MR-194-01

INDEX

#4

# THE OCCURRENCE OF COAL ON THE YUKON RIVER, ALASKA

By Frank H. Holzheimer
1926

## INTRODUCTION

Coal on the Yukon River, at the present time, seems to be forgotten. The old mines that once operated on a minor scale have been abandoned; most of them are caved and inaccessible. The demand for coal on the Yukon River is sufficient to stimulate interest in a discovery of a grade of coal to answer the purpose. Wood is used almost exclusively as fuel, the cost of transportation being high from the coal fields adjacent to the Alaska Railroad. One of the steamers operated by the Alaska Railroad is equipped with a coal burner. The coal is carried on barges with the steamer. Wood as a fuel for the steamers is unsatisfactory due to the cost and delay in loading along the river.

The coal fields of the Yukon River District have been discussed in various publications of the United States Geological Survey. A bibliography has been appended to the end of this article. The time available for a study of the coal in this district was limited to one week. A list of the known occurrences was obtained with specific descriptions of a few of the prospects. Samples were taken at Nulato and Kaltag. No locations on Yukon River coal were noted.

## COAL DEPOSITS

The coal deposits of the Yukon River are classed as low-grade bituminous. Their occurrence is limited to the district from Tanana, at the mouth of the Tanana River, to the Blackburn property ninety miles below Kaltag. The occurrence of coal is confined

to the north bank of the Yukon River with the possible exception of a reported occurrence two hundred miles, by river, from the mouth of the Novitna River.

TANANA

Midway Yukon Valley Coal Location; Webster and Howard, Tanana, owners. The property is located 11 miles above Tanana on the Yukon River. Coal occurs in bunches, not in place, in a muck composed of silt and other fine material. The occurrence was prospected with a fifteen foot auger. The prospect has been abandoned.

A narrow vein of a material resembling graphite has been reported one mile above Tanana by Mr. Webster of Tanana. Mr. Fred Zickwolf reports the occurrence of coal at the "Mastodon Bone Yard, Pallisades," near Tanana on the Yukon River.

Charlie Jordon, native, reports the discovery of an eight foot vein of coal about 38 miles above Tanana on Fish Creek, 11 miles from the Yukon River. This is reported as a new discovery. Several instances have been noted that the reported width of a coal vein is often incorrect and not an indication of the true width of the vein. The width may be measured incorrectly between points that are not at right angles to the strike.

LELOZI RIVER

Mr. John Dunn at Ruby reports an occurrence of coal on the Lelozi River twelve miles cross country from Ruby. The outcrops are said to be inaccessible overland. The trip up the Lelozi River requires

several days in a poling boat. The outcrops were observed in passing by a party of prospectors. No other details were available.

NOWITNA RIVER

Coal is reported two hundred miles, by river, from the mouth of the Nowitna River. Mr. Boland of Ruby noted this occurrence underlying an outcrop containing mendozite.

KOYUKUK RIVER

Coal is reported at Tramway Bar above the town of Bettles on the Koyukuk River.

NULATO

The coal outcrops in the vicinity of Nulato are obscured by a heavy covering of slide rock. Coal has been reported one mile above Nulato, and nine miles above Nulato. The old Bush Mine, employed eight men in the early days, has caved and been abandoned. The only coal visible is under water during the high water period of the Yukon. Mr. Dalquist reports a vein of coal in a slough three miles below Nulato. This coal has been taken out in small quantities for local use. Mr. Adolph Muller, of Kaltag, has taken coal for blacksmith use from an outcrop 1 foot in width located 5 miles above Kaltag. Four sacks of this coal were sampled (K5) in Kaltag. The attached analysis shows the coal to be of good quality; it is not extensive enough to warrant development.

YUKON RIVER WEST OF KALTAG

K+55-2

Coal outcrops on the Yukon River 8 miles below Kaltag. The outcrop is located on a steep hillside about 50 feet directly above the river. The prospect is not located but in the past some work has been done on it. Several days work would be required to prepare the prospect for sampling. The vein is said to be 4 feet in width. Were the coal of sufficient grade it would be possible to extend a chute from the workings to a boat. A sample was taken (K1) that represented three feet of the vein measured from the hanging wall side. The hanging wall is a coarse grained sandstone. The coal is not clean, a seam of clay 4 inches wide and 4 inches from the hanging wall, parallels the hanging wall. It is said that the vein can be traced in the old cuts for a distance of 200 feet on the surface. The strike is N.W. and the dip 30 degrees N.

Mr. Adolph Muller furnished the following data regarding coal occurrences west of Kaltag. There are several thin seams of coal in a slough 16 miles below Kaltag. The old Jenkins Property, a 3-foot vein worked in the early days, is located 50 miles below Kaltag. A slide recently exposed a 3-foot vein of coal at the Blackburn Property 50 miles below Kaltag. On Eagle Island, 75 miles below Kaltag, two mines once operated. They are located 1 mile apart. Thin stringers have been reported at Halls Rapids.

Mr. Muller mined sixteen tons of coal from an outcrop 25 miles below Kaltag and sold it for use in Kaltag and Nulato at $15 per ton. A sample was taken (K2) from coal that had been delivered at Kaltag. The coal is resinous and rich in fossils. No further work

is being done on the property. The coal is of a poor grade and unsatisfactory as fuel. The vein is said to vary in width and to average three feet.

KALTAG-UNALAKLEET

Mr. Muller reports a discovery, made by Mr. Sandquist who is now located at Dime Creek near Nome, of a 17-foot vein of coal seven miles from Old Woman Station. Old Woman Station is located on the winter mail trail between Kaltag and Unalakleet.

ANVIK RIVER

Coal has been reported on the Anvik River 35 miles by land from the Yukon, (Bulletin 218, U.S.G.S., p. 58).

CONCLUSION

The conditions are well adapted for mining coal on the Yukon River. The outcrops thus far discovered are on the main line of summer transportation. No commercial body of coal has yet been found. There is ample timber for mining purposes and native labor is plentiful. None of the workings have extended through the zone of surface weathering and it is speculative as to whether or not the seams would improve with depth. It is not considered impossible that a deposit will be discovered of sufficient grade to warrant development. The development of the Yukon River coal will be retarded with improvements in transportation and consequent utilization, on the Yukon, of the coal along the Alaska Railroad. The demand for the coal on the Yukon

River is not great enough to warrant any extensive work on a prospect. With the growth of the demand there will be an incentive to bring the coal from the already developed fields along the Alaska Railroad.

BIBLIOGRAPHY

A. J. Collier, "Coal Resources of the Yukon Basin," U.S.G.S. Bulletin 213, pp. 276-283.

A. J. Collier, "The Coal Resources of the Yukon, Alaska," U.S.G.S. Bulletin 218.

Philip S. Smith and H. M. Eakin, "Norton Bay-Nulato Region, Alaska," U.S.G.S. Bulletin 449, pp. 136-141.

Mineral Resources of Alaska, Bulletin 442, U.S.G.S., pp. 59-60, 63-64, 67.

George L. Harrington, "The Anvik-Andreafski Region, Alaska," U.S.G.S. Bulletin 683, pp. 65-66.

Nulato.

6—139

# DEPARTMENT OF THE INTERIOR
## BUREAU OF MINES



Test No. ..... G—COAL-ANALYSIS REPORT Lab. No. 2356

Sample of coal K-1 Can No. .....

Operator ..... Mine prospect

State Alaska County Yukon R. Bed about 4' in thickness

Town 8 mi below Kaltag on Yukon

Location in mine from face of bed 3' in width

Method of sampling standard Gross weight, lbs. 2.04 Net weight, grams .....

Date of sampling 7/12 Date of Lab. sampling 8/14 Date of analysis 8/17/26

B. of M. or U. S. G. S. section USGS Collector Frank Holzheimer

| | | Air-dry Loss 12.5 | Coal (Air dried) | Coal (As received) | Coal (Moisture free) | Coal (Moisture and ash free) |
|---|---|---|---|---|---|---|
| Proximate Analysis | Moisture | | 3.0 | 15.1 | | |
| | Volatile matter | | 31.2 | 27.3 | 32.1 | 36.4 |
| | Fixed carbon | | 54.4 | 47.6 | 56.1 | 63.6 |
| | Ash | | 11.4 | 10.0 | 11.8 | |
| | | | 100. | 100. | 100. | 100. |
| Ultimate Analysis | Hydrogen | | | | | |
| | Carbon | | | | | |
| | Nitrogen | | non-coking coal | | | |
| | Oxygen | | | | | |
| | Sulphur | | .5 | .4 | .5 | .5 |
| | Ash | | | | | |
| Calorific value | Calories | | 6480 | 5670 | 6678 | 7570 |
| | British thermal units | | 11665 | 10205 | 12020 | 13625 |

Softening temperature of ash ..... ° C. ..... ° F.

Date Aug. 23-26 (Signed) [signature] Chemist.

9—COAD

COPY

6—189

# DEPARTMENT OF THE INTERIOR
## BUREAU OF MINES

Test No. .....  G—COAL-ANALYSIS REPORT  Lab. No. 1641

Sample of 4' vein of coal 8 miles below Kaltag, Alaska.  Can No. .....

Operator Adolph Muller, Kaltag.  Mine Prospect

State .....  County .....  Bed .....

Town .....

Location in mine .....

Method of sampling Standard  Gross weight, lbs. 400  Net weight, grams .....

Date of sampling 4/5/25  Date of Lab. sampling 4/14/25  Date of analysis 4/14/25.

B. of M. or U. S. G. S. section .....  Collector Mr. Harry Watson.

| Air-dry Loss 3.0 | | Coal (Air dried) | Coal (As received) | Coal (Moisture free) | Coal (Moisture and ash free) |
|---|---|---|---|---|---|
| Proximate Analysis | Moisture | 3.66 | 10.45 | | |
| | Volatile matter | 26.67 | 24.54 | 27.40 | 35.08 |
| | Fixed carbon | 49.36 | 45.41 | 50.71 | 64.92 |
| | Ash | 21.31 | 19.60 | 21.89 | |
| | | 100. | 100. | 100. | 100. |
| Ultimate Analysis | Hydrogen | | | | |
| | Carbon | | | | |
| | Nitrogen | NON-COKING COAL. | | | |
| | Oxygen | | | | |
| | Sulphur | .44 | .40 | .45 | .57 |
| | Ash | | | | |
| | | | | | |
| Calorific value | Calories | 5515 | 5074 | 5666 | 7254 |
| | British thermal units | 9927 | 9123 | 10199 | 13056 |

Softening temperature of ash ..... ° C. ..... ° F.

Date .....  (Signed) W. L. SHARP.

Chemist.

6—6059

G—139

# DEPARTMENT OF THE INTERIOR
## BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. 2357

Sample of coal K-2 Can No. _____

Operator Adolph Muller Mine prospect

State Alaska County Yukon R Bed about 3 ft in thickness

Town sample from coal in Kaltag

Location in mine 25 mi. below Kaltag on north bank of Yukon R

Method of sampling standard Gross weight, lbs. 1.53 Net weight, grams _____

Date of sampling 7-15 Date of Lab. sampling 8-14 Date of analysis 8-17-26

B. of M. or U. S. G. S. section USGS Collector Frank Holzheimer

| | | Coal (Air dried) | Coal (As received) | Coal (Moisture free) | Coal (Moisture and ash free) |
|---|---|---|---|---|---|
| Air-dry Loss 17.3 | | | | | |
| Proximate Analysis | Moisture | 6.6 | 22.8 | | |
| | Volatile matter | 60.7 | 50.2 | 65.0 | 74.6 |
| | Fixed carbon | 20.7 | 17.1 | 22.1 | 25.4 |
| | Ash | 12.0 | 9.9 | 12.9 | |
| | | 100. | 100. | 100. | 100. |
| Ultimate Analysis | Hydrogen | | | | |
| | Carbon | | | | |
| | Nitrogen | non-coking | | | |
| | Oxygen | | | | |
| | Sulphur | .6 | .6 | .6 | .7 |
| | Ash | | | | |
| Calorific value | Calories | 5369 | 4440 | 5751 | 6597 |
| | British thermal units | 9665 | 7990 | 10350 | 11875 |

Softening temperature of ash _____ ° C. _____ ° F.

Date Aug. 28-26 (Signed) _____

Chemist.

6—6869

6—139

# DEPARTMENT OF THE INTERIOR
## BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. 2358

Sample of coal k-3 Can No. _____

Operator Adolph Mullen Mine prospect

State Alaska County Yukon R. Bed abt. 1 ft. thick

Town supposed to be blacksmithing coal sampled in Kaltag

Location of mine 5 mi. above Kaltag on north bank of Yukon

Method of sampling stand. Gross weight, lbs. 2.04 Net weight, grams _____

Date of sampling 7-13 Date of Lab. sampling 8-14 Date of analysis 8-17-26

B. of M. or U. S. G. S. section USGS Collector Frank Holzheimer

| | | Air-dry Loss 1.5 | Coal (Air dried) | Coal (As received) | Coal (Moisture free) | Coal (Moisture and ash free) |
|---|---|---|---|---|---|---|
| Proximate Analysis | Moisture | | .90 | 2.4 | | |
| | Volatile matter | | 21.5 | 21.2 | 21.7 | 23.2 |
| | Fixed carbon | | 71.2 | 70.1 | 71.8 | 76.8 |
| | Ash | | 6.4 | 6.3 | 6.5 | |
| | | | 100. | 100. | 100. | 100. |
| Ultimate Analysis | Hydrogen | | | | | |
| | Carbon | | | | | |
| | Nitrogen | | Forms a cake but does not coke. | | | |
| | Oxygen | | | | | |
| | Sulphur | | .7 | .7 | .7 | .8 |
| | Ash | | | | | |
| Calorific value | Calories | | 7902 | 7783 | 7973 | 8524 |
| | British thermal units | | 14225 | 14010 | 14350 | 15345 |

Softening temperature of ash _____ ° C. _____ ° F.

Date Aug. 25-26 (Signed) Marshall S. Shaw

Chemist.

0—0060