THE COAL FIELDS AND COAL MINING INDUSTRY OF BRITISH COLUMBIA

Early History of Coal Mining in the Province

It was in the year 1835 that the first specimen of coal was brought to Dr. Tolmie, who was at that time attached to the Hudson's Bay Company's Fort McLoughlan Post on Millbank Sound. These specimens were brought in by Indians who were trading at the Post, and they naturally created much interest. They were reported to have come from the Northern end of Vancouver Island. The value of this find was immediately appreciated and in the following year sufficient coal was collected to supply the Beaver, the first steamboat to ply on the Pacific coast, and also for blacksmithing purposes. Apparently the location of this coal was Suquash. In the years 1849-1850, fifty (50) miners were brought out from Scotland with a view to determine the extent, regularity and value of the coal measures. Among these miners was Robert Dunsmuir, who was destined to play a very important part in the development of the coal industry on Vancouver Island.

Reports came in from the Nanaimo District that coal existed there and was being mined, having been discovered by Coal Tyee, an Indian. James Douglas, Chief Factor for the Hudson's Bay Company, instructed Joseph McKay, local Factor, to take charge of the Nanaimo coal fields on behalf of the Company. The letter dated August 24, 1852 is still preserved, directing Mr. McKay to forbid the working of the coal, either directly by their own labour or indirectly through Indians or other parties employed for that purpose, except under authority of a licence from the Hudson's Bay Company.

The following is a copy of the letter:-

"Fort Victoria,
24th August, 1852.

Mr. Joseph McKay.

Sir:

You will proceed with all possible diligence to Wentuhuysen Inlet, commonly known as Nanymo Bay, and formally take possession of the coal beds lately discovered there for, and on behalf of, the Hudson's Bay Company. You will give due notice of this proceeding to the masters of all vessels arriving there and you will forbid all persons to work the coal, either directly by means of their own labour, or indirectly through Indians or other parties employed for that purpose, except under the authority of a licence from the Hudson's Bay Company. You will require from such persons as may be duly licensed to work coal by the Hudson's Bay Company, security for the payment of a royalty of 2/6 a ton, which you will levy on the spot upon all coal, whether procured by mining or by purchase from the Natives, the same to be held by you and from time to time to be duly accounted for.

In the event of any breach or evasion of these regulations, you will immediately take measures to communicate intelligence of the same to me.

I remain,
Sir,
Your obt. servt.,

JAMES DOUGLAS"

By the end of 1853 over 2,000 tons of coal had been mined in the Nanaimo area. From this small beginning the coal mining industry of British Columbia grew until up to the end of 1949 the total amount of coal mined in British Columbia is approximately 120 million short tons and of this amount Vancouver Island has produced a little over 70 million tons.

The Hudson's Bay Company decided to bring out a number of English miners and these, accompanied by their families, left London on June 1st, 1854 on the Princess Royal, travelling via Cape Horn and arrived in Nanaimo on November 27, just about six months later. From the year 1885, when the Park Gate mine was opened, near the present site of the Nanaimo Fire Hall, until 1898 when the Crow's Nest Pass Coal Company commenced operations in the Eastern District of British Columbia, the coal mining was confined to Vancouver Island.

HOW COAL IS FORMED

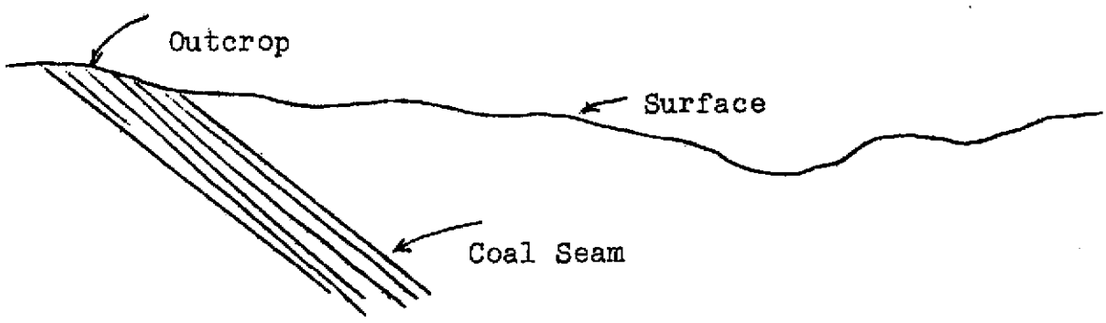
Before describing the coal fields of the Province and their locations, it would be advisable to state, in simple language, what coal is and how it is formed, also to explain simply some of the terms that will be used to describe the coal fields.

A coal seam, or vein, was originally, millions of years ago, a great mass of vegetable matter. The vegetation grew in swamps and in decomposing formed peat bogs. These peat bogs became covered with water then silt or mud covered them and in course of time, due to heat, pressure and chemical action, the peat was gradually changed to coal. The constituents of coal are the same as peat, this is, carbon, hydrogen, oxygen and nitrogen, but the proportion of carbon is greater; part of the hydrogen and oxygen having been liberated. The change from peat to coal may result from chemical action, heat and pressure; pressure being caused by the weight of overlying strata and folding in the beds. In the first definite change from peat to coal the material is called lignite coal. In British Columbia this coal is found in the Tertiary formation of rocks. The next change is to bituminous coal, which is still higher in carbon than lignite and where greater pressure and heat have developed in the forming of coal seams we have anthracite coal with a high carbon content.

In British Columbia the bituminous coals are found in the Upper and Lower Cretaceous Rock and anthracite in the Lower Cretaceous.

DEFINITIONS

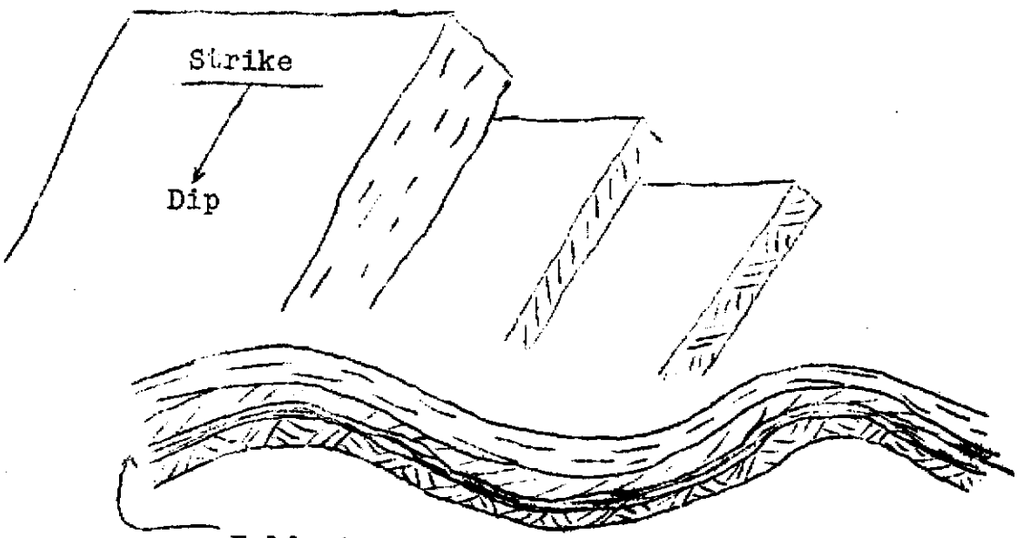
Outcrop - A seam of coal, when originally formed, was no doubt lying on a practically level surface and the stratified rocks both below and above it were also lying level. Due to upheavals the strata and seam were tilted at an angle. That portion of the seam or any strata appearing at the surface is called the outcrop.



Dip of Seam - The dip or full dip of a seam, the greatest angle of inclination of the seam to the horizontal.

Strike - Is the intersection of an inclined seam with a horizontal plane or simply a level course in the seam? It is at right angles to the direction of the full dip.

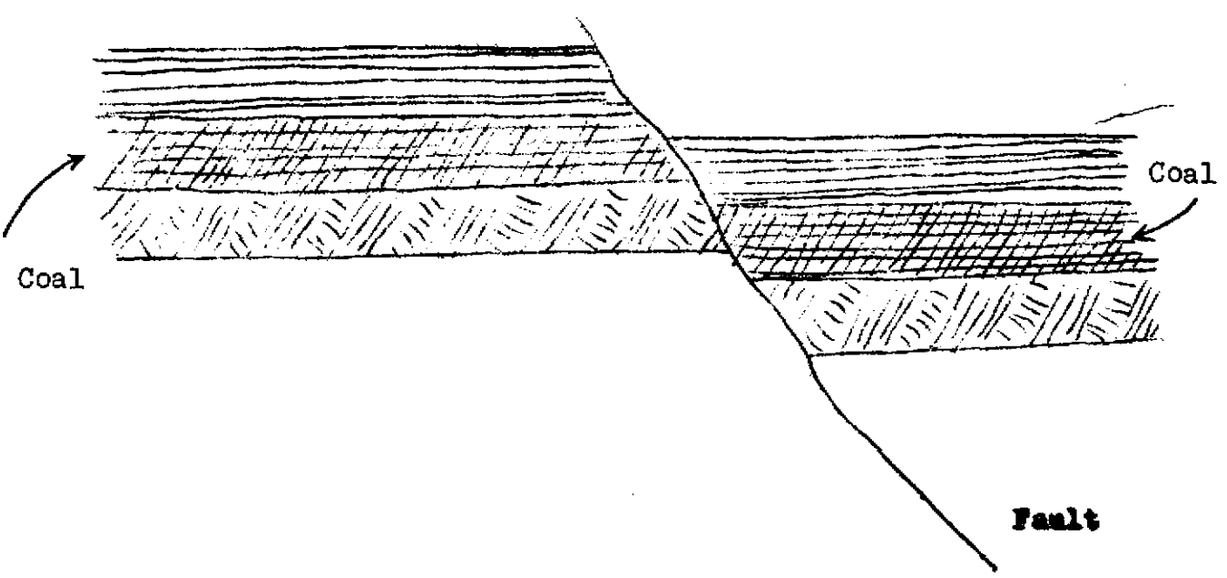
Folds - When seams or other strata are moved from their original positions by upheavals they may be bent or completely fractured. If they are bent, they are said to be folded.



Folds in coal seam

FAULTS

Faults - If the forces that produced folding of the strata were more violent in their action, the strata may have been fractured rather than folded. If the strata on one side of a fracture have moved relative to the other, the fracture is called a fault. The movement of the strata may be in any direction, vertical, horizontal or oblique.



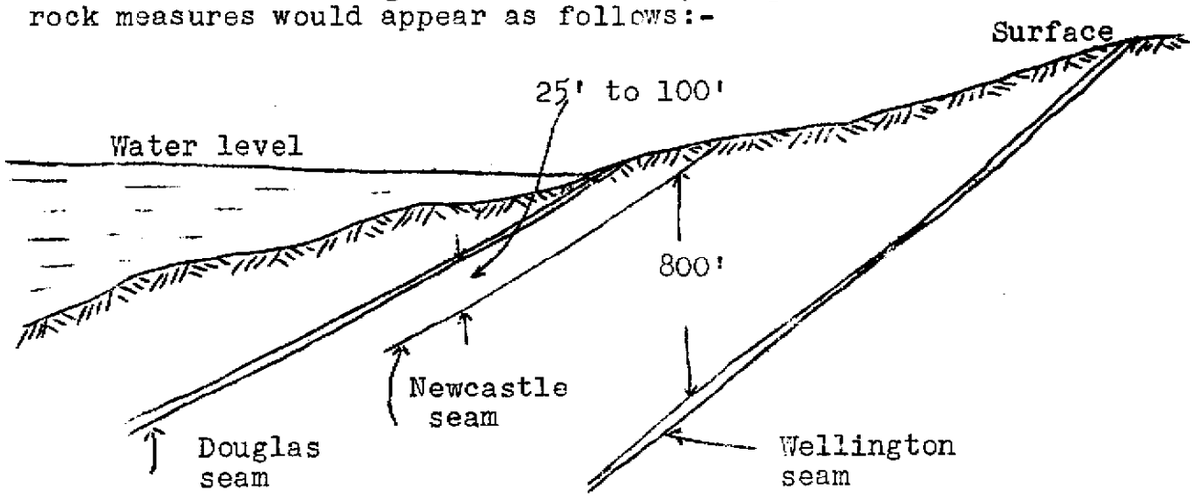
The rock formations of the earth are usually referred to as belonging to certain periods or ages and in British Columbia the coal fields were formed mostly in what are known as the Cretaceous and Tertiary periods. As stated before, coal was formed from decayed vegetable matter millions of years ago and before studying the locations of the various coal areas it would be well to note the period or age of the rocks in which the coal seams are found. The younger formations were deposited on top of older ones. Starting from the top downwards, the Tertiary formation is a later formation than the Cretaceous. The following table will give a simple picture of the position in these rock formations in which the various coal areas are located:-

Tertiary	Lower Miocene	Tranquile beds	North side Kamloops lake; Stump lake south of Kamloops.
	Oligocene	Coldwater series	Kamloops, Quilchena, Horsefly River, Coal gully (Nicola valley), Tulameen, Guichon Creek, Similkameen, Hat Creek, Kettle River, Quesnel.
		Unnamed series	Blackwater River, Coal brook (North Thompson), Finlay River, Omineca River.
	Eocene	Puget Group	Fraser River delta.
Cretaceous	Upper Cretaceous	* Nanaimo formation	Nanaimo, Comox, Cowichan, Suquash, Quatsino.
		* Queen Charlotte formation	Graham Island.
		Dunvegan sandstones	Peace River.
		*Kootenay formation	Elk River, Crowsnest, Flathead River.
	Lower Cretaceous	* Skeena Series	Skeena River, Bulkely River, Telkwa River, Morice River, Groundhog Coal-basin
		Tantalus Conglomerate	Atlin.

* The Nanaimo and Queen Charlotte formations are, by some, correlated and the same is true of the Kootenay, Skeena and Tantalus formations.

As Vancouver Island was the first place in the Province where coal was found, a brief description of this field will be given first. Looking at the map, which accompanies this article, it will be noted that the different areas of coal-bearing strata are shaded and are numbered from I to XXIII. The Nanaimo and Cowichan Area is marked No. III. In the Cowichan and Gulf Islands Districts, although the coal measures of the Upper Cretaceous period are in evidence, no coal seams of workable thickness have been found nor is it likely that any exist due to very disturbed and faulted conditions that have occurred.

In the Nanaimo area the coal measures of the Upper Cretaceous period extend from Nanoose Bay north of Nanaimo to Crofton south of Ladysmith, but workable coal seams extended only from Nanoose Bay to Haslam Creek, north of Ladysmith a distance of 16 to 18 miles. In this area three good coal seams were found in what is known as the Nanaimo series of rocks of the Upper Cretaceous period. The lowest seam is the Wellington, then about 800 feet above this is the Newcastle seam and about 25 to 100 feet above the Newcastle is the Douglas seam. A very simple cross section of the rock measures would appear as follows:-



In the last 70 years in particular many mines have operated in this area and have produced millions of tons of coal. In the Wellington seam mines at North Wellington, East Wellington and Extension operated for many years and in the Newcastle seam several mines operated near Nanaimo. In the Douglas seam mines have operated at Departure Bay, Nanaimo, South Wellington and Cassidy Districts. This field of coal is now almost worked out.

Looking at the map it will be noticed that there is a break in the coal measures at Nanoose Bay. From here north to Campbell River is the area marked No. IV on the map, this is the Comox area. The Comox Upper Cretaceous area extends from Nanoose Bay to Campbell River, a distance of about 75 miles in a north west direction and is 6 or 7 miles wide. Although this area is all marked blue showing coal-measures, it does not mean that there are workable seams of coal underlying all this area. Workable coal seams are only found in certain well defined sections, namely, Tsable River District, Cumberland District, Dove Creek to Brown River District, Quinsam District and Campbell River District. Between these productive areas there are barren stretches where no coal seams are found. In these areas there are several seams of coal varying in thickness from 1 foot to over 5 feet.

The Campbell River area consists of about 55 square miles of coal measures and it is estimated that about 34 square miles of this has workable coal, but it remains to be proved by more extensive diamond drilling.

Quinsam area lies west of the main Campbell River-Courtenay area and is almost completely separated from it by barren measures. Some drill holes and prospects have shown workable seams of coal but no further work has been done. It is estimated that about 11 square miles of this area have workable coal.

Dove Creek-Browne River area embraces 90 square miles lying north of Puntledge River. From numerous diamond drill holes put down it is evident that large parts of this area have been disturbed by upheavals and faults, but there still remains a fairly large field of coal that can be developed.

Cumberland area consists of about 50 square miles centering around the City of Cumberland. Several seams of coal are found in this district and mines have been operating here for over 60 years. There were 8 mines opened in this district, only one,No. 8 Shaft Mine, is now working.

Tsable River area adjoins the Cumberland district to the south east and extends as far as Deep Bay on Baynes Sound. There is about 12 square miles of coal bearing measures here, and although disturbed and faulted in places, is considered a promising field. A new mine has been opened in this district, the Tsable River Mine and is at present producing over 1,000 tons per day.

Insofar as the production of coal from Vancouver Island is concerned, the large area extending from Tsable River up to Campbell River is likely to be the principal producer for many years to come. The Nanaimo Field is almost exhausted of workable coal.

In the Alberni Valley about 75 square miles are underlain by coal measures, but no coal of commercial value has been found.

Suquash area, marked No. V on the map, is on the north east coast of Vancouver Island and the coal measures here extend for a length of 14 miles between Port McNeill and Beaver Harbour. The beds extend inland for about 5 miles. This was the area where coal was first discovered on Vancouver Island and a small amount was mined by the Hudson's Bay Company. In 1909, the Pacific Coast Coal Company opened a mine at Suquash which was worked intermittently but had several bands of rock running through it. Other seams only a few inches in thickness were found. This area could be further explored.

Quatsino Sound Area, marked VI and VII on the map, is on the west coast of Vancouver Island. These two areas border on the west arm of the Sound and on the main channel near Winter Harbour. The measures are very irregular and several thin seams of coal have been found. A fair amount of prospecting work was done, but no valuable seams were found.

It will be seen from the above brief description of the coal areas of Vancouver Island that the two most important fields are the Nanaimo and Comox areas. The Nanaimo seams of coal were valuable but have been nearly worked out. The coal was of good quality, free burning and made a good domestic coal. It is ranked as bituminous coal. The Comox and Tsable River seams are still being developed. The coal is a good steam coal, can be made into good coke and is ranked as bituminous. It is considered that there are still many years of mining in this district. The Suquash area, although not large, may still be able to yield a fairly good tonnage at some future time. The other areas on Vancouver Island are not likely to produce profitably mined coal at least for many years.

Graham Island area, marked VIII on the map, is in the southern part of Graham Island, the largest island of the Queen Charlotte group. A great deal of prospecting has been done on coal bearing measures of Lower Cretaceous age. Coal of good quality has been found, some of it is bituminous, but due to heat and pressure, the coal in some places is anthracite. However, the measures are very much folded and faulted and the seams are so irregular that no profitable mines have been developed. In the northern part of the Island seams of lignite coal are found. More prospecting and diamond drilling are required to gain further information on this coal field.

Skeena River Coal Basin Area. Crossing Hecate Strait from Graham Island to Prince Rupert and travelling east, the next coal area is that known as the Skeena River Basin Area. On the map it will be noticed there are several detached coal areas numbered IX, X, XI, XII and XIII. No. XIII is the Groundhog Field. This field lies 140 miles north of Hazelton on the headwaters of the Skeena River and of streams flowing to the Nass and Strikine Rivers. It is a mountainous section containing about 900 square miles, but over large parts the coal seams have been removed by erosion. In general, the strata appear to be in folds, the main folds being broken up by minor folds and faults. Years ago, a great deal of prospecting was carried on in this area as several of the seams showed anthracite coal near the outcrop. Partly due to the complex geological structure and to difficulties in transportation, this area has not been developed and for many years no work has been done. It is one of the possibilities for future exploration.

South-east of the Groundhog field there is an area, Sustut River Coal Field, that shows several seams of lignite coal 2 to 4 feet thick. No. IX, the Kispiox and Shegunia Coal area, No. X, the Tolkwa River area, No. XI, the Clark Fork coal area and No. XII, the Chisholm Creek area are all smaller detached fields. Several seams of good coal are shown, but the fields are very irregular and the seams are not continuous over any great distance.

In the Telkwa District several small mines have operated to advantage. At present one mine, the Bulkley Valley Colliery, is operating. The seam is from 3 to 10 feet thick, the coal good quality bituminous coal, but the area that can be worked from one mine is small. When the demand for coal increases in the Skeena area and places, adjacent, there is a possibility that several small mines could operate profitably in these detached fields.

No. XIV on the map shows small areas of coal in the Atlin District, but nothing definite is known of this area as no detailed survey has been made.

Peace River Coal area, No. XV on the map, shows part of the Peace River area of coal measures. This area lies in north-eastern British Columbia east of the Rocky Mountains. The coal bearing strata belong to the Cretaceous area of Northern Alberta. There is no doubt that several large coal fields exist in the Peace River District, but a great deal of geological investigating must be done before detailed information can be given. There are several areas of lignite coal and large areas of bituminous and semi-bituminous coal (semi-bituminous is higher in carbon than bituminous). The quality of the coal is good and makes a fine domestic coal and good steam coal. This great field of coal cannot be fully developed until the Peace River area has a greater population and has good transportation to other parts of the Province. At the present time several small mines are operating west of Hudson Hope and mining sufficient coal to supply the needs of the district. The three best known fields at present are the Bull Mountain Area, west of Hudson

Hope, the Haslar Creek Area and Carbon River Area. These are known to contain large reserves of coal. There is no doubt that in future years when the Peace River country is fully opened up that the coal mining industry will play an important part in contributing to the wealth of this Province.

Central District of British Columbia

Travelling south from the Peace River to Prince George we come to the Central District of the Province.

This area stretches from Prince George south to the United States border and east of the Rocky Mountains and the Coast Range on the west, but does not include the coal fields in the Rocky Mountains in the Crow's Nest Pass Area and adjacent areas. In Central British Columbia the coal fields lie in the Tertiary formation of rocks, a younger formation than the Cretaceous period. The seams of coal are mostly lignite and, in some cases, where folding and faulting has occurred, pressure and heat have changed the lignite to a sub-bituminous or sometimes to bituminous coal.

Bowron River Coal Area. About 45 miles south east of Prince George lies the Bowron River Coal Area. The coal measures (of Tertiary age) lie in a flat basin surrounded by hills. A part of the section of the measures is exposed on the Bowron River. Three workable seams are exposed varying from 12 feet to 4 or 5 feet thick. Rock bands separate the various bands of coal in the seams. The coal is bituminous but more exploratory work and survey work is required before a proper estimate can be given of the value of this field. Prospecting work is being carried on at present by the Bowron River Coal Company.

South from Bowron River, near Quesnel, and still farther south at Alexandria, small deposits of lignite are found. Small prospects have been opened in these seams but the coal is of poor quality.

North Thompson or Chu Chua Area, No.XXII on the map. In the valley of the North Thompson River, 50 miles north of Kamloops, lies the Chu-Chua coal field. The seams are in what may be termed the middle part of the Tertiary formation. Three seams of coal are exposed here varying from 4 feet to 1 foot in thickness. The coal seams thin and thicken, split and unite in short distance, making it difficult to operate a mine profitably. The coal measures may extend for 5 or 6 miles along the valley. The coal is sub-bituminous. One mine operated some years ago but was not a commercial success.

Kamloops Lake Coal Area, No. XX on the map. Several thin seams of lignite have been found here in the Tertiary formation, but they are not considered of any value.

Hat Creek Coal Area, No. XXI on the map. Hat Creek coal field lies in the valley of Hat Creek about 15 miles west of Ashcroft. The coal bearing early Tertiary strata occupy an area at least 15 miles long and 7 miles wide. The Tertiary rocks in this area have been subjected to a great deal of folding and faulting, and it is difficult to determine even an approximate estimate of the reserves of coal. A small mine was operated in the Hat Creek field at a point where the seam was very much folded and apparently had a thickness of over 100 feet. The coal seam was intermined with many bands of clay and shale, but good benches of lignite coal several feet in thickness formed part of the seam. A great deal of exploratory work and drilling would be required to gain the proper information as to the extent of coal beds. There is no doubt that some time in the future, when scientific research work has made greater progress in the utilization of lignite coals, this

field will become of value to the Province.

Several small deposits of Tertiary coal bearing measures are found in the Kettle Valley area. At south fork on the Kettle River, west of Arrow Lake and west of Midway a seam of lignite coal was found, but did not appear to be of any great commercial value.

White Lake Coal Area, No. XVl on the map. White Lake coal area is in Okanagan Valley about 6 miles west of Okanagan Falls. The field has an area of about 6 square miles and lies in a basin shaped depression. The Tertiary coal bearing rocks are exposed in and around White Lake. Several thin seams of coal are exposed. The most important are those exposed in the ravine on the north west side of White Lake; the seams are 14 and 20 inches in thickness. A shaft some 35 feet deep was sunk on the coal seams some years ago and about 1,000 tons of coal extracted. The coal is bituminous. It is doubtful if any seams of coal thick enough to be profitably worked at present are to be found in this area.

Princeton Coal Area, marked No. XVll on the map. Princeton is situated in a shallow depression underlain by coal bearing Tertiary sedimentary strata. The sediments occupy an area of approximately 50 square miles. On the eastern side of the area the underlying pre-Tertiary rocks outcrop but elsewhere along most of the boundary the sediments dip beneath Tertiary lavas. Tertiary igneous rocks also occur cutting the sediments. Lignite seams of coal outcrop along the boundary in several places. Seams of coal varying in thickness from 18 feet to 2 feet have been found. In 90 feet of strata seven seams of lignite coal have been exposed. Several mines have operated in this area, principally from the outcrop. The district has already produced a considerable tonnage, but at present only two mines are operating. There is no doubt that a large reserve of good lignite coal lies to the dip of the mines that have been operating and in future years this should be a valuable coal producing area.

Tulameen Coal Area, No. XVlll in the map. The Tulameen coal area lies in the Similkameen Mining Division, about 1 mile south of Tulameen and 12 miles north-east of Princeton. One part of this area was known as the Granite Creek basin, another part as the Collins Gulch basin, but as these are now known to be parts of the same basin, it is better defined as the Tulameen Coal Area. The field is oval in shape and covers an area of 5 square miles. The coal seams occur in the middle par t of the Tertiary formation. The outcrops of 4 seams are seen on the Granite Creek side of the basin varying from 8 feet to 3 feet in thickness. The Coalmont Collieries operated on the Granite Creek side for several years and produced a considerable tonnage of coal from several mines. At the present time a prospect is being developed on the Collins Gulch side of the field, in a thick seam of coal. The coal varies in quantity in different parts of the field from bituminous to sub-bituminous depending on the pressure and folding that occurred in the measures. It is estimated that 3,254 acres of this coal area have productive coal seams and that the reserves of coal equal at least 65,000,000 tons. There is no doubt that in future years this field will be developed.

Nicola and Quilchena Coal Areas, No. XlX on map. The Nicola and Quilchena coal areas lie in the basin of the Nicola River. The two fields are occupied by early Tertiary shale, sandstones, conglomerates and coal that rest on disturbed pre-Tertiary strata and are overlain in places by Tertiary basalt flows. The Nicola field lies in the vicinity of the town of Merritt and has an area of 40 square miles. The Quilchena field is 10 miles east and has an area of 10 square miles. The strata of the Nicola field in places lies in folds and in places is very much faulted and dips at varying angles. The number of workable seams in this field is

not definitely known, but in the vicinity of Coal Gully, 4 seams occur and where they have been mined have thickness varying from 10 to 3 feet. The coal is bituminous. Several mines operated in this area, the largest operation being the Middlesboro Collieries. Only one small mine is operating to-day.

The Fraser Delta Coal Area. On examining the map it will be noted that from the mouth of the Fraser to Chilliwack it is shown as coal measures. Practically the whole of the Delta is believed to be floored by stratified rocks of the early Tertiary period (Eocene age). They consist of little disturbed beds of conglomerate, sandstone and shale which were laid down by the ancient Fraser River in an estuary of the sea. These beds suffered some erosion throughout the remainder of the Tertiary period, but were then covered towards the close of the Glacial period by sands, gravel and till. These deposits now constitute the plateaus in this part of the Fraser Valley. It has been noted that in the fireclay seams in the Abbotsford Area that small seams of coal occur. Lignite seams may occur in detached areas, but nothing of a commercial value has been found.

THE EASTERN DISTRICT

Crow's Nest Pass and Flathead Coal Area, marked No. 1 and 11 on map. Crow's Nest Pass Area No. 1. This is the most important coal area in British Columbia and a brief history of its early development should be of interest. The Eastern coal mining district generally termed the Crow's Nest Pass Coal Field lies on the western slope of the Rocky Mountains in the extreme south east of the Province. The first mention of coal in this district was when a Mr. Blackstock, in the year 1858, reported outcroppings of coal on the banks of various creeks and rivers. In 1873 a trapper, Michael Phillips, found outcroppings of coal in the Crow's Nest Pass and the following year spent part of his time prospecting in the area. He reported his findings at the local Government Office at Fort Steele, which was the principal trading post in the East Kootenay, but practically no attention was given to the discovery as there was no railway in those days and transportation was difficult. Nothing more was done until 1887 when Mr. William Fernie and Lieut. Colonel Baker began a thorough prospecting of the district. (The town of Fernie was named after Mr. William Fernie). These two men continued their prospecting for eight years and had been able to interest others who helped to finance them.

They secured a charter to build a railway from the junction of Summit Creek and Michel Creek to a point on the lower Kootenay River. This railway, known as the British Columbia Southern Railway, is now part of the Crow's Nest Pass branch of the Canadian Pacific Railway and the land which accompanied the charter, with certain modifications, constitute the holdings of the present Crow's Nest Pass Coal Company, comprising about 200,000 acres. The Crow's Nest Pass Coal Company became actively interested in this coal field when they acquired a majority interest in the Fernie - Baker syndicate in 1897 and from then until now have been the principal producers of coal and coke in the district. In 1898, the Canadian Pacific Railway Company extended their branch line from Fort McLeod, in Alberta, to the Kootenay River, passing through Fernie and with a branch line from Fernie to Coal Creek. The Crow's Nest Pass Coal Company opened coal mines there and built coke ovens at Fernie.

Within seven years a total of over 2½ million tons of coal had been produced and over 760,000 tons of coke had been made from some of this coal. This was the beginning of one of the most important coal mining industries in the Province.

How the Crow's Nest Pass Coal Field was Formed

The Rocky Mountains in British Columbia stretch from the International Boundary to the Liard River, a distance of 850 miles in a north-westerly direction. They are formed almost entirely of folded and faulted sedimentary strata which range in age from the very early rocks in the Cretaceous in regular order. During the time of formation of these rocks they were undisturbed by any violent earth movements. This region, during these early times, was occupied by successive seas in which great thicknesses of marine strata were deposited. During the Lower Cretaceous period, the seas were more restricted and periods of marine invasion and sedimentation alternated with others of non marine conditions during which great thickness of sediments accumulated in some instances accompanied by depositions of coal forming material. Later, about the opening of the Tertiary period, the Rocky Mountain region was involved in great earth movements and the mountains were produced. Within south-east British Columbia, the distribution of the strata, as a result of erosion and other causes, is such that, except in one area, coal is confined to one formation known as the Kootenay formation of the Lower Cretaceous age.

The Kootenay coal bearing measures in south-eastern British Columbia occur in a number of detached areas from the International Boundary north for about 100 miles. The principal areas are the Flathead area No. 11 on the map and the Crow's Nest Pass area No. 1 on the map.

The Crow's Nest Pass area consists of several detached fields. The principal fields being the Fernie Basin, Corbin and other small areas and Elk River Field.

The Fernie Basin. The Fernie Basin is the largest connected area of coal bearing rocks. It occupies the mountains east of the Elk River and extends 35 miles in a north and south direction and in width varies from 4 to 13 miles. The Kootenay rocks, which contain the coal beds, outcrop continuously around the border on the north, west and south sides, but are broken up by faulting and folding on the east side. At Morrisey, which is near the south end of the field, at Fernie, which is near the centre, and at Michel, which is near the north end of the field, twenty-three seams of coal are exposed in outcrops, giving a total of over 170 feet of coal. Deducting from this thickness of coal seams that are under 3 feet thick and shale bands in the thicker seams, it is estimated there is at least a combined thickness of 100 feet of workable coal in the seams. The coal bearing lands of the Fernie Basin is estimated at 230 square miles, so there should be reserves of about 25,000,000,000 tons of coal. It can be seen that coal can be produced from this district for hundreds of years. The coal is a high grade bituminous and a good coking coal. Both metallurgical and domestic coal is made at the by-product coke plant at Michel.

Corbin Area. In an area lying between the Fernie basin and the main range of the Rocky Mountains to the east there are a number of small detached areas of coal measures well up the mountain sides. The Corbin field is one of these. The measures have been very much folded and faulted and coal and shale have been squeezed into pockets in the limbs of the folds. This gives, in some places, very thick lenses of coal, and at one or two places coal stripping was done on the surface where these thick lenses lay under very little overburden. Two underground mines also operated in this area for quite a number of years.

Several large mines have been opened up in the Fernie Coal basin. Near the south end the Morrisey Mine operated for a

Railway for a number of years. The principal producer from this area has been the Crow's Nest Pass Coal Company. This Company operates several large mines at Michel and near Fernie in the Coal Creek Area. They have been producing coal from this district since 1897 and at present produce over one million tons a year. They also produce coal from a surface stripping operation at Michel at the rate of 1,000 to 1,500 tons per day. A by-product coke plant at Michel turned out approximately 151,000 tons of coke made from 228,000 tons of coal in 1949.

Elk River Coal Field. This coal area stretches from the northern end of the Fernie coal basin to the headwaters of the Elk River, a distance of about 60 miles. It is about 2 to 1 miles wide in the southern part, but in the northern part it is over 8 miles wide in places. The coal seams here are also in the Kootenay formation and there are several good seams of coal several of which are over 10 feet thick. A fair amount of prospecting has been done in former years and several companies own coal lands in the area, but no active mining is going on. It would be necessary to build a branch line from the present Canadian Pacific Railway line up the Elk River Valley to serve this area. The reserves of coal in this area are known to be high.

Flathead Coal Area

Flathead Coal Area, No. 11 on the map. For 24 miles north of the International Boundary the Flathead River flows nearly due south and at three places are erosion remnants of the Kootenay formation. The most southerly commences four miles north of the boundary and extends north for 5 miles. The total thickness of the Kootenay series of rocks is 1,147 feet and five coal seams have been found ranging in thickness from 4 to 36 feet. A second area of Kootenay rocks occurs about 10 miles north and another 5 miles still further north. At one place six seams of coal have been found varying in thickness from 4 to 40 feet. No mining is being carried on in the Flathead area. Transportation difficulties will prevent this area being opened up for some time.

General Summary of British Columbia Coal Fields

It will be seen from the brief description given of the coal fields of the Province that so far as the present production of coal is concerned, the two most important areas are the Crow's Nest Pass Area, particularly that part known as the Fernie Coal Basin, and the Comox Area on Vancouver Island. For future production the Elk River Field to the north of the Fernie basin and the Flathead River area to the south have great reserves of coal. The Peace River Area will no doubt be a great producer in the future and the Princeton and Tulameen areas have also large reserves. Next in importance are the Groundhog Area, Chisholm Creek Area, Graham Island and Bowron River Area. This does not mean that other small detached areas are of no importance. As greater progress is made in scientific research work on coal and its by-products, on the liquefaction and gasification of coal, these small areas can become sources of wealth to the Province.

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LEGEND

AREAS OF COAL-BEARING STRATA

COAL OCCURRENCES

I CROWSNEST AND ELK RIVER COAL-AREAS
II FLATHEAD COAL-AREAS
III COWICHAN BASIN AND NANAIMO COAL-FIELD
IV COMOX COAL-AREA
V SUQUASH COAL-AREA
VI QUATSINO SOUND COAL-AREA
VII KOSKEEMO COAL-AREA
VIII GRAHAM ISLAND COAL-AREAS
IX KISPIOX AND SHEGUNIA COAL-AREAS
X TELKWA RIVER COAL-AREAS
XI CLARK FORK COAL-AREAS
XII CHISHOLM CREEK COAL-AREA
XIII GROUNDHOG COAL-AREA
XIV ATLIN COAL-AREAS
XV PEACE RIVER COAL-AREA
XVI WHITE LAKE COAL-AREA
XVII PRINCETON COAL-AREA
XVIII TULAMEEN COAL-AREA
XIX NICOLA AND QUILCHENA COAL-AREAS
XX KAMLOOPS LAKE COAL-AREAS
XXI HAT CREEK COAL-AREAS
XXII COAL CREEK (NORTH THOMPSON RIVER) COAL-AREA
XXIII LIARD RIVER COAL-AREAS

BRITISH COLUMBIA

DEPARTMENT OF MINES

Hon. R. C. MACDONALD, *Minister*.

Scale 40 30 20 10 0 40 80 120 160 MILES

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