	1,900.00	1,909.09
Route 7D.....	9.09	.....	9.09
Route 7E.....	9.09	237.10	246.19
Route 7F.....	9.09	.....	9.09
Route 7G.....	9.09	.....	9.09
Route 7H.....	9.09	.....	9.09
Route 7I.....	9.09	.....	9.09
Route 7J.....	9.09	.....	9.09
Route 7K.....	9.09	.....	9.09
Route 8.....	552.14	12,181.33	12,733.47
Route 9.....	.....	1,000.00	1,000.00
Route 10.....	2,730.36	10,451.59	13,182.45
Route 11A.....	100.00	1,348.08	1,448.08
Route 11B.....	.....	194.00	194.00
Route 11E.....	.....	502.00	502.00
Eagle-Circle Mail Trail.....	.....	206.00	206.00
Route 12.....	7.00	4,519.35	4,526.35
Route 13.....	4.00	.....	4.00

Expenditures in detail—Continued.

Routes, etc.	Wagon roads, bridges, and trails, Alaska fund.	Construction and maintenance of military and post roads, bridges, etc., Alaska.	Total.
Route 13A.....	\$649.83	\$1,927.46	\$2,577.29
Route 13B.....	154.03	3,694.38	3,848.41
Route 13E.....		27.00	27.00
Route 13F.....	60.00	133.20	193.20
Route 13H.....		388.80	388.80
Route 13I.....	50.00	65.25	115.25
Route 13J.....	28.50	71.50	100.00
Route 13K.....		1,986.55	1,986.55
Route 14.....	18.00	1,401.29	1,419.29
Route 15.....	166.00	4,493.32	4,659.32
Route 16.....		500.00	500.00
Route 17.....		300.00	300.00
Route 18.....		573.85	573.85
Route 19.....		4,769.08	4,769.08
Route 20A.....		120.00	120.00
Route 20B.....		130.00	130.00
Route 21.....	51.00	881.00	932.00
Route 22.....		1,140.51	1,140.51
Route 24.....	46.22	8,824.03	8,870.25
Route 25D.....	64.00	78.25	142.25
Route 25E.....		1,780.07	1,780.07
Route 25F.....	154.02	1,039.36	1,193.38
Route 25G.....	104.03	2,281.95	2,385.98
Route 25, Sinrock Ferry.....	98.36	206.50	304.86
Bull Creek Bridge.....		49.50	49.50
Snake River Bridge.....	10,925.90	5,241.73	16,167.63
Route 26.....	121.35	1,142.85	1,264.20
Route 27.....	14.00	3,061.99	3,075.99
Route 28.....		139.00	139.00
Route 30.....		359.49	359.49
Route 32B.....		4,500.00	4,500.00
Route 35.....		7,822.80	7,822.80
Route 35A.....		1,003.50	1,003.50
Route 38A, first section.....	653.19	18,115.50	18,768.69
Route 38A, second section.....	489.89	16,901.25	17,391.14
Route 38A, third section.....	293.96	15,750.04	16,044.00
Route 38A, fourth section.....	195.95	16,150.00	16,345.95
Route 38B.....	18.50	13.50	32.00
Route 39.....	1,675.75	3,918.64	5,594.39
Route 40.....		414.10	414.10
Route 43.....		2,285.70	2,285.70
Route 44.....	627.99	4,394.40	5,022.39
Route 45.....	850.25	1,729.26	2,579.51
Route 46.....		4,571.63	4,571.63
Route 47.....		5,000.00	5,000.00
Route 48.....		328.50	328.50
Route 49.....		5,009.82	5,009.82
Chisina Trail.....		500.00	500.00
Taylor Creek Bridge.....	184.49		184.49
Gastineau Channel Bridge investigation.....	286.67	2,732.98	3,019.65
Fairbanks Bridge.....	9,190.61	42,632.55	51,823.16
Brooks-Terminal Sled Road.....	71.00	4,468.57	4,539.57
Taku Road reconnaissance.....		60.00	60.00
Flagging trails.....	681.39	3,543.89	4,225.28
McDougal-Cache Creek Trail.....		1,622.15	1,622.15
Matanuska reconnaissance.....		353.75	353.75
Palmer-Mile 26 survey.....		113.70	113.70
Marshall Road.....		320.25	320.25
Long-Ophir survey.....		1,537.18	1,537.18
Total.....	76,716.15	500,031.75	576,747.90

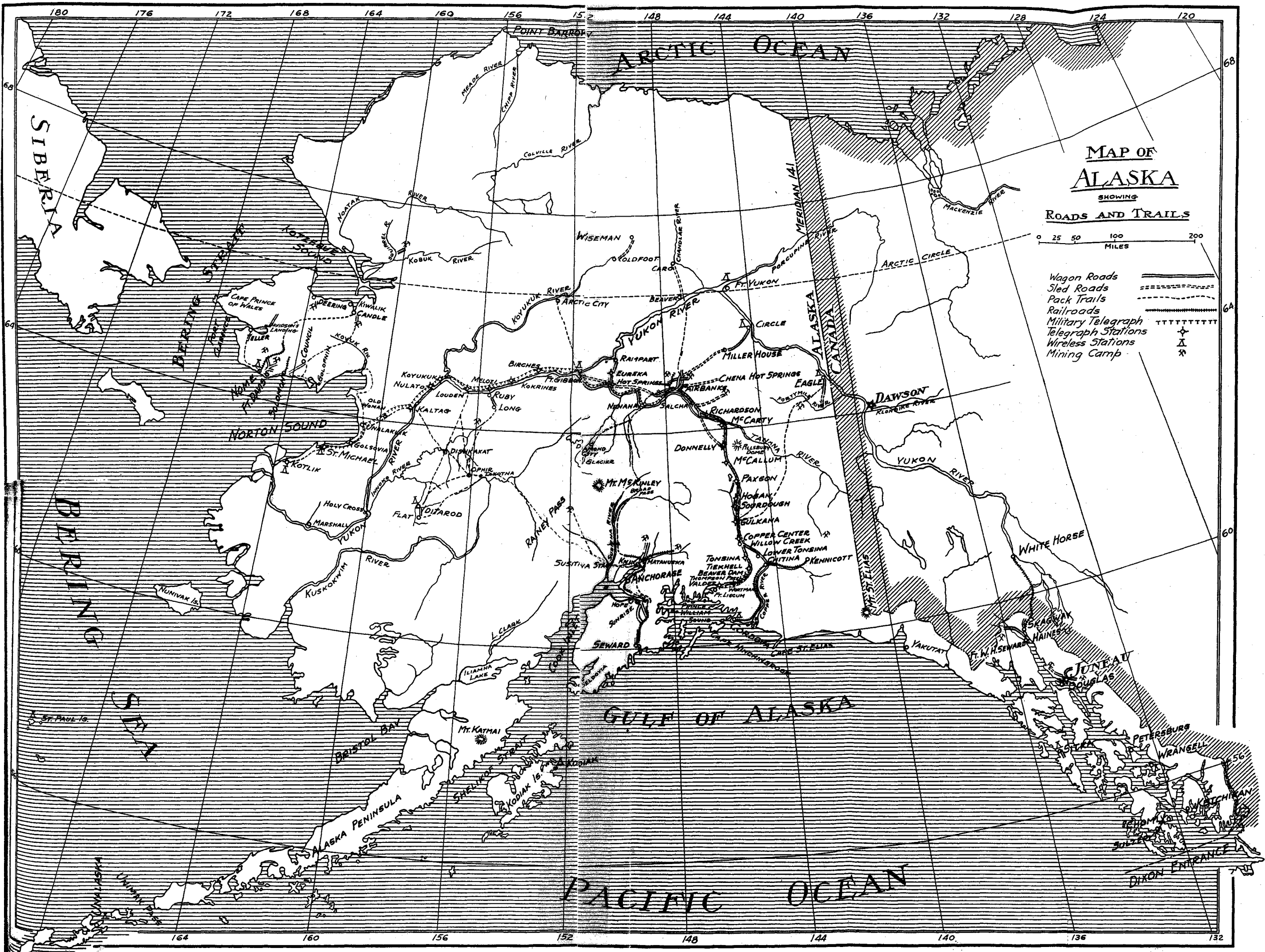
Distribution of expenditures

Salaries (superintendents and clerks).....	-----
Wages (all other labor).....	-----
Transportation (persons).....	-----
Transportation (freight).....	-----
Hire of animals (horses and dogs).....	-----
Subsistence (persons, meals and beds).....	-----
Provisions (all food supplies).....	-----
Forage and care of animals (horseshoeing, veterina	-----
Telegraph, telephone, and postage.....	-----
Fuel (coal and wood) and light.....	-----
Construction material.....	-----
Equipment, tools, camp equipage, wagons, harness,	-----
Stationery and drafting supplies, maps, printing, to	-----
articles.....	-----
Rents (offices, post-office boxes, barns, or equipment	-----
Motor vehicles, repairs, gas, operation, maintenance	-----
Miscellaneous.....	-----

Total.....

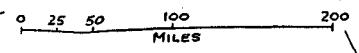
W
 Brigadier General, Nati
 P.
 Lieutenant Colonel, Infanti
 J.
 Captain, Corps of Engin

JUNEAU, ALASKA.



MAP OF ALASKA

SHOWING
ROADS AND TRAILS



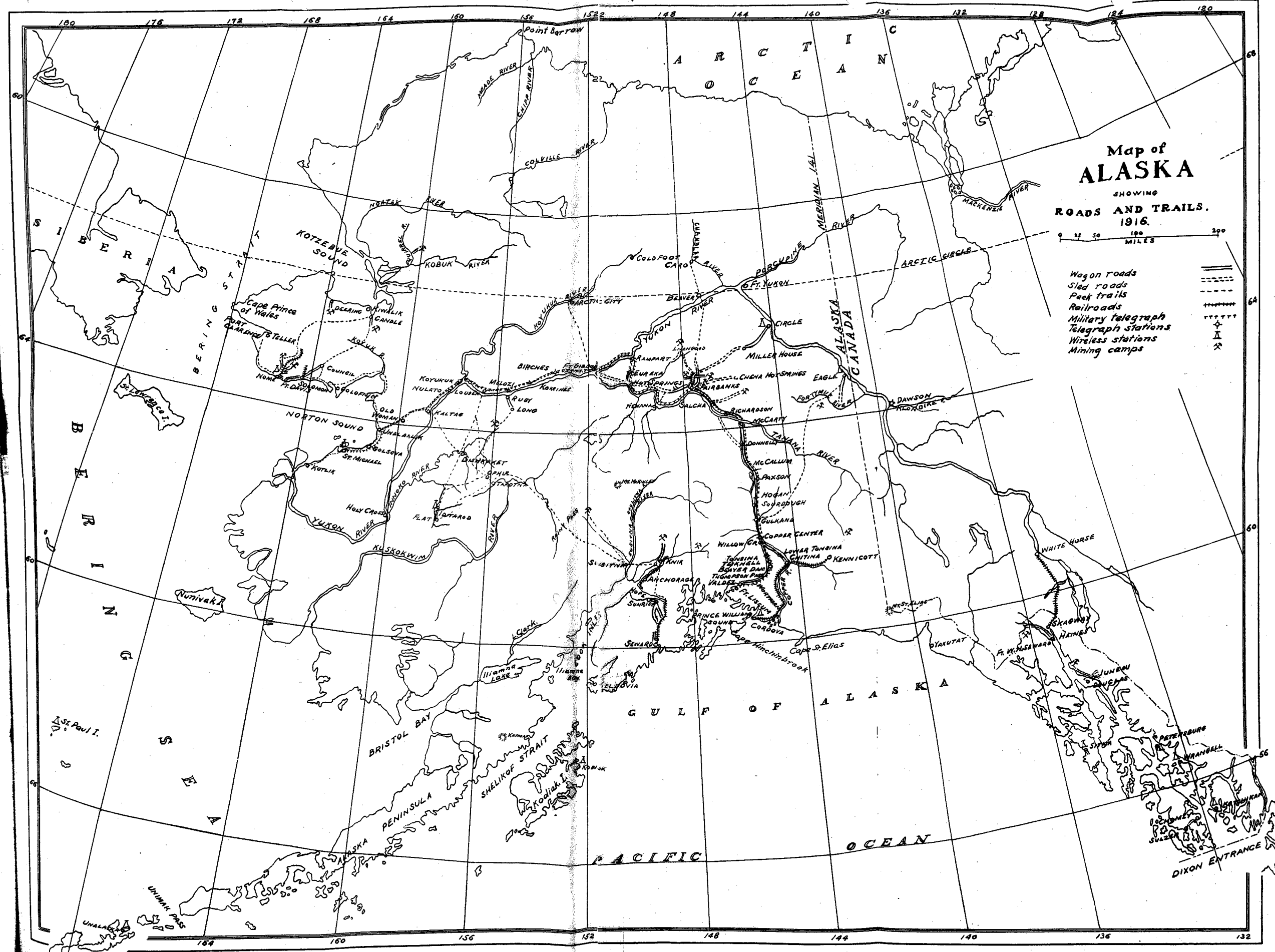
- Wagon Roads —————
- Sled Roads - - - - -
- Pack Trails - - - - -
- Railroads - - - - -
- Military Telegraph - - - - -
- Telegraph Stations +
- Wireless Stations Δ
- Mining Camp *

Map of ALASKA

SHOWING
ROADS AND TRAILS.
1916.



- Wagon roads
- Sled roads
- Pack trails
- Railroads
- Military telegraph
- Telegraph stations
- Wireless stations
- Mining camps



WED & BROSSELD, INC. WASHINGTON, D. C.

and it can be used effectively for pulling
tag, weighing 1,200 pounds.
the following machinery in 1919:

ths ton.

ASSISTENCE.

was complicated this year by the con-
ulations promulgated by the United
d the scarcity of good economical cooks,
variety and the tendency is to serve the
meal. The extreme cost of transporta-
ades of supplies be used. The bulk of
late in the fall and are freighted in to
ths. Perishables are purchased in the
bids during the working season. The
\$1.50 per day per man, not including
of railroad or steamer delivery, or

WORK ACCOMPLISHED.

T—J. C. HAYES, SUPERINTENDENT.

Island Road (4.1 miles road, 6.8 miles
on this route consisted of replacing

river Road (16 miles road, 14 miles
l Eagle River; also connects with Auk
The Mendenhall Glacier, all dairies sup-
ies, two large power houses supplying
and industries are reached by this road,
creation drive of Juneau.

a light surfacing of gravel. It is nar-
therwise is very satisfactory for auto-
chased for new bridge at Salmon Creek
ce put in. Amount expended for con-
52 for maintenance.

sion (connects at mile 10 with Juneau-
he year 2½ miles were cleared and 1 mile
nstructed as follows: One 140 feet long,
t, three of 14 feet. Four culverts were
River Bridge was repaired. The com-
atly increase the value of the Juneau-
boats will then be able to anchor at Auk
made with Juneau by road. The water
at times very rough and dangerous for
of 1918 labor was very scarce and work
June 30; \$15,174.51 was expended for
maintenance.

1918 Annual Report ✓

*Route 3. Haines-Pleasant Camp Road (47.5 miles wagon road).—*Connects Fort Seward and Haines at tidewater with Pleasant Camp, on Canadian boundary. The Porcupine Gold Mining Co. and mines of the Glacier Creek Gold Mining Co. are reached by this road, which also connects at Pleasant Camp with Canadian Road to Rainy Hollow, where a very large copper district is being developed. Klukwan, the largest Indian village in Alaska, is located at mile 22. The location for 24 miles follows the Chilkat Valley where numerous ranches are located; \$8,398.73 was expended for maintenance, graveling, and replacing bridges.

*Route 14. Sitka-Indian River Road (3.4 miles).—*This road runs from Sitka to head of Jamestown Bay, passing through the Indian River Park, set aside by the Government. A new 50-foot Howe truss bridge was constructed and 2,000 feet of new road to reach the bridge was provided; total cost, \$2,476.20.

*Route 39. Juneau-Sheep Creek Road (3 miles).—*This road connects Juneau with Thane, where the extensive mill of the Alaska Gastineau Mining Co. is located. The road has very heavy travel between the two towns and, as it was lightly surfaced, requires considerable upkeep; \$4,270.74 was expended for maintenance and improvement.

*Route 40. Douglas-Gastineau Channel Road (2 miles).—*Extends from city limits of Douglas along Gastineau Channel. Several ranches and homes are located along the road; \$659 expended for maintenance and improvement of several soft places.

*Route 43. Petersburg-Scow Bay Road (5 miles).—*No expenditure during past year. The road was only partially constructed and will be completed by the United States Forestry Service and Territorial Road Commission when funds are available.

*Route 44. Skagway Valley Road (2.5 miles).—*When work was started the intention was to build from Skagway to Canadian boundary, 13.5 miles. The Canadian authorities agreed to build from boundary to White Horse, but were compelled to abandon the project temporarily. Present road is used by several ranches; \$1,966.63 was expended for protecting the bridge over Skagway River and for maintenance.

*Route 45. Silver Bow Basin Road (4 miles).—*This road runs from Juneau to Alaska, Juneau, and Perseverance mines, and the Ebner mine of the United States Mining & Smelting Co. It follows the mountain side, is narrow, and has many steep grades. The route is much traveled and will be improved as funds and conditions will permit; \$5,049.55 was expended for maintenance and improvements.

*Stikine River Trail (10 miles).—*Constructed over a formerly impassable section between the Stikine River and tidewater. The work was done under the supervision of the United States district forester and in cooperation with the Bureau of Forestry; amount expended by the Alaska Road Commission, \$1,999.72.

VALDEZ DISTRICT.—C. G. MORRISON, C. E., DISTRICT ENGINEER.

*Route 4A. Donnelly-Washburn sled road (55 miles).—*Miscellaneous bridge repairs were made and temporary winter bridges across the several open channels of the Big Delta River were constructed. The temporary bridges were taken out in April, 1918, and stored for future use; amount expended, \$1,341.50.

Route 4B. Valdez-Ernestine Road (63 miles).—As usual, the maintenance on the section between miles 10 and 18 has been extremely heavy. Annually the extreme high water in the Lowe River, caused by the bursting of glacial reservoirs, necessitates the repair and oftentimes reconstruction of sections of grades in and below Key-stone Canyon. This past season has been no exception. Whenever the crews are not engaged in general maintenance they are used in surfacing the bad stretches of road with gravel. This surfacing now extends, with the exception of a few short stretches, to Beaver Dam (mile 42), making the road passable even in the worst of the spring or rainy seasons. One mile of new grade was constructed in addition to general maintenance. The work of this spring consisted of repairing damages resulting from the break-up, building new road to take the place of that destroyed, and constructing diversion spur dikes and placing fascine protection with the hope of preventing further damages and inroads from the glacier streams. It is believed that the unusually heavy maintenance cost of this section warrants relocating that portion of the road from mile 12 to mile 18, as the most of the money allotted to this route is usually expended for work in that vicinity. This change is roughly estimated to cost \$25,000; \$33,697.87 of the year's expenditure was charged to maintenance and \$20,500 to construction, a total of \$54,197.87.

Route 4C. Ernestine-Willow Creek Road (29.3 miles).—In addition to the ordinary maintenance, all graded portions of the road were dragged. One 24-foot bridge was constructed, 5 bridges and 21 culverts were rebuilt, and seven 6-foot culverts reconstructed. Numerous slides were removed and washouts filled. Approximately 700 cubic yards of gravel surfacing was placed in soft sections of the road. Two and one-fourth miles of new grade was constructed; \$7,535.18 was charged to maintenance and \$3,450 to construction.

Route 4D. Willow Creek-Gulkana Road (36 miles).—A small maintenance crew only was employed on this section during the latter part of the 1917 working season, as the road had been placed in excellent condition previous to July 1, 1917. At the end of the working season two large crews were concentrated here for a short period grading $4\frac{1}{2}$ miles just north of Copper Center. In the spring the road was dragged several times and numerous culverts reconstructed. All cribbing was repaired and drainage ditches opened up. Three and one-half miles of new grade and 880 linear feet of ditches were constructed and 18 culverts were repaired, and 6 new culverts were built. Maintenance expenditures amount to \$19,654.26, with \$7,050 for construction.

Tazlina Bridge.—Work was completed prior to June 30, 1917. Expenditure of \$956.01 made during 1918 and charged to construction, for freight on material shipped from Seattle.

Route 4E. Gulkana-Sourdough Road (21.5 miles).—In addition to general maintenance there was constructed on this section 15 miles of new grade with the accompanying clearing and grubbing, 138 new culverts, and 1,250 feet of drainage ditches. Also old culverts were rebuilt. Maintenance, \$4,064.17; construction, \$15,000.

Route 4F. Sourdough-168 Mile Road (18.2 miles).—Only light maintenance was necessary on this section during the latter part of the 1917 working season as a large crew had worked here previous to July 1. In the spring of 1918 several culverts were reconstructed

and ordinary maintenance work was done. Maintenance, \$11,517.54.

Route 4G. 168 Mile-Delta River Road (38 miles).—Maintenance of this section was supplemented by approximately 440 cubic yards of gravel surfacing, clearing approximately 100 feet 1 mile of road which was previously blocked by snowdrifts until late in the season, placing 123 linear feet of log culverts, and reconstructing 118 linear feet of log culverts, and 1.5 miles of road. The spring work on this section consisted of removal of numerous earth slides, the reconstruction of culverts, the removal of snowdrifts and glaciers from the road, and the removal of snowdrifts and glaciers from the culverts. The crew on its way into the interior was necessary to provide new end posts and top caps on mile 207, which had failed on account of the weight of snow which had become frozen to it. Two new frame culverts of 10-foot span—one at mile 226 and the other at mile 227—were constructed. Heavy dikes were built upstream from the culverts to concentrate the glacier water at the bridge. Maintenance and construction, \$9,705.16.

Route 4H. Delta River-McCarty Road (73.4 miles).—A considerable improvement was made in this road during the 1917 season. In addition to the general maintenance, 14.5 miles of new grade, one framed culvert in mile 208, 1,165 linear feet of diversion dikes, and 1 culvert. Gravel surfacing to the amount of 1,000 cubic yards was placed, and 3.2 miles of road were regraded. A 65-foot framed truss bridge was constructed at mile 226 and minor damages due to the break-up were repaired. Two culverts were opened up and slides were removed. Two bridges were erected for the McCarty ferry, and the scow was replaced. Graded sections of the road were dragged. Maintenance and construction, \$22,101.

Route 4I. McCarty-Richardson Road (20.6 miles).—The latter part of the working season of 1917 no maintenance was done on this section, as the entire length had been placed in excellent condition prior to the 1st of July, 1917. During the 1918 working season this section was put in excellent repair, the graded sections were dragged several times, and all uncultivated lands being dragged several times, and all uncultivated culverts and bridges replaced by new timber. A bridge having a total length of 117 feet replaced at mile 226. Shaw Creek. Maintenance, \$8,470; construction, \$13,630.

Route 6A. Willow Creek-Tonsina Road (24 miles).—This road had been placed in good condition over its entire length in the month of June, 1917, no further maintenance was done on the remainder of the year. During the spring of 1918 the road was thoroughly dragged. Maintenance, \$2,832.51.

Route 6B. Tonsina-Chitina Road (15 miles).—In addition to general maintenance of this section, such as the reconstruction of bridges, cleaning out ditches, and repairs to culverts, 1,210 cubic yards of gravel surfacing was placed. Ordinary maintenance was continued as well as the reconstruction of sharp turns, placing turnouts, and opening out temporary loading bins were constructed at

e Road (63 miles).—As usual, the main-ten miles 10 and 18 has been extremely high water in the Lowe River, caused reservoirs, necessitates the repair and sections of grades in and below Key-son has been no exception. Whenever general maintenance they are used in of road with gravel. This surfacing now of a few short stretches, to Beaver Dam passable even in the worst of the spring of new grade was constructed in addi-

The work of this spring consisted of from the break-up, building new road troyed, and constructing diversion spur protection with the hope of preventing ls from the glacier streams. It is be- vy maintenance cost of this section war- a of the road from mile 12 to mile 18, lotted to this route is usually expended. This change is roughly estimated to cost ear's expenditure was charged to main- ruction, a total of \$54,197.87.

w Creek Road (29.3 miles).—In addi- nance, all graded portions of the road bridge was constructed, 5 bridges and 21 seven 6-foot culverts reconstructed. ed and washouts filled. Approximately facing was placed in soft sections of the miles of new grade was constructed; intenance and \$3,450 to construction.

Gulkana Road (36 miles).—A small employed on this section during the lat- season, as the road had been placed in to July 1, 1917. At the end of the work- ere concentrated here for a short period of Copper Center. In the spring the es and numerous culverts reconstructed. nd drainage ditches opened up. Three rade and 880 linear feet of ditches were ere repaired, and 6 new culverts were tures amount to \$19,654.26, with \$7,050

s completed prior to June 30, 1917. Ex- uring 1918 and charged to construction, d from Seattle.

ugh Road (21.5 miles).—In addition to as constructed on this section 15 miles anying clearing and grubbing, 138 new ainage ditches. Also old culverts were 4.17; construction, \$15,000.

Mile Road (18.2 miles).—Only light n this section during the latter part of a large crew had worked here previous 1918 several culverts were reconstructed

and ordinary maintenance work was done. Maintenance expendi- tures, \$11,517.54.

Route 4G. 168 Mile-Delta River Road (38.8 miles).—General maintenance of this section was supplemented by placing approxi- mately 440 cubic yards of gravel surfacing, clearing to a width of 100 feet 1 mile of road which was previously blocked by deep snow- drifts until late in the season, placing 123 linear feet of corduroy, constructing 118 linear feet of log culverts, and the grading of 12½ miles of road. The spring work on this section consisted of the re- moval of numerous earth slides, the reconstruction and repair of cul- verts, the removal of snowdrifts and glaciers from the road, bridges, and culverts. The crew on its way into the interior in April found it necessary to provide new end posts and top chords for the bridge at mile 207, which had failed on account of the settling of a glacier which had become frozen to it. Two new framed truss bridges of 36 feet span—one at mile 226 and the other at mile 227—were con- structed. Heavy dikes were built upstream from these structures to concentrate the glacier water at the bridge. Maintenance, \$4,280; construction, \$9,705.16.

Route 4H. Delta River-McCarty Road (73.4 miles).—A consider- able improvement was made in this road during the latter part of the 1917 season. In addition to the general maintenance there was constructed 14.5 miles of new grade, one framed truss of 40 feet span in mile 208, 1,165 linear feet of diversion dike in mile 208, and 7 culverts. Gravel surfacing to the amount of 1,560 cubic yards was placed, and 3.2 miles of road were regraded. In the spring a new 65-foot framed truss bridge was constructed at mile 236. Washouts and minor damages due to the break-up were repaired. Snowdrifts were opened up and slides were removed. Two new towers were erected for the McCarty ferry, and the scow was recalced. Later the graded sections of the road were dragged. Maintenance, \$20,660; construction, \$22,101.

Route 4I. McCarty-Richardson Road (20.6 miles).—During the later part of the working season of 1917 no maintenance was required on this section, as the entire length had been placed in excellent con- dition prior to the 1st of July, 1917. During the spring of 1918 this section was put in excellent repair, the graded portions through low- lands being dragged several times, and all unsound flooring in cul- verts and bridges replaced by new timber. A new wooden truss bridge having a total length of 117 feet replaced the old structure at Shaw Creek. Maintenance, \$8,470; construction, \$2,006.83.

Route 6A. Willow Creek-Tonsina Road (2½ miles).—As this road had been placed in good condition over its entire length during the month of June, 1917, no further maintenance was needed during the remainder of the year. During the spring this section was thor- oughly dragged. Maintenance, \$2,832.51.

Route 6B. Tonsina-Chitina Road (15 miles).—In addition to the general maintenance of this section, such as the repair of culverts and bridges, cleaning out ditches, and repairs to the grade, there were placed 1,210 cubic yards of gravel surfacing. In the spring of 1918 ordinary maintenance was continued as well as extensive improve- ments by placing gravel surfacing cut to mile 13, widening all sharp turns, placing turnouts, and opening of two new gravel pits. Temporary loading bins were constructed at each of these pits, the

bins were filled by slip scrapers and team, material being hauled by three auto trucks. Maintenance, \$10,280.55; construction, \$13,750.

Kuskulana Bridge.—In fall of 1917, \$302.15 was expended for inspection and survey of site for proposed bridge across the Kuskulana River, about 10 miles northeast of Strelna, on the Copper River Railroad. It is understood that the territorial road commission has this bridge under construction.

YUKON DISTRICT—C. G. MORRISON, C. E., DISTRICT ENGINEER.

Route 4J. Richardson to Salchaket (30 miles) (Valdez-Fairbanks Road).—Eight miles were graded and 115 culverts were constructed at a total cost of \$22,172.98. During spring of 1918 eight men were employed removing slides, opening up ditches, bridges, and culverts. One crew of 20 men was employed 10 days on the Richardson Road, placing the entire section in excellent condition. Cost of maintenance, \$6,680.41.

Route 4K. Salchaket-Fairbanks (40 miles) (Valdez-Fairbanks Road).—Twenty-one and one-half miles were graded on the new location made necessary by encroachment of the Tanana River. Three 40-foot bridges and 72 culverts were constructed. Construction cost, \$43,805.71. The towers for the Munson ferry were rebuilt, and the scow was repaired. The whole section was dragged, and general maintenance work was done at a cost of \$5,400.71.

Route 5. Ester-Fort Gibbon Sled Road (148 miles).—This route is a part of the Fairbanks-Nome winter mail route. All culverts were repaired, and lakes and open country staked for the safe guidance of winter travel. Cost, \$470.08.

Route 7D. Ester Creek Road (5½ miles).—Connects Ester Creek with Route 5 and forms part of winter mail route between Fairbanks and Nome. Road also runs from Fairbanks to the Department of Agriculture Experimental Farm. The road was entirely regraded, about 2 miles being on a new location; 25 culverts were constructed, and 2,740 linear feet of corduroy was laid. Total cost of construction was \$10,535.91.

Route 9. Rampart-Eureka Road (6½ miles road, 21½ miles sled road).—Fourteen bridges and 24 culverts were rebuilt or repaired. Other work consisted of general maintenance. Total cost, \$1,434.

Route 11A. Eagle-O'Brien Creek-Forty Mile Road (17 miles road, 30 miles sled road).—From Eagle, on the Yukon River, to mines on Forty Mile Creek. The work consisted in rebuilding and repairing bridges and culverts, clearing slides, widening grades, and general maintenance. Total cost, \$1,614.

Route 11E. Eagle-Seventy Mile sled road (20 miles).—From Eagle, on Yukon River, to mines on Seventy Mile Creek. General repair and maintenance work was done to the amount of \$386.

Route 15. Circle-Miller House Road (49 miles).—From Circle, on Yukon River, to Miller Road House. In addition to general maintenance, 1 mile of road was reditched and graded and 89 culverts were rebuilt or repaired. Foot travelers now cross Birch Creek on a new overhead cable car. Total expended for maintenance, \$5,066.

Route 16. Chatanika Miller House sled road (81 miles).—All culverts were repaired, slides were removed, and general maintenance work was carried on. Cost, \$700.

MILITARY AND POST ROADS, ETC., ALAS

Route 17. Fort Gibbon-Kaltag Trail (257 miles).—Fairbanks-Nome winter-mail trail, connecting the Fort Gibbon with Kaltag, both places being on the Yukon River. Three small bridges were built by contract for \$10. Work consisted of temporarily staking open sections.

Route 22. Hot Springs-Sullivan Creek Road (146 miles).—Hot Springs, on the Tanana River, to mining district on Sullivan Creek. Work consisted of general maintenance, bridges, and culverts. Cost of maintenance, \$1,352.82.

Route 29. Fort Gibbon-Koyukuk Trail (146 miles).—Fort Gibbon, on the Yukon River, to Artic City, on the Yukon River. General maintenance from Fort Gibbon to mile 38. From mile 38 to mile 75 a new trail was cleared and a 75-foot bridge was constructed. Through open country the trail was marked by 4-inch stakes 10 feet high. The open country has been very dangerous and has caused much hardship during blizzards. Total cost for maintenance, \$330.22.

Route 30. Hot Springs Landing-Eureka Creek Road (146 miles).—From Hot Springs Landing to Eureka mining district. Work was chiefly confined to the section between Hot Springs and Hot Springs Station, distance 2 miles. Fourteen bridges and four new culverts built, 665 feet of corduroy laid, and 2,100 feet of side ditches were cut. General maintenance work was done on the entire section. During the spring of 1918 the Tanana River overflowed and several bridges. These will be replaced during the summer season. Cost of maintenance, \$1,678.88.

Route 38A. Ruby Long Road (28.25 miles).—From Ruby, on Yukon River, to the Long Creek mining district. 2,000 tons of freight were handled over this road. General maintenance work was done on first 19 miles. Cost, \$6,868.78. Nine miles of new road were constructed for \$37,217.70.

Fairbanks Bridge.—During the fall of 1917 the bridge was given two coats of paint and the amount, \$1,448.25, was expended on construction.

SOUTHWESTERN DISTRICT—ANTON EIDE, SUPERVISOR

Route 24. Moose Pass Road (29.5 miles).—From Fairbanks to Alaska Northern Railroad, to connection with Iliamna and Hope, on Turnagain Arm. This section has a considerable amount of gold and much ground has a known amount of mines are not operating extensively, on account of conditions and high cost of supplies. For these reasons work consisted of widening the road and right-of-way, ditching, and general maintenance. In places, cloudburst did considerable damage and about 100,000 feet of work had to be done over; \$6,480.21 expended.

Route 10. Seward-Kenai Lake Road (7.75 miles).—This road is in excellent condition until the heavy rains of September 1918, which carried away entire section of road and damaged other bridges. In addition to construction

scrapers and team, material being hauled by maintenance, \$10,280.55; construction, \$13,750. In fall of 1917, \$302.15 was expended for inspection site for proposed bridge across the Kuskulana north of Strelna, on the Copper River Railroad. It is the territorial road commission has this

C. G. MORRISON, C. E., DISTRICT ENGINEER.

on to Salchaket (30 miles) (Valdez-Fairbanks) were graded and 115 culverts were constructed during 1918. During spring of 1918 eight men were employed, opening up ditches, bridges, and culverts. It was employed 10 days on the Richardson. The condition in excellent condition. Cost of main-

et-Fairbanks (40 miles) (Valdez-Fairbanks) and one-half miles were graded on the new location by encroachment of the Tanana River. Three culverts were constructed. Construction cost, \$1,000. The Munson ferry were rebuilt, and the whole section was dragged, and general work done at a cost of \$5,400.71.

et Gibbon Sled Road (148 miles).—This route Fairbanks-Nome winter mail route. All culverts were replaced and open country staked for the safe travel. Cost, \$470.08.

et Creek Road (5½ miles).—Connects Ester Creek with part of winter mail route between Fairbanks and Nome. It runs from Fairbanks to the Department of Agriculture Farm. The road was entirely regraded, on a new location; 25 culverts were constructed. Corduroy was laid. Total cost of construction \$1,000.

et Eureka Road (6½ miles road, 21½ miles sled road).—Bridges and 24 culverts were rebuilt or repaired. Cost of general maintenance. Total cost, \$1,434.

O'Brien Creek-Forty Mile Road (17 miles road).—From Eagle, on the Yukon River, to mines on Forty Mile. The work consisted in rebuilding and repairing bridges, clearing slides, widening grades, and general maintenance. Total cost, \$1,614.

Seventy Mile sled road (20 miles).—From Eagle to mines on Seventy Mile Creek. General repair work was done to the amount of \$386.

Miller House Road (49 miles).—From Circle, on the Copper River, to Miller House. In addition to general maintenance, the road was reditched and graded and 89 culverts were constructed. Foot travelers now cross Birch Creek on a new bridge. Total expended for maintenance, \$5,066.

et Miller House sled road (81 miles).—All culverts were removed, and general maintenance was done. Cost, \$700.

Route 17. Fort Gibbon-Kaltag Trail (257 miles).—A part of the Fairbanks-Nome winter-mail trail, connecting the Army post at Fort Gibbon with Kaltag, both places being on the Yukon River. Three small bridges were built by contract for \$105. Maintenance work consisted of temporarily staking open sections, at a cost of \$328.

Route 22. Hot Springs-Sullivan Creek Road (9 miles).—From Hot Springs, on the Tanana River, to mining district at Sullivan Creek. Work consisted of general maintenance, repairing bridges and culverts. Cost of maintenance, \$1,352.82.

Route 29. Fort Gibbon-Koyukuk Trail (146 miles).—From Fort Gibbon, on the Yukon River, to Artic City, on the Koyukuk River. General maintenance from Fort Gibbon to mile 38. From this point to mile 75 a new trail was cleared and a 75-foot bridge at mile 48 was constructed. Through open country the trail was marked every 100 feet by 4-inch stakes 10 feet high. The open country has heretofore been very dangerous and has caused much hardship to travelers during blizzards. Total cost for maintenance, \$330.98; construction, \$2,669.02.

Route 30. Hot Springs Landing-Eureka Creek Road (32 miles).—From Hot Springs Landing to Eureka mining district. Work done was chiefly confined to the section between Hot Springs Landing and Hot Springs Station, distance 2 miles. Four bridges were repaired, four new culverts built, 665 feet of corduroy was laid and 2,100 feet of side ditches were cut. General maintenance work was done on the entire section. During the high water in the spring of 1918 the Tanana River overflowed and washed out several bridges. These will be replaced during the 1918 working season. Cost of maintenance, \$1,678.88.

Route 38A. Ruby Long Road (28.25 miles).—From Ruby, on the Yukon River, to the Long Creek mining district. Approximately 2,000 tons of freight were handled over this road during the year. General maintenance work was done on first 19 miles, at a cost of \$6,868.78. Nine miles of new road were constructed during the year for \$37,217.70.

Fairbanks Bridge.—During the fall of 1917 the entire bridge was given two coats of paint and the amount, \$1,448.03, was charged to construction.

SOUTHWESTERN DISTRICT—ANTON EIDE, SUPERINTENDENT.

Route 24. Moose Pass Road (29.5 miles).—From mile 29, on Alaska Northern Railroad, to connection with Route 12 to Sunrise and Hope, on Turnagain Arm. This section has produced a considerable amount of gold and much ground has a known value, but the mines are not operating extensively, on account of present labor conditions and high cost of supplies. For these reasons travel is light. Work consisted of widening the road and right of way in many places, ditching, and general maintenance. In September, 1917, a cloudburst did considerable damage and about half of the season's work had to be done over; \$6,480.21 expended.

Route 10. Seward-Kenai Lake Road (7.75 miles).—This road was in excellent condition until the heavy rains of September, 1917. The flood carried away entire section of road and several bridges and damaged other bridges. In addition to constructing two new 80-foot

Howe truss bridges at mile 3½, other bridges were repaired and damaged sections of road were rebuilt. Expenditures for maintenance and repair amounted to \$8,295.34, and the cost of the new bridge was \$2,281.75, a total of \$10,577.09.

Route 12. Mile 34, Alaska Northern Railroad-Hope Road (31 miles wagon road, 9 miles sled road).—Work embraced widening road and right of way, replacing small bridges and culverts, and cutting out windfalls. Two miles of completely washed-out road were repaired and general maintenance performed, at a total cost of \$5,972.19.

Route 35. Knik-Willow Creek Road (34 miles).—From Knik, on Knik Arm, to crossing of Government railroad at Wasilla, thence to Willow Creek mining district. Reaches a most promising quartz-mining district, producing about \$250,000 per year, with strong indications of great increase and long life. Value of ore per ton is high, and although there is a shortage of labor and cost of supplies is high, these conditions are not as serious as in the low-grade districts. The last year was very wet, and road work was expensive. Twenty-eight acres of grubbing was done, in widening right of way, bridges and culverts were repaired, 4 miles were regraded, and gravel surfacing was placed on 2 miles. One new 35-foot frame bent bridge was constructed at mile 19 and a 14 by 16 warehouse was erected at Wasilla. A total of \$22,696.39 was expended, \$1,275 of which was for construction and the balance for maintenance and improvement.

Route 35A. Archangel extension (3 miles).—Connects with Knik-Willow Creek Road at mile 32. The road is entirely above timber line and all culvert and bridge material is hauled a long distance. Several culverts were constructed and material for a bridge over Archangel Creek was delivered. One and one-half miles of road was graded and one-half mile was lightly graveled, 300 linear feet of corduroy was laid, and several culverts were built; \$733.35 expended for maintenance and \$1,534 for construction; total, \$2,267.35.

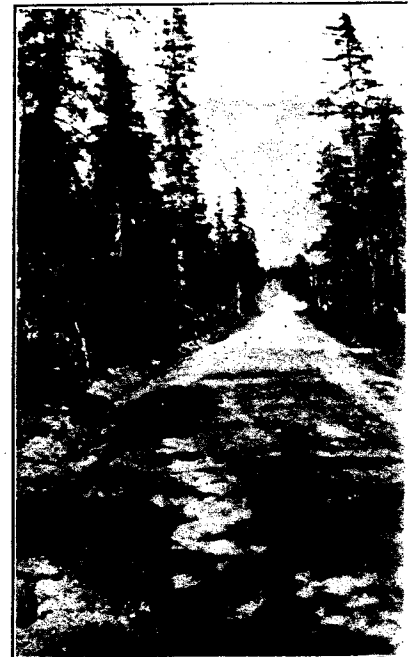
Talkeetna-Cache Creek Road (42 miles sled road and summer trail).—From point on United States Government railroad location at Talkeetna to the Cache Creek mining district. A good winter road, which is also passable for pack animals in summer, was constructed during the year. The Cache Creek district is one of large area and promises to be very productive. The production justifies improving the route for wagon traffic, and it is hoped to start this improvement within the next two years. Expenditures were \$4,634.50, all for construction.

Palmer-Mile 26½ Road (8 miles).—From Palmer, on Government railroad, to mile 26, on the Knik-Willow Creek Road. Six miles of right of way was cleared, material for 1,500 feet of corduroy and timber for culverts was delivered. The clearing and grubbing was heavy, costing \$345 per acre. The road will be completed as a winter sled road during the coming fiscal year. Further improvement will not be warranted until the farming country shows more development. Cost of work, \$7,906.69.

Iliamna Bay Road (10 miles).—From Iliamna Bay to Iliamna Village, on Iliamna Lake, where water connection is made with Bristol Bay. Eight miles of trail were built. The season closed before work was completed, and 2 miles remain to be constructed. Work was greatly damaged by storms in September, 1917, but was repaired. Approximately \$3,000 will be required to finish the road, as the bal-



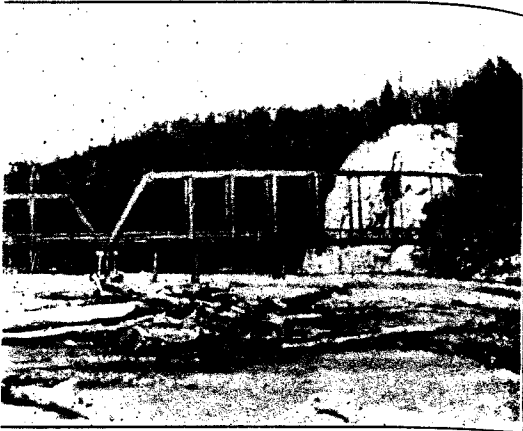
VALDEZ-FAIRBANKS ROAD. THOMPSON
ELEVATION 2,745 FEET. JULY



SEWARD RADIO RO



0.1 MILE 1 ON VALDEZ-FAIRBANKS ROAD.



3E. THROUGH SPANS, 100 FEET AND 150 FEET, CONSTRUCTED 1918.



SEWARD-KENAI LAKE ROAD.

ance of allotment and available funds were not sufficient to complete the project. Amount expended, \$6,781.52.

Matanuska Bridge (over Palmer Canyon).—This bridge was erected to provide an outlet to the Government railroad for a farming community on the east side of the Matanuska River. It consists of one 150-foot combination span, one 100-foot combination span, and 190 feet of trestle approach. The season for construction was unfavorable, on account of deep frost, running ice, and high water. All material except piling was shipped from Seattle. The cost of construction was as follows:

Freight on material from Palmer to bridge site.....	\$834.00
Piles and crib timbers, delivered.....	885.82
Driving piles (3,789 linear feet).....	2,050.00
Overhauling iron and refitting timbers.....	450.00
Raising trusses.....	776.48
Putting on decking and hand rails.....	316.00
Building piers and abutments.....	366.60
Filling piers.....	499.00
General supervision.....	600.00
Material from Alaska Engineering Commission.....	300.00
Material from Seattle and freight on same.....	15,224.25
Total.....	22,252.15

Palmer-Matanuska Bridge Road (1.5 miles).—Connects Palmer Station on Government railroad with the new Matanuska Bridge. The work consisted in clearing and grubbing 500 feet of corduroy for wet sections, and light grading. Total cost, \$2,489.71.

Kahiltna Bridge.—The September, 1917, storm carried away a part of the approach, which was replaced, and other repairs were made, at a total cost of \$347.10.

Seward-Radio Road (1½ miles).—Connects at Mile 2 with Seward-Kenai Lake Road and runs to United States naval radio station. Work was started June 8 at the request of the Secretary of the Navy, the cost, estimated at \$6,500, to be reimbursed by the Navy Department. One mile was cleared and grubbed, 500 feet lightly surfaced with gravel, 18 piles for bridges have been driven, and bridge material is being delivered. Total cost to June 30, 1918, \$2,589.15.

Route 20D. Tacotna-Ophir Road (23.5 miles, 7.4 miles constructed).—One and six-tenths miles were constructed on the Tacotna end and right of way cleared to mile 2.8; 5.8 miles were constructed on the Ophir end. The two camps produce approximately \$100,000 per year in gold. It is hoped that funds will become available so the two ends can be connected by a cleared right of way and necessary bridges and culverts provided. Total amount expended was \$19,949.52.

Route 20A. Knik-Susitna Trail (30 miles).—Ordinary maintenance cost \$253.59.

Route 20B. Susitna-Rainy Pass Trail (127 miles).—Maintenance \$253.59.

Route 20C. Rainy Pass-Tacotna Trail (130 miles).—Maintenance, \$263.79.

Work consisted of reblazing trees, erecting tripod markers where required, clearing away windfalls, and repairing three bridges. Expended for maintenance, \$567.83.

NOME DISTRICT.—DANIEL A. JONES, SUPERINTENDENT.

*Route 8. Nome-Council Road (82 miles; 60 miles constructed).—*Nome-Fort Davis section (3½ miles). Work consisted of general maintenance, blasting out ice and opening channels under bridges in the spring, and graveling 4,800 feet of road.

*Fort Davis-Cape Nome (9 miles).—*This section was turned over to Territorial road commission, who constructed 2½ miles at a cost of approximately \$19,000.

*Cape Nome section (2 miles).—*General maintenance expenditures, \$228.

*Solomon-East Fork (15 miles).—*Connects Bonanza Ferry, the landing place for boats, with East Fork-Council Road. During open season traffic amounts to about 8 tons per day. General maintenance work was performed.

*East Fork to Fox River (25 miles).—*Connects Solomon-East Fork Road with Council Corduroy. Combination road and trail. Its improvement has been taken over by the Territorial road commission.

*Council-Corduroy (5½ miles).—*Connects Fox River with Council City. Territorial road commission is improving this section and spent a total of \$5,300 during past year. The Safety and Bonanza ferries were maintained on this route at a cost of \$906. Total expenditures for maintenance, Route 8, by Alaska road commission, \$5,262.58.

*Route 13A. Nome-Bessie Road (3.29 miles).—*Connects Nome with the Third Beach line. It serves to supply districts north of Nome. It is estimated that 30 tons of freight are hauled over this road daily, throughout the year. One thousand yards of gravel were hauled and spread by auto truck at a cost of 90 cents per cubic yard, the average haul being 1½ miles. The crib piers of the Dry Creek Bridge were undermined by the spring freshet and had to be replaced by pile bents and the bridge generally overhauled at a total cost of \$798.40. The fill crossing Dry Creek was widened 2 feet for a distance of approximately 300 feet, and a stone wall approximately 4 feet high and 300 feet long was built on the upstream side. The cost of maintenance during the break-up was \$375. Work consisted of opening culverts, clearing ditches, and opening the channels under the Dry and Bourbon Creek bridges. Total maintenance cost, \$3,935.71.

*Route 13B. Bessie-Banner Road (3.46 miles).—*Connects the Bessie with Banner station. It serves to supply Anvil and Glacier Creeks and all upper Snake River points. It is estimated that 4 tons per day are hauled during the open season. Work consisted of surfacing 7,515 feet with gravel, 1,671 cubic yards of gravel and rock having been hauled at a cost of \$1.28 per cubic yard, average haul one-fourth mile. Twelve culverts cost \$11 each; 2,100 feet of ditch was dug at a cost of 9 cents per foot. The entire road was rolled with a road roller drawn by auto truck, at a cost of \$62.50. Maintenance, \$3,038.52; construction, \$2,200.

*Route 13C. Bessie-Little Creek Road (1.25 miles).—*Connects Nome-Bessie Road with Little Creek. Supplies the Third Beach line west of the Bessie and Little Creek. It is estimated that 10 tons daily are hauled over this road. During past year 2,600 feet of road

was surfaced, 691 cubic yards of gravel having been hauled at \$1.06 per cubic yard, average haul one-fourth mile. Work was done with a road roller drawn by an auto truck, at a cost of \$4,090.39. Maintenance, \$849.17.

*Route 13D. Bessie-Dry Creek Road (1.25 miles).—*Connects Nome-Dexter Road with the Nome-Osborne Road. Supplies the camps on the Third Beach Line between Bessie and Little Creek. It is estimated that 100 tons of freight were hauled over this road during the past year. Maintenance, \$202.20.

*Route 13E. Dry Creek-Newton Road (0.33 miles).—*Connects the Bessie-Dry Creek with the Dry Creek-Osborne Road. Maintenance expenditure during the past year and no freight hauled.

*Route 13F. Nome-Osborne Road (4 miles).—*Connects the Dry Creek-Newton Road with Osborne Creek. Supplies the camps and vicinity. Estimated 2½ tons hauled daily. Work consisted of general maintenance; 250 cubic yards of gravel hauled at \$1.73 per yard, average haul one-half mile; 5,310 feet of ditch made at 3 cents per foot; 3 culverts taken out, repaired, and lowered at a cost of \$3,824.41; construction, \$85.30.

*Route 13G. Grass Gulch (1.75 miles).—*Connects the Nome-Osborne Road with King Mountain, and supplies mines on Grass Mountain and King Mountain. No expenditures during the past year.

*Route 13H. Center Creek Road (1.37 miles).—*Connects the Nome-Bessie with Center Creek camps. No expenditures during the past year.

*Route 13I. Nome River Extension (5 miles).—*Connects the Nome River with upper Nome River camps and supplies the camps. Five hundred and thirty linear feet surfacing with gravel, costing 80 cents per cubic yard. Other work consisted of maintenance during the break-up. Maintenance, \$195.85.

*Route 13J. Wonder-Flat Creek (2 miles).—*Connects the Little Creek Road with Wonder and Flat Creeks. Supplies the camps on Wonder and Flat Creeks and lower Little Creek. It is estimated that 400 tons of freight hauled over road during the past year, which consisted of material for a dredge which was used on Flat Creek; 2,050 linear feet was resurfaced with gravel, average haul one-fourth mile. Maintenance, \$4,090.39; construction, \$6,315.47.

*Route 13K. Bessie-Buster (5 miles).—*Connects the Nome-Dexter and Buster Creeks. It is estimated that 400 tons of gravel having been hauled at \$1.06 per cubic yard, average haul one-fourth mile; 9,500 feet of ditch cost 8 cents per foot; 2 by 2 culverts were built at a cost of \$4,090.39; construction, \$6,315.47.

*Route 18. Kaltag-Solomon Trail (248 miles).—*Connects the Yukon River to Solomon on the Nome Council Line. General maintenance cost \$328.

*Route 21. Unalaklik-St. Michael Trail (65 miles).—*General maintenance cost \$21.50.

—DANIEL A. JONES, SUPERINTENDENT.

il Road (82 miles: 60 miles constructed).—
n (3½ miles). Work consisted of general
it ice and opening channels under bridges
ng 4,800 feet of road.

o (9 miles).—This section was turned over
ission, who constructed 2½ miles at a cost
).

miles).—General maintenance expenditures,

5 miles).—Connects Bonanza Ferry, the
, with East Fork-Council Road. During
nts to about 8 tons per day. General main-
ned.

r (25 miles).—Connects Solomon-East Fork
duroy. Combination road and trail. Its
taken over by the Territorial road com-

miles).—Connects Fox River with Council
commission is improving this section and
uring past year. The Safety and Bonanza
on this route at a cost of \$906. Total ex-
nce, Route 8, by Alaska road commission,

ie Road (3.29 miles).—Connects Nome with
t serves to supply districts north of Nome.
tons of freight are hauled over this road
ear. One thousand yards of gravel were
to truck at a cost of 90 cents per cubic yard,
1½ miles. The crib piers of the Dry Creek
by the spring freshet and had to be replaced
ridge generally overhauled at a total cost
ssing Dry Creek was widened 2 feet for a
y 300 feet, and a stone wall approximately
long was built on the upstream side. The
ng the break-up was \$375. Work consisted
ing ditches, and opening the channels under
Creek bridges. Total maintenance cost,

ner Road (3.46 miles).—Connects the Bes-
. It serves to supply Anvil and Glacier
ke River points. It is estimated that 4 tons
g the open season. Work consisted of sur-
avel, 1,671 cubic yards of gravel and rock
cost of \$1.28 per cubic yard, average haul
culverts cost \$11 each; 2,100 feet of ditch
ents per foot. The entire road was rolled
by auto truck, at a cost of \$62.50. Main-
ruction, \$2,200.

tle Creek Road (1.25 miles).—Connects
Little Creek. Supplies the Third Beach
d Little Creek. It is estimated that 10 tons
is road. During past year 2,600 feet of road

was surfaced, 691 cubic yards of gravel having been hauled at \$1.52 per cubic yard, average haul one-fourth mile. The road was rolled with a road roller drawn by an auto truck, at a cost of \$30. Maintenance, \$849.17.

Route 13D. Bessie-Dry Creek Road (1.25 miles).—Connects the Nome-Dexter Road with the Nome-Osborne Road. Supplies all camps on the Third Beach Line between Bessie and Dry Creeks. It is estimated that 100 tons of freight were hauled during year. Maintenance, \$202.20.

Route 13E. Dry Creek-Newton Road (0.33 of a mile).—Connects the Bessie-Dry Creek with the Dry Creek-Osborne Roads. No expenditure during the past year and no freight hauled.

Route 13F. Nome-Osborne Road (4 miles).—Connects the Dry Creek-Newton Road with Osborne Creek. Supplies Osborne Creek and vicinity. Estimated 2½ tons hauled daily during open season. Work consisted of general maintenance; 250 cubic yards of gravel hauled at \$1.73 per yard, average haul one-half mile; 2,680 feet were resurfaced; 5,310 feet of ditch made at 3 cents per running foot; five culverts taken out, repaired, and lowered at \$3 each. Maintenance \$824.41; construction, \$85.30.

Route 13G. Grass Gulch (1.75 miles).—Connects the Nome-Bessie with King Mountain, and supplies mines on Grass and Deer Gulches, and King Mountain. No expenditures during year.

Route 13H. Center Creek Road (1.37 miles).—Connects the Nome-Bessie with Center Creek camps. No expenditure during the year.

Route 13I. Nome River Extension (5 miles).—Connects Dexter Creek with upper Nome River camps and supplies upper Nome River points. Five hundred and thirty linear feet surfaced with 142 cubic yards of gravel, costing 80 cents per cubic yard to haul and spread. Other work consisted of maintenance during spring break-up. Maintenance, \$195.85.

Route 13J. Wonder-Flat Creek (2 miles).—Connects the Bessie-Little Creek Road with Wonder and Flat Creeks. It supplies the camps on Wonder and Flat Creeks and lower Little Creek. Thirteen hundred tons of freight hauled over road during past year, most of which consisted of material for a dredge which was constructed on Flat Creek; 2,050 linear feet was resurfaced with gravel at \$1.18 per cubic yard, average haul one-fourth mile. Maintenance, \$849.96.

Route 13K. Bessie-Buster (5 miles).—Connects the Bessie with Dexter and Buster Creeks. It is estimated that 40 tons per month are hauled over route; 19,750 linear feet was surfaced, 3,615 cubic yards of gravel having been hauled at \$1.06 per cubic yard, average haul one-fourth mile; 9,500 feet of ditch cost 8 cents per foot. Twenty-four 2 by 2 culverts were built at a cost of \$108. Maintenance, \$4,090.39; construction, \$6,315.47.

Route 18. Kaltag-Solomon Trail (248 miles).—From Kaltag on Yukon River to Solomon on the Nome Council Road. Staking and general maintenance cost \$328.

Route 21. Unalaklik-St. Michael Trail (65 miles).—Maintenance \$21.50.

Route 25. Sinrock Ferry.—The expense of maintaining this ferry consisted of the salary of the ferryman, employed for five months at a monthly salary of \$50, or \$250.

Route 25A. Cripple River Road (12 miles).—Connects the coast with Cripple River. No expenditures were made on this road during the past year.

Route 25B. Penny River Road (17 miles).—Connects the coast at mouth of Penny River with Oregon Creek. It is a combination road and trail. No expenditures.

Route 25C. Nome Wireless Road (800 feet).—Connects Nome with the wireless station. No expenditures.

Route 25D. Mouth of Center Creek Road (22½ miles).—Connects Nome with the mouth of Center Creek. Supplies Lower Snake River and Lower Center Creek camps. An average of 3 tons daily hauled; 3,000 feet surfaced with gravel at \$1.26 per cubic yard; average haul 2,000 feet. Maintenance, \$846.33.

Route 25E. Submarine Paystreak Road (3 miles).—Connects Nome with the Submarine paystreak which parallels the coast west of Nome. Hauling estimated at 7 tons per day. Twenty-three culverts, 2 feet square and 16 feet long, were constructed at \$14.16 each; 1,888 cubic yards of gravel hauled at \$1.06 per yard; 2,030 feet of road constructed with grading machine and slip scrapers, costing forty-nine cents per linear foot; 5,000 feet of ditch, averaging 18 inches on the bottom and 2 feet deep, were constructed for 7 cents per foot. Construction, \$3,867.63.

Route 25F. Anvil-Glacier Road (3 miles).—Connects Bessie-Banner Road with the Snake River Road. Supplies Glacier Creek and all Snake River points. Hauling estimated at 5 tons per day; 4,870 linear feet was surfaced with gravel at \$1.59 per yard, average haul one-fourth mile; 655 feet of road was constructed, using slip scrapers and material from tailing piles, for \$151.80. Six thousand feet of ditch cost 9 cents per foot. Maintenance, \$530; construction, \$2,648.24.

Route 25G. Snake River Extension Road (3 miles).—Connects Anvil-Glacier with Snake River and its tributaries. Three tons per day are hauled over this road. Work consisted of general maintenance, and cost \$125.06.

Route 25H. Otter Creek Road (1.25 miles).—Connects Nome-Fort Davis Road with Otter Creek and vicinity. Has not been used for three years and no work done.

Route 25. Bull Creek Bridge.—Crossing Bull Creek, which is on the trail from the coast to Sunset Creek. Cost of repairs, \$68.25.

Route 25. Snake River Bridge.—Work consisted of hauling and placing 40 cubic yards of rock around center pier; \$99.38.

Route 26. Candle-Candle Creek Road (9 miles).—Connects Candle with Candle Creek camps. Estimated 1,000 tons hauled during summer and winter. Work consisted of laying 10,150 feet of willow corduroy, which was covered with material plowed and scraped from near the road bed, at 28 cents per linear foot. In addition, 1,005 cubic yards of gravel were hauled at \$1.67 per cubic yard; 7,540 feet of ditch was constructed at 2 cents per foot; twenty-five 2 by 2

feet culverts 16 feet long were constructed for \$13 bundles of willows were bound in bundles of 10 pounds each and delivered along the right of way \$849.91; construction, \$5,013.65.

Route 27. Deering-Inmachuck Road (25 miles).—Connecting with Inmachuck River points and supplies the Inmachuck and its tributaries. Approximately 800 tons were hauled during the year. Road turned over to Termination Commission, who expended \$1,500 during the past year.

Route 28. Dahl Creek-Candle Trail (140 miles).—Recently staked trail running from Dahl Creek in the Inmachuck tract to Candle, a distance of 140 miles. The work consisted of straightening and replacing broken and missing stakes. \$150.

Route 42. St. Michael-Kotlik Trail (70 miles).—Connects St. Michael with Kotlik. General maintenance, \$350.

Route 49. Davidsons Landing-Taylor Creek Road (10 miles).—This road runs from Davidsons Landing to Taylor Creek. It is estimated that 1,000 tons are hauled over this road yearly. No work was done during the year.

Fortuna Ledge, or Marshall City Road (4½ miles).—This road is constructed from the landing to Wilkes Landing. Four hundred tons of freight were hauled over the road during the year. The sum of \$4,662.50 was expended by the Termination Commission in the spring of 1917, the work being paid for that year. The work consisted of getting out the right of way 9,000 poles and 1,000 stringers for corduroy. The work was later turned over to and completed by the Termination Commission, at a cost of \$10,232.44.

Flagging trails.—Each year approximately 550 miles of trails, in addition to those permanently marked, are staked and then fallen. This is necessary for the guidance and marking of travel. About 100 miles of trail to different camps are staked by freighters and interested parties with the Termination Commission. These lath trails vary each year and work going on in the different localities. The work during the past winter, including expenses of the superintendent, was \$4,490.70.

Nome office.—The sum of \$249.50 was expended during the year. The work consisted of raising and levelling the floor, painting, and the purchase of linoleum for the floor.

STATEMENT OF RECEIPTS AND DISBURS

This report covers vouchers received and paid including June 30, 1918:

7.—The expense of maintaining this ferry the ferryman, employed for five months at or \$250.

Over Road (12 miles).—Connects the coast expenditures were made on this road during

ver Road (17 miles).—Connects the coast or with Oregon Creek. It is a combination expenditures.

less Road (800 feet).—Connects Nome with o expenditures.

Center Creek Road (225 miles).—Connects of Center Creek. Supplies Lower Snake r Creek camps. An average of 3 tons d Maintenance, \$846.33.

e Paystreak Road (3 miles).—Connects Nome aystreak which parallels the coast west of ated at 7 tons per day. Twenty-three cul- 16 feet long, were constructed at \$14.16 each. gravel hauled at \$1.06 per yard; 2,030 feet of grading machine and slip scrapers, costing near foot; 5,000 feet of ditch, averaging 18 ad 2 feet deep, were constructed for 7 cents per 867.63.

Glacier Road (3 miles).—Connects Bessie. Snake River Road. Supplies Glacier Creek oints. Hauling estimated at 5 tons per day: urfaced with gravel at \$1.59 per yard, average 655 feet of road was constructed, using slip from tailing piles, for \$151.80. Six thousand its per foot. Maintenance, \$530; construction.

River Extension Road (3 miles).—Connects lake River and its tributaries. Three tons per this road. Work consisted of general mainte- 36.

Creek Road (1.25 miles).—Connects Nome. Otter Creek and vicinity. Has not been used o work done.

ek Bridge.—Crossing Bull Creek, which is on ast to Sunset Creek. Cost of repairs, \$68.25.

iver Bridge.—Work consisted of hauling and s of rock around center pier; \$99.38.

Candle Creek Road (9 miles).—Connects Candle mp. Estimated 1,000 tons hauled during sum- ork consisted of laying 10,150 feet of willow covered with material plowed and scraped from at 28 cents per linear foot. In addition, 1,003 l were hauled at \$1.67 per cubic yard; 7,540 feet ucted at 2 cents per foot; twenty-five 2 by 2

feet culverts 16 feet long were constructed for \$13.70 each; 3,382 bundles of willows were bound in bundles of approximately 50 pounds each and delivered along the right of way. Maintenance, \$849.91; construction, \$5,013.65.

Route 27. Deering-Inmachuck Road (25 miles).—Connects Deering with Inmachuck River points and supplies the Inmachuck River and its tributaries. Approximately 800 tons were hauled over this road during the year. Road turned over to Territorial road commission, who expended \$1,500 during the past year for maintenance.

Route 28. Dahl Creek-Candle Trail (140 miles).—This is a permanently staked trail running from Dahl Creek in the Kougarok district to Candle, a distance of 140 miles. The work consisted of straightening and replacing broken and missing stakes at a cost of \$150.

Route 42. St. Michael-Kotlik Trail (70 miles).—Follows along coast between St. Michael and Kotlik. General maintenance cost \$350.

Route 49. Davidsons Landing-Taylor Creek Road (40 miles, 24 constructed).—This road runs from Davidsons Landing, the end of water navigation, to Taylor Creek. It is estimated that from 800 to 1,000 tons are hauled over this road yearly. No expenditures were made during the year.

Fortuna Ledge, or Marshall City Road (4½ miles).—Freight is landed from river steamers at Fortuna Ledge and transferred by boats of lighter draft a distance of 12 miles to the upper landing. The road is constructed from the landing to Willow Creek mines. Four hundred tons of freight were hauled over road during the past year. The sum of \$4,662.50 was expended by the Alaska road commission in the spring of 1917, the work being paid for in July of that year. The work consisted of getting out and piling on the right of way 9,000 poles and 1,000 stringers for corduroy. The road was later turned over to and completed by the Territorial road commission, at a cost of \$10,232.44.

Flagging trails.—Each year approximately 550 miles of trail, in addition to those permanently marked, are staked after snow has fallen. This is necessary for the guidance and safety of winter travel. About 100 miles of trail to different camps and creeks are staked by freighters and interested parties with flag lath furnished by the commission. These lath trails vary each year according to the work going on in the different localities. The total cost of work during the past winter, including expenses of inspection trips by superintendent, was \$4,490.70.

Nome office.—The sum of \$249.50 was expended on the office building. The work consisted of raising and levelling building, papering, painting, and the purchase of linoleum for the floor.

STATEMENT OF RECEIPTS AND DISBURSEMENTS.

This report covers vouchers received and placed in the account including June 30, 1918:

EXPENDITURES IN DETAIL—continued

Balance on hand July 1, 1917.....	\$29,797.58
Received from Treasurer of the United States:	
Appropriation "Construction and maintenance of military and post roads, bridges and trails, Alaska, 1916-19".....	325,000.00
Alaska fund.....	256,000.00
Correction of vouchers:	
Alaska fund.....	10
Special appropriation.....	28.11
Sales of property, Alaska fund.....	5,308.28
Total.....	616,133.97
Deposited to credit Treasurer of the United States.....	28.11
	616,105.86
Disbursed as per tabulated statement below.....	597,020.18
Balance on hand.....	19,085.68

EXPENDITURES IN DETAIL.

	Construction.	Maintenance.	Total.
Offices.....	\$7,108.20	\$6,055.14	\$13,163.34
Route 1.....		88.50	88.50
Route 2.....	7,910.00	4,290.52	12,200.52
Route 2A.....	1,200.00	15,174.51	16,374.51
Route 3.....		8,398.73	8,398.73
Route 4A.....		1,341.50	1,341.50
Route 4B, first section.....		16,864.66	16,864.66
Route 4B, second section.....	20,500.00	33,697.87	54,197.87
Route 4B, third section.....		18,800.00	18,800.00
Route 4C.....	3,450.00	7,535.18	10,985.18
Route 4D, first section.....	7,050.00	19,654.26	26,704.26
Route 4D, section section.....		13,332.16	13,332.16
Route 4E.....	15,000.00	4,064.17	19,064.17
Route 4F.....		11,517.54	11,517.54
Route 4G.....	9,705.16	4,280.00	13,985.16
Route 4H, first section.....		14,200.00	14,200.00
Route 4H, second section.....	22,101.00	20,660.00	42,761.00
Route 4H, third section.....		13,900.00	13,900.00
Route 4I.....	2,006.83	8,470.00	10,476.83
Route 4J, first section.....		13,903.13	13,903.13
Route 4J, second section.....	22,172.98	6,680.41	28,853.39
Route 4K, first section.....		15,330.65	15,330.65
Route 4K, second section.....	43,805.71	5,400.71	49,206.42
Route 4K, third section.....		17,450.79	17,450.79
Tazlina Bridge.....	956.01		956.01
Route 5.....		470.08	470.08
Route 6A.....		2,832.51	2,832.51
Route 6B, first section.....	13,750.00	10,280.55	24,030.55
Route 6B, second section.....		11,498.90	11,498.90
Route 7D.....	10,535.91		10,535.91
Route 8.....		5,262.58	5,262.58
Route 9.....		1,434.00	1,434.00
Route 10.....	2,281.75	8,295.34	10,577.09
Route 11B.....		1,900.50	1,900.50
Route 11E.....		99.50	99.50
Route 12.....		5,972.19	5,972.19
Route 13A.....		3,935.71	3,935.71
Route 13B.....	2,200.00	3,038.52	5,238.52
Route 13C.....		849.19	849.19
Route 13D.....		202.20	202.20
Route 13F.....	85.30	824.41	909.71
Route 13I.....		195.85	195.85
Route 13J.....		849.96	849.96
Route 13K.....	6,315.47	4,080.39	10,395.86
Route 14.....	2,476.20		2,476.20
Route 15.....		5,066.00	5,066.00
Route 16.....		700.00	700.00
Route 17.....		405.00	405.00
Route 18.....		328.00	328.00
Route 20A.....		253.59	253.59
Route 20B.....		253.59	253.59

	Construction
Route 20C.....	\$19,949.51
Route 20D.....	
Route 21.....	
Route 22.....	
Route 24.....	
Route 25D.....	3,867.68
Route 25E.....	2,648.24
Route 25F.....	
Route 25G.....	
Sinrock Ferry.....	
Bull Creek Bridge.....	
Snake River Bridge.....	5,013.61
Route 26.....	
Route 28.....	2,669.01
Route 29.....	
Route 30.....	300.61
Route 35, first section.....	973.01
Route 35, second section.....	
Route 38A, first section.....	
Route 38A, second section.....	37,217.70
Route 38A, third section.....	
Route 38B.....	
Route 39.....	
Route 40.....	
Route 42.....	
Route 44.....	
Route 45.....	1,448.01
Fairbanks Bridge.....	
Flagging Trails.....	
Kahiltna Bridge.....	7,906.01
Mile 26 1/2 Road.....	1,134.01
Archangel Road.....	4,662.51
Marshall Road.....	6,781.31
Ilamma Road.....	20,471.31
Matanuska Bridge.....	302.11
Kuskulana Bridge.....	1,999.71
Sitline River Trail.....	4,634.51
Talkeetna-Cache Creek Trail.....	
Total.....	322,591.71

DISTRIBUTION OF EXPENDITURES.

Salaries (superintendents and clerks).....	
Wages (all other labor).....	
Transportation (persons).....	
Transportation (freight).....	
Hire of animals (horses and dogs).....	
Subsistence (person, meals, and beds).....	
Provisions (all food supplies).....	
Forage and care of animals (horseshoeing, veterinary supplies).....	
Telegraph, telephone, and postage.....	
Fuel (coal and wood) and light.....	
Construction material.....	
Equipment, tools, camp equipage, wagons, harness, etc.....	
Stationery and drafting supplies, maps, printing, cleaning articles.....	
Rents (offices, post-office boxes, barns, or equipment).....	
Motor vehicles, repairs, gas, operation, maintenance.....	
Miscellaneous.....	
Total.....	

EXPENDITURES IN DETAIL—continued.

of the United States: \$29,797.52
 tion and maintenance of military and post 325,000.00
 s, Alaska, 1916-19" 256,000.00
 28.11
 5,308.22
 of the United States 616,133.97
 28.11
 statement below 616,105.86
 597,020.18
 19,085.00

EXPENDITURES IN DETAIL.

	Construction.	Maintenance.	Total.
	\$7,108.20	\$8,055.14	\$15,163.34
	7,910.00	4,290.52	12,200.52
	1,200.00	15,174.51	16,374.51
		8,398.73	8,398.73
		1,341.50	1,341.50
	20,500.00	33,697.87	54,197.87
	3,450.00	7,535.18	10,985.18
	7,050.00	19,654.26	26,704.26
	15,000.00	4,064.17	19,064.17
	9,705.16	11,517.54	21,222.70
	22,101.00	4,280.00	26,381.00
	2,006.83	20,660.00	22,666.83
	22,172.98	8,470.00	30,642.98
	43,805.71	6,680.41	50,486.12
	956.01	5,400.71	6,356.72
		470.08	470.08
		2,832.51	2,832.51
	13,750.00	10,280.55	24,030.55
	10,535.91		10,535.91
		5,262.58	5,262.58
		1,434.00	1,434.00
	2,281.75	8,295.34	10,577.09
		1,900.50	1,900.50
		99.50	99.50
		5,972.19	5,972.19
	3,935.71	3,935.71	7,871.42
	2,200.00	3,038.52	5,238.52
		849.19	849.19
		202.20	202.20
	85.30	824.41	909.71
		195.85	195.85
		849.96	849.96
	6,315.47	4,090.39	10,405.86
	2,476.20		2,476.20
		5,066.00	5,066.00
		700.00	700.00
		405.00	405.00
		328.00	328.00
		253.59	253.59
		253.59	253.59

	Construction.	Maintenance.	Total.
Route 20C.....		\$263.79	\$263.79
Route 20D.....	\$19,949.52		19,949.52
Route 21.....		21.50	21.50
Route 22.....		1,352.82	1,352.82
Route 24.....		6,480.21	6,480.21
Route 25D.....		846.33	846.33
Route 25E.....	3,867.63		3,867.63
Route 25F.....	2,048.24	530.00	3,178.24
Route 25G.....		75.06	75.06
Sinrock Ferry.....		265.40	265.40
Bull Creek Bridge.....		68.25	68.25
Snake River Bridge.....		99.38	99.38
Route 26.....	5,013.65	849.91	5,863.56
Route 28.....		150.00	150.00
Route 29.....	2,069.02	330.98	3,000.00
Route 30.....		1,678.88	1,678.88
Route 31, first section.....	300.60	11,398.46	11,698.46
Route 31, second section.....	973.00	10,022.93	10,997.93
Route 32A, first section.....			12,140.51
Route 32A, second section.....			14,500.00
Route 32A, third section.....	37,217.70	6,868.78	44,086.48
Route 32B.....		10.00	10.00
Route 39.....		4,270.74	4,270.74
Route 40.....		659.00	659.00
Route 42.....		350.00	350.00
Route 44.....		1,868.93	1,868.93
Route 45.....		5,049.35	5,049.35
Fairbanks Bridge.....	1,448.03		1,448.03
Flagging Trails.....		4,490.70	4,490.70
Kahiltna Bridge.....		347.10	347.10
Mile 24 1/2 Road.....	7,906.69		7,906.69
Archangel Road.....	1,134.00		1,134.00
Marshall Road.....	4,662.50	1,133.35	5,795.85
Blamna Road.....	6,781.52		6,781.52
Matanuska Bridge.....	20,471.32		20,471.32
Kuskulana Bridge.....	302.15		302.15
Sitkin River Trail.....	1,999.72		1,999.72
Talkeetna-Cache Creek Trail.....	4,634.52		4,634.52
Total.....	322,591.73	274,428.45	597,020.18

DISTRIBUTION OF EXPENDITURES.

Salaries (superintendents and clerks).....	\$25,325.07
Wages (all other labor).....	305,222.10
Transportation (persons).....	3,423.17
Transportation (freight).....	15,730.79
Hire of animals (horses and dogs).....	41,700.06
Subsistence (person, meals, and beds).....	16,898.73
Provisions (all food supplies).....	57,470.36
Forage and care of animals (horseshoeing, veterinary supplies).....	41,105.42
Telegraph, telephone, and postage.....	943.02
Fuel (coal and wood) and light.....	1,742.99
Construction material.....	28,789.78
Equipment, tools, camp equipage, wagons, harness, etc.....	25,239.24
Stationery and drafting supplies, maps, printing, cleaning, and toilet articles.....	662.85
Rents (offices, post-office boxes, barns, or equipment).....	2,434.51
Motor vehicles, repairs, gas, operation, maintenance.....	28,750.71
Miscellaneous.....	1,581.38
Total.....	597,020.18