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CANADA

DEPARTMENT OF MINES

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MINES BRANCH

EUGENE HAANEL, PH.D., DIRECTOR.

BULLETIN No. 25

Analyses of Canadian Fuels

IN FIVE PARTS

PART IV

ALBERTA AND THE NORTHWEST TERRITORIES

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OTTAWA

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1918

No. 482.

39639—1

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EXPLANATORY NOTES.

The samples of fuel from Alberta and the Northwest Territories collected previous to 1910 were analysed at McGill University by the staff then engaged in a special "Investigation of the Coals of Canada." Early in 1910, however, this work was transferred to the Division of Fuels and Fuel Testing, Mines Branch, Department of Mines, Ottawa; and all subsequent samples have been tested there.

The coal samples are classified according to areas corresponding to the provincial mine inspection districts. In some instances two or more of the smaller districts are grouped to form single areas, which are named after the component districts.

The expressions "anal." and "calc." at the head of any column indicate whether the figures recorded were obtained directly by analysis, or by calculation. The usual practice was to analyse the fuels after air-drying, although, in some cases, determinations were made on samples either in the condition received, or after being completely dried.

Figures in columns "R" refer to fuels as received; in columns "AD" to air-dried fuels; and in columns "D" to those dried at 105° C.

In making the determinations, the necessary calculations were made to give one more significant figure than is reported. All deduced values were calculated before the rounding-off process took place.

A description of the Hoffmann Potash Test is given on page 65 of the Summary Report of the Mines Branch for the year 1916.

A "Commercial" sample of any grade of fuel is one representative of the corresponding product as shipped from any mine.

The "Mine" and "Prospect" samples were collected by technical officers of either the Federal or Provincial governments: the former term being applied to those procured from deposits already under development. "Prospect" samples are apt to be weathered, and may, therefore, only give an indication of the composition of the main body of the deposit.

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ALBERTA COAL FIELDS.
Crowsnest Pass Area.

| Description. | International Coal & Coke Co., Ltd., Coleman. Denison colliery, Sec. 8, Tp. 8, R. 4. | | | | | | | | | | |
|-----------------------------------------|-----------------------------------------------------------------------------------------|-------|-------|---------------------------------|-----------------|-------|------------------------|-------|-------|----------------|-------|
| | M34 | | | M234 | M2034 | | M 34 SP | | | M 2034 SP | |
| Sample No..... | R | AD | D | D | R | D | R | AD | D | R | D |
| Moisture condition (see note p. 2)..... | 1.3 |  |  | ..... | ..... | ..... | 1.4 |  |  | ..... |  |
| Loss on air-drying.....% | 1.3 |  |  | ..... | ..... | ..... | 1.4 |  |  | ..... |  |
| Results obtained by..... | Calc. | Calc. | Anal. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. |
| Proximate analysis:— | | | | | | | | | | | |
| Moisture.....% | 2.0 | 0.7 | ..... | ..... | 1.4 | ..... | 1.9 | 0.6 | ..... | 2.4 | ..... |
| Ash.....% | 19.4 | 19.7 | 19.8 | 11.6 | 20.9 | 21.2 | 15.9 | 16.1 | 16.2 | 18.3 | 18.7 |
| Volatile matter.....% | 24.6 | 24.9 | 25.1 | 26.4 | 23.3 | 23.7 | 23.4 | 23.7 | 23.9 | 22.3 | 22.9 |
| Fixed carbon.....% | 54.0 | 54.7 | 55.1 | 62.0 | 54.4 | 55.1 | 58.8 | 59.6 | 59.9 | 57.0 | 58.4 |
| Ultimate analysis:— | | | | | | | | | | | |
| Carbon.....% | 67.1 | 68.0 | 68.5 | 76.5 | ..... | ..... | 71.2 | 72.2 | 72.6 | ..... | ..... |
| Hydrogen.....% | 4.2 | 4.1 | 4.0 | 4.3 | ..... | ..... | 4.4 | 4.3 | 4.3 | ..... | ..... |
| Ash.....% | 19.4 | 19.7 | 19.8 | 11.6 | ..... | ..... | 15.9 | 16.1 | 16.2 | ..... | ..... |
| Sulphur.....% | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 |
| Nitrogen.....% | 1.0 | 1.0 | 1.0 | 1.0 | ..... | ..... | 1.0 | 1.0 | 1.0 | ..... | ..... |
| Oxygen.....% | 7.9 | 6.8 | 6.3 | 6.2 | ..... | ..... | 7.0 | 5.8 | 5.3 | ..... | ..... |
| Calorific value:— | | | | | | | | | | | |
| Calories per gram, gross | 6380 | 6470 | 6510 | 7320 | 6360 | 6450 | 6820 | 6920 | 6960 | 6570 | 6730 |
| B. Th. U. per lb., gross | 11490 | 11640 | 11730 | 13180 | 11450 | 11610 | 12280 | 12450 | 12530 | 11820 | 12110 |
| Fuel ratio..... | 2.20 | | 2.35 | | 2.35 | | 2.50 | | | 2.55 | |
| Carbon-Hydrogen ratio.. | 16.1 | 16.7 | 17.0 | 17.8 | ..... | ..... | 16.1 | 16.7 | 17.0 | ..... | ..... |
| Coking properties..... | | | | | | | | | | | |
| Hoffmann potash test.... | | | | | | | | | | | |
| Location in mine..... | No. 2 seam..... |  |  | ..... | No. 2 seam... | | No. 4 seam..... | | | No. 4 seam. | |
| Kind of sample..... | Commercial—15 tons..... |  |  | ..... | Mine..... | | Commercial—1 ton... | | | Mine. | |
| Quality of coal..... | Run-of-mine..... | | | Washed coal from M 34 yield 73% | Run-of-mine.. | | Run-of-mine..... | | | Run-of-mine. | |
| Taken by..... | T. Denis, Mines Branch Ottawa. |  |  | ..... | E. Stansfield. | | T. Denis, Mines Branch | | | E. Stansfield. | |
| Date of sampling..... | May 10, 1908..... |  |  | ..... | July, 1909..... | | May 10, 1908..... | | | July 27, 1909. | |
| Remarks..... | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Crowsnest Pass Area.

| Description. | McGillivray Creek Coal & Coke Co., Ltd., Coleman. Carbondale mine, Sec. 17, Tp. 8, R. 4. | | | West Canadian Collieries, Ltd., Blairmore. Greenhill colliery, Blairmore. Secs. 2 and 11, Tp. 8, R. 4. | | | | | |
|-----------------------------------------|------------------------------------------------------------------------------------------------------|-------|-------|--------------------------------------------------------------------------------------------------------------|-------|-------|--------------------------------------------|-------|-------|
| | 555 | | | 439 | | | 551 | | |
| | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 555 | | | 439 | | | 551 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 1.7 | .... | .... | 0.0 | .... | .... | 1.8 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Anal. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 2.5 | 0.9 | .... | 1.2 | 1.2 | .... | 2.5 | 0.7 | .... |
| Ash.....% | 17.0 | 17.3 | 17.4 | 19.5 | 19.5 | 19.7 | 11.5 | 11.7 | 11.8 |
| Volatile matter.....% | 24.0 | 24.4 | 24.6 | 23.1 | 23.1 | 23.4 | 24.9 | 25.3 | 25.5 |
| Fixed carbon.....% | 56.5 | 57.4 | 58.0 | 56.2 | 56.2 | 56.9 | 61.1 | 62.3 | 62.7 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 69.3 | 70.4 | 71.0 | 68.8 | 68.8 | 69.6 | 75.3 | 76.7 | 77.2 |
| Hydrogen.....% | 4.4 | 4.3 | 4.3 | 4.6 | 4.6 | 4.6 | 4.6 | 4.5 | 4.5 |
| Ash.....% | 17.0 | 17.3 | 17.4 | 19.5 | 19.5 | 19.7 | 11.5 | 11.7 | 11.8 |
| Sulphur.....% | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 |
| Nitrogen.....% | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Oxygen.....% | 7.7 | 6.3 | 5.6 | 5.6 | 5.6 | 4.6 | 7.0 | 5.5 | 4.9 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 6690 | 6800 | 6860 | 6530 | 6530 | 6600 | 7300 | 7430 | 7490 |
| B. Th. U. per lb., gross..... | 12040 | 12240 | 12350 | 11750 | 11750 | 11880 | 13140 | 13380 | 13470 |
| Fuel ratio..... | 2.35 | | | 2.45 | | | 2.45 | | |
| Carbon-Hydrogen ratio..... | 15.6 | 16.4 | 16.7 | 14.8 | 14.8 | 15.3 | 16.3 | 17.1 | 17.4 |
| Coking properties..... | very poor coke | | | small lump of fair coke | | | good coke with fair amount of swelling | | |
| Hoffmann potash test..... | ..... |  |  | ..... |  |  | ..... |  |  |
| Location in mine..... | No. 2 seam..... | | | No. 1 seam, main entry. No. 3 level. | | | No. 1 seam. | | |
| Kind of sample..... | Commercial—50 tons.... | | | Mine..... | | | Commercial—car load. | | |
| Quality of coal..... | ..... |  |  | ..... |  |  | ..... |  |  |
| Taken by..... | Provincial mine inspector. | | | F. Aspinall, provincial mine inspector. | | | Provincial mine inspector. | | |
| Date of sampling..... | February 1914. Lab. sample April 19, 1915. | | | December 1914..... | | | December 1914. Lab. sample April 14, 1915. | | |
| Remarks..... | ..... |  |  | ..... |  |  | ..... |  |  |

ALBERTA COAL FIELDS.

Crowsnest Pass Area.

| Description. | Franco-Canadian Collieries, Ltd., Frank. Sec. 36, Tp. 7, R. 4. | | | | | | | | |
|-----------------------------------------|-------------------------------------------------------------------|-------|-------|------------------------------------------|-------|-------|----------------------------------------|-------|-------|
| | 367 | | | 430 | | | 557 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 0.0 | .... | .... | 0.4 | .... | .... | 2.0 | .... | .... |
| Results obtained by..... | Anal. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 1.2 | 1.2 | .... | 1.3 | 1.0 | .... | 2.8 | 0.8 | .... |
| Ash.....% | 16.5 | 16.5 | 16.7 | 10.7 | 10.7 | 10.8 | 17.8 | 18.2 | 18.4 |
| Volatile matter.....% | 26.0 | 26.0 | 26.3 | 23.4 | 23.5 | 23.8 | 26.2 | 26.8 | 27.0 |
| Fixed carbon.....% | 56.3 | 56.3 | 57.0 | 59.6 | 59.8 | 60.4 | 53.2 | 54.2 | 54.6 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 70.6 | 70.6 | 71.4 | 77.1 | 77.4 | 78.2 | 68.0 | 69.4 | 70.0 |
| Hydrogen.....% | 4.8 | 4.8 | 4.7 | 5.0 | 5.0 | 4.9 | 4.4 | 4.3 | 4.2 |
| Ash.....% | 16.5 | 16.5 | 16.7 | 10.7 | 10.7 | 10.8 | 17.8 | 18.2 | 18.4 |
| Sulphur.....% | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 |
| Nitrogen.....% | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 0.9 | 1.0 | 1.0 |
| Oxygen.....% | 6.4 | 6.4 | 5.5 | 5.5 | 5.2 | 4.4 | 8.3 | 6.5 | 5.8 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 6850 | 6850 | 6930 | 7360 | 7380 | 7460 | 6620 | 6750 | 6810 |
| B. Th. U. per lb., gross..... | 12330 | 12330 | 12470 | 13240 | 13290 | 13430 | 11910 | 12150 | 12250 |
| Fuel ratio..... | 2.15 | | | 2.10 | | | 2.05 | | |
| Carbon-Hydrogen ratio..... | 14.9 | 14.9 | 15.3 | 15.5 | 15.6 | 15.9 | 15.5 | 16.2 | 16.6 |
| Coking properties..... | fair sized lump of good coke | | | good solid coke, not much swollen | | | small lump of fair coke | | |
| Hoffmann potash test..... | ..... |  |  | ..... |  |  | ..... |  |  |
| Location in mine..... | No. 1 or shaft seam..... | | | No. 1 or shaft seam, main gangway south. | | | No. 1 or shaft seam. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial—car load. | | |
| Quality of coal..... | ..... |  |  | ..... |  |  | Run-of-mine. | | |
| Taken by..... | A. N. Scott, provincial mine inspector. | | | F. Aspinall, provincial mine inspector. | | | F. Aspinall. | | |
| Date of sampling..... | April 1914..... | | | November 1914..... | | | Nov. 1914. Lab. sample April 21, 1915. | | |
| Remarks..... | ..... |  |  | ..... |  |  | ..... |  |  |

ALBERTA COAL FIELDS.

Crowsnest Pass Area.

| Description. | West Canadian Collieries, Ltd., Blairmore. Bellevue Colliery, Bellevue. Sec. 29, Tp. 7, R. 3. | | | | | | | | | | | |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|-------|-------|----------------------------------|-----------------|-------|-----------------------------------------|-------|-------|---------------------------------------------|-------|-------|
| | M 33 | | | M 233 | M 2033 | | 322 | | | 549 | | |
| Sample No..... | R | AD | D | D | R | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | 0.7 | ..... | ..... | ..... | ..... | ..... | 0.0 | ..... | ..... | 1.8 | ..... | ..... |
| Loss on air-drying.....% | 0.7 | ..... | ..... | ..... | ..... | ..... | 0.0 | ..... | ..... | 1.8 | ..... | ..... |
| Results obtained by..... | Calc. | Calc. | Anal. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 0.9 | 0.2 | ..... | ..... | 1.2 | ..... | 1.3 | 1.3 | ..... | 2.7 | 0.9 | ..... |
| Ash.....% | 15.3 | 15.4 | 15.5 | 12.7 | 13.9 | 14.1 | 17.0 | 17.0 | 17.2 | 18.8 | 19.1 | 19.3 |
| Volatile matter.....% | 27.4 | 27.6 | 27.6 | 23.4 | 26.4 | 26.7 | 20.8 | 20.8 | 21.0 | 25.5 | 26.0 | 26.2 |
| Fixed carbon.....% | 56.4 | 56.8 | 56.9 | 58.9 | 58.5 | 59.2 | 60.9 | 60.9 | 61.8 | 53.0 | 54.0 | 54.5 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 70.8 | 71.3 | 71.5 | 75.1 | ..... | ..... | 71.7 | 71.7 | 72.6 | 67.9 | 69.2 | 69.8 |
| Hydrogen.....% | 4.4 | 4.4 | 4.3 | 4.4 | ..... | ..... | 4.1 | 4.1 | 4.0 | 4.5 | 4.4 | 4.3 |
| Ash.....% | 15.3 | 15.4 | 15.5 | 12.7 | ..... | ..... | 17.0 | 17.0 | 17.2 | 18.8 | 19.1 | 19.3 |
| Sulphur.....% | 0.8 | 0.8 | 0.8 | 0.5 | 0.9 | 0.9 | 0.3 | 0.3 | 0.3 | 0.5 | 0.6 | 0.6 |
| Nitrogen.....% | 1.0 | 1.0 | 1.0 | 1.1 | ..... | ..... | 1.0 | 1.0 | 1.1 | 1.0 | 1.0 | 1.0 |
| Oxygen.....% | 7.7 | 7.1 | 6.9 | 6.2 | ..... | ..... | 5.9 | 5.9 | 4.8 | 7.3 | 5.7 | 5.0 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross. | 6820 | 6870 | 6880 | 7210 | 6910 | 7000 | 6710 | 6710 | 6790 | 6550 | 6670 | 6730 |
| B. Th. U. per lb., gross. | 12280 | 12370 | 12390 | 12980 | 12440 | 12590 | 12070 | 12070 | 12230 | 11790 | 12010 | 12110 |
| Fuel ratio..... | 2.05 | | | 2.05 | 2.20 | | 2.95 | | | 2.10 | | |
| Carbon-Hydrogen ratio..... | 16.1 | 16.4 | 16.5 | 17.0 | ..... | ..... | 17.4 | 17.4 | 18.0 | 15.1 | 15.9 | 16.2 |
| Coking properties..... | | | | | | | poor coke | | | poor coke | | |
| Hoffmann potash test..... | | | | | | | | | | | | |
| Location in mine..... | No. 1 seam..... | | | | No. 1 seam... | | No. 1 seam..... | | | No. 1 seam. | | |
| Kind of sample..... | Commercial — 10 tons. | | | | Mine..... | | Mine..... | | | Commercial — 35 tons. | | |
| Quality of coal..... | Run-of-mine..... | | | Washed coal from M 33, yield 86% | Run-of-mine.. | | | | | Run-of-mine. | | |
| Taken by..... | T. Denis, Mines Branch. | | | | E. Stansfield. | | A. N. Scott, provincial mine inspector. | | | F. Aspinall, provincial mine inspector. | | |
| Date of sampling..... | May 5, 1908..... | | | | July 29, 1909.. | | January 1914..... | | | November, 1914. Lab. sample April 12, 1915. | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Crowsnest Pass Area.

| Description. | West Canadian Collieries, Ltd., Blairmore. Lille colliery, Lille, Sec. 8, Tp. 8, R. 3. | | | | | | Leitch Collieries, Ltd., Passburg. Sec. 15, Tp. 7, R. 3. | | | | | | | | |
|--------------------------------------------|-------------------------------------------------------------------------------------------------|-------|-------|-----------------|-------|-------|-------------------------------------------------------------|-------|-------|-----------------------------------------|------------------------------|-------|-----------------------------------------|--|--|
| | M 28 | | | M 2028 | | | M 48 | | | M 2048 | | | 305 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | D | R | AD | D | R | D | R | AD | D | | |
| Loss on air-drying.....% | 0.9 | ..... | ..... | ..... | ..... | 0.9 | ..... | ..... | ..... | ..... | 0.1 | ..... | ..... |  |  |
| Results obtained by..... | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | | |
| Proximate analysis:— | | | | | | | | | | | | | | | |
| Moisture.....% | 1.7 | 0.8 | ..... | 1.5 | ..... | 1.9 | 1.0 | ..... | 1.1 | ..... | 1.1 | 1.0 | ..... |  |  |
| Ash.....% | 16.1 | 16.3 | 16.4 | 15.5 | 15.8 | 17.6 | 17.7 | 17.9 | 17.9 | 18.1 | 20.3 | 20.3 | 20.5 | | |
| Volatile matter.....% | 24.6 | 24.8 | 25.0 | 24.9 | 25.3 | 26.5 | 26.7 | 27.0 | 28.4 | 28.7 | 25.8 | 25.8 | 26.1 | | |
| Fixed carbon.....% | 57.6 | 58.1 | 58.6 | 58.1 | 58.9 | 54.0 | 54.6 | 55.1 | 52.6 | 53.2 | 52.8 | 52.9 | 53.4 | | |
| Ultimate analysis:— | | | | | | | | | | | | | | | |
| Carbon.....% | 70.0 | 70.6 | 71.2 | ..... | ..... | 68.6 | 69.3 | 70.0 | ..... | ..... | 66.5 | 66.6 | 67.3 | | |
| Hydrogen.....% | 4.4 | 4.3 | 4.2 | ..... | ..... | 4.6 | 4.5 | 4.4 | ..... | ..... | 4.4 | 4.4 | 4.3 | | |
| Ash.....% | 16.1 | 16.3 | 16.4 | ..... | ..... | 17.6 | 17.7 | 17.9 | ..... | ..... | 20.3 | 20.3 | 20.5 | | |
| Sulphur.....% | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 1.4 | 1.4 | 1.7 | 1.7 | 1.7 | | |
| Nitrogen.....% | 0.9 | 0.9 | 0.9 | ..... | ..... | 1.0 | 1.0 | 1.0 | ..... | ..... | 0.9 | 0.9 | 0.9 | | |
| Oxygen.....% | 8.1 | 7.4 | 6.8 | ..... | ..... | 7.6 | 6.9 | 6.1 | ..... | ..... | 6.2 | 6.1 | 5.3 | | |
| Calorific value:— | | | | | | | | | | | | | | | |
| Calories per gram, gross | 6810 | 6870 | 6930 | 6910 | 7010 | 6670 | 6730 | 6800 | 6710 | 6790 | 6480 | 6490 | 6560 | | |
| B. Th. U. per lb., gross | 12260 | 12370 | 12470 | 12430 | 12620 | 12000 | 12120 | 12240 | 12090 | 12220 | 11670 | 11680 | 11800 | | |
| Fuel ratio..... | 2.35 | | | 2.30 | | | 2.05 | | | 1.85 | | | 2.05 | | |
| Carbon-Hydrogen ratio... | 16.0 | 16.4 | 16.8 | ..... | ..... | 15.0 | 15.4 | 15.8 | ..... | ..... | 15.1 | 15.1 | 15.5 | | |
| Coking properties..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | small lump of very fair coke | | | | |
| Hoffmann potash test..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |  |  |
| Location in mine..... | No. 1 seam..... | | | No. 1 seam... | | | No. 1 or Byron seam. | | | No. 1 or Byron seam. | | | No. 1 seam, main gangway. | | |
| Kind of sample..... | Commercial — 1 ton. | | | Mine..... | | | Commercial — 5 tons. | | | Mine..... | | | Mine. | | |
| Quality of coal..... | Run-of-mine..... | | | Run-of-mine... | | | Run-of-mine..... | | | Lumps of slate removed by hand picking. | | | | | |
| Taken by..... | T. Denis, Mines Branch. | | | E. Stansfield. | | | T. Denis, Mines Branch. | | | E. Stansfield. | | | A. N. Scott, provincial mine inspector. | | |
| Date of sampling..... | May 6, 1908..... | | | July 30, 1909.. | | | July 18, 1908..... | | | July 29, 1909.. | | | November, 1913. | | |
| Remarks..... | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

ALBERTA COAL FIELDS.

Canmore-Banff Area.

| Description. | Canmore Coal Co., Ltd., No. 2 mine, Canmore. Sec. 29, Tp. 24, R. 10. | | | | | | | | | | | |
|-----------------------------------------|-------------------------------------------------------------------------|-------|-------|----------------------------|-------|-------|------------------------------------------|-------|-------|--------------------------------------------|-------|-------|
| | 370 | | | 371 | | | 303 | | | 718 | | |
| Sample No..... | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | | | | | | | | | | | | |
| Loss on air-drying.....% | 1.4 | | | 3.5 | | | 0.0 | | | 1.0 | | |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis— | | | | | | | | | | | | |
| Moisture.....% | 2.1 | 0.7 | | 4.4 | 0.9 | | 0.9 | 0.9 | | 1.9 | 0.9 | |
| Ash.....% | 7.2 | 7.3 | 7.4 | 15.4 | 16.0 | 16.1 | 5.4 | 5.4 | 5.4 | 6.2 | 6.3 | 6.4 |
| Volatile matter.....% | 15.6 | 15.8 | 15.9 | 13.3 | 13.8 | 13.9 | 14.0 | 14.0 | 14.1 | 9.8 | 9.9 | 10.0 |
| Fixed carbon.....% | 75.1 | 76.2 | 76.7 | 66.9 | 69.3 | 70.0 | 79.7 | 79.7 | 80.5 | 82.1 | 82.9 | 83.6 |
| Ultimate analysis— | | | | | | | | | | | | |
| Carbon.....% | | | | | | | 85.2 | 85.2 | 86.0 | 82.8 | 83.6 | 84.3 |
| Hydrogen.....% | | | | | | | 4.2 | 4.2 | 4.1 | 4.2 | 4.2 | 4.1 |
| Ash.....% | | | | | | | 5.4 | 5.4 | 5.4 | 6.2 | 6.3 | 6.4 |
| Sulphur.....% | | | | | | | 0.9 | 0.9 | 0.9 | 0.7 | 0.7 | 0.8 |
| Nitrogen.....% | | | | | | | 1.3 | 1.3 | 1.3 | 1.6 | 1.6 | 1.6 |
| Oxygen.....% | | | | | | | 3.0 | 3.0 | 2.3 | 4.5 | 3.6 | 2.8 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | | | | | | | 8040 | 8040 | 8120 | 7930 | 8010 | 8080 |
| B. Th. U. per lb., gross..... | | | | | | | 14470 | 14470 | 14610 | 14280 | 14420 | 14560 |
| Fuel ratio..... | 4.80 | | | 5.05 | | | 5.70 | | | 8.35 | | |
| Carbon-Hydrogen ratio..... | | | | | | | 20.5 20.5 21.0 | | | 19.5 20.0 20.5 | | |
| Coking properties..... | | | | | | | very slight tendency to agglomerate. | | | forms agglomerate. | | |
| Hoffmann potash test..... | | | | | | | | | | 12 | | |
| Location in mine..... | Carey seam..... | | | Sedlock seam, basin slope. | | | Carey seam..... | | | Stewart seam, main gangway. | | |
| Kind of sample..... | | | | | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | | | | Includes two 3-inch bands of dirty coal. | | | Run-of-mine. | | |
| Taken by..... | Mine authorities.. | | | Mine authorities.. | | | F. Aspinall, provincial mine inspector. | | | J. A. Richards, provincial mine inspector. | | |
| Date of sampling..... | Spring of 1914..... | | | 1914..... | | | November, 1913.. | | | December 4, 1915. | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Canmore-Banff Area.

| Description. | Canmore Coal Co., Ltd., Canmore. No. 1 or old mine. Sec. 29, T.p. 24, R. 10. | | | | The Georgetown Collieries, Ltd., Canmore. Secs. 1 and 6, T.p. 25, R's. 10 and 11. | | | | | |
|-----------------------------------------|------------------------------------------------------------------------------------|-------|-------|-------|-----------------------------------------------------------------------------------------|-------|-------|----------------------------------------------|-------|-------|
| | M 25 | | M 225 | | 301 | | | 354 | | |
| Sample No..... | R | AD | D | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | | | | | | | | | | |
| Loss on air-drying.....% | 0.3 | ..... | ..... | ..... | 0.0 | ..... | ..... | 2.1 | ..... | ..... |
| Results obtained by..... | Calc. | Calc. | Anal. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | |
| Moisture.....% | 1.2 | 0.9 | ..... | ..... | 0.8 | 0.8 | ..... | 2.9 | 0.9 | ..... |
| Ash.....% | 12.1 | 12.2 | 12.3 | 5.9 | 9.6 | 9.6 | 9.7 | 12.3 | 12.5 | 12.6 |
| Volatile matter.....% | 17.0 | 17.0 | 17.2 | 16.2 | 16.8 | 16.8 | 16.9 | 13.1 | 13.4 | 13.5 |
| Fixed carbon.....% | 69.7 | 69.9 | 70.5 | 77.9 | 72.8 | 72.8 | 73.4 | 71.7 | 73.2 | 73.9 |
| Ultimate analysis:— | | | | | | | | | | |
| Carbon.....% | 73.7 | 74.0 | 74.6 | 85.2 | 80.4 | 80.4 | 81.1 | 76.2 | 77.9 | 78.5 |
| Hydrogen.....% | 3.9 | 3.9 | 3.8 | 4.1 | 4.2 | 4.2 | 4.1 | 4.2 | 4.1 | 4.0 |
| Ash.....% | 12.1 | 12.2 | 12.3 | 5.9 | 9.6 | 9.6 | 9.7 | 12.3 | 12.5 | 12.6 |
| Sulphur.....% | 0.8 | 0.8 | 0.8 | 0.7 | 1.8 | 1.8 | 1.8 | 0.8 | 0.8 | 0.8 |
| Nitrogen.....% | 1.6 | 1.6 | 1.6 | 1.7 | 1.5 | 1.5 | 1.5 | 1.2 | 1.2 | 1.2 |
| Oxygen.....% | 7.9 | 7.5 | 6.9 | 2.4 | 2.5 | 2.5 | 1.8 | 5.3 | 3.5 | 2.9 |
| Calorific value:— | | | | | | | | | | |
| Calories per gram, gross..... | 7250 | 7270 | 7340 | 8000 | 7570 | 7570 | 7640 | 7180 | 7330 | 7390 |
| B. Th. U. per lb., gross..... | 13050 | 13090 | 13210 | 14400 | 13640 | 13640 | 13750 | 12920 | 13190 | 13300 |
| Fuel ratio..... | 4.10 | | 4.80 | | 4.35 | | | 5.45 | | |
| Carbon-Hydrogen ratio..... | 19.0 | 19.1 | 19.6 | 20.8 | 19.3 | 19.3 | 19.7 | 18.1 | 19.2 | 19.6 |
| Coking properties..... | ..... |  |  |  | agglomerates slightly 9-10 | | | barely agglomerates | | |
| Hoffmann potash test..... | ..... |  |  |  | ..... |  |  | ..... |  |  |
| Location in mine..... | ..... |  |  |  | No. 3 seam..... | | | No. 3 seam. | | |
| Kind of sample..... | Commercial — 10 tons. | | | | Mine..... | | | Commercial — 20 tons. | | |
| Quality of coal..... | Lumps hand-picked, and then re-mixed with slack | | | | Washed coal from M 25, yield 82%. | | | | | |
| Taken by..... | T. Denis, Mines Branch. | | | | Provincial mine inspector. | | | F. Aspinall, provincial mine inspector. | | |
| Date of sampling..... | April 22, 1908..... | | | | November 1913.. | | | November 1913. Lab. sample Mar. 25, 1914. | | |
| Remarks..... | Operated by H. W. McNeil Co. Ltd. at time of sampling. | | | | | | | | | |

ALBERTA COAL FIELDS.

Canmore-Banff Area.

| Description. | Canadian Pacific Railway Company. Natural Resources Department, Calgary. Bankhead colliery, Bankhead. Sec. 19, Tp. 26, R. 11. | | | | | | | | | | |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------|-------|------------------------------------------------|-------|-------|------------------------------|-------------------------------------|-----------------------------------------------|-------|-------|
| | M 23 | | | M 23 SP | | | M 23 M | M 223 M | M 24 | | |
| Sample No..... | R | AD | D | R | AD | D | D | D | R | AD | D |
| Moisture condition (see note p. 2)..... | | | | | | | | | | | |
| Loss on air-drying.....% | 0.5 | ..... | ..... | 0.6 | ..... | ..... | ..... | ..... | 1.8 | ..... | ..... |
| Results obtained by..... | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Anal. | Anal. | Calc. | Calc. | Anal. |
| Proximate analysis:— | | | | | | | | | | | |
| Moisture.....% | 0.9 | 0.5 | ..... | 1.1 | 0.5 | ..... | ..... | ..... | 2.7 | 0.9 | ..... |
| Ash.....% | 12.1 | 12.1 | 12.2 | 15.7 | 15.8 | 15.9 | 14.1 | 8.9 | 13.9 | 14.1 | 14.3 |
| Volatile matter.....% | 11.7 | 11.7 | 11.8 | 12.5 | 12.6 | 12.6 | 12.6 | 12.5 | 16.6 | 17.0 | 17.1 |
| Fixed carbon.....% | 75.3 | 75.7 | 76.0 | 70.7 | 71.1 | 71.5 | 73.3 | 78.6 | 66.8 | 68.0 | 68.6 |
| Ultimate analysis:— | | | | | | | | | | | |
| Carbon.....% | 78.7 | 79.1 | 79.4 | 75.2 | 75.6 | 76.0 | 76.6 | 81.8 | 74.2 | 75.6 | 76.3 |
| Hydrogen.....% | 3.6 | 3.6 | 3.6 | 3.7 | 3.7 | 3.7 | 3.6 | 3.8 | 3.9 | 3.8 | 3.7 |
| Ash.....% | 12.1 | 12.1 | 12.2 | 15.7 | 15.8 | 15.9 | 14.1 | 8.9 | 13.9 | 14.1 | 14.3 |
| Sulphur.....% | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Nitrogen.....% | 1.0 | 1.0 | 1.0 | 0.9 | 0.9 | 0.9 | 1.0 | 1.1 | 1.0 | 1.0 | 1.0 |
| Oxygen.....% | 4.0 | 3.6 | 3.2 | 3.9 | 3.4 | 2.9 | 4.1 | 3.8 | 6.4 | 4.9 | 4.1 |
| Calorific value:— | | | | | | | | | | | |
| Calories per gram, gross.... | 7330 | 7360 | 7400 | 6970 | 7010 | 7040 | 7270 | 7760 | 7080 | 7210 | 7280 |
| B. Th. U. per lb., gross.... | 13190 | 13250 | 13310 | 12540 | 12610 | 12670 | 13080 | 13970 | 12740 | 12970 | 13100 |
| Fuel ratio..... | 6.45 | | | 5.65 | | | 5.80 | 6.30 | 4.00 | | |
| Carbon-Hydrogen ratio..... | 21.7 | 22.0 | 22.3 | 20.1 | 20.5 | 20.8 | 21.3 | 21.5 | 19.1 | 20.2 | 20.7 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | non-coking | non-coking | | |
| Hoffmann potash test..... | ..... |  |  | ..... |  |  | ..... | ..... | ..... |  |  |
| Location in mine..... | ..... |  |  |  |  |  |  |  |  |  |  |
| Kind of sample..... | Commercial — 5 tons. | | | Commercial — 5 tons. |  |  | ..... | ..... | Commercial — 5 tons. | | |
| Quality of coal..... | Pea size $\frac{3}{4}$ to 7/16-inch, over slater and picker. | | | Buckwheat size 7/16 to 5/16-inch, over slater. | | | Mixture of M 23 and M 23 SP. | Washed coal from M 23 M, yield 84%. | Coal dust briquetted with about 10% coal tar. | | |
| Taken by..... | T. Denis, Mines Branch. | | | T. Denis..... |  |  | ..... | ..... | T. Denis. | | |
| Date of sampling..... | April 21, 1908..... | | | April 21, 1908..... |  |  | ..... | ..... | April 20, 1908. | | |
| Remarks..... | ..... |  |  |  |  |  |  |  |  |  |  |

ALBERTA COAL FIELDS.

Canmore-Banff Area.

| Description. | Canadian Pacific Railway, Natural Resources Department, Calgary. Bankhead colliery, Bankhead. Sec. 19, Tp. 26, R. 11. | | | | | | | | |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------|-------|------------------------------|-------|-------|----------------------------------------------|-------|-------|
| | 772 | | | 774 | | | 902 | | |
| Sample No. | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | 0.0 | .... | .... | 0.1 | .... | .... | 0.6 | .... | .... |
| Loss on air-drying.....% | 0.0 | .... | .... | 0.1 | .... | .... | 0.6 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 0.6 | 0.6 | .... | 0.6 | 0.5 | .... | 1.1 | 0.5 | .... |
| Ash.....% | 13.6 | 13.6 | 13.7 | 9.7 | 9.7 | 9.8 | 18.4 | 18.5 | 18.6 |
| Volatile matter.....% | 8.8 | 8.8 | 8.9 | 8.2 | 8.2 | 8.2 | 10.0 | 10.0 | 10.1 |
| Fixed carbon.....% | 77.0 | 77.0 | 77.4 | 81.5 | 81.6 | 82.0 | 70.5 | 71.0 | 71.3 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 78.2 | 78.2 | 78.7 | 82.2 | 82.3 | 82.7 | 72.7 | 73.1 | 73.5 |
| Hydrogen.....% | 3.5 | 3.5 | 3.4 | 3.7 | 3.7 | 3.6 | 3.3 | 3.3 | 3.2 |
| Ash.....% | 13.6 | 13.6 | 13.7 | 9.7 | 9.7 | 9.8 | 18.4 | 18.5 | 18.6 |
| Sulphur.....% | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Nitrogen.....% | 1.1 | 1.1 | 1.1 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 |
| Oxygen.....% | 3.1 | 3.1 | 2.6 | 3.0 | 2.9 | 2.4 | 4.1 | 3.6 | 3.2 |
| Caloric value:— | | | | | | | | | |
| Calories per gram, gross..... | 7160 | 7160 | 7200 | 7640 | 7650 | 7690 | 6770 | 6810 | 6840 |
| B. Th. U. per lb., gross..... | 12890 | 12890 | 12970 | 13750 | 13760 | 13830 | 12180 | 12250 | 12310 |
| Fuel ratio..... | | 8.70 | | | 9.95 | | | 7.10 | |
| Carbon-Hydrogen ratio..... | 22.6 | 22.6 | 23.0 | 22.4 | 22.4 | 22.8 | 21.7 | 22.1 | 22.5 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 9 | | | 10 |  |  | .... |  |  |
| Location in mine..... | No. 0000 seam, B level gangway. | | | No. 2 seam, C level gangway. | | | | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial—20 tons. | | |
| Quality of coal..... | Bone coal left in sample, which was probably of lower grade than coal shipped from mine. | | | Run-of-mine..... | | | Pea coal. | | |
| Taken by..... | F. Aspinall, provincial mine inspector. | | | F. Aspinall..... | | | Provincial mine inspector. | | |
| Date of sampling..... | July 7, 1916..... | | | July 12, 1916..... | | | May 1916. Lab., sample November 29, 1916. | | |
| Remarks..... | | | | | | | | | |

ALBERTA COAL FIELDS.

Brazeau Area.

| Description. | Brazeau Collieries, Ltd., Nordegg. Sec. 22, Tp. 40, R. 15. | | | | | | | | | | | | |
|-----------------------------------|---------------------------------------------------------------|-------|-------|----------------------------------------------|-------|-------|---------------------------------------|-------|-------|-----------------------------------|-------|---------------------------------|-------|
| | 469 | | | 537 | | | 574 | | | 858 | | 859 | |
| Moisture condition (see note p.2) | R | AD | D | R | AD | D | R | AD | D | R | D | R | D |
| Loss on air-drying.....% | 1.0 | ..... | ..... | 1.8 | ..... | ..... | 0.3 | ..... | ..... | ..... | ..... | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | | |
| Moisture.....% | 1.8 | 0.9 | ..... | 2.1 | 0.4 | ..... | 0.8 | 0.5 | ..... | 0.8 | ..... | 0.6 | ..... |
| Ash.....% | 11.9 | 12.0 | 12.1 | 10.5 | 10.6 | 10.7 | 2.7 | 2.7 | 2.7 | 14.5 | 14.6 | 11.6 | 11.7 |
| Volatile matter.....% | 16.3 | 16.5 | 16.6 | 16.8 | 17.1 | 17.1 | 17.9 | 17.9 | 18.0 | 15.1 | 15.2 | 14.6 | 14.7 |
| Fixed carbon.....% | 70.0 | 70.6 | 71.3 | 70.6 | 71.9 | 72.2 | 78.6 | 78.9 | 79.3 | 69.6 | 70.2 | 73.2 | 73.6 |
| Ultimate analysis:— | | | | | | | | | | | | | |
| Carbon.....% | 77.9 | 78.7 | 79.4 | 78.7 | 80.1 | 80.4 | ..... | ..... | ..... | 76.1 | 76.7 | 79.7 | 80.1 |
| Hydrogen.....% | 4.3 | 4.2 | 4.1 | 4.2 | 4.1 | 4.0 | ..... | ..... | ..... | 3.9 | 3.8 | 4.1 | 4.0 |
| Ash.....% | 11.9 | 12.0 | 12.1 | ..... | ..... | ..... | ..... | ..... | ..... | 14.5 | 14.6 | 11.6 | 11.7 |
| Sulphur.....% | 0.4 | 0.4 | 0.4 | ..... | ..... | ..... | ..... | ..... | ..... | 0.5 | 0.5 | 0.4 | 0.4 |
| Nitrogen.....% | 1.1 | 1.1 | 1.1 | ..... | ..... | ..... | ..... | ..... | ..... | 1.1 | 1.1 | 1.1 | 1.2 |
| Oxygen.....% | 4.4 | 3.6 | 2.9 | ..... | ..... | ..... | ..... | ..... | ..... | 3.9 | 3.3 | 3.1 | 2.6 |
| Calorific value:— | | | | | | | | | | | | | |
| Calories per gram, gross.... | 7420 | 7490 | 7560 | ..... | ..... | ..... | ..... | ..... | ..... | 7280 | 7340 | 7600 | 7640 |
| B. Th. U. per lb., gross.... | 13350 | 13480 | 13620 | ..... | ..... | ..... | ..... | ..... | ..... | 13110 | 13210 | 13690 | 13760 |
| Fuel ratio..... | 4.30 | | | 4.20 | | | 4.40 | | | 4.60 | | 5.00 | |
| Carbon-Hydrogen ratio..... | 18.2 | 18.7 | 19.2 | 18.8 | 19.7 | 20.0 | ..... | ..... | ..... | 19.6 | 20.0 | 19.7 | 20.0 |
| Coking properties..... | poor coke | | | small lump of fair coke | | | swells considerably forming good coke | | | poor coke | | poor coke | |
| Hoffmann potash test..... | ..... |  |  | 11 | | | 10 |  |  | ..... |  | ..... |  |
| Location in mine..... | No. 2 mine, No. 2 seam, main entry. | | | No. 2 seam..... | | | No. 2 seam..... | | | No. 2 seam, 4200 feet from entry. | | No. 2 seam, centre of workings. | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine..... | | Mine. | |
| Quality of coal..... | | | | | | | | | | | | | |
| Taken by..... | J. A. Richards, provincial mine inspector. | | | Fire ranger, Board of Railway Commissioners. | | | Fire ranger..... | | | J. S. Stewart, Geological Survey. | | J. S. Stewart. | |
| Date of sampling..... | December, 1914.... | | | February, 1915.... | | | May, 1915..... | | | Summer of 1916. | | 1916. | |
| Remarks..... | | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Brazeau Area.

| Description. | Brazeau Collieries, Ltd., Nordegg. | | | | | | | | | | | |
|---------------------------------------|----------------------------------------------|-------|-------|------------------|-------|-------|--------------------------------------------|-------|-------|-----------------------------------|-------|--|
| | Sec. 22, Tp. 40, R. 15. | | | | | | | | | | | |
| Sample No..... | 538 | | | 575 | | | 719 | | | 860 | | |
| Moisture condition (see note p. 2)... | R | AD | D | R | AD | D | R | AD | D | R | D | |
| Loss on air-drying.....% | 1.6 | ..... | ..... | 0.1 | ..... | ..... | 0.0 | ..... | ..... | ..... | ..... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Anal. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 2.1 | 0.5 | ..... | 0.7 | 0.6 | ..... | 0.7 | 0.7 | ..... | 0.6 | ..... |  |
| Ash.....% | 12.3 | 12.5 | 12.6 | 34.9 | 34.9 | 35.2 | 13.1 | 13.1 | 13.2 | 16.9 | 17.0 | |
| Volatile matter.....% | 16.5 | 16.8 | 16.8 | 14.7 | 14.7 | 14.8 | 12.6 | 12.6 | 12.7 | 14.6 | 14.7 | |
| Fixed carbon.....% | 69.1 | 70.2 | 70.6 | 49.7 | 49.8 | 50.0 | 73.6 | 73.6 | 74.1 | 67.9 | 68.3 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 77.0 | 78.2 | 78.6 | ..... | ..... | ..... | 77.7 | 77.7 | 78.3 | 74.4 | 74.8 | |
| Hydrogen.....% | 4.3 | 4.2 | 4.2 | ..... | ..... | ..... | 4.1 | 4.1 | 4.0 | 3.9 | 3.9 | |
| Ash.....% | 12.3 | 12.5 | 12.6 | ..... | ..... | ..... | 13.1 | 13.1 | 13.2 | 16.9 | 17.0 | |
| Sulphur.....% | ..... | ..... | ..... | ..... | ..... | ..... | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | 3.5 | 3.5 | 2.9 | 3.1 | 2.6 | |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | ..... | ..... | ..... | ..... | ..... | ..... | 7430 | 7430 | 7480 | 7100 | 7140 | |
| B. Th. U. per lb., gross..... | ..... | ..... | ..... | ..... | ..... | ..... | 13370 | 13370 | 13460 | 12790 | 12860 | |
| Fuel ratio..... | 4.20 | | | 3.40 | | | 5.85 | | | 4.65 | | |
| Carbon-Hydrogen ratio..... | 17.9 | 18.7 | 18.9 | ..... | ..... | ..... | 19.0 | 19.0 | 19.4 | 19.1 | 19.4 | |
| Coking properties..... | small lump of fair coke 10-11 | | | poor coke | | | poor coke | | | poor coke | | |
| Hoffmann potash test..... | | | | 9 | | | 8-9 | | | | | |
| Location in mine..... | No. 3 seam..... | | | No. 3 seam..... | | | No. 3 mine, No. 3 seam, main gangway. | | | No. 3 seam, 2000 ft. from entry. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | | | | Average of 14-ft. seam. | | | | | |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | | Fire ranger..... | | | J. A. Richards, provincial mine inspector. | | | J. S. Stewart, Geological Survey. | | |
| Date of sampling..... | February 1915..... | | | May 1915..... | | | December 9, 1915... | | | Summer of 1916. | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Brazeau Area.

| Description. | Brazeau Collieries, Ltd., Nordegg. Sec. 22, Tp. 40, R. 15. | | | | | | British Collieries (Brazeau), Ltd., Ed. Brown & Co., Agents, Winnipeg, Man. Tp. 44, R. 20. | | | | |
|------------------------------------|---------------------------------------------------------------|-------|-------|-----------------|-------|-----------------|-----------------------------------------------------------------------------------------------------|--------------------------------|-------|-----------------------------|-------|
| | 534 | | | 560 | | 561 | | 293 | | 294 | |
| | R | AD | D | R | D | R | D | R | D | R | D |
| Sample No..... | | | | | | | | | | | |
| Moisture condition (see note p. 2) | R | AD | D | R | D | R | D | R | D | R | D |
| Loss on air-drying.....% | 0.1 | ..... | ..... | 0.0 | ..... | 0.0 | ..... | ..... | ..... | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | |
| Moisture.....% | 0.6 | 0.4 | ..... | 0.8 | ..... | 0.7 | ..... | 0.8 | ..... | 0.9 | ..... |
| Ash.....% | 3.5 | 3.5 | 3.6 | 18.3 | 18.4 | 17.3 | 17.5 | 13.5 | 13.6 | 12.6 | 12.7 |
| Volatile matter.....% | 18.2 | 18.2 | 18.3 | 16.7 | 16.9 | 17.1 | 17.2 | 22.4 | 22.6 | 23.2 | 23.3 |
| Fixed carbon.....% | 77.7 | 77.9 | 78.1 | 64.2 | 64.7 | 64.9 | 65.3 | 63.3 | 63.8 | 63.3 | 64.0 |
| Ultimate analysis:— | | | | | | | | | | | |
| Carbon.....% | 87.0 | 87.1 | 87.5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hydrogen.....% | 4.4 | 4.4 | 4.4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ash.....% | 3.5 | 3.5 | 3.6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sulphur.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0.2 | 0.2 | 0.1 | 0.1 |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Calorific value:— | | | | | | | | | | | |
| Calories per gram, gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7310 | 7360 | 7370 | 7440 |
| B. Th. U. per lb., gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 13150 | 13260 | 13270 | 13390 |
| Fuel ratio..... | 4.25 | | | 3.85 | | 3.80 | | 2.85 | | 2.75 | |
| Carbon-Hydrogen ratio..... | 19.7 | 19.7 | 19.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Coking properties..... | swells considerably forming good coke | | | poor coke | | poor coke | | poor coke | | fair coke | |
| Hoffmann potash test..... | 10 | | | 9 | | 10 |  | ..... |  | ..... |  |
| Location in mine..... | ..... |  |  | ..... |  | ..... |  | Lower portion of 20-foot seam. | | Top 12 feet in 20-foot seam | |
| Kind of sample..... | Mine..... | | | Commercial.. | | Commercial.. |  | ..... |  | ..... |  |
| Quality of coal..... | ..... |  |  | From tipple.. | | From tipple.. |  | ..... |  | ..... |  |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | | Fire ranger.... | | Fire ranger.... | | L. V. Rice.... | | L. V. Rice. | |
| Date of sampling..... | February 1915..... | | | Feb. 18, 1915.. | | Feb. 18, 1915.. | | 1913..... | | 1913. | |
| Remarks..... | ..... |  |  | ..... |  | ..... |  | ..... |  | ..... |  |

ALBERTA COAL FIELDS.

Mountain Park Area.

| Description. | Mountain Park Coal Co., Ltd., Mountain Park. | | | | | | | | | | |
|------------------------------------|------------------------------------------------------|-------|-------|-----------------------------------------|-------|----------------------------------|-------|-----------------------------------------------------|-------|--------------------------------------|-------|
| | Sec. 33, Tp. 45, R. 23. | | | | | | | | | | |
| Sample No..... | 435 | | | 868 | | 869 | | 867 | | 870 | |
| Moisture condition (see note p. 2) | R | AD | D | R | D | R | D | R | D | R | D |
| Loss on air-drying.....% | 0.4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Results obtained by..... | Calc. Anal. Calc. | | | Anal. Calc. | | Anal. Calc. | | Anal. Calc. | | Anal. Calc. | |
| Proximate analysis:— | | | | | | | | | | | |
| Moisture.....% | 1.2 | 0.8 | ..... | 0.5 | ..... | 0.7 | ..... | 0.7 | ..... | 1.3 | ..... |
| Ash.....% | 8.0 | 8.0 | 8.1 | 23.6 | 23.8 | 22.8 | 23.0 | 15.2 | 15.3 | 17.5 | 17.7 |
| Volatile matter.....% | 28.2 | 28.3 | 28.6 | 25.1 | 25.2 | 23.0 | 23.2 | 25.2 | 25.4 | 24.3 | 24.6 |
| Fixed carbon.....% | 62.6 | 62.9 | 63.3 | 50.8 | 51.0. | 53.5 | 53.8 | 58.9 | 59.3 | 56.9 | 57.7 |
| Ultimate analysis:— | | | | | | | | | | | |
| Carbon.....% | 78.9 | 79.2 | 79.9 | 64.9 | 65.2 | 66.1 | 66.5 | 73.0 | 73.6 | 69.0 | 69.9 |
| Hydrogen.....% | 4.8 | 4.8 | 4.8 | 4.2 | 4.1 | 4.1 | 4.0 | 4.4 | 4.3 | 4.3 | 4.2 |
| Ash.....% | ..... | ..... | ..... | 23.6 | 23.8 | 22.8 | 23.0 | 15.2 | 15.3 | 17.5 | 17.7 |
| Sulphur.....% | ..... | ..... | ..... | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Nitrogen.....% | ..... | ..... | ..... | 0.9 | 0.9 | 1.0 | 1.0 | 0.9 | 0.9 | 1.5 | 1.5 |
| Oxygen.....% | ..... | ..... | ..... | 6.1 | 5.7 | 5.6 | 5.1 | 6.1 | 5.5 | 7.3 | 6.3 |
| Calorific value:— | | | | | | | | | | | |
| Calories per gram, gross..... | 7680 | 7720 | 7780 | 6270 | 6300 | 6400 | 6440 | 7090 | 7140 | 6670 | 6760 |
| B. Th. U. per lb., gross..... | 13830 | 13890 | 14010 | 11290 | 11350 | 11520 | 11600 | 12760 | 12860 | 12010 | 12170 |
| Fuel ratio..... | 2.20 | | | 2.00 | | 2.30 | | 2.35 | | 2.35 | |
| Carbon-Hydrogen ratio..... | 16.3 | 16.5 | 16.8 | 15.6 | 15.8 | 16.3 | 16.6 | 16.7 | 17.0 | 15.9 | 16.5 |
| Coking properties..... | fair coke | | | fair coke, somewhat swollen. | | poor coke | | fair coke | | poor coke | |
| Hoffmann potash test..... | | | | | | | | | | | |
| Location in mine..... | No. 3 seam..... | | | No. 3 seam, middle portion. | | No. 3 seam, lower portion. | | No. 2 (prospect) seam, 150 ft. from entry. | | No. 5 seam, 50 ft. from entry. | |
| Kind of sample..... | Mine..... | | | Mine..... | | Mine..... | | Mine..... | | Mine..... | |
| Quality of coal..... | | | | | | | | | | | |
| Taken by..... | Fire ranger, Board of Railway Com- missioners. | | | J. S. Stewart, Geological Survey. | | J. S. Stewart. 1916. | | J. Stewart.... 1916. | | J. S. Stewart. 1916. | |
| Date of sampling..... | November 1914..... | | | Summer of 1916. | | | | | | | |
| Remarks..... | Samples taken 400 ft. from bottom of slope. | | | | | | | | | | |

ALBERTA COAL FIELDS.

Jasper Park Area.

| Description. | Jasper Park Collieries, Ltd., Pocohontas. | | Jasper Park Collieries, Ltd., Miette mine, Pocohontas. Sec. 18, Tp. 49, R. 28. | | | The Blue Diamond Coal Co., Ltd., Brulé Mines. Sec. 15, Tp. 50, R. 27. | |
|--------------------------------------|----------------------------------------------|-------|--------------------------------------------------------------------------------|-------|-------|-----------------------------------------------------------------------|-------|
| | | | | | | | |
| Sample No..... | 602 | | 487 | | | 603 | |
| Moisture condition (see note, p. 2). | R | D | R | AD | D | R | D |
| Loss on air-drying.....% | .... | .... | 1.8 | .... | .... | .... | .... |
| Results obtained by..... | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | |
| Moisture.....% | 0.8 | .... | 2.3 | 0.5 | .... | 0.7 | .... |
| Ash.....% | 5.8 | 5.8 | 21.4 | 21.8 | 21.9 | 15.8 | 15.9 |
| Volatile matter.....% | 17.8 | 17.9 | 18.5 | 18.8 | 18.9 | 20.5 | 20.6 |
| Fixed carbon.....% | 75.6 | 76.3 | 57.8 | 58.9 | 59.2 | 63.0 | 63.5 |
| Ultimate analysis:— | | | | | | | |
| Carbon.....% | .... | .... | 66.8 | 68.1 | 68.4 | .... | .... |
| Hydrogen.....% | .... | .... | 4.0 | 3.9 | 3.8 | .... | .... |
| Ash.....% | .... | .... | 21.4 | 21.8 | 21.9 | .... | .... |
| Sulphur.....% | .... | .... | 0.8 | 0.8 | 0.8 | .... | .... |
| Nitrogen.....% | .... | .... | 1.1 | 1.1 | 1.1 | .... | .... |
| Oxygen.....% | .... | .... | 5.9 | 4.3 | 4.0 | .... | .... |
| Calorific value:— | | | | | | | |
| Calories per gram, gross..... | .... | .... | 6430 | 6550 | 6580 | .... | .... |
| B. Th. U. per lb., gross..... | .... | .... | 11580 | 11790 | 11840 | .... | .... |
| Fuel ratio..... | 4.25 | | 3.10 | | | 3.10 | |
| Carbon-Hydrogen ratio..... | .... | .... | 16.7 | 17.6 | 17.8 | .... | .... |
| Coking properties..... | small lump of fair coke | | small lump of good coke | | | small lump of poor coke | |
| Hoffmann potash test..... | 11 | | | | | 11 | |
| Location in mine..... | No. 1 seam..... | | | | | | |
| Kind of sample..... | Mine..... | | Commercial—30 tons..... | | | Mine. | |
| Quality of coal..... | | | | | | | |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | Provincial mine inspector... | | | Fire ranger. | |
| Date of sampling..... | July 1915..... | | December 1914..... Lab. sample February 1, 1915 | | | July 1915. | |
| Remarks..... | | | | | | Operated by Mackenzie & Mann at time of sampling. | |

ALBERTA COAL FIELDS.

Jasper Park Area.

| Description. | The Blue Diamond Coal Co., Ltd., Brulé Mines. Sec. 15, Tp. 50, R. 27. | | | | | | | | | Bartholemew claim. Near Brulé Lake. Sec. 17, Tp. 50, R. 28. | |
|-------------------------------------|--------------------------------------------------------------------------|-------|-------|-------------------------|-------|-------|-------------------|-------|-------|-------------------------------------------------------------------|-------|
| | 1219 | | | 1220 | | | 1221 | | | 889 | |
| Moisture condition (see note p. 2). | R | AD | D | R | AD | D | R | AD | D | R | D |
| Loss on air-drying.....% | 0.0 | ..... | ..... | 0.0 | ..... | ..... | 0.0 | ..... | ..... | ..... | ..... |
| Results obtained by..... | Anal. | Anal. | Calc. | Anal. | Anal. | Calc. | Anal. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | |
| Moisture.....% | 0.5 | 0.5 | ..... | 0.9 | 0.9 | ..... | 0.5 | 0.5 | ..... | 2.2 | ..... |
| Ash.....% | 11.2 | 11.2 | 11.3 | 16.5 | 16.5 | 16.6 | 13.5 | 13.5 | 13.6 | 18.7 | 19.1 |
| Volatile matter.....% | 21.3 | 21.3 | 21.4 | 16.9 | 16.9 | 17.1 | 18.6 | 18.6 | 18.7 | 15.3 | 15.6 |
| Fixed carbon.....% | 67.0 | 67.0 | 67.3 | 65.7 | 65.7 | 66.3 | 67.4 | 67.4 | 67.7 | 63.8 | 65.3 |
| Ultimate analysis:— | | | | | | | | | | | |
| Carbon.....% | 79.3 | 79.3 | 79.7 | 74.2 | 74.2 | 74.9 | 77.3 | 77.3 | 77.7 | ..... | ..... |
| Hydrogen.....% | 4.3 | 4.3 | 4.3 | 4.0 | 4.0 | 3.9 | 4.2 | 4.2 | 4.1 | ..... | ..... |
| Ash.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sulphur.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Calorific value:— | | | | | | | | | | | |
| Calories per gram, gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| B. Th. U. per lb., gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Fuel ratio..... | 3.15 | | | 3.90 | | | 3.60 | | | 4.15 | |
| Carbon-Hydrogen ratio..... | 18.3 | 18.3 | 18.5 | 18.7 | 18.7 | 19.2 | 18.6 | 18.6 | 18.9 | ..... | ..... |
| Coking properties..... | very swollen, rather friable coke | | | small lump of fair coke | | | good coke | | | non-coking | |
| Hoffmann potash test..... | ..... |  |  | ..... |  |  | ..... |  |  | ..... |  |
| Location in mine..... | No. 2 north seam. | | | No. 4 south seam. |  |  | ..... |  |  | ..... |  |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial..... | | | Prospect. | |
| Quality of coal..... | ..... |  |  | ..... |  |  | Coal from tipple. |  |  | ..... |  |
| Taken by..... | Fire ranger, Board of Railway Commissioners. November 1917. | | | Fire ranger..... | | | Fire ranger..... | | | John MacVicar, Geological Survey, Ottawa. Summer of 1916. | |
| Date of sampling..... | November 1917. | | | November 1917. | | | November 1917. |  |  | ..... |  |
| Remarks..... | ..... |  |  |  |  |  |  |  |  |  |  |

ALBERTA COAL FIELDS.

| Description. | Pincher Creek Area. | | | Saunders Creek Area. | | | | | | | | |
|-------------------------------------|------------------------------------------------------------------------------|-------|-------|----------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|---------------------------------------------------------------------|-------|-------|-----------------------------------------|-------|
| | The Breckenridge & Lund Coal Co., Ltd Lundbreck. Sec. 26, Tp. 7, R. 2. | | | Sample said to be from 10-ft. seam near Saunders Cache. close to survey line of C.N.R. west of Rocky Mountain House. | | | | Saunders Creek Coal Co., Ltd., Saunders Creek. Tp. 40, R. 12. | | | | |
| Sample No..... | M 47 | | | 106 | | | | 720 | | | 861 | |
| Moisture condition (see note p. 2). | R | AD | D | R | D | | | R | AD | D | R | D |
| Loss on air-drying.....% | 1.2 | ..... | ..... | ..... | ..... | ..... | ..... | 2.5 | ..... | ..... | ..... | ..... |
| Results obtained by..... | Calc. | Calc. | Anal. | Anal. | Calc. | ..... | ..... | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 4.9 | 3.8 | ..... | 7.1 | ..... | ..... | ..... | 10.8 | 8.4 | ..... | 4.8 | ..... |
| Ash.....% | 28.2 | 28.6 | 29.7 | 6.7 | 7.2 | ..... | ..... | 6.4 | 6.6 | 7.2 | 6.3 | 6.7 |
| Volatile matter.....% | 28.6 | 28.9 | 30.1 | ..... | ..... | ..... | ..... | 27.0 | 27.7 | 30.3 | 33.1 | 34.7 |
| Fixed carbon.....% | 38.3 | 38.7 | 40.2 | ..... | ..... | ..... | ..... | 55.8 | 57.3 | 62.5 | 55.8 | 58.6 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 52.1 | 52.7 | 54.8 | 68.2 | 73.4 | ..... | ..... | 65.7 | 67.4 | 73.7 | 70.4 | 74.0 |
| Hydrogen.....% | 4.4 | 4.3 | 4.1 | 5.3 | 4.8 | ..... | ..... | 5.2 | 5.1 | 4.5 | 4.9 | 4.5 |
| Ash.....% | 28.2 | 28.6 | 29.7 | 6.7 | 7.2 | ..... | ..... | 6.4 | 6.6 | 7.2 | 6.3 | 6.7 |
| Sulphur.....% | 1.2 | 1.2 | 1.2 | 0.7 | 0.8 | ..... | ..... | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Nitrogen.....% | 1.4 | 1.4 | 1.5 | ..... | ..... | ..... | ..... | 1.0 | 1.0 | 1.1 | 1.2 | 1.2 |
| Oxygen.....% | 12.7 | 11.8 | 8.7 | ..... | ..... | ..... | ..... | 21.4 | 19.6 | 13.2 | 16.9 | 13.3 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 5180 | 5240 | 5450 | ..... | ..... | ..... | ..... | 6190 | 6350 | 6940 | 6630 | 6960 |
| B. Th. U. per lb., gross..... | 9330 | 9440 | 9810 | ..... | ..... | ..... | ..... | 11150 | 11430 | 12490 | 11930 | 12530 |
| Fuel ratio..... | 1.35 |  |  | ..... | ..... | ..... | ..... | 2.05 | | | 1.70 | |
| Carbon-Hydrogen ratio..... | 11.8 | 12.1 | 13.4 | 12.9 | 15.3 | ..... | ..... | 12.6 | 13.4 | 16.4 | 14.6 | 16.4 |
| Coking properties..... | ..... |  |  | ..... | ..... | ..... | ..... | non-coking | | | non-coking | |
| Hoffmann potash test..... | ..... |  |  | ..... | ..... | ..... | ..... | 4 |  |  | ..... |  |
| Location in mine..... | ..... |  |  | ..... |  |  |  | Lower seam..... | | | Lower seam, 650 ft. from entry. | |
| Kind of sample..... | Commercial—2 tons |  |  | ..... |  |  |  | Mine..... | | | Mine. | |
| Quality of coal..... | Run-of-mine..... |  |  | ..... |  |  |  | ..... |  |  | ..... |  |
| Taken by..... | T. Denis, Mines Branch. | | | Private individual.... | | | | J. A. Richards, provin- cial mine in- spector. | | | J. S. Stewart, Geological Survey. | |
| Date of sampling..... | July 21, 1908..... | | | 1911..... | | | | December 11, 1915. | | | Summer of 1916. | |
| Remarks..... | ..... |  |  | ..... |  |  |  | ..... |  |  | ..... |  |

ALBERTA COAL FIELDS.

Yellowhead Pass Area.

| Description. | North American Collieries, Ltd., Edmonton. Pacific Pass colliery, Lovettville. Sec. 2, Tp. 47, R. 19. | | | | | | | | | | | |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------|-------|---------------------------------------|-------|--------------------------|-------|-------|--------------------------------------------|-------|-------|----------------------------------------------|-------|
| | 671 | | 864 | | 433 | | | 558 | | | 862 | |
| Sample No..... | R | D | R | D | R | AD | D | R | AD | D | R | D |
| Moisture condition (see note p.2) | | | | | | | | | | | | |
| Loss on air-drying.....% | | | | | 0.5 | | | 1.8 | | | | |
| Results obtained by..... | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 6.5 | | 8.1 | | 4.9 | 4.4 | | 9.2 | 7.5 | | 4.4 | |
| Ash.....% | 4.8 | 5.1 | 7.8 | 8.5 | 12.5 | 12.6 | 13.2 | 7.5 | 7.6 | 8.3 | 10.3 | 10.7 |
| Volatile matter.....% | 34.4 | 36.8 | 38.0 | 41.4 | 34.0 | 34.2 | 35.7 | 29.7 | 30.3 | 32.7 | 31.4 | 32.9 |
| Fixed carbon.....% | 54.3 | 58.1 | 46.1 | 50.1 | 48.6 | 48.8 | 51.1 | 53.6 | 54.6 | 59.0 | 53.9 | 56.4 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | | | 59.4 | 64.6 | 65.5 | 65.8 | 68.9 | 66.4 | 67.6 | 73.1 | 67.3 | 70.4 |
| Hydrogen.....% | | | 4.2 | 3.6 | 4.7 | 4.6 | 4.3 | 5.4 | 5.3 | 4.8 | 4.5 | 4.2 |
| Ash.....% | | | 7.8 | 8.5 | | | | 7.5 | 7.6 | 8.3 | 10.3 | 10.7 |
| Sulphur.....% | | | 0.2 | 0.2 | | | | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 |
| Nitrogen.....% | | | 0.9 | 1.0 | | | | 1.0 | 1.0 | 1.1 | 1.0 | 1.1 |
| Oxygen.....% | | | 27.5 | 22.1 | | | | 19.5 | 18.3 | 12.5 | 16.8 | 13.5 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross... | | | 5330 | 5790 | | | | 6260 | 6380 | 6900 | 6340 | 6620 |
| B. Th. U. per lb., gross... | | | 9590 | 10430 | | | | 11280 | 11480 | 12420 | 11410 | 11930 |
| Fuel ratio..... | 1.60 | | 1.20 | | 1.45 | | | 1.80 | | | 1.70 | |
| Carbon-Hydrogen ratio..... | | | 14.2 | 18.2 | 14.0 | 14.2 | 15.9 | 12.4 | 12.9 | 15.3 | 14.9 | 16.6 |
| Coking properties..... | non-coking | | non-coking | | non-coking | | | non-coking | | | non-coking | |
| Hoffmann potash test..... | | | | | 6-7 | | | 4-3 | | | | |
| Location in mine..... | Val d'ore seam. | | Prospect seam practically at surface. | | Silkstone or upper seam. | | | Silkstone or upper seam, No. 2 west level. | | | Silkstone or upper seam, 600 ft. from entry. | |
| Kind of sample..... | Mine..... | | Mine..... | | Mine..... | | | Mine..... | | | Mine..... | |
| Quality of coal..... | | | | | | | | Clay and sulphur bands omitted. | | | | |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | J. S. Stewart, Geological Survey. | | Fire ranger..... | | | Provincial mine inspector at Edson. | | | J. S. Stewart. | |
| Date of sampling..... | November 1915. | | Summer of 1916. | | November 1914... | | | March 29, 1915.... | | | 1916. | |
| Remarks..... | Operated by Canadian Coal & Coke Co., Ltd., at time of sampling. | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Yellowhead Pass Area.

| Description. | North American Collieries, Ltd., Edmonton. Pacific Pass colliery, Lovettville. Sec. 3, Tp. 47, R. 19. | | | | | | Yellowhead Pass Coal & Coke Co., Ltd., Coalspur. Sec. 6, Tp. 48, R. 21. | | | | | |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------|-------|-------|--------------------------------------------|-------|-------|-------------------------------------------------------------------------------|-------|-------|---------------------|-------|--|
| | 432 | | | 863 | | | 314 | | | 315 | | |
| Moisture condition (see note p. 2). | R | AD | D | R | D | R | AD | D | R | AD | D | |
| Loss on air-drying.....% | 0.8 | ..... | ..... | ..... | ..... | 2.4 | ..... | ..... | 1.1 | ..... | ..... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 5.5 | 4.8 | ..... | 4.4 | ..... | 6.6 | 4.2 | ..... | 4.9 | 3.9 | ..... |  |
| Ash.....% | 9.3 | 9.4 | 9.9 | 16.1 | 16.9 | 9.9 | 10.2 | 10.6 | 12.7 | 12.8 | 13.3 | |
| Volatile matter.....% | 34.9 | 35.2 | 36.9 | 32.6 | 34.1 | 36.1 | 37.0 | 38.6 | 36.7 | 37.1 | 38.6 | |
| Fixed carbon.....% | 50.3 | 50.6 | 53.2 | 46.9 | 49.0 | 47.4 | 48.6 | 50.8 | 45.7 | 46.2 | 48.1 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 68.1 | 68.6 | 72.1 | 62.9 | 65.7 | 65.0 | 66.7 | 69.6 | 64.7 | 65.4 | 68.1 | |
| Hydrogen.....% | 4.8 | 4.7 | 4.4 | 4.5 | 4.2 | 4.8 | 4.6 | 4.3 | 5.1 | 5.0 | 4.8 | |
| Ash.....% | 9.3 | 9.4 | 9.9 | 16.1 | 16.9 | 9.9 | 10.2 | 10.6 | 12.7 | 12.8 | 13.3 | |
| Sulphur.....% | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | |
| Nitrogen.....% | ..... | ..... | ..... | 0.9 | 1.0 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Oxygen.....% | ..... | ..... | ..... | 15.4 | 12.0 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Caloric value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 6470 | 6520 | 6850 | 5920 | 6180 | 6260 | 6420 | 6700 | 6230 | 6300 | 6560 | |
| B. Th. U. per lb., gross..... | 11650 | 11740 | 12330 | 10650 | 11130 | 11270 | 11550 | 12060 | 11220 | 11340 | 11800 | |
| Fuel ratio..... | 1.45 | | | 1.45 | | | 1.30 | | | 1.25 | | |
| Carbon-Hydrogen ratio..... | 14.3 | 14.5 | 16.4 | 14.1 | 15.8 | 13.6 | 14.5 | 16.0 | 12.7 | 13.1 | 14.2 | |
| Coking properties..... | barely agglomerates | | | non-coking | | | barely agglomerates | | | barely agglomerates | | |
| Hoffmann potash test..... | 6-7 | | | | | | 4-5 | | | 4-5 | | |
| Location in mine..... | Mynheer or lower seam. | | | Mynheer or lower seam, 900 ft. from entry. | | | | | | | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | ..... |  |  |  |  |  |  |  |  |  |  |  |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | | J. S. Stewart, Geological Survey. | | | Fire ranger..... | | | Fire ranger. | | |
| Date of sampling..... | November 1914..... | | | Summer of 1916. | | | December 1913..... | | | December 1913. | | |
| Remarks..... | Operated by Canadian Coal & Coke Co., Ltd., at time of sampling. | | | | | | Sample received in a broken bottle and therefore partially dried. | | | | | |

ALBERTA COAL FIELDS.
Yellowhead Pass Area.

| Description. | Yellowhead Pass Coal & Coke Co., Ltd., Coalspur. Sec. 6, Tp. 48, R. 21. | | | | | | | | | | | |
|-------------------------------------|----------------------------------------------------------------------------|-------|-------|----------------------------------------|-------|-------|---------------------------------------------------------------------------|-------|-------|---------------------------------------------------------|-------|--|
| | 316 | | | 431 | | | 489 | | | 865 | | |
| Sample No..... | R | AD | D | R | AD | D | R | AD | D | R | D | |
| Moisture condition (see note p. 2). | 2.2 | ..... | ..... | 1.1 | ..... | ..... | 2.2 | ..... | ..... | ..... | ..... |  |
| Loss on air-drying.....% | 2.2 | ..... | ..... | 1.1 | ..... | ..... | 2.2 | ..... | ..... | ..... | ..... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 6.0 | 3.8 | ..... | 5.1 | 4.0 | ..... | 5.9 | 3.8 | ..... | 3.7 | ..... |  |
| Ash.....% | 12.2 | 12.5 | 13.0 | 8.2 | 8.3 | 8.7 | 10.9 | 11.1 | 11.6 | 11.4 | 11.9 | |
| Volatile matter.....% | 35.4 | 36.3 | 37.7 | 37.3 | 37.8 | 39.3 | 35.2 | 36.0 | 37.4 | 33.2 | 34.5 | |
| Fixed carbon.....% | 46.4 | 47.4 | 49.3 | 49.4 | 49.9 | 52.0 | 48.0 | 49.1 | 51.0 | 51.7 | 53.6 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 64.3 | 65.7 | 68.3 | 68.4 | 69.2 | 72.1 | 64.5 | 65.9 | 68.5 | 67.8 | 70.4 | |
| Hydrogen.....% | 4.9 | 4.8 | 4.6 | 4.9 | 4.8 | 4.5 | 4.7 | 4.5 | 4.3 | 4.4 | 4.2 | |
| Ash.....% | 12.2 | 12.5 | 13.0 | 8.2 | 8.3 | 8.7 | 10.9 | 11.1 | 11.6 | 11.4 | 11.9 | |
| Sulphur.....% | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | 0.7 | 0.7 | 0.7 | 0.9 | 0.9 | |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | 19.0 | 17.6 | 14.7 | 15.3 | 12.4 | |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 6170 | 6310 | 6560 | 6470 | 6550 | 6820 | 6070 | 6210 | 6460 | 6330 | 6570 | |
| B. Th. U. per lb., gross..... | 11110 | 11360 | 11800 | 11650 | 11790 | 12280 | 10930 | 11180 | 11620 | 11400 | 11830 | |
| Fuel ratio..... | 1.30 | | | 1.30 | | | 1.35 | | | 1.55 | | |
| Carbon-Hydrogen ratio..... | 13.1 | 13.7 | 14.9 | 14.0 | 14.4 | 15.9 | 13.7 | 14.5 | 16.1 | 15.4 | 16.9 | |
| Coking properties..... | barely agglomerates | | | barely agglomerates | | | slight tendency to agglomerate | | | non-coking | | |
| Hoffmann potash test..... | 4-5 | | | 4-5 |  |  | ..... |  |  | ..... |  |  |
| Location in mine..... | | | | | | | | | | | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial—30 tons. Screened coal..... | | | Prospect seam near surface. Mine. | | |
| Quality of coal..... | | | | | | | | | | | | |
| Taken by..... | Fire ranger, Board of Railway Commissioners. December 1913..... | | | Fire ranger..... November 1914..... | | | Provincial mine inspector. February 1914. Lab. sample Feb. 2, 1915. | | | J. S. Stewart, Geological Survey. Summer of 1916. | | |
| Date of sampling..... | | | | | | | | | | | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Yellowhead Pass Area.

| Description. | Yellowhead Pass Coal & Coke Co., Ltd., No. 5 mine, Coalspur. Sec. 6, Tp. 48, R. 21. | | | | | | The Oliphant-Munson Collieries Ltd., Coalspur. Sec. 23, Tp. 48, R. 21. | | | |
|------------------------------------------|-------------------------------------------------------------------------------------------|-------|-------|---------------------------------|-------|-------|------------------------------------------------------------------------------|-------|---------------------------------|-------|
| | 985 | | | 986 | | | 877 | | 987 | |
| Moisture condition (see note, p. 2)..... | R | AD | D | R | AD | D | R | D | R | D |
| Loss on air-drying.....% | 0.3 | ..... | ..... | 0.6 | ..... | ..... | ..... | ..... | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | |
| Moisture.....% | 4.8 | 4.5 | ..... | 5.5 | 5.0 | ..... | 6.1 | ..... | 3.5 | ..... |
| Ash.....% | 9.6 | 9.6 | 10.1 | 8.0. | 8.1 | 8.5 | 6.6 | 7.0 | 12.0 | 12.5 |
| Volatile matter.....% | 36.8 | 37.0 | 38.7 | 34.7 | 34.9 | 36.7 | 35.1 | 37.4 | 36.4 | 37.7 |
| Fixed carbon.....% | 48.8 | 48.9 | 51.2 | 51.8 | 52.0 | 54.8 | 52.2 | 55.6 | 48.1 | 49.8 |
| Ultimate analysis:— | | | | | | | | | | |
| Carbon.....% | 66.9 | 67.2 | 70.3 | 67.9 | 68.3 | 71.9 | ..... | ..... | ..... | ..... |
| Hydrogen.....% | 4.8 | 4.8 | 4.5 | 4.8 | 4.8 | 4.4 | ..... | ..... | ..... | ..... |
| Ash.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sulphur.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Calorific value:— | | | | | | | | | | |
| Calories per gram, gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| B. Th. U. per lb., gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Fuel ratio..... | 1.30 | | | 1.50 | | | 1.50 | | 1.30 | |
| Carbon-Hydrogen ratio..... | 14.0 | 14.1 | 15.8 | 14.1 | 14.3 | 16.2 | ..... | ..... | ..... | ..... |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | non-coking | |
| Hoffmann potash test..... | 4-5 | | | 5-4 | | | 4 | | 4-5 | |
| Location in mine..... | No. 1 seam, 500 ft. from entry. | | | No. 2 seam, 500 ft. from entry. | | | No. 1 seam..... | | No. 1 seam, 350 ft. from entry. | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | Mine. | |
| Quality of coal..... | | | | | | | | | | |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | | | | | | | | |
| Date of sampling..... | 1917..... | | | 1917..... | | | October 1916.... | | 1917. | |
| Remarks..... | | | | | | | | | | |

ALBERTA COAL FIELDS.

Yellowhead Pass Area.

| Description. | The Oliphant-Munson Collieries, Ltd., Coalspur. Sec. 23, Tp. 48, R. 21. | | | | | | | | | | | |
|-----------------------------------------|----------------------------------------------------------------------------|-----------|----------------------------------------|-------|-------------------|-------|-------|---------------|-------|-------|--|--|
| | 878 | | 988 | | 927 | | | 928 | | | | |
| Sample No..... | R | D | R | D | R | AD | D | R | AD | D | | |
| Moisture condition (see note p. 2)..... | | | | | 0.1 | | | 0.7 | | | | |
| Loss on air-drying.....% | | | | | | | | | | | | |
| Results obtained by..... | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 5.4 | | 3.2 | | 3.4 | 3.3 | | 4.1 | 3.4 | | | |
| Ash.....% | 6.2 | 6.5 | 8.7 | 9.0 | 7.9 | 8.0 | 8.2 | 8.0 | 8.1 | 8.4 | | |
| Volatile matter.....% | 36.2 | 38.3 | 37.1 | 38.3 | | | | | | | | |
| Fixed carbon.....% | 52.2 | 55.2 | 51.0 | 52.7 | | | | | | | | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | | | | | 70.3 | 70.4 | 72.8 | 68.8 | 69.3 | 71.8 | | |
| Hydrogen.....% | | | | | 4.9 | 4.9 | 4.6 | 5.0 | 4.9 | 4.7 | | |
| Ash.....% | | | | | 7.9 | 8.0 | 8.2 | 8.0 | 8.1 | 8.4 | | |
| Sulphur.....% | | | | | | | | | | | | |
| Nitrogen.....% | | | | | | | | | | | | |
| Oxygen.....% | | | | | | | | | | | | |
| Calorific value:—° | | | | | | | | | | | | |
| Calories per gram, gross..... | | | | | | | | | | | | |
| B. Th. U. per lb., gross..... | | | | | | | | | | | | |
| Fuel ratio..... | 1.45 | | 1.40 | | | | | | | | | |
| Carbon-Hydrogen ratio..... | | | | | 14.4 | 14.5 | 15.7 | 13.8 | 14.0 | 15.2 | | |
| Coking properties..... | non-coking | | non-coking | | | | | | | | | |
| Hoffmann potash test..... | 4 | | 5.4 | | | | | | | | | |
| Location in mine..... | No. 2 seam..... | | No. 2 seam, 650 ft. from entry..... | | | | | | | | | |
| Kind of sample..... | Mine..... | | Mine..... | | Commercial..... | | | Commercial. | | | | |
| Quality of coal..... | | | | | | | | | | | | |
| Taken by..... | Fire ranger, Board of Railway Commissioners. | | | | | | | | | | | |
| Date of sampling..... | October 1916..... | 1917..... | | | January 1917..... | | | January 1917. | | | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Lethbridge-McGrath Area.

| Description. | North American Collieries, Ltd., Edmonton. Lethbridge Mins, Coalhurst. Sec. 21, Tp. 9, R. 22. | | | | | | C. P. Ry., Nat. Resources Dept., Calgary | | | | | |
|-------------------------------------|--------------------------------------------------------------------------------------------------------|-------|-------|-------------------------------------|-------|-------|--------------------------------------------------------------------|-------|-------|---------------------------------------------------------|-------|-------|
| | 321 | | | 722 | | | M 44 | | | 306 | | |
| | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 321 | | | 722 | | | M 44 | | | 306 | | |
| Moisture condition (see note p. 2). | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 0.1 | ..... | ..... | 1.5 | ..... | ..... | 0.5 | ..... | ..... | 1.0 | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 8.9 | 8.8 | ..... | 10.7 | 9.3 | ..... | 8.4 | 7.9 | ..... | 9.8 | 8.9 | ..... |
| Ash.....% | 9.7 | 9.7 | 10.7 | 13.1 | 13.3 | 14.7 | 10.1 | 10.1 | 11.0 | 9.6 | 9.7 | 10.7 |
| Volatile matter.....% | 33.6 | 33.6 | 36.8 | 27.4 | 27.8 | 30.7 | 34.3 | 34.5 | 37.5 | 33.4 | 33.7 | 37.0 |
| Fixed carbon.....% | 47.8 | 47.9 | 52.5 | 48.8 | 49.6 | 54.6 | 47.2 | 47.5 | 51.5 | 47.2 | 47.7 | 52.3 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 63.3 | 63.4 | 69.5 | 58.1 | 59.0 | 65.0 | 60.9 | 61.3 | 66.5 | 62.9 | 63.5 | 69.7 |
| Hydrogen.....% | 5.4 | 5.4 | 4.8 | 5.2 | 5.1 | 4.5 | 5.4 | 5.4 | 4.9 | 5.5 | 5.5 | 4.9 |
| Ash.....% | 9.7 | 9.7 | 10.7 | 13.1 | 13.3 | 14.7 | 10.1 | 10.1 | 11.0 | 9.6 | 9.7 | 10.7 |
| Sulphur.....% | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.5 | 0.5 | 0.6 |
| Nitrogen.....% | 1.6 | 1.6 | 1.8 | 1.4 | 1.4 | 1.6 | 1.6 | 1.6 | 1.7 | 1.5 | 1.5 | 1.7 |
| Oxygen.....% | 19.4 | 19.3 | 12.6 | 21.7 | 20.7 | 13.6 | 21.3 | 20.9 | 15.1 | 20.0 | 19.3 | 12.4 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 6050 | 6060 | 6640 | 5520 | 5610 | 6180 | 5960 | 6000 | 6510 | *6040 | 6100 | 6700 |
| B. Th. U. per lb., gross..... | 10890 | 10900 | 11950 | 9940 | 10090 | 11130 | 10730 | 10790 | 11710 | 10880 | 10980 | 12030 |
| Fuel ratio..... | 1.40 | | | 1.80 | | | 1.35 | | | 1.40 | | |
| Carbon-Hydrogen ratio..... | 11.7 | 11.8 | 14.4 | 11.1 | 11.5 | 14.4 | 11.2 | 11.3 | 13.5 | 11.4 | 11.6 | 14.2 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 3 | | | 3-2 |  |  | ..... |  |  | 3-2 | | |
| Location in mine..... | No. 1 seam..... | | | No. 1 seam, south-west section. |  |  | ..... |  |  | ..... |  |  |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial—3 tons | | | Mine. | | |
| Quality of coal..... | ..... |  |  | ..... |  |  | Over ½-inch screen and picking table. |  |  | ..... |  |  |
| Taken by..... | S. A. Jones, provincial mine inspector. | | | W. Shaw, provincial mine inspector. | | | T. Denis, Mines Branch. | | | A. N. Scott and S.A. Jones, provincial mine inspectors. | | |
| Date of sampling..... | January 1914..... | | | December 22, 1915 | | | July 22, 1908..... | | | December 1913. | | |
| Remarks..... | Operated by the Canadian Coal & Coke Co., Ltd., at time of sampling. | | | | | | Operated by Alberta Railway & Irrigation Co., at time of sampling. | | | | | |

ALBERTA COAL FIELDS.

| Lethbridge-McGrath Area. | | | | | | | | | | | | | Carmangay (Aldersyde) Area. | | |
|---------------------------------------|--------------------------------------------------------------|-------|-------|-----------------------------------------|-------|-------|---------------------------------------------|-------|-------|----------------------------------------------------------|-------|-------|-----------------------------|--|--|
| Description. | Chinook Coal Co., Ltd., Commerce. Sec. 12, Tp. 10, R. 22. | | | | | | | | | Ellis Bros. No. 1 mine, Champion. Sec. 8, Tp. 16, R. 23. | | | | | |
| | 304 | | | 697 | | | 721 | | | 717 | | | | | |
| | R | AD | D | R | AD | D | R | AD | D | R | AD | D | | | |
| Sample No..... | | | | | | | | | | | | | | | |
| Moisture condition (see note p. 2)... | R | AD | D | R | AD | D | R | AD | D | R | AD | D | | | |
| Loss on air-drying.....% | 0.0 | .... | .... | 3.3 | .... | .... | 0.8 | .... | .... | 2.9 | .... | .... |  |  |  |
| Results obtained by..... | Anal. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | | | |
| Proximate analysis:— | | | | | | | | | | | | | | | |
| Moisture.....% | 9.6 | 9.6 | .... | 9.4 | 6.3 | .... | 8.7 | 8.0 | .... | 12.8 | 10.2 | .... |  |  |  |
| Ash.....% | 9.8 | 9.8 | 10.8 | 14.9 | 15.4 | 16.4 | 11.2 | 11.3 | 12.2 | 6.8 | 7.0 | 7.8 | | | |
| Volatile matter.....% | 32.8 | 32.8 | 36.3 | 30.9 | 32.0 | 34.1 | 28.0 | 28.2 | 30.7 | 31.7 | 32.7 | 36.4 | | | |
| Fixed carbon.....% | 47.8 | 47.8 | 52.9 | 44.8 | 46.3 | 49.5 | 52.1 | 52.5 | 57.1 | 48.7 | 50.1 | 55.8 | | | |
| Ultimate analysis:— | | | | | | | | | | | | | | | |
| Carbon.....% | 62.7 | 62.7 | 69.3 | 57.8 | 59.8 | 63.8 | 62.1 | 62.5 | 68.0 | 60.7 | 62.5 | 69.6 | | | |
| Hydrogen.....% | 5.3 | 5.3 | 4.6 | 5.2 | 5.0 | 4.5 | 5.3 | 5.3 | 4.7 | 5.5 | 5.4 | 4.7 | | | |
| Ash.....% | 9.8 | 9.8 | 10.8 | 14.9 | 15.4 | 16.4 | 11.2 | 11.3 | 12.2 | 6.8 | 7.0 | 7.8 | | | |
| Sulphur.....% | 0.5 | 0.5 | 0.5 | 0.7 | 0.7 | 0.8 | 0.6 | 0.6 | 0.7 | 0.5 | 0.5 | 0.6 | | | |
| Nitrogen.....% | 1.5 | 1.5 | 1.7 | 1.4 | 1.4 | 1.6 | 1.6 | 1.6 | 1.8 | 1.2 | 1.2 | 1.4 | | | |
| Oxygen.....% | 20.2 | 20.2 | 13.1 | 20.0 | 17.7 | 12.9 | 19.2 | 18.7 | 12.6 | 25.3 | 23.4 | 15.9 | | | |
| Caloric value:— | | | | | | | | | | | | | | | |
| Calories per gram, gross..... | 5910 | 5910 | 6540 | 5590 | 5780 | 6170 | 5950 | 5990 | 6520 | 5750 | 5920 | 6600 | | | |
| B. Th. U. per lb., gross..... | 10640 | 10640 | 11760 | 10060 | 10400 | 11100 | 10710 | 10790 | 11730 | 10350 | 10660 | 11870 | | | |
| Fuel ratio..... | 1.45 | | | 1.45 | | | 1.85 | | | 1.55 | | | | | |
| Carbon-Hydrogen ratio..... | 11.9 | 11.9 | 15.0 | 11.2 | 12.1 | 14.1 | 11.7 | 11.9 | 14.4 | 11.0 | 11.7 | 14.9 | | | |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | | | | |
| Hoffmann potash test..... | 2-3 |  |  | .... |  |  | 3 | | | 2 | | | | | |
| Location in mine..... | No. 1 seam..... | | | No. 1 seam..... | | | No. 1 seam, south-west main entry Mine..... | | | No. 1 seam, main entry Mine. | | | | | |
| Kind of sample..... | Mine..... | | | Commercial — 20 tons. Lump..... | | | | | | | | | | | |
| Quality of coal..... | | | | | | | | | | Inferior coal not taken. | | | | | |
| Taken by..... | S. A. Jones, provincial mine inspector. | | | F. Aspinall, provincial mine inspector. | | | W. Shaw, provincial mine inspector. | | | J. A. Richards, provincial mine inspector. | | | | | |
| Date of sampling..... | November 1913.... | | | October 1915.... | | | Dec. 21, 1915.... | | | November 4, 1915. | | | | | |
| Remarks..... | | | | Lab. sample Mar. 6, 1916. | | | | | | | | | | | |

ALBERTA COAL FIELDS.
Drumheller Area.

| Description. | Rosedale Coal & Clay Products Co., Ltd., Rosedale. Sec. 28, Tp. 28, R. 19. | | | | | | | | | | | |
|-------------------------------------|-------------------------------------------------------------------------------|-------|------------------------------------------|-------|-------|-----------------------------------------|-------|-------|--------------------------------------------|-------|-------|--|
| | 259 | | 348 | | | 665 | | | 691 | | | |
| | R | D | R | AD | D | R | AD | D | R | AD | D | |
| Sample No..... | | | | | | | | | | | | |
| Moisture condition (see note p. 2). | R | D | R | AD | D | R | AD | D | R | AD | D | |
| Loss on air-drying.....% | .... | .... | 7.2 | .... | .... | 5.1 | .... | .... | 4.7 | .... | .... |  |
| Results obtained by..... | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 16.5 | .... | 15.3 | 8.8 | .... | 18.3 | 13.9 | .... | 18.8 | 14.8 | .... |  |
| Ash.....% | 6.5 | 7.8 | 7.6 | 8.2 | 9.0 | 4.9 | 5.1 | 6.0 | 7.9 | 8.3 | 9.8 | |
| Volatile matter.....% | 33.6 | 40.2 | 32.1 | 34.6 | 37.9 | 32.1 | 33.8 | 39.3 | 28.4 | 29.8 | 34.9 | |
| Fixed carbon.....% | 43.4 | 52.0 | 45.0 | 48.4 | 53.1 | 44.7 | 47.2 | 54.7 | 44.9 | 47.1 | 55.3 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 57.3 | 68.6 | 56.9 | 61.2 | 67.2 | 57.9 | 61.0 | 70.9 | 54.7 | 57.4 | 67.4 | |
| Hydrogen.....% | 5.8 | 4.7 | 5.6 | 5.2 | 4.6 | 5.7 | 5.4 | 4.5 | 5.6 | 5.3 | 4.3 | |
| Ash.....% | 6.5 | 7.8 | 7.6 | 8.2 | 9.0 | 4.9 | 5.1 | 6.0 | 7.9 | 8.3 | 9.8 | |
| Sulphur.....% | 0.4 | 0.5 | 0.6 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | |
| Nitrogen.....% | 1.3 | 1.6 | .... | .... | .... | 1.3 | 1.4 | 1.6 | 1.4 | 1.5 | 1.7 | |
| Oxygen.....% | 28.7 | 16.8 | .... | .... | .... | 29.8 | 26.6 | 16.5 | 29.9 | 27.0 | 16.3 | |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 5360 | 6420 | 5340 | 5750 | 6300 | 5570 | 5870 | 6820 | 5200 | 5460 | 6410 | |
| B. Th. U. per lb., gross..... | 9650 | 11560 | 9600 | 10350 | 11340 | 10030 | 10570 | 12270 | 9370 | 9830 | 11540 | |
| Fuel ratio..... | 1.30 | | 1.40 | | | 1.40 | | | 1.60 | | | |
| Carbon-Hydrogen ratio..... | 9.9 | 14.6 | 10.2 | 11.9 | 14.7 | 10.1 | 11.3 | 15.7 | 9.8 | 10.8 | 15.6 | |
| Coking properties..... | non-coking | | non-coking | | | non-coking | | | non-coking | | | |
| Hoffmann potash test..... | .... |  | .... |  |  | .... |  |  | .... |  |  |  |
| Location in mine..... | | | | | | No. 2 seam..... | | | No. 2 seam. | | | |
| Kind of sample..... | Commercial—15 tons. | | Commercial—15 tons. | | | Mine..... | | | Commercial—30 tons. | | | |
| Quality of coal..... | | | | | | Run-of-mine..... | | | Run-of-mine. | | | |
| Taken by..... | Provincial mine inspector. | | Provincial mine inspector. | | | F. Aspinall, provincial mine inspector. | | | Provincial mine inspector. | | | |
| Date of sampling..... | 1913..... Lab. sample July 10, 1913. | | 1913..... Lab. sample March 18, 1914. | | | October 22, 1915..... | | | October 1915. Lab. sample Feb. 7, 1916. | | | |
| Remarks..... | Both lab. samples taken from same commercial sample. | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Drumheller Area.

| Description. | The Drumheller Land Co., Ltd., Drumheller. Sec. 2, Tp. 29, R. 20. | | | | | | Alberta Block Coal Co., Ltd., Drumheller. Sec. 3, Tp. 29, R. 20. | | |
|-----------------------------------------|----------------------------------------------------------------------|-------|-------|--------------------------------------------|-------|-------|------------------------------------------------------------------------|-------|-------|
| | 319 | | | 473 | | | 531 | | |
| Sample No..... | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | 3.2 | ..... | ..... | 8.7 | ..... | ..... | 5.6 | ..... | ..... |
| Loss on air-drying.....% | 3.2 | ..... | ..... | 8.7 | ..... | ..... | 5.6 | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 19.2 | 16.5 | ..... | 18.9 | 11.2 | ..... | 16.5 | 11.6 | ..... |
| Ash.....% | 6.4 | 6.6 | 7.9 | 14.8 | 16.2 | 18.3 | 2.9 | 3.1 | 3.5 |
| Volatile matter.....% | 30.3 | 31.3 | 37.5 | 28.3 | 31.0 | 34.9 | 33.2 | 35.1 | 39.7 |
| Fixed carbon.....% | 44.1 | 45.6 | 54.6 | 38.0 | 41.6 | 46.8 | 47.4 | 50.2 | 56.8 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 56.4 | 58.3 | 69.8 | 49.2 | 53.8 | 60.6 | ..... | ..... | ..... |
| Hydrogen.....% | 5.8 | 5.6 | 4.5 | 5.5 | 4.9 | 4.1 | ..... | ..... | ..... |
| Ash.....% | 6.4 | 6.6 | 7.9 | 14.8 | 16.2 | 18.3 | ..... | ..... | ..... |
| Sulphur.....% | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | ..... | ..... | ..... |
| Nitrogen.....% | 1.2 | 1.3 | 1.5 | 1.0 | 1.1 | 1.3 | ..... | ..... | ..... |
| Oxygen.....% | 29.8 | 27.8 | 15.8 | 29.1 | 23.6 | 15.2 | ..... | ..... | ..... |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 5240 | 5410 | 6490 | 4630 | 5070 | 5710 | ..... | ..... | ..... |
| B. Th. U. per lb., gross..... | 9440 | 9750 | 11680 | 8330 | 9120 | 10270 | ..... | ..... | ..... |
| Fuel ratio..... | | 1.45 | | | 1.35 | | | 1.45 | |
| Carbon-Hydrogen ratio..... | 9.8 | 10.5 | 15.6 | 9.0 | 11.0 | 14.7 | ..... | ..... | ..... |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | ..... |  |  | ..... |  |  | ..... |  |  |
| Location in mine..... | Lower seam..... |  |  | ..... |  |  | ..... |  |  |
| Kind of sample..... | Mine..... | | | Commercial—carload... |  |  | ..... |  |  |
| Quality of coal..... | ..... |  |  | Slack..... |  |  | ..... |  |  |
| Taken by..... | J. T. Stirling, provincial chief mine inspector. | | | F. Aspinall, provincial mine inspector. | | | Mine authorities. | | |
| Date of sampling..... | November 1913..... | | | May 1914..... Lab. sample Jan. 7, 1915. | | | January 1915. | | |
| Remarks..... | ..... |  |  | ..... |  |  | ..... |  |  |

ALBERTA COAL FIELDS.

Drumheller Area.

| Description. | Newcastle Coal Co., Ltd., Drumheller. Sec. 9, Tp. 29, R. 20. | | | Midland Collieries, Ltd., Drumheller. Sec. 9, Tp. 29, R. 20. | | | | | |
|-----------------------------------------|--------------------------------------------------------------------|-------|-------|-------------------------------------------------------------------------------|-------|-------|---------------------------------|-------|-------|
| | 491 | | | 650 | | | 881 | | |
| Sample No..... | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | 5.9 | .... | .... | 5.8 | .... | .... | 4.3 | .... | .... |
| Loss on air-drying.....% | 5.9 | .... | .... | 5.8 | .... | .... | 4.3 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 16.5 | 11.4 | .... | 18.6 | 13.7 | .... | 16.2 | 12.5 | .... |
| Ash.....% | 7.6 | 8.1 | 9.1 | 5.8 | 6.1 | 7.1 | 7.9 | 8.2 | 9.4 |
| Volatile matter.....% | 32.1 | 34.1 | 38.5 | 30.1 | 32.0 | 37.0 | 30.3 | 31.6 | 36.1 |
| Fixed carbon.....% | 43.8 | 46.4 | 52.4 | 45.5 | 48.2 | 55.9 | 45.6 | 47.7 | 54.5 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 56.3 | 59.8 | 67.5 | 57.3 | 60.8 | 70.4 | 57.3 | 59.9 | 68.4 |
| Hydrogen.....% | 5.6 | 5.2 | 4.5 | 5.7 | 5.4 | 4.4 | 5.5 | 5.2 | 4.4 |
| Ash.....% | 7.6 | 8.1 | 9.1 | 5.8 | 6.1 | 7.1 | 7.9 | 8.2 | 9.4 |
| Sulphur.....% | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| Nitrogen.....% | 1.2 | 1.2 | 1.4 | 1.2 | 1.3 | 1.5 | 1.3 | 1.3 | 1.5 |
| Oxygen.....% | 28.9 | 25.3 | 17.0 | 29.6 | 26.0 | 16.2 | 27.6 | 24.9 | 15.8 |
| Caloric value:— | | | | | | | | | |
| Calories per gram, gross..... | 5330 | 5660 | 6390 | 5490 | 5830 | 6750 | 5380 | 5620 | 6420 |
| B. Th. U. per lb., gross..... | 9590 | 10190 | 11500 | 9890 | 10490 | 12150 | 9680 | 10120 | 11560 |
| Fuel ratio..... | | 1.35 | | | 1.50 | | | 1.50 | |
| Carbon-Hydrogen ratio..... | 10.1 | 11.4 | 15.1 | 10.1 | 11.4 | 15.9 | 10.4 | 11.4 | 15.5 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | .... |  |  | .... |  |  | .... |  |  |
| Location in mine..... | Newcastle seam..... | | | No. 3 seam..... | | | No. 4 seam..... | | |
| Kind of sample..... | Commercial—20 tons..... | | | Mine..... | | | Commercial—30 tons..... | | |
| Quality of coal..... | Run-of-mine..... | | | Bone and clay left out, to correspond with regular practice at mine. | | | Run-of-mine..... | | |
| Taken by..... | F. Aspinall, provincial mine inspector. | | | F. Aspinall..... | | | Provincial mine inspec- tor. | | |
| Date of sampling..... | October 15, 1914..... | | | October 21, 1915..... | | | September 1915..... | | |
| Remarks..... | Lab. sample Feb. 4, 1915. | | | | | | Lab. sample Nov. 17, 1916. | | |

ALBERTA COAL FIELDS.

Big Valley-Trochu-Three Hills-Carbon Area.

| Description. | Chas. S. Wilson's mine, Twining. Sec. 14, Tp. 31, R. 24 | | | Geo. Watson's mine, Three Hills. Sec. 22, Tp. 31, R. 24 | | | Ellis Coal Co., Ltd., Three Hills. Sec. 36, Tp. 31, R. 24 | | | William Halbert's mine, Trochu. Sec. 12, Tp. 33, R. 23 | | |
|-----------------------------------------|------------------------------------------------------------------|-------|-------|------------------------------------------------------------|-------|-------|--------------------------------------------------------------|-------|-------|-----------------------------------------------------------|-------|-------|
| | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 961 | | | 957 | | | 936 | | | 984 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 0.9 | ..... | ..... | 2.3 | ..... | ..... | 3.3 | ..... | ..... | 2.4 | ..... | ..... |
| Results obtained by..... | Calc. Anal. Calc. | | | Calc. Anal. Calc. | | | Calc. Anal. Calc. | | | Calc. Anal. Calc. | | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 15.1 | 14.3 | ..... | 15.7 | 13.8 | ..... | 17.3 | 14.5 | ..... | 17.3 | 15.3 | ..... |
| Ash.....% | 8.3 | 8.4 | 9.8 | 5.9 | 6.1 | 7.0 | 7.9 | 8.2 | 9.5 | 8.4 | 8.6 | 10.1 |
| Volatile matter.....% | 28.3 | 28.5 | 33.3 | 30.9 | 31.5 | 36.6 | 28.3 | 29.3 | 34.3 | 27.2 | 27.9 | 33.0 |
| Fixed carbon.....% | 48.3 | 48.8 | 56.9 | 47.5 | 48.6 | 56.4 | 46.5 | 48.0 | 56.2 | 47.1 | 48.2 | 56.9 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 58.0 | 58.5 | 68.3 | 59.6 | 60.9 | 70.7 | 57.1 | 59.0 | 69.0 | 57.0 | 58.4 | 68.9 |
| Hydrogen.....% | 5.4 | 5.3 | 4.3 | 5.7 | 5.6 | 4.7 | 5.4 | 5.2 | 4.2 | 5.4 | 5.2 | 4.1 |
| Ash.....% | 8.3 | 8.4 | 9.8 | 5.9 | 6.1 | 7.0 | 7.9 | 8.2 | 9.5 | 8.4 | 8.6 | 10.1 |
| Sulphur.....% | 0.6 | 0.6 | 0.7 | 1.8 | 1.8 | 2.1 | 0.4 | 0.4 | 0.5 | 0.3 | 0.3 | 0.4 |
| Nitrogen.....% | 0.9 | 0.9 | 1.1 | 1.0 | 1.0 | 1.2 | 0.9 | 0.9 | 1.1 | 0.9 | 0.9 | 1.1 |
| Oxygen.....% | 26.8 | 26.3 | 15.8 | 26.0 | 24.6 | 14.3 | 28.3 | 26.3 | 15.7 | 28.0 | 26.6 | 15.4 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross.. | 5440 | 5490 | 6410 | 5650 | 5780 | 6700 | 5340 | 5520 | 6460 | 5320 | 5450 | 6430 |
| B. Th. U. per lb., gross.. | 9800 | 9890 | 11540 | 10170 | 10410 | 12070 | 9610 | 9940 | 11630 | 9570 | 9810 | 11580 |
| Fuel ratio..... | 1.70 | | | 1.55 | | | 1.65 | | | 1.75 | | |
| Carbon-Hydrogen ratio..... | 10.8 | 11.0 | 15.7 | 10.5 | 11.0 | 15.2 | 10.5 | 11.3 | 16.4 | 10.6 | 11.2 | 16.6 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 2 | | | 2 | | | 2 | | | 2-1 | | |
| Location in mine..... | No. 1 seam, 350 ft. in No. 1 entry. | | | No. 1 seam, 300 ft. in east entry. | | | No. 1 seam, west entry, 600 ft. from shaft bottom. | | | No. 1 seam, 120 ft. in No. 2 entry | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine..... | | |
| Quality of coal..... | Run-of-mine..... | | | Run-of-mine..... | | | Run-of-mine..... | | | | | |
| Taken by..... | Duncan McDonald, provincial mine inspector. | | | | | | | | | | | |
| Date of sampling..... | January 19, 1917..... | | | January 19, 1917..... | | | January 18, 1917..... | | | March 8, 1917. | | |
| Remarks..... | Sample received in broken bottle, and therefore partially dried. | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Big Valley-Trochu-Three Hills-Carbon Area.

| Description. | Halbert Bros'. (R. & D.) mine, Trochu. Sec. 14, Tp. 33, R. 23 | | | Ole Thompson's mine, Lousana. Sec. 12, Tp. 36, R. 22. | | | | | | Calgary Collieries, Ltd., Ardley. Sec. 29, Tp. 38, R. 23 | | |
|--------------------------------------------|------------------------------------------------------------------------|-------|-------|----------------------------------------------------------|-------|-------|-----------------------|-------|-------|----------------------------------------------------------------|-------|-------|
| | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 983 | | | 807 | | | 971 | | | 814 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 2.6 | ..... | ..... | 2.9 | ..... | ..... | 3.0 | ..... | ..... | 2.0 | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 17.6 | 15.4 | ..... | 18.2 | 15.7 | ..... | 17.9 | 15.3 | ..... | 17.1 | 15.4 | ..... |
| Ash.....% | 8.3 | 8.5 | 10.1 | 7.8 | 8.0 | 9.5 | 15.6 | 16.1 | 19.0 | 8.4 | 8.6 | 10.1 |
| Volatile matter.....% | 27.4 | 28.1 | 33.2 | 28.3 | 29.2 | 34.6 | 27.3 | 28.2 | 33.3 | 32.3 | 32.9 | 38.9 |
| Fixed carbon.....% | 46.7 | 48.0 | 56.7 | 45.7 | 47.1 | 55.9 | 39.2 | 40.4 | 47.7 | 42.2 | 43.1 | 51.0 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 56.7 | 58.2 | 68.8 | 55.4 | 57.0 | 67.7 | 49.9 | 51.5 | 60.8 | 55.9 | 57.0 | 67.4 |
| Hydrogen.....% | 5.4 | 5.2 | 4.1 | 5.3 | 5.2 | 4.0 | 5.3 | 5.2 | 4.0 | 5.6 | 5.5 | 4.5 |
| Ash.....% | 8.3 | 8.5 | 10.1 | 7.8 | 8.0 | 9.5 | 15.6 | 16.1 | 19.0 | 8.4 | 8.6 | 10.1 |
| Sulphur.....% | 0.4 | 0.4 | 0.5 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 |
| Nitrogen.....% | 0.9 | 1.0 | 1.1 | 0.9 | 0.9 | 1.1 | 0.9 | 0.9 | 1.1 | 1.0 | 1.1 | 1.3 |
| Oxygen.....% | 28.3 | 26.7 | 15.4 | 30.4 | 28.7 | 17.4 | 27.9 | 25.9 | 14.6 | 28.7 | 27.4 | 16.3 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross.. | 5280 | 5420 | 6410 | 5120 | 5270 | 6260 | 4710 | 4850 | 5730 | 5290 | 5400 | 6380 |
| B. Th. U. per lb., gross.. | 9500 | 9750 | 11530 | 9210 | 9490 | 11270 | 8470 | 8740 | 10320 | 9530 | 9720 | 11490 |
| Fuel ratio..... | 1.70 | | | 1.60 | | | 1.45 | | | 1.30 | | |
| Carbon-Hydrogen ratio..... | 10.6 | 11.2 | 16.8 | 10.4 | 11.0 | 16.8 | 9.4 | 10.0 | 15.0 | 9.9 | 10.3 | 15.0 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 2-1 | | | 1 | | | 2-1 | | | 2 | | |
| Location in mine..... | No. 1 seam, 130 ft. in No. 1 entry. | | | | | | 250 ft. in main entry | | | Red Deer seam. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | Run-of-mine..... | | | Run-of-mine..... | | | | | |
| Taken by..... | Duncan McDonald, provincial mine inspector. | | | | | | | | | | | |
| Date of sampling..... | March 8, 1917..... | | | August 2, 1916..... | | | March 7, 1917..... | | | August 1, 1916. | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.
Pembina-Wabamun Area.

| Description. | Security Coal Mines, Wabamun. Sec. 14, Tp. 53, R. 4. | | | | | | Lakeside Coals, Ltd., Wabamun. Sec. 9, Tp. 53, R. 4. | | | | | |
|-------------------------------------|---------------------------------------------------------|-------|-------|----------------------|-------|-------|----------------------------------------------------------|----------------------|-------------------------------------------------------------------------------|-------|-------|--|
| | 193 | | | 194 | | | 872 | | 875 | | | |
| Moisture condition (see note p. 2). | R | AD | D | R | AD | D | R | D | R | AD | D | |
| Loss on air-drying.....% | 2.5 | ..... | ..... | 1.0 | ..... | ..... | ..... | ..... | 5.4 | ..... | ..... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 18.9 | 16.8 | ..... | 14.6 | 13.8 | ..... | 6.7 | ..... | 24.1 | 19.7 | ..... |  |
| Ash.....% | 5.6 | 5.7 | 6.9 | 5.6 | 5.7 | 6.6 | 11.7 | 12.5 | 6.1 | 6.5 | 8.1 | |
| Volatile matter.....% | 31.6 | 32.4 | 38.9 | 33.3 | 33.6 | 39.0 | 34.8 | 37.3 | 27.7 | 29.3 | 36.5 | |
| Fixed carbon.....% | 43.9 | 45.1 | 54.2 | 46.5 | 46.9 | 54.4 | 46.8 | 50.2 | 42.1 | 44.5 | 55.4 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 54.7 | 56.0 | 67.4 | 58.3 | 58.9 | 68.3 | 58.9 | 63.1 | 52.0 | 55.0 | 68.5 | |
| Hydrogen.....% | 5.3 | 5.2 | 4.0 | 5.1 | 5.1 | 4.1 | 4.4 | 3.9 | 5.8 | 5.5 | 4.0 | |
| Ash.....% | 5.6 | 5.7 | 6.9 | 5.6 | 5.7 | 6.6 | 11.7 | 12.5 | 6.1 | 6.5 | 8.1 | |
| Sulphur.....% | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | |
| Nitrogen.....% | 0.7 | 0.7 | 0.8 | 0.7 | 0.7 | 0.9 | 0.7 | 0.8 | 0.7 | 0.7 | 0.9 | |
| Oxygen.....% | 33.5 | 32.2 | 20.6 | 30.1 | 29.4 | 19.9 | 24.2 | 19.6 | 35.3 | 32.2 | 18.3 | |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 4960 | 5080 | 6110 | 5250 | 5300 | 6150 | 5360 | 5750 | 4690 | 4950 | 6170 | |
| B. Th. U. per lb., gross..... | 8930 | 9150 | 11000 | 9450 | 9550 | 11080 | 9650 | 10340 | 8440 | 8920 | 11110 | |
| Fuel ratio..... | 1.40 | | | 1.40 | | | 1.35 | | 1.50 | | | |
| Carbon-Hydrogen ratio..... | 10.3 | 10.8 | 17.0 | 11.4 | 11.6 | 16.7 | 13.4 | 16.2 | 9.1 | 10.1 | 17.0 | |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | non-coking | | | |
| Hoffmann potash test..... | | | | | | | | | 1-2 | | | |
| Location in mine..... | | | | | | | No. 1 or upper seam. | No. 1 or upper seam. | | | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | Mine. | | | |
| Quality of coal..... | Average of mine.... | | | Average of mine.... | | | | | | | | |
| Taken by..... | J. G. S. Hudson, Mines Branch, Ot- tawa. | | | J. G. S. Hudson..... | | | J. S. Stewart, Geological Survey. | | J. T. Stirling, pro- vincial chief mine inspector. October 28, 1916. | | | |
| Date of sampling..... | August 22, 1912..... | | | August 22, 1912..... | | | Summer of 1916. | | | | | |
| Remarks..... | | | | | | | Operated by Island Lake Coal Co. at time of sampling. | | | | | |

ALBERTA COAL FIELDS.
Pembina-Wabamun Area.

| Description. | Gainford Collieries, Ltd., Gainford. | | | | | | | | |
|-----------------------------------------|--------------------------------------|-------|-------|----------------------|-------|-------|-------------------------------|-------|--|
| | Sec. 14, Tp. 53, R. 6. | | | | | | | | |
| Sample No. | 186 | | | 187 | | | 260 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | D | |
| Loos on air-drying.....% | 1.3 | .... | .... | 4.8 | .... | .... | .... | .... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 9.9 | 8.7 | .... | 19.9 | 15.8 | .... | 17.0 | .... |  |
| Ash.....% | 6.0 | 6.1 | 6.7 | 5.8 | 6.1 | 7.3 | 8.4 | 10.1 | |
| Volatile matter.....% | 34.8 | 35.3 | 38.7 | 30.0 | 31.5 | 37.4 | 30.8 | 37.1 | |
| Fixed carbon.....% | 49.3 | 49.9 | 54.6 | 44.3 | 46.6 | 55.3 | 43.8 | 52.8 | |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 60.9 | 61.7 | 67.6 | 54.9 | 57.6 | 68.4 | 53.8 | 64.8 | |
| Hydrogen.....% | 5.0 | 4.9 | 4.3 | 5.8 | 5.5 | 4.4 | 5.0 | 3.8 | |
| Ash.....% | 6.0 | 6.1 | 6.7 | 5.8 | 6.1 | 7.3 | 8.4 | 10.1 | |
| Sulphur.....% | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.6 | 0.7 | |
| Nitrogen.....% | 0.9 | 0.9 | 1.0 | 0.7 | 0.7 | 0.9 | 1.6 | 1.9 | |
| Oxygen.....% | 27.0 | 26.2 | 20.2 | 32.6 | 29.9 | 18.8 | 30.6 | 18.7 | |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 5680 | 5750 | 6300 | 5130 | 5390 | 6400 | 5020 | 6050 | |
| B. Th. U. per lb., gross..... | 10220 | 10350 | 11340 | 9230 | 9700 | 11510 | 9040 | 10890 | |
| Fuel ratio..... | 1.40 | | | 1.50 | | | 1.40 | | |
| Carbon-Hydrogen ratio..... | 12.2 | 12.5 | 15.6 | 9.5 | 10.5 | 15.5 | 10.8 | 17.1 | |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | | | | | | | | | |
| Location in mine..... | | | | | | | | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial— carload. | | |
| Quality of coal..... | Average of seam..... | | | Average of seam..... | | | | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | J. G. S. Hudson..... | | | Provincial mine inspector. | | |
| Date of sampling..... | August 10, 1912..... | | | August 10, 1912..... | | | Lab. sample July 9, 1913. | | |
| Remarks..... | | | | | | | | | |

ALBERTA COAL FIELDS.

Pembina-Wabamun Area.

| Description. | North American Collieries, Ltd., Edmonton. Pembina mine, Evansburgh. Sec. 30, Tp. 53, R. 7. | | | | | | | | | | | |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------|-------|-------|------------------------------------------------|-------|-------|--------------------------------------------------|-------|-------|-----------------------------------|-------|--|
| | 357 | | | 369 | | | 302 | | | 871 | | |
| Sample No..... | R | AD | D | R | AD | D | R | AD | D | R | D | |
| Moisture condition (see note p. 2). | 6.2 | ..... | ..... | 4.1 | ..... | ..... | 3.3 | ..... | ..... | ..... | ..... |  |
| Loss on air-drying.....% | 6.2 | ..... | ..... | 4.1 | ..... | ..... | 3.3 | ..... | ..... | ..... | ..... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 17.0 | 11.5 | ..... | 18.2 | 14.7 | ..... | 18.9 | 16.1 | ..... | 5.7 | ..... |  |
| Ash.....% | 9.7 | 10.4 | 11.7 | 10.3 | 10.7 | 12.6 | 10.1 | 10.5 | 12.5 | 11.1 | 11.8 | |
| Volatile matter.....% | 29.5 | 31.5 | 35.7 | 27.6 | 28.8 | 33.7 | 27.1 | 28.0 | 33.4 | 32.4 | 34.3 | |
| Fixed carbon.....% | 43.8 | 46.6 | 52.6 | 43.9 | 45.8 | 53.7 | 43.9 | 45.4 | 54.1 | 50.8 | 53.9 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 54.4 | 58.0 | 65.6 | 53.9 | 56.2 | 65.9 | 55.1 | 57.0 | 67.9 | 61.9 | 65.7 | |
| Hydrogen.....% | 5.7 | 5.4 | 4.6 | 5.5 | 5.3 | 4.3 | 5.5 | 5.3 | 4.1 | 4.3 | 3.9 | |
| Ash.....% | 9.7 | 10.4 | 11.7 | 10.3 | 10.7 | 12.6 | 10.1 | 10.5 | 12.5 | 11.1 | 11.8 | |
| Sulphur.....% | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | 28.4 | 26.2 | 14.3 | 21.5 | 17.4 | |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 4990 | 5320 | 6010 | 4960 | 5170 | 6060 | 4930 | 5100 | 6080 | 5720 | 6060 | |
| B. Th. U. per lb., gross..... | 8980 | 9580 | 10830 | 8930 | 9310 | 10910 | 8870 | 9180 | 10940 | 10300 | 10920 | |
| Fuel ratio..... | 1.50 | | | 1.60 | | | 1.60 | | | 1.55 | | |
| Carbon-Hydrogen ratio..... | 9.5 | 10.8 | 14.3 | 9.7 | 10.6 | 15.4 | 10.1 | 10.8 | 16.4 | 14.4 | 16.9 | |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test.....% | ..... |  |  | ..... |  |  | 1 |  |  | ..... |  |  |
| Location in mine..... | | | | | | | Lower or No. 2 seam | | | Lower or No. 2 seam. | | |
| Kind of sample..... | Commercial—30tons | | | Commercial—30tons | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | | | | | | | | | |
| Taken by..... | Provincial mine inspector. | | | Provincial mine inspector. | | | J. T. Stirling, provincial chief mine inspector. | | | J. S. Stewart, Geological Survey. | | |
| Date of sampling..... | March 1914..... Lab. sample March 27, 1914. | | | March 1914..... Lab. sample April 27, 1914. | | | November 1913..... | | | Summer of 1916. | | |
| Remarks..... | Both lab. samples taken from same commercial sample. Operated by Pembina Coal Co., Ltd., at time of sampling. | | | | | | | | | | | |
| | Operated by Pembina Coal Operators, Ltd., at time of sampling. | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Taber-Bow Island Area.

| Description. | Canada West Coal Co., Ltd., Taber. | | | | | | |
|-----------------------------------------|------------------------------------------|-------|-----------|---------------|-----------------------------------------|-------|-------|
| | Sec. 31, Tp. 9, R. 16. | | | | | | |
| Sample No..... | M 43 | | M EX 12 | | 366 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | D | R | AD | D |
| Loes on air-drying.....% | 1.5 | .... | .... | .... | 0.8 | .... | .... |
| Results obtained by..... | Calc. | Calc. | Anal. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | |
| Moisture.....% | 13.0 | 11.7 | .... | .... | 13.0 | 12.2 | .... |
| Ash.....% | 12.3 | 12.4 | 14.1 | 23.6 | 10.8 | 10.9 | 12.4 |
| Volatile matter.....% | 31.3 | 31.8 | 36.0 | 33.8 | 30.9 | 31.2 | 35.5 |
| Fixed carbon.....% | 43.4 | 44.1 | 40.9 | 42.6 | 45.3 | 45.7 | 52.1 |
| Ultimate analysis:— | | | | | | | |
| Carbon.....% | 56.1 | 56.9 | 64.5 | .... | 58.9 | 59.4 | 67.7 |
| Hydrogen.....% | 5.6 | 5.5 | 4.7 | .... | 5.4 | 5.4 | 4.6 |
| Ash.....% | 12.3 | 12.4 | 14.1 | .... | 10.8 | 10.9 | 12.4 |
| Sulphur.....% | 1.2 | 1.3 | 1.4 | 1.4 | 0.9 | 0.9 | 1.0 |
| Nitrogen.....% | 1.3 | 1.4 | 1.6 | .... | 1.4 | 1.4 | 1.6 |
| Oxygen.....% | 23.5 | 22.5 | 13.7 | .... | 22.6 | 22.0 | 12.7 |
| Calorific value:— | | | | | | | |
| Calories per gram, gross..... | 5330 | 5420 | 6130 | 5220 | 5460 | 5510 | 6280 |
| B. Th. U. per lb., gross.....% | 9600 | 9750 | 11040 | 9400 | 9830 | 9920 | 11300 |
| Fuel ratio..... | | 1.40 | | 1.25 | | 1.45 | |
| Carbon-Hydrogen ratio..... | 10.1 | 10.4 | 13.6 | .... | 10.8 | 11.0 | 14.8 |
| Coking properties..... | non-coking |  |  | .... | non-coking | | |
| Hoffmann potash test..... | .... |  |  | .... | .... |  |  |
| Location in mine..... | ..... |  |  |  |  |  |  |
| Kind of sample..... | Commercial—5 tons..... | | Mine..... | Mine. | | | |
| Quality of coal..... | Over $\frac{1}{4}$ -inch shaking screen. | | | Slack..... | | | |
| Taken by..... | T. Denis, Mines Branch. | | | T. Denis... | S. A. Jones, provincial mine inspector. | | |
| Date of sampling..... | July 23, 1908..... | | | July 23, 1908 | April 1914. | | |
| Remarks..... | ..... |  |  |  |  |  |  |

ALBERTA COAL FIELDS.

Taber-Bow Island Area.

| Description. | Regal Coal Co., Ltd., Eureka mine, Taber. Sec. 8, Tp. 10, R. 16. | | | Superior Coal Co., Ltd., Taber. Sec. 18, Tp. 10, R. 16. | | | Rock Springs Coal & Brick Co., Ltd., Elcan. Sec. 3, Tp. 10, R. 17. | | |
|-----------------------------------------|------------------------------------------------------------------------|-------|-------|---------------------------------------------------------------|-------|-------|--------------------------------------------------------------------------|-------|-------|
| | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 406 | | | 408 | | | 407 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D |
| Loes on air-drying.....% | 1.2 | .... | .... | 2.6 | .... | .... | 0.5 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 15.0 | 14.0 | .... | 14.9 | 12.7 | .... | 12.8 | 12.4 | .... |
| Ash.....% | 7.3 | 7.4 | 8.7 | 6.9 | 7.0 | 8.1 | 11.2 | 11.2 | 12.8 |
| Volatile matter.....% | 31.4 | 31.8 | 36.9 | 31.8 | 32.6 | 37.3 | 30.0 | 30.2 | 34.4 |
| Fixed carbon.....% | 46.3 | 46.8 | 54.4 | 46.4 | 47.7 | 54.6 | 46.0 | 46.2 | 52.8 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 59.7 | 60.5 | 70.3 | 59.3 | 60.8 | 69.7 | 56.4 | 56.7 | 64.7 |
| Hydrogen.....% | 5.8 | 5.8 | 4.9 | 6.0 | 5.8 | 5.1 | 5.4 | 5.4 | 4.6 |
| Ash.....% | 7.3 | 7.4 | 8.7 | 6.9 | 7.0 | 8.1 | 11.2 | 11.2 | 12.8 |
| Sulphur.....% | 1.2 | 1.2 | 1.4 | 1.3 | 1.3 | 1.5 | 1.1 | 1.1 | 1.2 |
| Nitrogen.....% | 1.4 | 1.5 | 1.7 | 1.5 | 1.6 | 1.8 | 1.3 | 1.3 | 1.4 |
| Oxygen.....% | 24.6 | 23.6 | 13.0 | 25.0 | 23.5 | 13.8 | 24.6 | 24.3 | 15.3 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 5610 | 5680 | 6600 | 5580 | 5730 | 6560 | 5330 | 5350 | 6110 |
| B. Th. U. per lb., gross..... | 10100 | 10220 | 11880 | 10050 | 10320 | 11810 | 9580 | 9630 | 10990 |
| Fuel ratio..... | 1.45 | | | 1.45 | | | 1.55 | | |
| Carbon-Hydrogen ratio..... | 10.3 | 10.5 | 14.4 | 9.9 | 10.4 | 13.8 | 10.5 | 10.6 | 14.2 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 1-2 |  |  | .... |  |  | 1-2 | | |
| Location in mine..... | | | | | | | | | |
| Kind of sample..... | Mine samples. | | | | | | | | |
| Quality of coal..... | | | | | | | | | |
| Taken by..... | S. A. Jones, provincial mine inspector. | | | | | | | | |
| Date of sampling..... | October 1914. | | | | | | | | |
| Remarks..... | | | | | | | | | |

ALBERTA COAL FIELDS.

Hanna Area.

| Description. | Luck & Sinclair mine, Parr. Sec. 18, Tp. 29, R. 14. | | | W. J. Anderson's mine, Sheerness. Sec. 12, Tp. 29, R. 13. | | | Sam. Wadsworth's mine Hanna. Sec. 19, Tp. 29, R. 14. | | |
|------------------------------------------|-----------------------------------------------------------|-------|-------|-----------------------------------------------------------------|-------|-------|------------------------------------------------------------|-------|-------|
| | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 916 | | | 944 | | | 820 | | |
| Moisture condition, (see note, p. 2).... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 3.3 | .... | .... | 6.1 | .... | .... | 4.2 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 23.8 | 21.2 | .... | 24.9 | 20.0 | .... | 24.1 | 20.8 | .... |
| Ash.....% | 9.1 | 9.4 | 12.0 | 4.4 | 4.7 | 5.9 | 5.6 | 5.8 | 7.3 |
| Volatile matter.....% | 28.3 | 29.2 | 37.1 | 27.5 | 29.3 | 36.6 | 29.7 | 31.0 | 39.2 |
| Fixed carbon.....% | 38.8 | 40.2 | 50.9 | 43.2 | 46.0 | 57.5 | 40.6 | 42.4 | 53.5 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 48.7 | 50.3 | 63.9 | 52.5 | 55.9 | 69.8 | 51.7 | 53.9 | 68.2 |
| Hydrogen.....% | 5.9 | 5.7 | 4.2 | 6.0 | 5.7 | 4.3 | 6.0 | 5.8 | 4.3 |
| Ash.....% | 9.1 | 9.4 | 12.0 | 4.4 | 4.7 | 5.9 | 5.6 | 5.8 | 7.3 |
| Sulphur.....% | 0.4 | 0.5 | 0.6 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 |
| Nitrogen.....% | 1.0 | 1.1 | 1.4 | 1.0 | 1.1 | 1.4 | 1.0 | 1.1 | 1.4 |
| Oxygen.....% | 34.9 | 33.0 | 17.9 | 35.8 | 32.3 | 18.2 | 35.3 | 33.0 | 18.3 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 4530 | 4690 | 5950 | 4870 | 5190 | 6490 | 4850 | 5060 | 6400 |
| B. Th. U. per lb., gross..... | 8160 | 8440 | 10710 | 8770 | 9340 | 11680 | 8730 | 9120 | 11510 |
| Fuel ratio..... | 1.35 | | | 1.55 | | | 1.35 | | |
| Carbon-Hydrogen ratio..... | 8.3 | 8.9 | 15.3 | 8.7 | 9.9 | 16.3 | 8.6 | 9.4 | 15.7 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 1 | | | 1 | | | 1 | | |
| Location in mine..... | No. 1 seam, No. 1 south entry. | | | No. 1 seam, south entry, 200 ft. from slope bottom. | | | No. 1 seam, main entry. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | Run-of-mine..... | | | | | | | | |
| Taken by..... | Duncan McDonald, provincial mine inspector. | | | | | | | | |
| Date of sampling..... | December 1, 1916..... | | | December 13, 1916..... | | | August 24, 1916. | | |
| Remarks..... | | | | | | | | | |

ALBERTA COAL FIELDS.

Lacombe Area.

| Description. | McCormack Mine Co., Castor. Sec. 34, Tp. 37, R. 14. | | | | Coal said to be from Coalbeck Collieries, Castor. | | | | | |
|-------------------------------------|--------------------------------------------------------|-------|-------|-------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------|---------------------|-------|------|
| | 876 | | 992 | | 323 | | 324 | | 325 | |
| | R | AD | D | R | D | R | D | R | D | |
| Sample No..... | | | | | | | | | | |
| Moisture condition (see note p. 2). | R | AD | D | R | D | R | D | R | D | |
| Loss on air-drying.....% | 7.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | |
| Moisture.....% | 28.1 | 22.7 | ..... | 14.5 | ..... | 15.5 | ..... | 18.8 | ..... |  |
| Ash.....% | 7.6 | 8.2 | 10.6 | 8.3 | 9.7 | 5.5 | 6.4 | 4.3 | 5.3 | |
| Volatile matter.....% | 28.6 | 30.7 | 39.7 | 33.6 | 39.3 | 37.0 | 43.8 | 35.2 | 43.3 | |
| Fixed carbon.....% | 35.7 | 38.4 | 49.7 | 43.6 | 51.0 | 42.0 | 49.8 | 41.7 | 51.4 | |
| Ultimate analysis:— | | | | | | | | | | |
| Carbon.....% | 46.0 | 49.4 | 63.9 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Hydrogen.....% | 6.1 | 5.7 | 4.1 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Ash.....% | 7.6 | 8.2 | 10.6 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Sulphur.....% | 0.4 | 0.5 | 0.6 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Nitrogen.....% | 0.9 | 1.0 | 1.3 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Oxygen.....% | 39.0 | 35.2 | 19.5 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Calorific value:— | | | | | | | | | | |
| Calories per gram, gross..... | 4250 | 4570 | 5900 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| B. Th. U. per lb., gross..... | 7640 | 8220 | 10630 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Fuel ratio..... | 1.25 | | | 1.30 | | 1.15 | | 1.20 | | 1.25 |
| Carbon-Hydrogen ratio..... | 7.5 | 8.6 | 15.4 | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Coking properties..... | non-coking | | | non-coking |  | ..... | ..... | ..... | ..... |  |
| Hoffmann potash test..... | 1 |  |  | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Location in mine..... | No. 1 seam, No. 2 south entry. |  |  | ..... | ..... | No. 1 entry... | No. 4 entry... | No. 5 entry. | | |
| Kind of sample..... | Mine..... |  |  | ..... | ..... | ..... | ..... | ..... |  |  |
| Quality of coal..... | Run-of-mine..... |  |  | ..... | ..... | ..... | ..... | ..... |  |  |
| Taken by..... | Duncan McDonald, provincial mine inspector. | | | Mine authorities. | ..... | Private individual. | Private individual. | Private individual. | | |
| Date of sampling..... | September 9, 1916. | | | April 1917..... | ..... | January 1914. | 1914..... | 1914. | | |
| Remarks..... | ..... |  |  | ..... | ..... | Samples apparently from the Colbeck Colliery, now operated by the National Coal Co., Sec. 3, Tp. 38, R. 14. | | | | |

ALBERTA COAL FIELDS.

Lacombe Area.

| Description. | Coal said to be from Coalbeck Collieries, Castor. | | | | Frank Mehilts' mine, Halkirk. Sec. 18, Tp. 39, R. 15 | | | Armour Gray's mine Gadsby. Sec. 28, Tp. 39, R. 18 | | |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------|---------------------------------------------|------------------------------------------------------|-------|-------|---------------------------------------------------|-------|-------|
| | 326 | | 327 | | 760 | | | 958 | | |
| | R | D | R | D | R | AD | D | R | AD | D |
| Sample No..... | | | | | | | | | | |
| Moisture condition (see note p. 2)..... | | | | | | | | | | |
| Loss on air-drying.....% | .... | .... | .... | .... | 3.9 | .... | .... | 8.0 | .... | .... |
| Results obtained by..... | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | |
| Moisture.....% | 17.8 | .... | 17.6 | .... | 27.9 | 25.0 | .... | 25.8 | 19.3 | .... |
| Ash.....% | 6.2 | 7.6 | 5.3 | 6.4 | 5.0 | 5.2 | 7.0 | 7.9 | 8.6 | 10.6 |
| Volatile matter.....% | 35.3 | 42.9 | 34.8 | 42.2 | 26.7 | 27.8 | 37.0 | 26.8 | 29.1 | 36.1 |
| Fixed carbon.....% | 40.7 | 49.5 | 42.3 | 51.4 | 40.4 | 42.0 | 56.0 | 39.5 | 43.0 | 53.3 |
| Ultimate analysis:— | | | | | | | | | | |
| Carbon.....% | .... | .... | .... | .... | 48.8 | 50.8 | 67.6 | 48.7 | 53.0 | 65.6 |
| Hydrogen.....% | .... | .... | .... | .... | 6.2 | 6.0 | 4.2 | 6.0 | 5.5 | 4.2 |
| Ash.....% | .... | .... | .... | .... | 5.0 | 5.2 | 7.0 | 7.9 | 8.6 | 10.6 |
| Sulphur.....% | .... | .... | .... | .... | 0.7 | 0.7 | 0.9 | 0.4 | 0.4 | 0.5 |
| Nitrogen.....% | .... | .... | .... | .... | 1.0 | 1.0 | 1.4 | 0.9 | 1.0 | 1.3 |
| Oxygen.....% | .... | .... | .... | .... | 38.3 | 36.3 | 18.9 | 36.1 | 31.5 | 17.8 |
| Calorific value:— | | | | | | | | | | |
| Calories per gram, gross..... | .... | .... | .... | .... | 4560 | 4740 | 6320 | 4530 | 4920 | 6100 |
| B. Th. U. per lb., gross..... | .... | .... | .... | .... | 8200 | 8540 | 11370 | 8150 | 8860 | 10970 |
| Fuel ratio..... | 1.15 | | 1.20 | | 1.50 | | | 1.50 | | |
| Carbon-Hydrogen ratio..... | .... | .... | .... | .... | 7.9 | 8.5 | 15.9 | 8.1 | 9.6 | 15.7 |
| Coking properties..... | .... | .... | .... | .... | non-coking | | | non-coking | | |
| Hoffmann potash test..... | .... | .... | .... | .... | 1 | | | 1 | | |
| Location in mine..... | No. 6 entry..... | No. 7 entry..... | Main entry..... | No. 1 seam, 200 ft. in No. 1 entry. | | | | | | |
| Kind of sample..... | Private individual. | Private individual. | Mine..... | Mine. | | | | | | |
| Quality of coal..... | Private individual. | Private individual. | Normal output of mine. | Run-of-mine. | | | | | | |
| Taken by..... | Private individual. | Private individual. | F. Aspinall, provincial inspector of mines. | Duncan McDonald, provincial mine inspector. | | | | | | |
| Date of sampling..... | January 1914..... | 1914..... | May 3, 1916..... | Feb. 15, 1917. | | | | | | |
| Remarks..... | Samples apparently from the Coalbeck Colliery, now operated by the National Coal Co., Sec. 3, Tp. 38, R. 14. | | | | | | | | | |

ALBERTA COAL FIELDS.
Camrose-Battle River Area.

| Description. | Colfax Coal Mining Company Bish or Le Gear mine, Hastings Coulee. Sec. 36, Tp. 40, R. 16. | | | J. B. Turney's mine, Hastings Coulee. Sec. 36, Tp. 40, R. 16. | | |
|------------------------------------------|----------------------------------------------------------------------------------------------------|-------|-------|-------------------------------------------------------------------------------------|-------|-------|
| Sample No..... | 758 | | | 744 | | |
| Moisture condition (see note, p. 2)..... | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 3.1 | .... | .... | 5.1 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | |
| Moisture.....% | 25.4 | 23.0 | .... | 25.3 | 21.3 | .... |
| Ash.....% | 5.8 | 6.0 | 7.8 | 5.1 | 5.4 | 6.9 |
| Volatile matter.....% | 27.8 | 28.7 | 37.3 | 28.1 | 29.6 | 37.6 |
| Fixed carbon.....% | 41.0 | 42.3 | 54.9 | 41.5 | 43.7 | 55.5 |
| Ultimate analysis:— | | | | | | |
| Carbon.....% | 50.4 | 52.0 | 67.5 | 51.3 | 54.1 | 68.7 |
| Hydrogen.....% | 6.0 | 5.9 | 4.3 | 6.4 | 6.1 | 4.8 |
| Ash.....% | 5.8 | 6.0 | 7.8 | 5.1 | 5.4 | 6.9 |
| Sulphur.....% | 0.4 | 0.4 | 0.6 | 0.4 | 0.4 | 0.5 |
| Nitrogen.....% | 1.1 | 1.1 | 1.4 | 1.1 | 1.2 | 1.5 |
| Oxygen.....% | 36.3 | 34.6 | 18.4 | 35.7 | 32.8 | 17.6 |
| Calorific value:— | | | | | | |
| Calories per gram, gross..... | 4720 | 4870 | 6330 | 4830 | 5090 | 6460 |
| B. Th. U. per lb., gross..... | 8500 | 8770 | 11390 | 8690 | 9160 | 11630 |
| Fuel ratio..... | | 1.45 | | | 1.50 | |
| Carbon-Hydrogen ratio..... | 8.4 | 8.9 | 15.8 | 8.0 | 8.8 | 14.4 |
| Coking properties..... | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 1 | | | 2 | | |
| Location in mine..... | Main entry..... | | | Main entry. | | |
| Kind of sample..... | Mine..... | | | Mine. | | |
| Quality of coal..... | Impurities left out of sample, which was a little better than normal output. | | | Bands and parting left out of sample, which was a little better than normal output. | | |
| Taken by..... | F. Aspinall, provincial mine inspector. | | | | | |
| Date of sampling..... | May 5, 1916. | | | | | |
| Remarks..... | | | | | | |

ALBERTA COAL FIELDS.

Tofield Area.

| Description. | Tofield Coal Co., Ltd., Tofield. | | | | | | | | |
|-----------------------------------------|----------------------------------|-------|-------|--------------------------|-------|-------|--------------------|-------|-------|
| | Sec. 26, Tp. 50, R. 19. | | | | | | | | |
| Sample No..... | 180 | | | 181 | | | 182 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 8.7 | ..... | ..... | 5.4 | ..... | ..... | 11.2 | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 23.2 | 15.9 | ..... | 16.5 | 11.7 | ..... | 26.3 | 17.0 | ..... |
| Ash.....% | 5.1 | 5.6 | 6.6 | 6.5 | 6.9 | 7.8 | 5.0 | 5.6 | 6.8 |
| Volatile matter.....% | 31.3 | 34.3 | 40.8 | 34.7 | 36.7 | 41.5 | 30.4 | 34.2 | 41.2 |
| Fixed carbon.....% | 40.4 | 44.2 | 52.6 | 42.3 | 44.7 | 50.7 | 38.3 | 43.2 | 52.0 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 53.3 | 58.4 | 69.4 | 55.6 | 58.8 | 66.6 | 49.6 | 55.9 | 67.3 |
| Hydrogen.....% | 6.3 | 5.8 | 4.8 | 5.4 | 5.1 | 4.3 | 6.1 | 5.4 | 4.3 |
| Ash.....% | 5.1 | 5.6 | 6.6 | 6.5 | 6.9 | 7.8 | 5.0 | 5.6 | 6.8 |
| Sulphur.....% | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.6 | 0.5 | 0.6 | 0.7 |
| Nitrogen.....% | 1.0 | 1.1 | 1.3 | 1.1 | 1.1 | 1.3 | 1.0 | 1.1 | 1.4 |
| Oxygen.....% | 33.8 | 28.6 | 17.3 | 30.9 | 27.6 | 19.4 | 37.8 | 31.4 | 19.5 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 4970 | 5440 | 6480 | 5120 | 5410 | 6130 | 4770 | 5370 | 6470 |
| B. Th. U. per lb., gross..... | 8950 | 9800 | 11660 | 9220 | 9740 | 11040 | 8580 | 9660 | 11640 |
| Fuel ratio..... | 1.30 | | | 1.20 | | | 1.25 | | |
| Carbon-Hydrogen ratio..... | 8.5 | 10.1 | 14.5 | 10.2 | 11.5 | 15.5 | 8.2 | 10.3 | 15.8 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 1 |  |  | ..... |  |  | ..... |  |  |
| Location in mine..... | | | | | | | | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | Full height of seam..... | | | Full height of seam..... | | | Top 4 ft. of seam. | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | | | | | | |
| Date of sampling..... | August 7, 1912. | | | | | | | | |
| Remarks..... | | | | | | | | | |

ALBERTA COAL FIELDS.

Tofield Area.

| Description. | Tofield Coal Co., Ltd., Tofield. Sec. 26, Tp. 50, R. 19. | | | | | | | | | The Dobell Coal Co. Ltd., Tofield. S.W. ¼ Sec. 35, Tp. 50, R. 19. | | |
|-------------------------------------|-------------------------------------------------------------|-------|-------|---------------------------------------------|-------|-------|-------------------------------|-------|------------------|----------------------------------------------------------------------------|-------|--|
| | 183 | | | 184 | | | 232 | | 185 | | | |
| Sample No. | R | AD | D | R | AD | D | R | D | R | AD | D | |
| Moisture condition (see note p. 2). | 12.7 | .... | .... | 9.6 | .... | .... | .... | .... | 7.6 | .... | .... |  |
| Loss on air-drying.....% | 12.7 | .... | .... | 9.6 | .... | .... | .... | .... | 7.6 | .... | .... |  |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 27.4 | 16.8 | .... | 21.1 | 12.7 | .... | 25.0 | .... | 22.2 | 15.8 | .... |  |
| Ash.....% | 6.3 | 7.2 | 8.7 | 10.8 | 11.9 | 13.7 | 8.5 | 11.3 | 6.2 | 6.7 | 7.9 | |
| Volatile matter.....% | 28.2 | 32.4 | 38.9 | 30.0 | 33.2 | 38.0 | 29.8 | 39.7 | 29.9 | 32.4 | 38.5 | |
| Fixed carbon.....% | 38.1 | 43.6 | 52.4 | 38.1 | 42.2 | 48.3 | 36.7 | 49.0 | 41.7 | 45.1 | 53.6 | |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 48.5 | 55.6 | 66.8 | 47.9 | 52.9 | 60.7 | 50.4 | 67.2 | 52.3 | 56.6 | 67.2 | |
| Hydrogen.....% | 6.2 | 5.5 | 4.3 | 5.5 | 4.9 | 4.0 | 6.6 | 5.1 | 5.7 | 5.3 | 4.1 | |
| Ash.....% | 6.3 | 7.2 | 8.7 | 10.8 | 11.9 | 13.7 | 8.5 | 11.3 | 6.2 | 6.7 | 7.9 | |
| Sulphur.....% | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | |
| Nitrogen.....% | 1.0 | 1.1 | 1.3 | 0.9 | 1.0 | 1.1 | 0.9 | 1.2 | 1.0 | 1.1 | 1.3 | |
| Oxygen.....% | 37.6 | 30.2 | 18.4 | 34.3 | 28.7 | 19.8 | 33.3 | 14.8 | 34.4 | 29.8 | 18.9 | |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross..... | 4520 | 5180 | 6230 | 4540 | 5020 | 5750 | 4440 | 5920 | 4860 | 5260 | 6240 | |
| B. Th. U. per lb., gross..... | 8140 | 9330 | 11210 | 8170 | 9030 | 10350 | 7990 | 10660 | 8740 | 9460 | 11230 | |
| Fuel ratio..... | 1.35 | | | 1.25 | | | 1.25 | | 1.40 | | | |
| Carbon-Hydrogen ratio..... | 7.8 | 10.1 | 15.4 | 8.7 | 10.8 | 15.1 | 7.6 | 13.2 | 9.2 | 10.7 | 16.2 | |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | non-coking | | | |
| Hoffmann potash test..... | .... |  |  | .... |  |  | .... |  | .... |  |  |  |
| Location in mine..... | | | | | | | | | | Water well. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Commercial—20 tons. | | Mine. | | | |
| Quality of coal..... | Lower 4 ft. of seam. | | | Slack, exposed to atmosphere for two years. | | | | | | | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | J. G. S. Hudson..... | | | Provincial mine inspector. | | J. G. S. Hudson. | | | |
| Date of sampling..... | August 7, 1912..... | | | August 7, 1912..... | | | January 1913..... | | August 7, 1912. | | | |
| Remarks..... | | | | | | | Lab. sample June 12, 1913. | | | | | |

ALBERTA COAL FIELDS.
Edmonton-Clover Bar Area.

| Description. | The Bush Mine Coal Co., Beverly. River lot 42, Secs. 6 and 7, Tp. 53, R. 23. | | | Humberstone Coal Co., Beverly. Sec. 7, Tp. 53, R. 23. | | | The Great West Coal Co., Ltd., Edmonton. Mine at Clover Bar. Secs. 5-8, Tp. 53, R. 23. | | | The Clover Bar Coal Co., Ltd., Clover Bar. Sec. 18, Tp. 53, R. 23. | | |
|------------------------------------|------------------------------------------------------------------------------|-------|-------|-------------------------------------------------------|-------|-------|----------------------------------------------------------------------------------------|-------|-------|--------------------------------------------------------------------|-------|-------|
| | Sample No. | 680 | | | 681 | | | 470 | | | 679 | |
| Moisture condition (see note p. 2) | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 7.2 | ..... | ..... | 5.8 | ..... | ..... | 2.7 | ..... | ..... | 9.6 | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 23.2 | 17.2 | ..... | 23.6 | 18.9 | ..... | 25.4 | 23.3 | ..... | 25.5 | 17.6 | ..... |
| Ash.....% | 5.7 | 6.2 | 7.5 | 8.8 | 9.3 | 11.5 | 5.7 | 5.9 | 7.7 | 7.3 | 8.0 | 9.7 |
| Volatile matter.....% | 26.5 | 28.6 | 34.5 | 25.1 | 26.6 | 32.8 | 27.1 | 27.9 | 36.3 | 25.1 | 27.8 | 33.8 |
| Fixed carbon.....% | 44.6 | 48.0 | 58.0 | 42.5 | 45.2 | 55.7 | 41.8 | 42.9 | 56.0 | 42.1 | 46.6 | 56.5 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 52.5 | 56.6 | 68.4 | 49.9 | 53.0 | 65.3 | 51.9 | 53.4 | 69.6 | 49.9 | 55.2 | 67.0 |
| Hydrogen.....% | 5.9 | 5.5 | 4.3 | 5.9 | 5.6 | 4.3 | 6.2 | 6.1 | 4.5 | 6.0 | 5.4 | 4.2 |
| Ash.....% | 5.7 | 6.2 | 7.5 | 8.8 | 9.3 | 11.5 | 5.7 | 5.9 | 7.7 | 7.3 | 8.0 | 9.7 |
| Sulphur.....% | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.5 |
| Nitrogen.....% | 1.1 | 1.1 | 1.4 | 1.0 | 1.0 | 1.3 | 1.1 | 1.1 | 1.5 | 1.0 | 1.1 | 1.3 |
| Oxygen.....% | 34.5 | 30.3 | 18.0 | 34.0 | 30.7 | 17.1 | 34.8 | 33.2 | 16.3 | 35.5 | 29.9 | 17.3 |
| Caloric value:— | | | | | | | | | | | | |
| Calories per gram, gross.. | 4840 | 5210 | 6300 | 4600 | 4880 | 6020 | 4740 | 4880 | 6360 | 4580 | 5070 | 6150 |
| B. Th. U. per lb., gross.. | 8710 | 9380 | 11330 | 8270 | 8780 | 10830 | 8540 | 8780 | 11450 | 8250 | 9130 | 11080 |
| Fuel ratio..... | 1.70 | | | 1.70 | | | 1.55 | | | 1.65 | | |
| Carbon-Hydrogen ratio..... | 8.9 | 10.3 | 15.8 | 8.4 | 9.4 | 15.1 | 8.4 | 8.8 | 15.4 | 8.4 | 10.2 | 16.0 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 1 | | | 1 |  |  | .... |  |  | 2 | | |
| Location in mine..... | 800 ft. in main entry. | | | Main entry, No. 2 opening. | | | North west entry... | | | No. 1 seam, No. 3 north entry. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | | | | 1 foot of bone coal and clay at top of seam not included. | | | | | |
| Taken by..... | S. A. Jones, provincial mine inspector. | | | S. A. Jones..... | | | E. D. Black, provincial mine inspector. | | | S. A. Jones. | | |
| Date of sampling..... | December 3, 1915... | | | December 2, 1915... | | | November 26, 1914. | | | December 1, 1915. | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.
Edmonton-Clover Bar Area.

| Description. | Strathcona Coal Co., Strathcona, River lot No. 9, Edmonton Settlement. | | | Parkdale Coal Co., Edmonton, River lot No. 22, Edmonton Settlement. | | | The McPeak Coal Co., City Mine, Edmonton, River lot 26, Edmonton Settlement. Sec. 10, Tp. 53, R. 24. | | | | | |
|--------------------------------------------|---------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------|-------|-------|
| | M 46 | | | M 42 | | | M 45 | | | 678 | | |
| Sample No..... | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | 5.8 | ..... | ..... | 4.6 | ..... | ..... | 4.9 | ..... | ..... | 8.4 | ..... | ..... |
| Loss on air-drying.....% | 5.8 | ..... | ..... | 4.6 | ..... | ..... | 4.9 | ..... | ..... | 8.4 | ..... | ..... |
| Results obtained by..... | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 22.9 | 18.2 | ..... | 22.7 | 18.9 | ..... | 23.7 | 19.8 | ..... | 26.2 | 19.4 | ..... |
| Ash.....% | 8.8 | 9.3 | 11.4 | 8.4 | 8.8 | 10.9 | 6.2 | 6.5 | 8.1 | 8.1 | 8.9 | 11.0 |
| Volatile matter.....% | 31.6 | 33.6 | 41.0 | 29.2 | 30.6 | 37.8 | 32.0 | 33.7 | 42.0 | 24.2 | 26.4 | 32.8 |
| Fixed carbon.....% | 36.7 | 38.9 | 47.6 | 39.7 | 41.7 | 51.3 | 38.1 | 40.0 | 49.9 | 41.5 | 45.3 | 56.2 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 48.5 | 51.5 | 62.9 | 50.5 | 52.9 | 65.3 | 50.1 | 52.7 | 65.6 | 48.9 | 53.3 | 66.2 |
| Hydrogen.....% | 6.0 | 5.7 | 4.5 | 6.1 | 5.9 | 4.6 | 6.0 | 5.8 | 4.5 | 5.9 | 5.5 | 4.1 |
| Ash.....% | 8.8 | 9.3 | 11.4 | 8.4 | 8.8 | 10.9 | 6.2 | 6.5 | 8.1 | 8.1 | 8.9 | 11.0 |
| Sulphur.....% | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 |
| Nitrogen.....% | 1.0 | 1.1 | 1.3 | 1.0 | 1.0 | 1.2 | 1.0 | 1.0 | 1.3 | 1.0 | 1.1 | 1.3 |
| Oxygen.....% | 35.4 | 32.1 | 19.5 | 33.7 | 31.1 | 17.6 | 36.4 | 33.7 | 20.1 | 35.8 | 30.9 | 17.0 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross.. | 4590 | 4880 | 5960 | 4680 | 4910 | 6060 | 4820 | 5060 | 6310 | 4470 | 4880 | 6050 |
| B. Th. U. per lb., gross.. | 8270 | 8780 | 10730 | 8430 | 8840 | 10900 | 8670 | 9120 | 11360 | 8040 | 8780 | 10890 |
| Fuel ratio..... | 1.15 | | | 1.35 | | | 1.20 | | | 1.70 | | |
| Carbon-Hydrogen ratio..... | 8.0 | 9.0 | 13.9 | 8.3 | 9.0 | 14.1 | 8.3 | 9.1 | 14.7 | 8.2 | 9.7 | 16.2 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | ..... |  |  | ..... |  |  | ..... |  |  | 2 | | |
| Location in mine..... | ..... |  |  |  |  |  |  |  |  |  |  |  |
| Kind of sample..... | Commercial—2 tons | | | Commercial—2 tons | | | Commercial—2 tons | | | Main entry, 75 ft. from slope bottom Mine. | | |
| Quality of coal..... | Over 1½-inch bar screen. | | | Over 1½-inch bar screen. | | | Over 1½-inch bar screen. | | | | | |
| Taken by..... | T. Denis, Mines Branch. | | | T. Denis..... | | | T. Denis..... | | | S. A. Jones, provin- cial mine inspec- tor. December 3, 1915. | | |
| Date of sampling..... | July 16, 1908..... | | | July 1908..... | | | July 1908..... | | | | | |
| Remarks..... | Operated by Edmonton Standard Coal Co., Ltd., at time of sampling. | | | | | | | | | | | |

ALBERTA COAL FIELDS.
Edmonton-Clover Bar Area.

| Description. | Twin City Coal Co., Ltd., Edmonton. River lot 17, Tp. 53, R. 24. | | | | | | | | | | | |
|-----------------------------------------|---------------------------------------------------------------------|-------|-------|-----------------------|-------|-------|-----------------------|-------|-------|-----------------------|-------|-------|
| | 175 | | | 176 | | | 177 | | | 178 | | |
| Sample No. | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2)..... | 7.5 | .... | .... | 9.1 | .... | .... | 10.6 | .... | .... | 9.9 | .... | .... |
| Loss on air-drying.....% | 7.5 | .... | .... | 9.1 | .... | .... | 10.6 | .... | .... | 9.9 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 20.8 | 14.4 | .... | 23.1 | 15.4 | .... | 24.5 | 15.6 | .... | 23.8 | 15.4 | .... |
| Ash.....% | 24.5 | 26.5 | 30.9 | 6.2 | 6.9 | 8.1 | 12.2 | 13.6 | 16.2 | 6.0 | 6.7 | 7.9 |
| Volatile matter.....% | 24.1 | 26.1 | 30.5 | 30.3 | 33.3 | 39.4 | 26.8 | 30.0 | 35.5 | 29.2 | 32.4 | 38.3 |
| Fixed carbon.....% | 30.6 | 33.0 | 38.6 | 40.4 | 44.4 | 52.5 | 36.5 | 40.8 | 48.3 | 41.0 | 45.5 | 53.8 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 39.5 | 42.8 | 50.0 | 52.3 | 57.6 | 68.1 | 46.1 | 51.5 | 61.0 | 52.1 | 57.8 | 68.3 |
| Hydrogen.....% | 5.0 | 4.5 | 3.4 | 6.1 | 5.6 | 4.6 | 5.7 | 5.1 | 4.0 | 5.9 | 5.3 | 4.2 |
| Ash.....% | 24.5 | 26.5 | 30.9 | 6.2 | 6.9 | 8.1 | 12.2 | 13.6 | 16.2 | 6.0 | 6.7 | 7.9 |
| Sulphur.....% | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 |
| Nitrogen.....% | 0.8 | 0.8 | 1.0 | 1.1 | 1.2 | 1.4 | 1.0 | 1.1 | 1.3 | 1.0 | 1.1 | 1.3 |
| Oxygen.....% | 30.0 | 25.1 | 14.4 | 34.0 | 28.3 | 17.4 | 34.7 | 28.3 | 17.1 | 34.7 | 28.8 | 17.9 |
| Calorific value:— | | | | | | | | | | | | |
| Calories per gram, gross.. | 3630 | 3920 | 4580 | 4870 | 5360 | 6340 | 4260 | 4760 | 5640 | 4820 | 5350 | 6320 |
| B. Th. U. per lb., gross.. | 6530 | 7060 | 8250 | 8770 | 9650 | 11410 | 7660 | 8570 | 10160 | 8670 | 9630 | 11380 |
| Fuel ratio..... | 1.25 | | | 1.35 | | | 1.35 | | | 1.40 | | |
| Carbon-Hydrogen ratio..... | 7.9 | 9.5 | 14.8 | 8.5 | 10.2 | 14.8 | 8.0 | 10.1 | 15.4 | 8.9 | 11.0 | 16.2 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | .... |  |  | .... |  |  | .... |  |  | .... |  |  |
| Location in mine..... | Mining Mackina cutting. | | | No. 1 north level.... | | | 3rd east level..... | | | Main east level. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | ..... |  |  | Full section of seam. | | | Full section of seam. | | | Full section of seam. | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | | | | | | | | | |
| Date of sampling..... | July 31, 1912. | | | | | | | | | | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.
Edmonton-Clover Bar Area.

| Description. | Twin City Coal Co., Ltd., Edmonton. River lot 17, Tp. 53, R. 24. | | | | | | | | |
|-----------------------------------------|---------------------------------------------------------------------|------------|-------|------------------------------------------------------|------------|-------|----------------------------|------------|-------|
| | 179 | | | 274 | | | 352 | | |
| | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | | | | | | | | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 10.1 | .... | .... | 1.8 | .... | .... | 6.4 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 23.5 | 15.0 | .... | 18.1 | 16.6 | .... | 15.9 | 10.1 | .... |
| Ash.....% | 3.8 | 4.2 | 4.9 | 7.3 | 7.4 | 8.9 | 13.5 | 14.5 | 16.1 |
| Volatile matter.....% | 30.0 | 33.3 | 39.2 | 33.3 | 33.9 | 40.6 | 29.8 | 31.8 | 35.4 |
| Fixed carbon.....% | 42.7 | 47.5 | 55.9 | 41.3 | 42.1 | 50.5 | 40.8 | 43.6 | 48.5 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 55.0 | 61.2 | 71.9 | 54.1 | 55.1 | 66.1 | 51.3 | 54.8 | 61.0 |
| Hydrogen.....% | 6.3 | 5.7 | 4.8 | 5.9 | 5.8 | 4.7 | 5.4 | 5.0 | 4.3 |
| Ash.....% | 3.8 | 4.2 | 4.9 | 7.3 | 7.4 | 8.9 | 13.5 | 14.5 | 16.1 |
| Sulphur.....% | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.3 | 0.3 | 0.3 |
| Nitrogen.....% | 1.0 | 1.2 | 1.4 | 1.1 | 1.1 | 1.3 | .... | .... | .... |
| Oxygen.....% | 33.6 | 27.4 | 16.6 | 31.2 | 30.2 | 18.5 | .... | .... | .... |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 5140 | 5710 | 6720 | 5090 | 5180 | 6210 | 4740 | 5060 | 5630 |
| B. Th. U. per lb., gross..... | 9250 | 10290 | 12100 | 9160 | 9320 | 11180 | 8530 | 9120 | 10140 |
| Fuel ratio..... | | 1.40 | | | 1.25 | | | 1.35 | |
| Carbon-Hydrogen ratio..... | 8.8 | 10.7 | 15.1 | 9.2 | 9.5 | 14.0 | 9.5 | 11.0 | 14.1 |
| Coking properties..... | | non-coking | | | non-coking | | | non-coking | |
| Hoffmann potash test..... |  | .... |  |  | .... |  |  | .... |  |
| Location in mine..... | 6th south entry..... | | | | | | | | |
| Kind of sample..... | Mine..... | | | Commercial—20 tons.... | | | Commercial—20 tons. | | |
| Quality of coal..... | Full section of seam..... | | | | | | | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | Provincial mine inspector. | | | Provincial mine inspector. | | |
| Date of sampling..... | July 31, 1912..... | | | August 1913..... | | | August 1913. | | |
| Remarks..... | | | | Lab. sample Sept. 6, 1913 | | | Lab. sample Mar. 23, 1914. | | |
| | | | | Both lab. samples taken from same commercial sample. | | | | | |

ALBERTA COAL FIELDS.

Cardiff-Namao Area.

| Description. | Comfort Coal Co., Namao. Sec. 8, Tp. 55, R. 24. | | | The Alberta Coal Mining Co., Ltd., Cardiff. Sec. 23, Tp. 55, R. 25. | | | Gervais or Banner mine, operated by Blain & Gilliland, Cardiff. Sec. 24, Tp. 55, R. 25. | | |
|------------------------------------------|------------------------------------------------------------------|-------|-------|---------------------------------------------------------------------------|-------|-------|--------------------------------------------------------------------------------------------------|-------|-------|
| | R | AD | D | R | AD | D | R | AD | D |
| Sample No. | 360 | | | 682 | | | 683 | | |
| Moisture condition (see note p. 2) | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 4.6 | ..... | ..... | 6.3 | ..... | ..... | 5.2 | ..... | ..... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 25.7 | 22.1 | ..... | 24.1 | 19.0 | ..... | 24.0 | 19.9 | ..... |
| Ash.....% | 4.8 | 5.1 | 6.5 | 7.7 | 8.2 | 10.1 | 6.5 | 6.9 | 8.6 |
| Volatile matter.....% | 28.4 | 29.7 | 38.2 | 27.1 | 28.9 | 35.7 | 26.8 | 28.3 | 35.3 |
| Fixed carbon.....% | 41.1 | 43.1 | 55.3 | 41.1 | 43.9 | 54.2 | 42.7 | 44.9 | 56.1 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 52.1 | 54.6 | 70.2 | 49.9 | 53.2 | 65.7 | 50.5 | 53.3 | 66.5 |
| Hydrogen.....% | 6.2 | 6.0 | 4.5 | 6.1 | 5.8 | 4.5 | 6.1 | 5.8 | 4.5 |
| Ash.....% | 4.8 | 5.1 | 6.5 | 7.7 | 8.2 | 10.1 | 6.5 | 6.9 | 8.6 |
| Sulphur.....% | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 |
| Nitrogen.....% | 1.1 | 1.1 | 1.4 | 0.9 | 1.0 | 1.2 | 1.0 | 1.0 | 1.3 |
| Oxygen.....% | 35.5 | 32.9 | 17.0 | 35.2 | 31.6 | 18.2 | 35.6 | 32.7 | 18.8 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 4800 | 5030 | 6450 | 4580 | 4880 | 6030 | 4660 | 4910 | 6130 |
| B. Th. U. per lb., gross..... | 8630 | 9050 | 11620 | 8240 | 8790 | 10850 | 8390 | 8840 | 11040 |
| Fuel ratio..... | 1.45 | | | 1.50 | | | 1.60 | | |
| Carbon-Hydrogen ratio..... | 8.4 | 9.2 | 15.7 | 8.2 | 9.3 | 14.7 | 8.3 | 9.2 | 14.9 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | ..... |  |  | 1-2 | | | 1 | | |
| Location in mine..... | New drift..... | | | No. 1 or top seam, No. 1 main entry. | | | No. 1 or top seam, north- east section. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | | | | | | |
| Taken by..... | Mr. Heathcote, provin- cial mine inspector. | | | S. A. Jones, provincial mine inspector. | | | S. A. Jones. | | |
| Date of sampling..... | March 1914..... | | | December 6, 1915..... | | | December 7, 1915. | | |
| Remarks..... | Operated by Duthie, Wilcox & Gwilliam at time of sampling. |  |  | ..... |  |  | Operated by Capital Coal Co., Ltd., at time of sampling. | | |

ALBERTA COAL FIELDS.

Cardiff-Namao Area.

| Description. | Cardiff Collieries, Ltd., Cardiff. Secs. 13, 24, 25, Tp. 55, R. 25. | | | | | | | | | | | |
|------------------------------------------|------------------------------------------------------------------------|-------|-------|--------------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|
| | 188 | | | 189 | | | 190 | | | 191 | | |
| Sample No. | R | AD | D | R | AD | D | R | AD | D | R | AD | D |
| Moisture condition (see note p. 2) | | | | | | | | | | | | |
| Loss on air-drying.....% | 9.6 | .... | .... | 10.6 | .... | .... | 11.3 | .... | .... | 4.7 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | | | | |
| Moisture.....% | 26.1 | 18.2 | .... | 24.8 | 15.8 | .... | 27.4 | 18.1 | .... | 26.2 | 22.5 | .... |
| Ash.....% | 4.8 | 5.3 | 6.5 | 6.3 | 7.0 | 8.4 | 3.4 | 3.8 | 4.6 | 6.0 | 6.3 | 8.1 |
| Volatile matter.....% | 28.9 | 31.9 | 39.0 | 29.6 | 33.2 | 39.4 | 29.0 | 32.7 | 40.0 | 30.0 | 31.6 | 40.7 |
| Fixed carbon.....% | 40.2 | 44.6 | 54.5 | 39.3 | 44.0 | 52.2 | 40.2 | 45.4 | 55.4 | 37.8 | 39.6 | 51.2 |
| Ultimate analysis:— | | | | | | | | | | | | |
| Carbon.....% | 50.2 | 55.6 | 67.9 | 50.2 | 56.2 | 66.8 | 50.6 | 57.0 | 69.6 | 49.9 | 52.3 | 67.6 |
| Hydrogen.....% | 6.1 | 5.6 | 4.3 | 6.0 | 5.4 | 4.3 | 6.4 | 5.7 | 4.5 | 6.5 | 6.2 | 4.8 |
| Ash.....% | 4.8 | 5.3 | 6.5 | 6.3 | 7.0 | 8.4 | 3.4 | 3.8 | 4.6 | 6.0 | 6.3 | 8.1 |
| Sulphur.....% | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 |
| Nitrogen.....% | 0.8 | 0.9 | 1.1 | 1.0 | 1.1 | 1.3 | 0.9 | 1.0 | 1.2 | 0.9 | 1.0 | 1.2 |
| Oxygen.....% | 37.9 | 32.4 | 19.9 | 36.3 | 30.0 | 18.9 | 38.5 | 32.3 | 19.8 | 36.5 | 34.0 | 18.0 |
| Caloric value:— | | | | | | | | | | | | |
| Calories per gram, gross.. | 4700 | 5200 | 6360 | 4650 | 5200 | 6180 | 4690 | 5190 | 6330 | 4650 | 4880 | 6310 |
| B. Th. U. per lb., gross.. | 8460 | 9360 | 11440 | 8370 | 9360 | 11130 | 8280 | 9340 | 11400 | 8370 | 8790 | 11350 |
| Fuel ratio..... | 1.40 | | | 1.30 | | | 1.40 | | | 1.25 | | |
| Carbon-Hydrogen ratio..... | 8.2 | 10.0 | 15.8 | 8.3 | 10.4 | 15.4 | 8.0 | 9.9 | 15.4 | 7.7 | 8.4 | 14.1 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | .... |  |  | .... |  |  | .... |  |  | .... |  |  |
| Location in mine..... | Main southwest entry. | | | Butt of southwest entry. | | | Northeast entry..... | | | Northwest entry. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | | | | | | | | | | Full height of seam. | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | | | | | | | | | |
| Date of sampling..... | August 14, 1912. | | | | | | | | | | | |
| Remarks..... | | | | | | | | | | | | |

ALBERTA COAL FIELDS.

Cardiff-Namao Area.

| Description. | Cardiff Collieries, Ltd., Cardiff. | | | | | | | | |
|-----------------------------------------|------------------------------------------------------|-------|-------|----------------------------|-------|-------|-----------------------------|-------|-------|
| | Sees. 13, 24, 25, Tp. 55, R. 25. | | | | | | | | |
| Sample No. | 192 | | | 273 | | | 350 | | |
| Moisture condition (see note p. 2)..... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 0.9 | .... | .... | 0.9 | .... | .... | 14.7 | .... | .... |
| Results obtained by..... | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 13.6 | 12.8 | .... | 20.0 | 19.3 | .... | 21.2 | 7.6 | .... |
| Ash.....% | 5.8 | 5.9 | 6.7 | 8.0 | 8.1 | 10.0 | 7.6 | 8.9 | 9.6 |
| Volatile matter.....% | 35.4 | 35.7 | 41.0 | 31.6 | 31.9 | 39.5 | 32.1 | 37.6 | 40.7 |
| Fixed carbon.....% | 45.2 | 45.6 | 52.3 | 40.4 | 40.7 | 50.5 | 39.1 | 45.9 | 49.7 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 57.7 | 58.2 | 66.8 | 52.1 | 52.6 | 65.2 | 51.5 | 60.4 | 65.4 |
| Hydrogen.....% | 5.6 | 5.6 | 4.7 | 6.4 | 6.3 | 5.1 | 6.1 | 5.2 | 4.7 |
| Ash.....% | 5.8 | 5.9 | 6.7 | 8.0 | 8.1 | 10.0 | 7.6 | 8.9 | 9.6 |
| Sulphur.....% | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| Nitrogen.....% | 1.1 | 1.1 | 1.2 | 1.1 | 1.1 | 1.4 | .... | .... | .... |
| Oxygen.....% | 29.6 | 29.0 | 20.3 | 32.2 | 31.7 | 18.0 | .... | .... | .... |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 5300 | 5340 | 6130 | 4870 | 4920 | 6100 | 4760 | 5580 | 6040 |
| B. Th. U. per lb., gross..... | 9540 | 9620 | 11030 | 8770 | 8850 | 10970 | 8570 | 10050 | 10870 |
| Fuel ratio..... | 1.30 | | | 1.30 | | | 1.20 | | |
| Carbon-Hydrogen ratio..... | 10.3 | 10.5 | 14.1 | 8.1 | 8.4 | 12.8 | 8.5 | 11.6 | 13.8 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | .... |  |  | .... |  |  | .... |  |  |
| Location in mine..... | | | | | | | | | |
| Kind of sample..... | Mine..... | | | Commercial—25 tons... | | | Commercial—25 tons. | | |
| Quality of coal..... | Exposed to atmosphere for 7 months. | | | | | | | | |
| Taken by..... | J. G. S. Hudson, Mines Branch. | | | Provincial mine inspector. | | | Provincial mine inspector. | | |
| Date of sampling..... | August 14, 1912..... | | | August 1913..... | | | August 1913. | | |
| Remarks..... | | | | Lab. sample Aug. 29, 1913. | | | Lab. sample March 20, 1914. | | |
| | Both lab. samples taken from same commercial sample. | | | | | | | | |

ALBERTA COAL FIELDS.

Peace River Area.

| Description. | From a 5-ft. seam 5 miles down Peace river from Peace River Crossing. | | Prospect tunnel, South Heart river. Near Peace River Crossing. | | | | Outcrop on bank of Heart river near its junction with the Peace river. Sec. 28, Tp. 83, R. 21, W. 5 Mer. | |
|-----------------------------------------|--------------------------------------------------------------------------------|-------|-------------------------------------------------------------------|-------|-------------------|-------|-------------------------------------------------------------------------------------------------------------------------|-------|
| | 1002 | | 1157 | | 1158 | | 846 | |
| | R | D | R | D | R | D | R | D |
| Sample No..... | | | | | | | | |
| Moisture condition (see note p. 2)..... | | | | | | | | |
| Loss on air-drying.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Results obtained by..... | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | |
| Moisture.....% | 16.0 | .... | 14.2 | .... | 7.9 | .... | 7.6 | .... |
| Ash.....% | 18.6 | 22.1 | 13.9 | 16.2 | 58.2 | 63.2 | 51.9 | 56.2 |
| Volatile matter.....% | 27.4 | 32.6 | 28.9 | 33.7 | 15.1 | 16.4 | 15.3 | 16.6 |
| Fixed carbon.....% | 38.0 | 45.3 | 43.0 | 50.1 | 18.8 | 20.4 | 25.2 | 27.2 |
| Ultimate analysis:— | | | | | | | | |
| Carbon.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Hydrogen.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Ash.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Sulphur.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Nitrogen.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Oxygen.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Calorific value:— | | | | | | | | |
| Calories per gram, gross..... | .... | .... | .... | .... | .... | .... | .... | .... |
| B. Th. U. per lb., gross..... | .... | .... | .... | .... | .... | .... | .... | .... |
| Fuel ratio..... | 1.40 | | 1.50 | | 1.25 | | 1.65 | |
| Carbon-Hydrogen ratio..... | .... |  | .... |  | .... |  | .... |  |
| Coking properties..... | non-coking | | non-coking | | non-coking | | non-coking | |
| Hoffmann potash test..... | .... |  | .... |  | .... |  | .... |  |
| Location in mine..... | ..... |  | Top coal..... | | Bottom coal..... |  | ..... |  |
| Kind of sample..... | ..... |  | Prospect..... | | Prospect..... |  | ..... |  |
| Quality of coal..... | Does not include 3-inch seam of carbonised shale |  | ..... |  | ..... |  | ..... |  |
| Taken by..... | Private individual at Grande Prai- rie. | | F. H. McLearn, Geological Sur- vey. | | F. H. McLearn.... |  | ..... |  |
| Date of sampling..... | 1917..... | | Summer of 1917... | | 1917..... | | 1916. | |
| Remarks..... | ..... |  | ..... |  | ..... |  | ..... |  |

ALBERTA COAL FIELDS.

Peace River Area.

| Description. | Errington claim, Hay River. | | | | MacConnachie claim, Hay river. 100-ft. seam. Sec. 2, Tp. 53, R. 5, W. 6 Mer. | | Claim of A. Joachim on Smoky river. Sec. 24, Tp. 56, R. 9, W. 6 Mer. | |
|-----------------------------------------|---------------------------------------------------------|-------|---------------------------------------------|-------|---------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------|-------|
| | From 18-ft. seam Sec. 24, Tp. 52, R. 4, W. 6 Mer. | | From Sec. 27, Tp. 52, R. 4, W. 6 Mer. | | | | | |
| Sample No. | 890 | | 891 | | 892 | | 896 | |
| Moisture condition (see note p. 2) | R | D | R | D | R | D | R | D |
| Loss on air-drying .....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Results obtained by..... | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | |
| Moisture.....% | 1.1 | .... | 2.9 | .... | 1.9 | .... | 1.3 | .... |
| Ash.....% | 16.3 | 16.5 | 16.6 | 17.1 | 13.1 | 13.4 | 2.5 | 2.6 |
| Volatile matter.....% | 24.0 | 24.3 | 23.6 | 24.3 | 26.2 | 26.7 | 16.9 | 17.1 |
| Fixed carbon.....% | 58.6 | 59.2 | 56.9 | 58.6 | 58.8 | 59.9 | 79.3 | 80.3 |
| Ultimate analysis:— | | | | | | | | |
| Carbon.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Hydrogen.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Ash.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Sulphur.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Nitrogen.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Oxygen.....% | .... | .... | .... | .... | .... | .... | .... | .... |
| Caloric value:— | | | | | | | | |
| Calories per gram, gross..... | .... | .... | .... | .... | .... | .... | .... | .... |
| B. Th. U. per lb., gross..... | .... | .... | .... | .... | .... | .... | .... | .... |
| Fuel ratio..... | 2.45 | | 2.40 | | 2.25 | | 4.70 | |
| Carbon-Hydrogen ratio..... | .... |  | .... |  | .... |  | .... |  |
| Coking properties..... | small lump of dense hard coke. | | non-coking | | non-coking | | non-coking | |
| Hoffmann potash test..... | .... |  | .... |  | .... |  | .... |  |
| Location in mine..... | | | | | | | | |
| Kind of sample..... | Prospect. | | | | | | | |
| Quality of coal..... | | | | | | | | |
| Taken by..... | J. MacVicar, Geological Survey, Ottawa. | | | | | | | |
| Date of sampling..... | Summer of 1916. | | | | | | | |
| Remarks..... | | | | | | | | |

ALBERTA COAL FIELDS.

Peace River Area

| Description. | Abbot claim. Between 15th base line and Grand Cache lake. Sec. 4, Tp. 57, R. 7, W. 6 Mer. | | Isenberg claim on Smoky river. 17-ft. seam. Sec. 15, Tp. 58, R. 8, W. 6 Mer. | | Moberly claim on Sheep creek. Sec. 4, Tp. 58, R. 9, W. 6 Mer. | | Campbell claim on Sheep creek. Sec. 9, Tp. 58, R. 9, W. 6 Mer. | |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------|-------|-------------------------------------------------------------------------|-------|
| | 893 | | 897 | | 895 | | 894 | |
| Sample No..... | R | D | R | D | R | D | R | D |
| Moisture condition (see note p. 2)..... | R | D | R | D | R | D | R | D |
| Loss on air-drying.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Results obtained by..... | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | |
| Moisture.....% | 1.1 | ..... | 1.4 | ..... | 1.3 | ..... | 1.3 | ..... |
| Ash.....% | 5.3 | 5.3 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | 3.2 |
| Volatile matter.....% | 23.0 | 23.3 | 19.5 | 19.8 | 17.0 | 17.2 | 17.4 | 17.6 |
| Fixed carbon.....% | 70.6 | 71.4 | 76.1 | 77.2 | 78.7 | 79.8 | 78.2 | 79.2 |
| Ultimate analysis:— | | | | | | | | |
| Carbon.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hydrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ash.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sulphur.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Nitrogen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oxygen.....% | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Calorific value:— | | | | | | | | |
| Calories per gram, gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| B. Th. U. per lb., gross..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Fuel ratio..... | 3.05 | | 3.90 | | 4.65 | | 4.50 | |
| Carbon-Hydrogen ratio..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Coking properties..... | forms good coke | | agglomerates slightly | | non-coking | | non-coking | |
| Hoffmann potash test..... | ..... |  | ..... |  | ..... |  | ..... |  |
| Location in mine..... | | | | | | | | |
| Kind of sample..... | Prospect. | | | | | | | |
| Quality of coal..... | | | | | | | | |
| Taken by..... | J. MacVicar, Geological Survey. | | | | | | | |
| Date of sampling..... | Summer of 1916. | | | | | | | |
| Remarks..... | | | | | | | | |

ALBERTA COAL FIELDS.

Peace River Area.

| Description. | Brown's stripping pit, Red Willow creek, Halcourt. Sec. 21, Tp. 70, R. 10, W. 6 Mer. | | | Ray's mine, Red Willow creek, Halcourt. Sec. 25, Tp. 70, R. 11, W. 6 Mer. | | | Dunlop's mine, Spring creek, Grand Prairie. Sec. 35, Tp. 70, R. 7, W. 6 Mer. | | |
|---------------------------------------|--------------------------------------------------------------------------------------------------|-------|-------|---------------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------------------------|-------|-------|
| | R | AD | D | R | AD | D | R | AD | D |
| Sample No..... | 874 | | | 833 | | | 832 | | |
| Moisture condition (see note p. 2)... | R | AD | D | R | AD | D | R | AD | D |
| Loss on air-drying.....% | 1-6 | ..... | ..... | 1-8 | ..... | ..... | 3-3 | ..... | ..... |
| Results obtained by..... | Caic. | Anal. | Calc. | Calc. | Anal. | Calc. | Caic. | Anal. | Calc. |
| Proximate analysis:— | | | | | | | | | |
| Moisture.....% | 11-8 | 10-4 | ..... | 12-3 | 10-7 | ..... | 17-5 | 14-6 | ..... |
| Ash.....% | 3-7 | 3-8 | 4-2 | 4-0 | 4-1 | 4-5 | 5-7 | 5-9 | 6-9 |
| Volatile matter.....% | 31-5 | 32-0 | 35-7 | 31-2 | 31-7 | 35-6 | 30-0 | 31-0 | 36-3 |
| Fixed carbon.....% | 53-0 | 53-8 | 60-1 | 52-5 | 53-5 | 59-9 | 46-8 | 48-5 | 56-8 |
| Ultimate analysis:— | | | | | | | | | |
| Carbon.....% | 67-0 | 68-0 | 75-9 | 66-7 | 67-9 | 76-1 | 59-5 | 61-5 | 72-1 |
| Hydrogen.....% | 5-7 | 5-6 | 4-9 | 5-7 | 5-6 | 4-9 | 5-8 | 5-6 | 4-7 |
| Ash.....% | 3-7 | 3-8 | 4-2 | 4-0 | 4-1 | 4-5 | 5-7 | 5-9 | 6-9 |
| Sulphur.....% | 0-3 | 0-3 | 0-4 | 0-4 | 0-4 | 0-5 | 0-4 | 0-4 | 0-4 |
| Nitrogen.....% | 1-7 | 1-8 | 2-0 | 1-8 | 1-8 | 2-0 | 1-5 | 1-5 | 1-8 |
| Oxygen.....% | 21-6 | 20-5 | 12-6 | 21-4 | 20-2 | 12-0 | 27-1 | 25-1 | 14-1 |
| Calorific value:— | | | | | | | | | |
| Calories per gram, gross..... | 6470 | 6570 | 7340 | 6500 | 6610 | 7410 | 5710 | 5910 | 6930 |
| B. Th. U. per lb., gross..... | 11650 | 11830 | 13210 | 11700 | 11910 | 13330 | 10290 | 10640 | 12470 |
| Fuel ratio..... | 1-70 | | | 1-70 | | | 1-55 | | |
| Carbon-Hydrogen ratio..... | 11-8 | 12-2 | 15-5 | 11-8 | 12-2 | 15-6 | 10-3 | 11-0 | 15-5 |
| Coking properties..... | non-coking | | | non-coking | | | non-coking | | |
| Hoffmann potash test..... | 4 | | | 5-4 | | | 3-2 | | |
| Location in mine..... | No. 1 seam..... | | | No. 1 seam..... | | | Entrance to drift. | | |
| Kind of sample..... | Mine..... | | | Mine..... | | | Mine. | | |
| Quality of coal..... | Bone coal left out of sam- ple. |  |  | ..... |  |  | Bone coal left out of sam- ple. | | |
| Taken by..... | J. A. Richards, provincial mine inspector. | | | | | | | | |
| Date of sampling..... | September 20 to 23, 1916. | | | | | | | | |
| Remarks..... | | | | | | | | | |

MISCELLANEOUS SAMPLES.

ALBERTA NATURAL GAS.

Sample No. 345.

Natural Gas from the Canadian Western Natural Gas, Light, Heat & Power Co., Calgary.

Analysis:

| | |
|---------------|-------|
| Oxygen..... | 0.2% |
| Methane..... | 91.6% |
| Nitrogen..... | 8.2% |

Density:

0.595%

Calorific Value:—Gross—per cu. ft. of dry gas, at 60° F. and 30 inches of mercury = 946 B. Th. U.

There is no evidence that the gas contains appreciable quantities of unsaturated hydrocarbons, and it is therefore a "dry" gas.

Sample received from above named company on March 9th, 1914.

Sample No. 815.

Natural Gas.—From the Pelican well, situated on Athabaska river 90 miles below Athabaska Landing.

Analysis:

| | |
|---------------------|-------|
| Carbon Dioxide..... | 1.0% |
| Oxygen..... | 2.9% |
| Methane..... | 83.5% |
| Nitrogen..... | 12.6% |

Calorific Value:—Gross—(Calculated from results of analysis) Per cu. ft. dry gas at 60° F. and 30 inches mercury. 850 B. Th. U.

Sample taken by F. H. McLearn of the Geological Survey during July 1916.

Sample No. 825,

Natural Gas.—From a spring on Tar Island in Peace river, 25 miles below Peace River Crossing.

Analysis:

| | |
|---------------------|-------|
| Carbon Dioxide..... | 1.8% |
| Oxygen..... | 3.7% |
| Methane..... | 77.2% |
| Nitrogen..... | 17.3% |

Density:

0.670

Calorific Value:—Gross—(Calculated from results of analysis) per cu. ft. dry gas at 60° F. and 30 inches mercury. 785 B. Th. U.

Sample taken by Chas. Camsell of the Geological Survey, Sept. 18th, 1916.

ALBERTA OIL.

Sample No. 401.

Crude oil from Dingman No. 1 well.

The oil was of a yellow colour, showed fluorescence and was practically free from any sediment. It possessed a strong unpleasant odour.

Specific Gravity:
At 15.5° C.

0.756.

Distillation Test:

Distillation carried out in Engler apparatus—intermittent method.
First drop distilled at 76° C.

| Temperature. | % by volume. | Specific gravity. | Colour of distillate. |
|----------------|--------------------|----------------------|-----------------------------|
| 76°-100°..... | 14.4 | .702 | Yellow. |
| 100°-120°..... | 28.3 | .729 | Orange. |
| 120°-140°..... | 19.3 | .746 | " |
| 140°-160°..... | 11.3 | .760 | Yellow. |
| 160°-180°..... | 7.0 | .774 | Pale yellow. |
| 180°-200°..... | 4.3 | | |
| 200°-220°..... | 3.4 | .791 | Almost colourless. |
| 220°-250°..... | 2.8 | | |
| Residue..... | 6.6 | .874 | Dark brown. |
| Loss..... | 2.6 | ..... |  |

Specific gravity calculated from above test

0.752.

Sulphur:

0.10%

Sample received from Calgary Petroleum Products Company, Oct. 30th, 1914.

Sample No. 402.

Gasoline from Dingman No. 1 well.

The gasoline was of a pale yellow colour, deposited a white sediment on standing, and had a strong, unpleasant odour.

Specific Gravity:

At 15.5° C.

0.700.

Distillation Test: Engler apparatus—intermittent method.
First drop distilled at 53° C.

| Temperature. | % by volume | Specific gravity. |
|----------------|-------------|----------------------|
| 53°-70°..... | 32.5 | .670 |
| 70°-80°..... | 21.2 | .690 |
| 80°-90°..... | 15.5 | .707 |
| 90°-100°..... | 11.1 | .719 |
| 100°-120°..... | 9.8 | .737 |
| 120°-140°..... | 3.4 | .735 |
| 140°-160°..... | 1.7 | .754 |
| 160°-180°..... | 0.7 | |
| 180°-200°..... | 0.7 | .80 (approximately). |
| Residue..... | 1.8 | |
| Loss..... | 1.6 | |

The various fractions were colourless, and the residue a dark brown liquid.

Specific gravity calculated from above test 0.699.

Sulphur: 0.11%

Sample received from Calgary Petroleum Products Company, Oct. 30th, 1914.

Sample No. 530.

Crude oil from a well on Sec. 18, Tp. 49, R. 24, W. of 4 Mer., at a depth of 800 ft.

The oil was very dark in colour.

Specific Gravity:

At 15.5° C.

0.829.

Distillation Test: Engler apparatus—intermittent method.

First drop distilled at 128° C.

| Temperature. | % by volume. | Specific gravity. | Colour. |
|----------------|-----------------|----------------------|----------------|
| 128°-150°..... | 1.0 | 0.718 | Colourless. |
| 150°-200°..... | 24.8 | | |
| 200°-250°..... | 25.4 | 0.804 | Yellow. |
| 250°-300°..... | 17.8 | 0.832 | Orange-yellow. |
| Residue..... | 30.0 | | Black. |
| Loss..... | 1.0 | | |

The tests show that the oil is a crude petroleum of normal composition, but give no indication of its original source.

Sample received from Hon. Frank Oliver, February 10, 1915.

Sample No. 924.

Crude Oil or Tar from McMurray district.

The oil is almost black, and very viscous at ordinary temperatures.

Filtration and Distillation: continuous method.

| | | |
|---------------------------------------|-------|-----------------|
| Vegetable and earthy matter..... | 13.7% | } Burning oils. |
| Water..... | 16.5% | |
| Up to 170° C. (770 m.m. pressure).... | 1.3% | |
| 170°-250° (420 m.m. pressure)..... | 3.7% | |
| Asphalt..... | 64.8% | |

The asphalt is soluble in carbon bisulphide, and flows slowly at ordinary temperatures.

Sample received from a private individual, January 18, 1917.

Sample No. 1156.

Crude Oil.—Said to be from No. 1 well, Peace River Oil Co., on Peace river.

N.E. $\frac{1}{4}$ Sec. 24, Tp. 85, R. 21 W. 5 Mer.

The oil is dark coloured and viscous, with an odour resembling that of kerosene.

Specific Gravity:
At 15.5° C.

0.981

Distillation Tests:

| Temperature. | Method "A"* Continuous. | Method "B"* Intermittent. |
|-----------------------|----------------------------|------------------------------|
| | % by volume. | % by volume. |
| Below 150° C..... | 0.1 | 2.0 |
| 150°-200° C..... | 1.7 | 4.8 |
| 200°-250° C..... | 3.6 | 5.3 |
| 250°-300° C..... | 10.7 | 56.2 |
| 300°-325° C..... | .... | 5.2 |
| Residue and loss..... | 83.9 | 26.5 |

The above results, especially those by method "B," were distinctly affected by "cracking."*

Sample received from private individual, Nov. 8, 1917.

Sample No. 1293.

Crude oil from No. 2 well, Peace River Oil Co., at a depth of 980 feet.

Specific Gravity:

At 15.5° C.

0.978.

Distillation Tests:

| Temperature. | Method "A"* | | Method "B"* | | Method "C"* | |
|------------------------------------------------------------------|--------------------|---------------------------|--------------------|---------------------------|--------------------|---------------------------|
| | % by volume. | Sp. Gr. at 15.5° C. | % by volume. | Sp. Gr. at 15.5° C. | % by volume. | Sp. Gr. at 15.5° C. |
| 0°-150° C..... | 0.4 | .... | 0.9 | .... | 1.8 | 0.75 |
| 150°-200° C..... | 1.5 | 0.74 | 1.8 | 0.75 | 1.2 | 0.80 |
| 200°-250° C..... | 2.9 | 0.82 | 8.6 | 0.85 | 5.5 | 0.84 |
| 250°-300° C..... | 11.7 | 0.882 | 52.8 | 0.869 | 30.7 | 0.884 |
| Residue..... | 84.2 | 0.996 | 40.7 | 1.07 | 62.5 | 1.03 |
| Gain..... | 0.7 | .... | 4.8 | .... | 1.7 | .... |
| Specific gravity of crude oil calculated from above results..... | .... | 0.972 | .... | 0.944 | .... | 0.967 |

The above results, especially those by method "B," were distinctly affected by "cracking."*

Sample taken by F. H. McLearn, Geological Survey, Ottawa, October 13, 1917.

* See Appendix.

Sample No. 1218.

Crude Petroleum.—From right bank of Peace river, 14 miles below town of Peace River, at a depth of 900 ft.

The oil was black and very viscous, with an odour resembling that of kerosene.

Specific Gravity:

At 15.5° C.

0.987.

Distillation Tests: continuous method (in 500 c.c. flask).

| Temperature. | % by volume. | Nature of product. |
|----------------|--------------|------------------------------|
| 0°-100° C..... | 3.5 | Water. |
| 100°-150°..... | .... |  |
| 150°-300°..... | 10.4 | Illuminating oils. |
| Residue..... | 86.1 | Lubricating oils, coke, etc. |

A further distillation at temperatures above 300°, to obtain lubricating oils, gave a yield equivalent to 53% of the original weight of crude oil.

General Analysis:

| | |
|------------------------------------------|------|
| Paraffin wax..... | 0.9% |
| Asphalt (insoluble in alcohol and ether) | 8.4% |
| Sulphur..... | 4.0% |
| Impurities (mineral matter)..... | 1.5% |

Sample collected by F. H. Kitto, Natural Resources Intelligence Branch, Department of the Interior, during the summer of 1917.

Sample No. 823.

Crude Petroleum from McArthur well on Peace river, 17 miles below Peace River Crossing.

The oil was dark and viscous, with an odour resembling that of kerosene.

Solubility: In Benzene—Practically complete.

In Gasoline—5% insoluble.

In Alcohol—Ether—Considerable insoluble matter.

Specific Gravity:

At 15.5°

0.984

Flash Point: (Closed Test)

59°C

Fire Point:

127°C

Calorific Value: Gross

9730 calories per gram.

17520 B. Th. U. per lb.

Preliminary Distillation: under reduced pressure.

| | % by volume. | % by weight. | Specific gravity. |
|---------------------|--------------|--------------|-------------------|
| Oil distillate..... | 73.9 | 67.7 | 0.902 |
| Pitch residue..... | .... | 23.0 | .... |
| Water and loss..... | .... | 9.3 | .... |

Fractional Distillation of above Oil Distillate—intermittent method.

First drop at 140°C.

Sp. Gr.

| | |
|----------------------------------------------------------------------|-------|
| 140°-150° Gasoline and kerosene, 2% by volume (1.5% crude oil) | 0.642 |
| 150°-300° Illuminating Oils, etc., 32.5% by volume (24.0% crude oil) | 0.834 |
| Residue Lubricating Oils, etc., 65.5% by volume (48.4% crude oil) | |

Sample taken by Chas. Camsell of the Geological Survey, September 18, 1916.

OIL FROM NORTHWEST TERRITORIES.**Sample No. 824.**

Crude Petroleum from Pointe aux Esclaves, Great Slave lake.

The oil was dark and viscous, with an odour resembling that of kerosene.

Specific Gravity:

At 15.5°C..... 0.957

Calorific Value: Gross— 10040 calories per gram.
18070 B. Th. U. per lb.

Sulphur:

1.0%

Preliminary Distillation: under reduced pressure.

Oil Distillate (sp. gr. 0.888) 60% by weight and 64.5 by volume of crude oil.

Fractional Distillation of Oil Distillate: intermittent method.

First drop at 178°C.

178°-300°C. Illuminating Oils, etc., 23% by volume (14.9% crude oil)
sp. gr. 0.835.

Residue—Lubricating Oils, etc., 77% by volume (49.6% crude oil).

Sample collected by Chas. Camsell, of the Geological Survey in August 1916.

Sample No. 1292.

Crude Oil from Windy point, Great Slave lake.

Specific Gravity:

At 15.5°C..... 0.949

Distillation Tests:

| Temperature. | Method "A"* | | Method "B"* | |
|---------------------------------------------------------------------|--------------|------------------------|--------------|------------------------|
| | % by volume. | Sp. Gr. at 15.5° C. | % by volume. | Sp. Gr. at 15.5° C. |
| 0°-150° C..... | 0.9 | .... | 0.9 | .... |
| 150°-200° C..... | 0.2 | .... | 0.1 | .... |
| 200°-250° C..... | 0.1 | .... | 1.1 | 0.85 |
| 250°-300° C..... | 14.2 | 0.871 | 46.9 | 0.863 |
| Residue..... | 84.6 | 0.956 | 47.2 | 0.983 |
| Loss..... | 0.0 | .... | 3.8 | .... |
| Specific gravity of crude oil calculated from above results..... | .... | 0.940 | .... | 0.921 |

The above results, especially those by method "B," were distinctly affected by "cracking."*

Sample taken by A. E. Cameron, Geological Survey, Ottawa, during the summer of 1917.

* See Appendix.

APPENDIX.

Distillation Tests of Crude Petroleum and its Products.

Crude Petroleum. Many methods of distillation are in common use, the most important of these being as follows:—

A. The Ubbelohde continuous method. 100 c.c. of the oil is distilled at a uniform rate, from a distillation flask of approximately the same dimensions as the standard Engler flask, by the continuous application of heat; the various fractions being collected between specified temperatures.

B. The Engler intermittent method. 100 c.c. of the oil is distilled from a glass distillation flask of specified dimensions (about 150 c.c. capacity). When the thermometer indicates the maximum temperature for the first fraction, the source of heat is removed and the temperature allowed to fall at least 20°C., the flask is then reheated to the maximum of the fraction. This process is repeated until practically no more distillate is obtained. The succeeding fractions are collected in like manner.

C. The Hempel continuous fractionation method. 100 c.c. of the oil is distilled from a flask with a fractionating column attached. The column is filled with beads, preferably aluminium, and the distillation is carried out at a uniform rate by continuous heating.

A crude oil, especially when it contains a notable amount of water, may give so much trouble with bumping and frothing that it is impossible to make a regular test on the original sample. It is then customary to make a preliminary distillation, preferably under reduced pressure at the higher temperatures, and redistil the distillate in the regular way. The results are not strictly comparable with those on original samples.

The following table¹ illustrates the discrepancies between the results obtained with two of the above methods:—

TABLE I.

| Method. | A. Continuous. | B. Intermittent. |
|-------------------|----------------|------------------|
| To 150° C..... | 5.2 | 9.5% by volume |
| 150°-300° C..... | 32.3 | 32.7 |
| Above 300° C..... | 56.0 | 52.9 |

From theoretical reasons it is clear that wide discrepancies must occur between the results of the different methods and the actual composition of the mixture distilled. Method C normally gives the closest results, but is little used and has less claim than the others to be regarded as standard. Method B generally gives closer results than A, especially for the lower fractions, but is very slow. Method A gives more concordant results between duplicate tests. In some cases neither B nor C can be used on account of the low temperature at which "cracking" begins. "Cracking" is the name given to the decomposition by heat of hydrocarbon or other compounds into new bodies of lower molecular weight and

¹Rittmann & Dean: The Analytical Distillation of Petroleum, U.S. Bureau of Mines, Bul. 125, p. 8.

lower boiling point. Rittmann & Dean ¹ found that California, Oklahoma, and Pennsylvania crude petroleum do not begin to crack below 325°C., but some careful tests with samples 1156, 1292 and 1293 (see pages 62, 63, and 66) showed that considerable cracking occurred with these oils below 300°C. In these cases the divergence between the results of the different methods was very considerable.

Petroleum Products. The International Petroleum Congress in 1912 officially adopted the Ubbelohde continuous method, but many modifications are in common use. These vary in the rate of heating, position of thermometer bulb, employment of a still head, etc. Thus in Dean's modification ² the distillation rate is 4-5 c.c. per minute, and the condenser is ice-jacketed. Some results taken from Lomax ³ illustrate the variations to be expected in the results on gasoline with the method employed.

TABLE II.

| Method. | 1 | 2 | 3 |
|----------------------------|------|------|-----------------|
| Volatile below 100° C..... | 8.5 | 17.0 | 21.5% by volume |
| " 125° C..... | 58.0 | 64.5 | 64.0 |
| " 150° C..... | 88.5 | 92.0 | 90.5 |
| Total distillate..... | 98.5 | 98.5 | 97.5 |
| Residue..... | 1.4 | 1.2 | 2.1 |
| Loss..... | 0.1 | 0.3 | 0.4 |

Method 1: Redwood, continuous. Method 2: Engler, intermittent (slightly modified). Method 3: Lomax, fractionating, continuous.

Most samples of oil, whether crude or refined, examined in the Fuel Testing Laboratories at Ottawa, were distilled in an Engler apparatus, having a metal flask and condenser, either by the continuous or intermittent method as stated.

¹ Rittmann & Dean: The Analytical Distillation of Petroleum, U.S. Bureau of Mines, Bul. 125, p. 14.

² Motor Gasoline, by E. W. Dean, U.S. Bureau of Mines, Tech. Paper 166.

³ Testing and Standardization of Motor Fuels. The Petroleum World; Vol. XIV, No. 206, Nov. 1917.