PRINCETON COAL AREA.[1]

(*See Diagram XVII.*)

(Extracts from reports by Charles Camsell.)

Princeton is situated at the junction of the Similkameen and Tulameen rivers, in a shallow depression in the Interior Plateau region, which was formerly an Oligocene lake basin. The region is characterized by comparatively moderate relief, gently rounded hills, and broad open valleys. It is sparsely forested and in portions quite open and grassy, so that it affords good grazing for horses and cattle.

The principal rocks of the region are flat lying sediments of Oligocene age, resting on a basement of tilted Palæozoic rocks. They include sandstones, clays, shales, conglomerate, and coal seams, and contain a variety of fossil plants, insects, and fish remains. These rocks are overlaid by volcanic flows of andesite, basalt, and fragmental materials.

The Palæozoic rocks to the south of the town of Princeton, at Copper mountain, contain low grade copper deposits of considerable magnitude, which are now being vigorously prospected. They carry chalcopyrite as the principal copper mineral, and are either in the form of contact metamorphic deposits situated in altered sedimentary rocks at the contact of irruptive igneous bodies, or are in fissures in both the igneous and sedimentary rocks.

The Oligocene rocks cover an area of about 40 square miles (103 sq. km.) and contain a number of seams of coal, ranging in thickness from a few feet up to 60 feet (18·29 m.). Some of the seams are being mined. The Oligocene also includes important beds of clay which are utilized in the manufacture of cement.

Boring operations for lignite began in this vicinity in 1901, and have been prosecuted by several parties interested in the

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[1]C. Camsell, Preliminary report on a part of the Similkameen district, British Columbia, Geol. Surv., Can., pp. 16 et seq.

C. Camsell, Guide Book No. 9. Transcontinental Excursion C2, Geol. Surv., Can., pp. 116-117.

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development of the Princeton coal basin. The Princeton Coal and Land company, formerly known as The Vermilion Forks Mining and Development company, is the largest holder of coal claims and it has sunk six bore-holes to test its properties. Two others have been sunk by Blakemore and one by Sharp; and with the exception of Sharp's bore-hole all have been sunk in the valley of the Similkameen river between Princeton and Ashnola.

The Princeton district lies in a part of what has been called by Dr. G. M. Dawson the great Interior plateau of British Columbia. In the southern part of the district, however, it partially loses the chief characteristics of a plateau, which are so well exemplified in the region to the north of this district, and which gave the author of the name the reasons for calling it such, and it here becomes gradually more mountainous, until it finally merges into the high rugged and snow-covered peaks of the Cascade range to the south of the International Boundary line. To the north of the district, and in the country north of the Similkameen and Tulameen rivers, the plateau features become more pronounced and the ruggedness of a mountain region is lost. In looking southward over it towards Nicola lake from some of the higher points the eye appears to travel over a gently undulating surface showing a succession of rounded and generally wooded hills, and nowhere any sharp and rugged peaks or any banks of snow.

Above Princeton the southern portion of the Similkameen river flows in an almost north and south course until it forks some twenty-five miles south. The main branch or Pasayton river continues in the same course up to and across the Boundary line, while the west branch or Roche river comes from the south-west.

About a mile below the junction of the two streams the southern portion of the Similkameen river enters a deep and narrow canyon, through which it flows for a distance of about eighteen miles, or as far as the mouth of Whipsaw creek.

Below the mouth of Whipsaw creek the stream enters the low, shallow Tertiary coal basin, and the change in character is very abrupt. Here the grade becomes slightly easier though

still very steep, and the banks of the valley are usually composed of unconsolidated material, and only occasionally are there exposed sections of the coal-bearing rocks.

Plutonic, volcanic, and sedimentary rocks are all present, covering a range in age from Palæozoic to later Tertiary times. Fossils occur in the Tertiary coal basin, about Princeton, and also in the Cretaceous sandstones of the Roche river; but the remaining sedimentary rocks—limestone, argillite, and quartzite—are either unfossiliferous or have been so badly crushed as to destroy any remnant of animal life that they ever contained. Contacts between the igneous and sedimentary rocks are rarely exposed.

The formations in this district and their approximate or relative ages, are as follow:—

(1) *Glacial and recent deposits.*

(2) *Post Oligocene*—

Volcanic, consisting of andesites, basalts, trachytes, tuffs, and breccias.

(3) *Oligocene*—

Sedimentary, consisting of sandstones, shales, clays with seams of coal.

(4) *Cretaceous*—

Argillaceous sandstones, grits, conglomerates, and slates.

(5) *Post Palæozoic*—

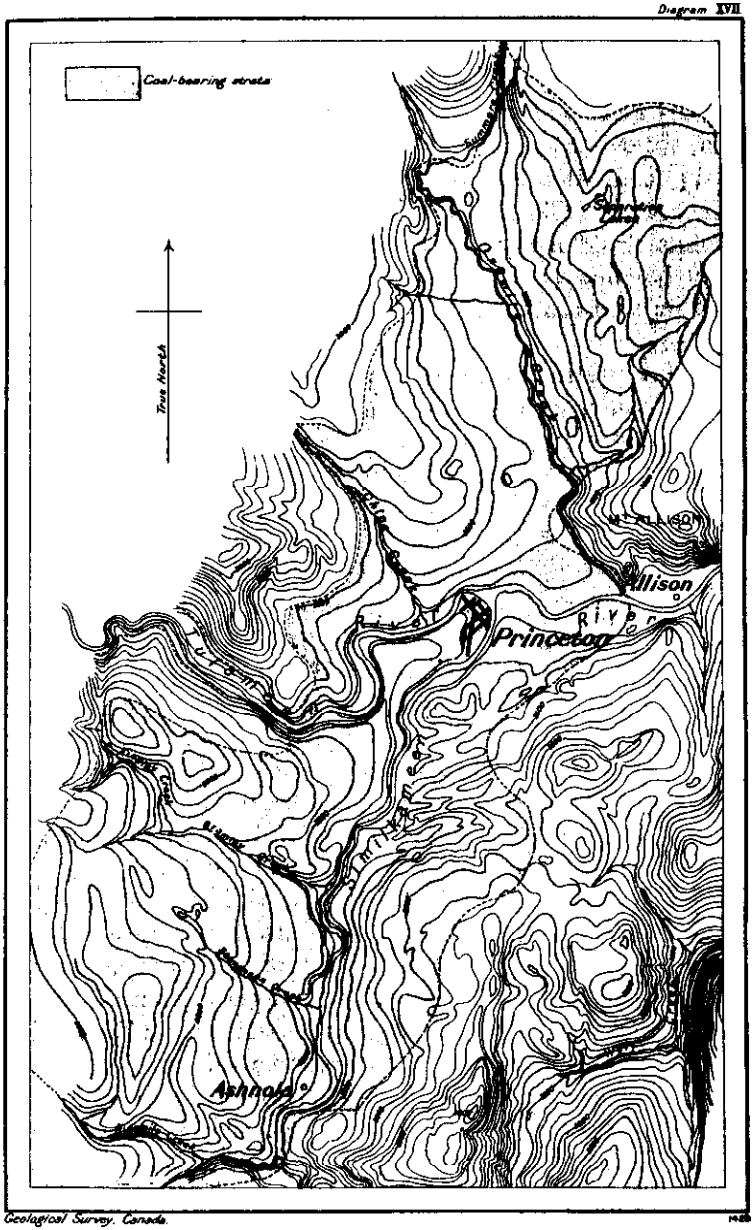
Remmel granodiorite; monzonite of Copper mountain.

(6) *Palæozoic*—

Limestone, quartzite, and argillite of Copper mountain. Green and spotted schists, talc and graphite schists, mica and hornblende schists, with some limestone and siliceous bands.

Palæozoic.—The oldest rocks in the district are the Roche River schists, which cover an area about the junction of the Roche river with the Pasayton.

Post-Palæozoic.—These are batholithic intrusions, and under this head are classed the Remmel granodiorite of the Pasayton river, the gneiss of the Roche river, which is probably



Geological Survey, Canada.

Princeton coal-area

Miles

To accompany Memoir by D.B. Dowling

only a phase of the Remmel granodiorite, and the monzonite of Copper mountain.

Cretaceous.—Lower Cretaceous rocks cover a wide area in the southwest corner of the district. They appear on the Pasayton river, just north of the Boundary line, and striking about 330° cross the Roche river, about six miles above the junction of that stream with the Pasayton. At both these places they are seen to overlie the eruptive rocks. The beds consist of hard sandstones and grits, interbedded with black and red argillaceous slates, all of which appear to have suffered much stress and pressure, for the angles of the dip are now all high, being usually about 50°.

Oligocene.—These sedimentary rocks constitute the coal-bearing formations and cover an area of nearly fifty square miles, the basin being fourteen miles long with a variable width of from three to five and a half miles. They consist of thick beds of sandstone, with clay, shales, and several seams of coal. The base of the series appears to be a very coarse-grained sandstone containing many large rounded white feldspars in a matrix of calcareous material. This rests on the eastern side of the basin, on the Copper Mountain series of rocks, while on nearly all other boundaries the sediments dip under the more recent volcanic rocks, which lie as sheets on them. In parts also these volcanics have thrust themselves through the sediments and now appear as islands in the older rocks. The strata do not now lie horizontally, but have been tilted at low angles, making an irregular series of folds. Some faults also occur.

Many drill holes have been bored in this Tertiary basin in search of coal, and with some good results. Most of them, however, were put down at or near the edge of the river, and only one near the western edge of the basin. By the kindness of Mr. Ernest Waterman, manager of the Princeton Coal and Land company, copies of the records of these drills have been obtained. These have disclosed the thickest seams to be in the vicinity of the town of Princeton, where a bed over eighteen feet in thickness was struck at a depth of 49 feet below the surface. The hole in which this seam was found was sunk near the bridge over the Similkameen river to a depth of 280 feet.

In this hole seams, aggregating thirty-five feet seven inches, were crossed in the first ninety feet, while the rest was in shales and sandstones.

The following is a record of this drill hole:—

Material.	Thickness.		Depth.	
	Feet	Inches	Feet	Inches
Gravel	14			
Shale	21	6		
Coal	4	6		
Sandstone	0	5½	40	5½
Coal	6	7½		
Clay	1	10	48	11
Coal	18	5½		
Shale	3	1		
Carbonaceous shale	4	6		
Clay	0	5		
Carbonaceous shale	0	8		
Sandstone	1	7		
Fire clay	2	1		
Coal	0	2		
Shaly coal	1	1		
Shale	1	0	81	11½
Coal	1	8		
Clay	1	4		
Coal	1	6		
Shaly coal	1	2		
Coal	1	6		
Clay, shale, etc	26	4½		
Sandstone	31			
Clay, shale, etc	79	6	227	
Sandstone	44	6		
Clay, shale, etc	8	6	280	

Aggregate of clean coal, 34 feet 5 inches.

One and a half miles farther up the Similkameen river the following section was obtained of the measures by the Vermilion Forks Mining and Development company, in bore-hole No. 2:—

Material	Thickness.		Depth.	
	Feet	Inches	Feet	Inches
Clay	17	0		
Shale	18	0		
Sandstone	1	0		
Shale	36	0		
Sandstone	1	9		
Clay	2	9		
Carbonaceous shale	3	0	79	6
Coal	1	0		
Clay	7	4		
Coal	0	2		
Sandstone	27	11		
Shale	1	7		
Clay	12	6		
Shale	6	6		
Sandstone	17	7		
Shale	1	5		
Sandstone	41	7		
Carbonaceous shale	4	0	201	1
Coal	5	0		
Carbonaceous shale	3	6		
Shale	3	6	213	1
Coal	1	7		
Clay	2	11		
Shale and sandstone	23	1	240	9
Coal	3	0		
Sandstone and shale	16	0		
Coal	0	9		
Shale and sandstone	41	7	302	1

Aggregate of clean coal, 11 feet 6 inches.

The deepest hole bored in the whole coal basin was Blakemore's No. 2, which was sunk to a depth of 1,000 feet at a point on the Similkameen river, about two miles above Princeton. The following record shows the thickness and the depth at which each coal seam was cut. The only workable seam was struck at 676 feet. This was found to be ten feet seven inches thick, with a clay parting of six inches near the middle of it:—

Depth.	Thickness of coal seam.
At 95 feet	1 inch.
95 " 4 inches	1 "
395 " 8 "	2 inches.
404 " 0 "	2 "
427 " 2 "	8 "
475 " 6 "	6 "
479 " 0 "	4 inches
508 " 9 "	3 "
579 " 4 "	2 "
579 " 8 "	2 "
676 " 8 "	10 feet 7 inches.
694 " 6 "	1 inch.
699 " 3 "	1 foot 3 inches.
793 " 2 "	1 " 0 "

Total thickness of coal 1,000 feet, fifteen feet.

Four miles up the Similkameen river a bore-hole, sunk to a depth of 257 feet, only went through two feet five inches of coal; while a drill hole near the south end of the basin at Ashnola, which penetrated to a depth of 398 feet, gave no workable seams at all, and only a few bands of what has been called in the record "coaly shale."

A bore-hole was also drilled near the western edge of the basin where the sediments dip under the volcanics, and not far from where there is an outcrop of coal four feet thick. The depth of the hole is 863 feet, and in that distance seventeen seams of coal were cut through with an aggregate thickness of fifty and a half feet, of which the thickest seam was nine feet.

From a study of these records it would appear that most, though not all, of the workable seams are within 300 feet of the surface. It must be noted, however, that no prospecting by drilling has been done north of the Similkameen river.

The coal basin undoubtedly extends some distance north of the Similkameen river and beyond the limits of the area mapped, for outcrops of lignite and sandstone were found at the mouth of Summers creek. Two miles up this creek the sandstones are well exposed on the banks of the stream, and are here found to be overlaid by recent volcanic rocks. Farther north they appear to dip below the surface; but it is very likely that

other areas of these coal measures may be discovered outcropping in places between here and Nicola lake.

Coal outcrops in many places, both on the Similkameen and Tulameen rivers, also on Summers creek, Bromley creek, and on Ninemile creek. At the latter place a cut in the bank made by the stream discloses a bed fifteen feet in thickness of fairly clean coal, with five very thin partings of clay, and all resting on white clay.

A selected sample from the big eighteen-foot seam at Princeton, worked by the Princeton Coal and Land company, was sent to Mr. Hoffmann, of the Geological Survey Department. After analysing it he found it to be a lignite, but one of the better class (sub-bituminous). Analysis by fast coking gave the following results:—

Hygroscopic water	16·17 per cent.
Volatile combustible matter	37·58 "
Fixed carbon	41·67 "
Ash	4·58 "
	100·00
Coke, per cent	46·25

Character of coke, pulverulent; colour of ash, brownish yellow.

Mr. L. M. Lambe of this department has correlated these lignite beds with the Coldwater group of Nicola lake, and similar beds on the Horsefly river. As a result of his investigations they have all been referred to Oligocene age, and are similar to the Amyzon beds of Colorado.

Though these beds are of the same age as the Coldwater group of the Nicola country, in which coal also occurs, there is a difference in the quality of the fuel contained in each. The Nicola coal is a true bituminous, whereas this is a sub-bituminous. The former, also, is considerably higher in fixed carbon and lower in water, while the fuel ratio is 1·447, as against 1·108 of the Princeton coal.

Some of the beds of the Princeton coal area are only in a primary stage of formation, and they still show the brown, woody fibre of the slightly altered vegetable remains. Much retinite also

occurs in them. Some also have been completely destroyed by combustion, and it is to the combustion of an underlying bed of lignite that Dr. Dawson attributed the metamorphism and colour of the rocks at the Vermilion bluffs.

Post-Oligocene.—The solid rocks of this age are all of volcanic origin. They have a very wide distribution and prove that this part of the country was the scene of tremendous volcanic activity during that period. Their area must have been considerably diminished during the glacial period, so that their present distribution cannot be taken as indicative of their original extent. Detached areas of these rocks, too small to be mapped, are often found capping the older rocks, and these must at one time have been continuous with the larger areas, but have been separated from them by erosion. An instance is on record where these volcanic rocks have acted as a shield to the underlying rocks, preventing the erosive action of glacial ice from removing the decomposed material of these underlying rocks, and only going so far as to remove the overlying volcanic sheet; so that now there is a much greater thickness of decomposed rock than is usually found in much glaciated regions, and a local condition has been produced which resembles the unglaciated regions of the Southern States.

These volcanics are the youngest rocks in the district, for they are seen on Tulameen river and also on Onemile creek and Summers creek to rest directly on the coal-bearing rocks. On Tulameen river the stream cuts through beds of clay, shale, and sandstone overlaid by these volcanics for a distance of at least two and a half miles. The schists of Roche river are overlaid by these volcanics to the north, east, and west, and they also overlie the Copper Mountain series on the north and west. They consist of rhyolites and trachytes, andesites, basalt, tuffs, and breccias. The surface lavas are often amygdaloidal, the vesicles being filled with chert, chalcedony, or zeolites. Some agates and semi-opal were found in the volcanic area east of the Coldwater river.

Some of the dykes cutting the Copper Mountain rocks appear to be contemporaneous with these volcanic rocks, and in some way connected with them.

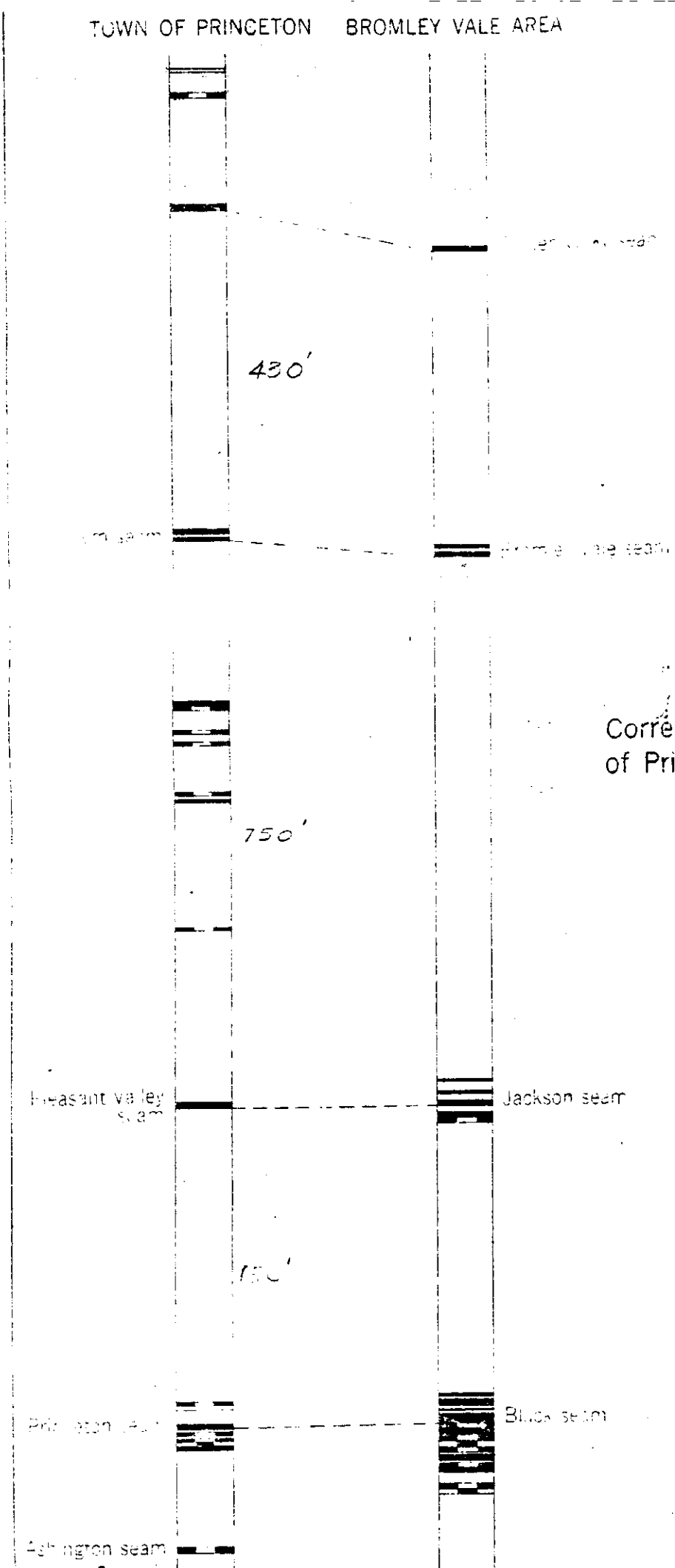


Figure 1C

Correlation chart of coal seams in town of Princeton and Bromley Vale areas Princeton coalfield

Scale: 1 inch to 200 feet

Coal

Dirty coal

790

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CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

Figure 2

Princeton Coalfield, British Columbia

"Princeton-Black coal zone"

INDEX TO MINES, PROSPECTS, AND BORE-HOLES

M 1 Princeton B.C. Colliery Co. Ltd. No. 2 mine
M 2 Princeton B.C. Colliery Co. Ltd. No. 1 mine
M 3. Princeton B.C. Colliery Co. Ltd. No. 3 mine
M 4. Princeton-Tulameen mine
M 5. Tulameen Collieries Ltd. Nos. 1, 2 and 3 mines
M 6. Pleasant Valley No. 4 mine
M 7. Pleasant Valley No. 2 mine
M 8. Granby Company strip-mine
M 9. Pleasant Valley No. 1 mine
M 10. Taylor-Burson mine
M 11. Jackson mine
M 12. Gem mine
M 13. Bromley Vale No. 1 mine
M 14. Blue Flame mine
M 15. Bromley Vale No. 2 mine
M 16. Ashington mine
M 17. United Empire mine
M 18. Red Triangle mine

P 1. Taylor-Burson Coal Company prospect
P 2. Taylor-Burson Coal Company prospect
P 3. Unnamed prospect
P 4. Golden Glow prospect
P 5. Unnamed prospect
P 6. China Creek prospect
P 7. Prospect or, possibly, entry into United Empire mine
P 8. Deer Valley prospect
P 9. Summers Creek prospect

B.H. 1 Vermilion Forks Mining and Development Company B.H. No.6
B.H. 2. V. F. M. D. Co. B.H. No. 1
B.H. 3. V. F. M. D. Co. B.H. No. 3
B.H. 4. V. F. M. D. Co. B.H. No. 2
B.H. 5. Granby Company Power Plant Bore-hole (Reference: Granby Company files)
B.H. 6. Blakemore B.H. No. 2
B.H. 7 V. F. M. D. Co. B.H. No. 5
B.H. 8. V. F. M. D. Co. B.H. No. 4
B.H. 9 Blakemore B.H. No. 1
B.H. 10 Granby Company B.H. No. 4 (Reference: Granby Company files)
B.H. 11. Sharp's bore-hole
(For location of bore-holes, refer to Figure 1A)

NOTE. Except in the case of Bore-holes Nos. 5 and 10, the logs of these bore-holes are given in Geol. Surv., Canada, Mem. 243, Princeton Map-area, B.C., by H. M. A. Rice, pp. 117-123

LEGEND RELATING TO MAPS

Boundary of coal-bearing rocks . . . . . 

Bore-hole (drilled, proposed) . . . . . ●B.H. 4, oC

Worked-out area . . . . . 

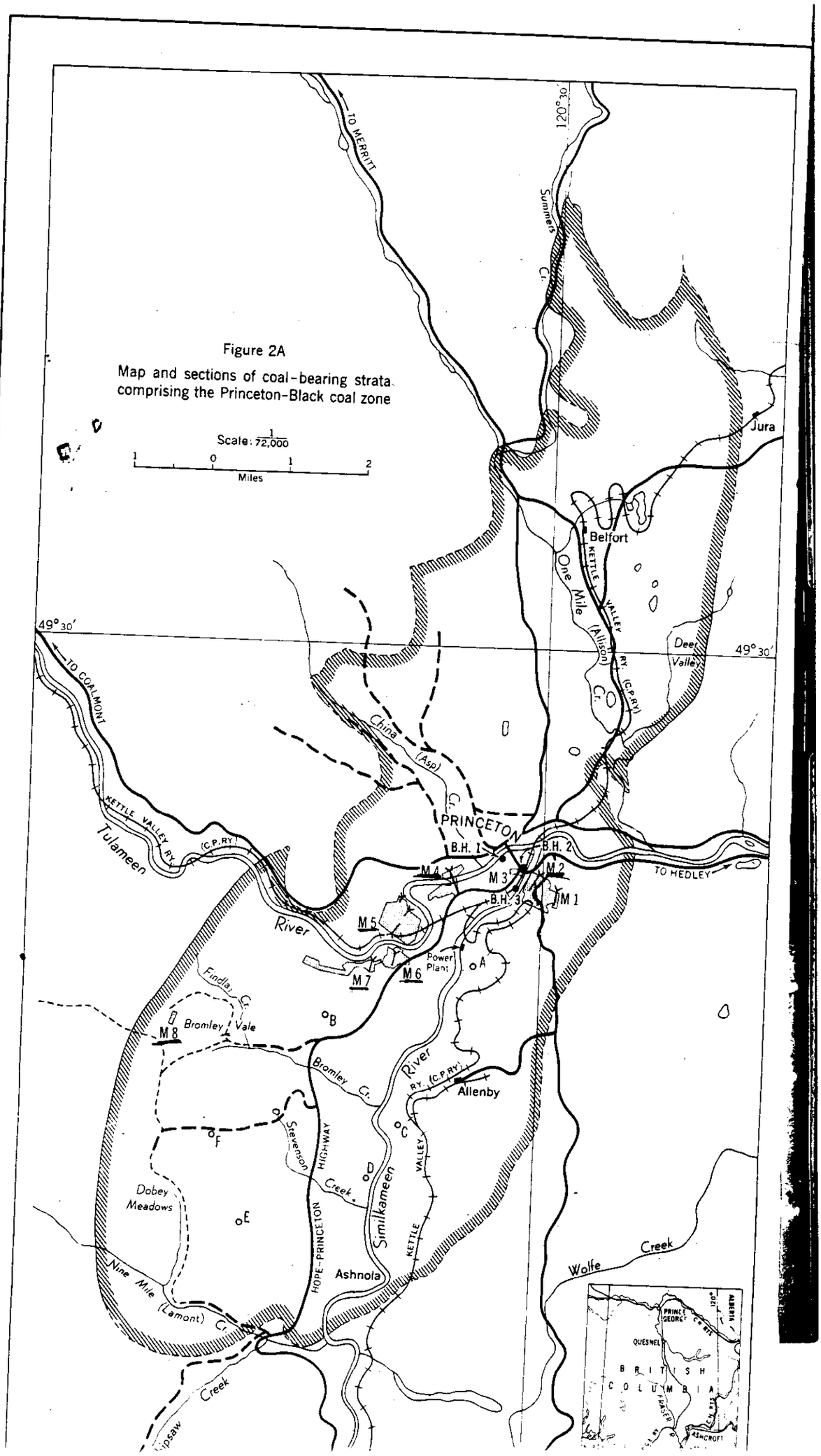
Mine entry and main haulageways . . . . . 

Prospect adit . . . . .

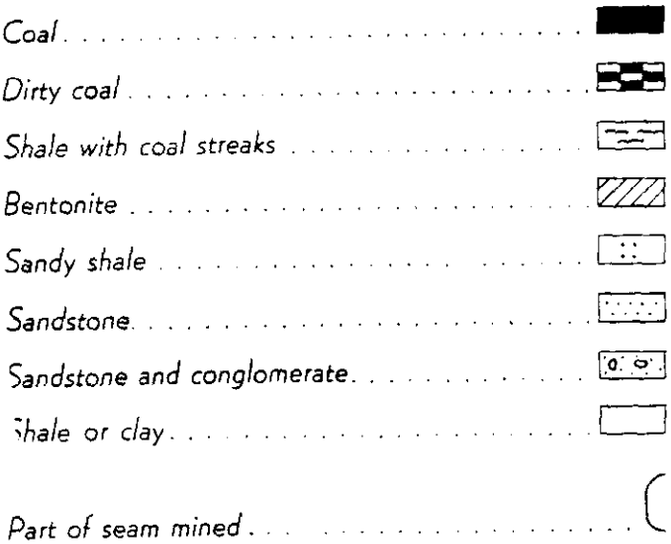
Mine reference number . . . . . M 4

Prospect reference number . . . . . P 2

Map reference number to section measured in outcrop (at point of arrows, Figure 2D) . . . .


TO MERRITT
120°30'
Summers Cr.
Jura
Belfort
KETTLE VALLEY RY. (C.P.RY.)
One Mile (Allison) Cr.
Deer Valley
49°30'
TO COALMONT
China (Asp) Cr.
PRINCETON
B.H. 1
B.H. 2
B.H. 3
M 1
M 2
M 3
M 4
M 5
M 6
M 7
M 8
TO HEDLEY
Tulameen River
KETTLE VALLEY RY. (C.P.RY.)
Power Plant
Findlay Cr.
Bromley Vale
Bromley Cr.
Similkameen River
KETTLE VALLEY RY. (C.P.RY.)
Allenby
Stevenson Creek
HOPE-PRINCETON HIGHWAY
KETTLE VALLEY
Dobey Meadows
Nine Mile (Lamont) Cr.
Ashnola
Wolfe Creek
Jackpine Creek
A
B
C
D
E
F
Figure 2A
Map and sections of coal-bearing strata comprising the Princeton-Black coal zone
Scale: 1/72,000
1 0 1 2
Miles
ALBERTA
PRINCE GEORGE
QUESNEL
B R I T I S H
C O L U M B I A
FRASER
ASHCROFT

LEGEND RELATING TO SECTIONS



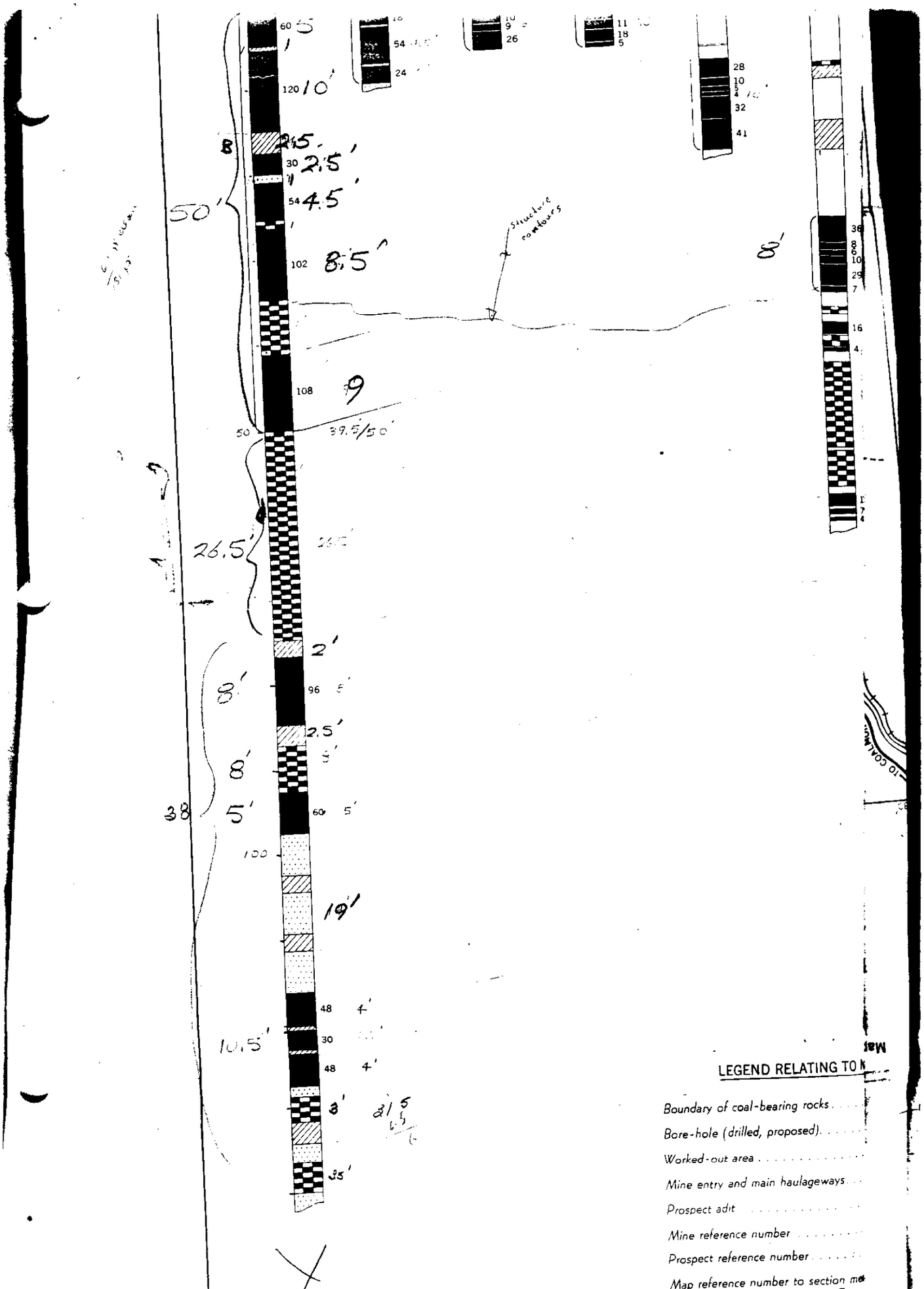
Thickness of clean coal is shown in inches at the right of sections

Vertical scale of sections: 1 inch to 120 inches

Map reference numbers:

M 14 *Section measured in mine*
P 3 *Section measured in prospect adit*
17 *Section measured in outcrop*
B.H. 6 *Section measured in bore-hole*

Geology by W. S. Shaw, 1951


Structure contours
LEGEND RELATING TO M
Boundary of coal-bearing rocks
Bore-hole (drilled, proposed)
Worked-out area
Mine entry and main haulageways
Prospect adit
Mine reference number
Prospect reference number
Map reference number to section me
outcrop (at point of arrows, Figur

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CANADA
DEPARTMENT
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GEOLOGICAL SURVEY OF CANADA

Figure 2

Princeton Coalfield, British Columbia

"Pleasant Valley - Jackson Coal zone"

INDEX TO MINES, PROSPECTS, AND BORE-HOLES

M 1. Princeton B.C. Colliery Co. Ltd. No. 2 mine
M 2. Princeton B.C. Colliery Co. Ltd. No. 1 mine
M 3. Princeton B.C. Colliery Co. Ltd. No. 3 mine
M 4. Princeton-Tulameen mine
M 5. Tulameen Collieries Ltd. Nos. 1, 2 and 3 mines
M 6. Pleasant Valley No. 4 mine
M 7. Pleasant Valley No. 2 mine
M 8. Granby Company strip-mine
M 9. Pleasant Valley No. 1 mine
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M 11. Jackson mine
M 12. Gem mine
M 13. Bromley Vale No. 1 mine
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M 15. Bromley Vale No. 2 mine
M 16. Ashington mine
M 17. United Empire mine
M 18. Red Triangle mine

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P 2. Taylor-Burson Coal Company prospect
P 3. Unnamed prospect
P 4. Golden Glow prospect
P 5. Unnamed prospect
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P 8. Deer Valley prospect
P 9. Summers Creek prospect

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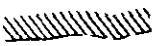
B.H. 8. V. F. M. D. Co. B.H. No. 4
B.H. 9 Blakemore B.H. No. 1
B.H. 10 Granby Company B.H. No. 4 (Reference: Granby Company files)
B.H. 11. Sharp's bore-hole
(For location of bore-holes, refer to Figure 1A)

NOTE. Except in the case of Bore-holes Nos. 5 and 10, the logs of these bore-holes are given in Geol. Surv., Canada, Mem. 243, Princeton Map-area, B.C., by H. M. A. Rice, pp. 117–123

LEGEND RELATING TO MAPS

Boundary of coal-bearing rocks . . . . . 

Bore-hole (drilled, proposed) . . . . . ●B.H. 4, oC

Worked-out area . . . . . 

Mine entry and main haulageways . . . . . 

Prospect adit . . . . . 

Mine reference number . . . . . M 4

Prospect reference number . . . . . P 2

Map reference number to section measured in outcrop (at point of arrows, Figure 2D) . . . . 

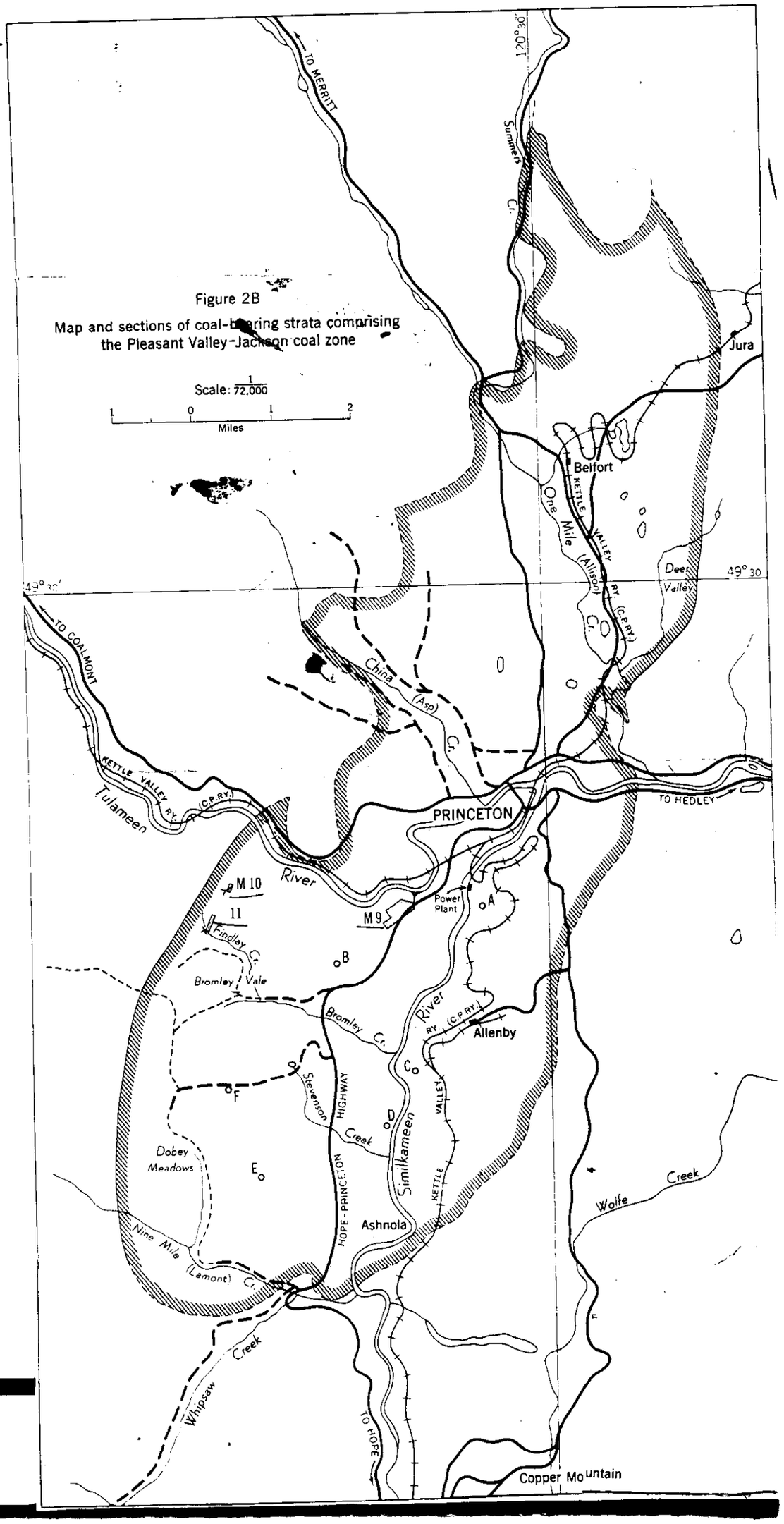


Figure 2B

Map and sections of coal-bearing strata comprising the Pleasant Valley-Jackson coal zone

Scale: 1/72,000

1 0 1 2

Miles

LEGEND RELATING TO SECTIONS

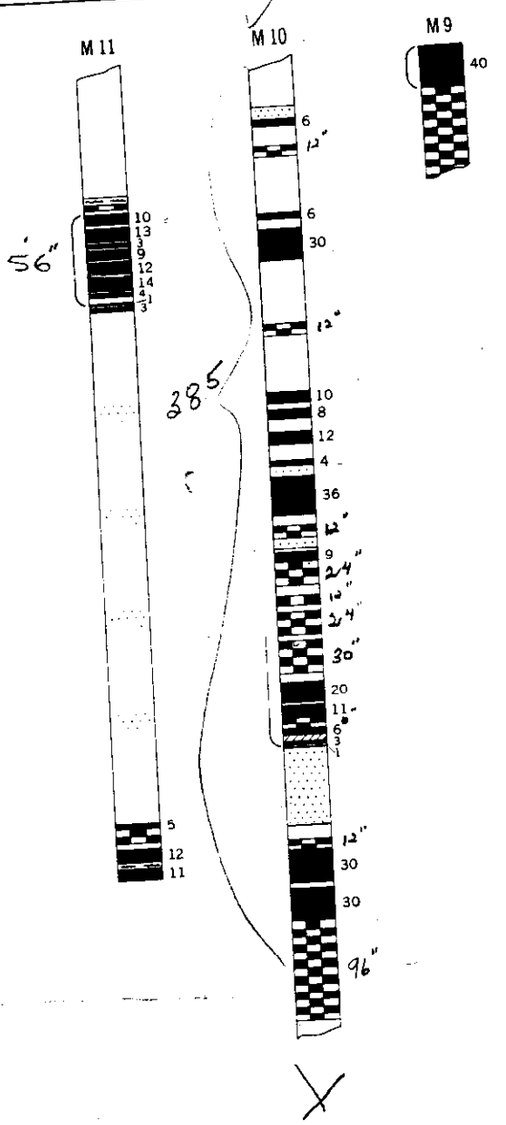
Thickness of clean coal is shown in inches at the right of sections

Vertical scale of sections: 1 inch to 120 inches

Map reference numbers:

M 14 *Section measured in mine*
P 3 *Section measured in prospect adit*
17 *Section measured in outcrop*
B.H. 6 *Section measured in bore-hole*

Geology by W. S. Shaw, 1951


M 11
M 10
M 9
40
6
12"
6
30
12"
10
8
12
4
36
12"
9
24"
12"
24"
30"
20
11"
6
3
1
12"
30
30
96"
10
13
3
9
12
14
4
1
3
5
12
11
56"
385
X

790

CANADA
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GEOLOGICAL SURVEY OF CANADA

Figure 2

Princeton Coalfield, British Columbia

"Gem-Bromley Vale coal zone"

INDEX TO MINES, PROSPECTS, AND BORE-HOLES

M 1. Princeton B.C. Colliery Co. Ltd. No. 2 mine
M Princeton B.C. Colliery Co. Ltd. No. 1 mine
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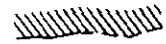
M 11. Jackson mine
M 12. Gem mine
M 13. Bromley Vale No. 1 mine
M 14. Blue Flame mine
M 15. Bromley Vale No. 2 mine
M 16. Ashington mine
M 17. United Empire mine
M 18. Red Triangle mine

Taylor-Burson Coal Company prospect
P 2. Taylor-Burson Coal Company prospect
P 3. Unnamed prospect
P 4. Golden Glow prospect
P 5. Unnamed prospect
P 6. China Creek prospect
P 7. Prospect or, possibly, entry into United Empire mine
P 8. Deer Valley prospect
P 9. Summers Creek prospect

B.H. 1 Vermilion Forks Mining and Development Company B.H. No.6
B.H. 2. V. F. M. D. Co. B.H. No. 1
B.H. 3. V. F. M. D. Co. B.H. No. 3
B.H. 4. V. F. M. D. Co. B.H. No. 2
B.H. 5. Granby Company Power Plant Bore-hole (Reference: Granby Company files)
B.H. 6. Blakemore B.H. No. 2
B.H. 7 V. F. M. D. Co. B.H. No. 5
B.H. 8. V. F. M. D. Co. B.H. No. 4
B.H. 9 Blakemore B.H. No. 1
B.H. 10 Granby Company B.H. No. 4 (Reference: Granby Company files)
B.H. 11. Sharp's bore-hole
(For location of bore-holes, refer to Figure 1A)

NOTE. Except in the case of Bore-holes Nos. 5 and 10, the logs of these bore-holes are given in Geol. Surv., Canada, Mem. 243, Princeton Map-area, B.C., by H. M. A. Rice, pp. 117–123

LEGEND RELATING TO MAPS

Boundary of coal-bearing rocks . . . . . 

Bore-hole (drilled, proposed) . . . . . ●B.H. 4, oC

Worked-out area . . . . . 

Mine entry and main haulageways . . . . . 

Prospect adit . . . . . 

Mine reference number . . . . . M 4

Prospect reference number . . . . . P 2

Map reference number to section measured in outcrop (at point of arrows, Figure 2D) . . . . 

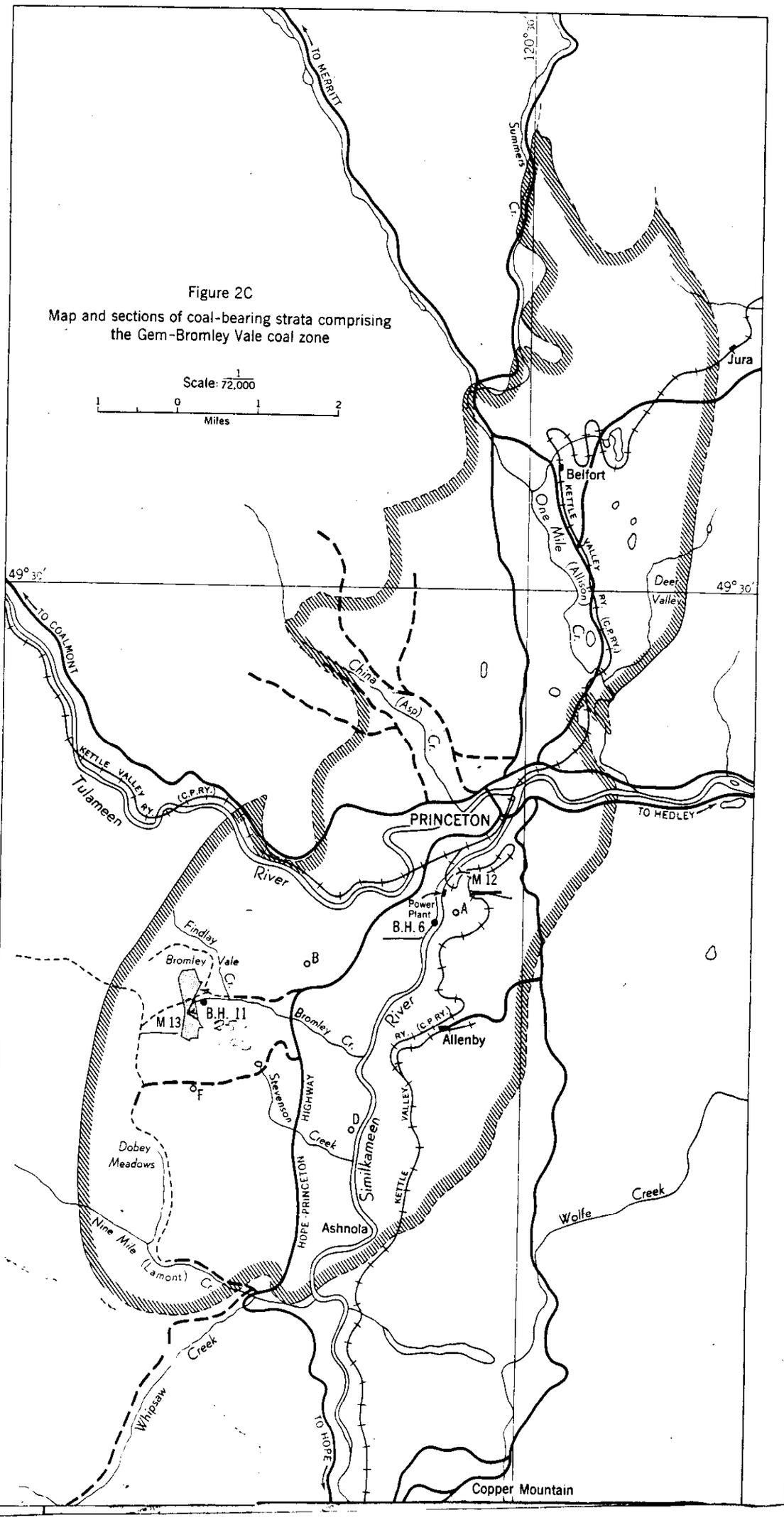


Figure 2C

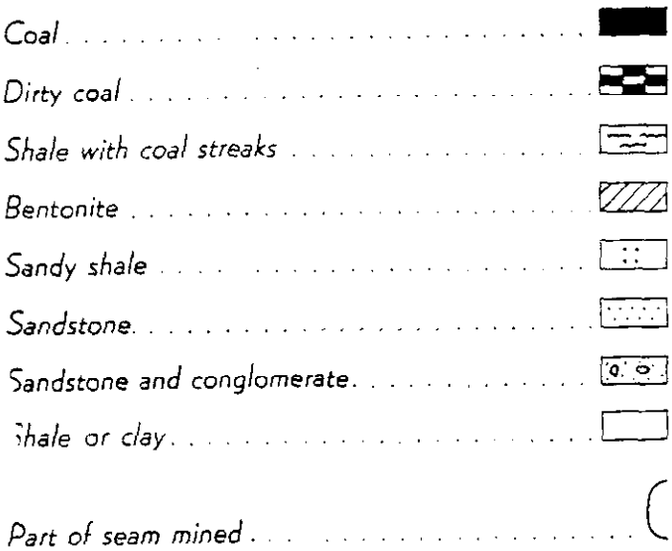
Map and sections of coal-bearing strata comprising the Gem-Bromley Vale coal zone

Scale: 1/72,000

1 0 1 2

Miles

LEGEND RELATING TO SECTIONS



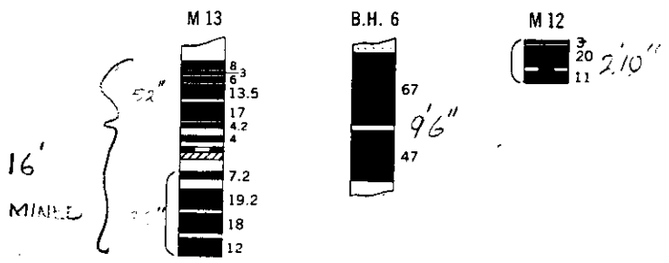
Thickness of clean coal is shown in inches at the right of sections

Vertical scale of sections: 1 inch to 120 inches

Map reference numbers:

M 14 *Section measured in mine*
P 3 *Section measured in prospect adit*
17 *Section measured in outcrop*
B.H. 6 *Section measured in bore-hole*

Geology by W. S. Shaw, 1951


M 13
B.H. 6
M 12
8
6
3
13.5
17
4.2
4
7.2
19.2
18
12
67
47
3
20
11
52"
96"
2'10"
16'
MIABLE

31'2"

790

CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

Figure 2

Princeton Coalfield, British Columbia

" Misc. Sections of coal bearing strata

INDEX TO MINES, PROSPECTS, AND BORE-HOLES

M 1. Princeton B.C. Colliery Co. Ltd. No. 2 mine
M 2. Princeton B.C. Colliery Co. Ltd. No. 1 mine
M 3. Princeton B.C. Colliery Co. Ltd. No. 3 mine
M 4. Princeton-Tulameen mine
M 5. Tulameen Collieries Ltd. Nos. 1, 2 and 3 mines
M 6. Pleasant Valley No. 4 mine
M 7. Pleasant Valley No. 2 mine
M 8. Granby Company strip-mine
M 9. Pleasant Valley No. 1 mine
M 10. Taylor-Burson mine
M 11. Jackson mine
M 12. Gem mine
M 13. Bromley Vale No. 1 mine
M 14. Blue Flame mine
M 15. Bromley Vale No. 2 mine
M 16. Ashington mine
M 17. United Empire mine
M 18. Red Triangle mine

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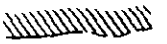
B.H. 3. V. F. M. D. Co. B.H. No. 3
B.H. 4. V. F. M. D. Co. B.H. No. 2
B.H. 5. Granby Company Power Plant Bore-hole (Reference: Granby Company files)
B.H. 6. Blakemore B.H. No. 2
B.H. 7 V. F. M. D. Co. B.H. No. 5
B.H. 8. V. F. M. D. Co. B.H. No. 4
B.H. 9 Blakemore B.H. No. 1
B.H. 10 Granby Company B.H. No. 4 (Reference: Granby Company files)
B.H. 11. Sharp's bore-hole
(For location of bore-holes, refer to Figure 1A)

NOTE. Except in the case of Bore-holes Nos. 5 and 10, the logs of these bore-holes are given in Geol. Surv., Canada, Mem. 243, Princeton Map-area, B.C., by H. M. A. Rice, pp. 117-123

LEGEND RELATING TO MAPS

Boundary of coal-bearing rocks . . . . . 

Bore-hole (drilled, proposed) . . . . . ●B.H. 4, oC

Worked-out area . . . . . 

Mine entry and main haulageways . . . . . 

Prospect adit . . . . . 

Mine reference number . . . . . M 4

Prospect reference number . . . . . P 2

Map reference number to section measured in outcrop (at point of arrows, Figure 2D) . . . ←7

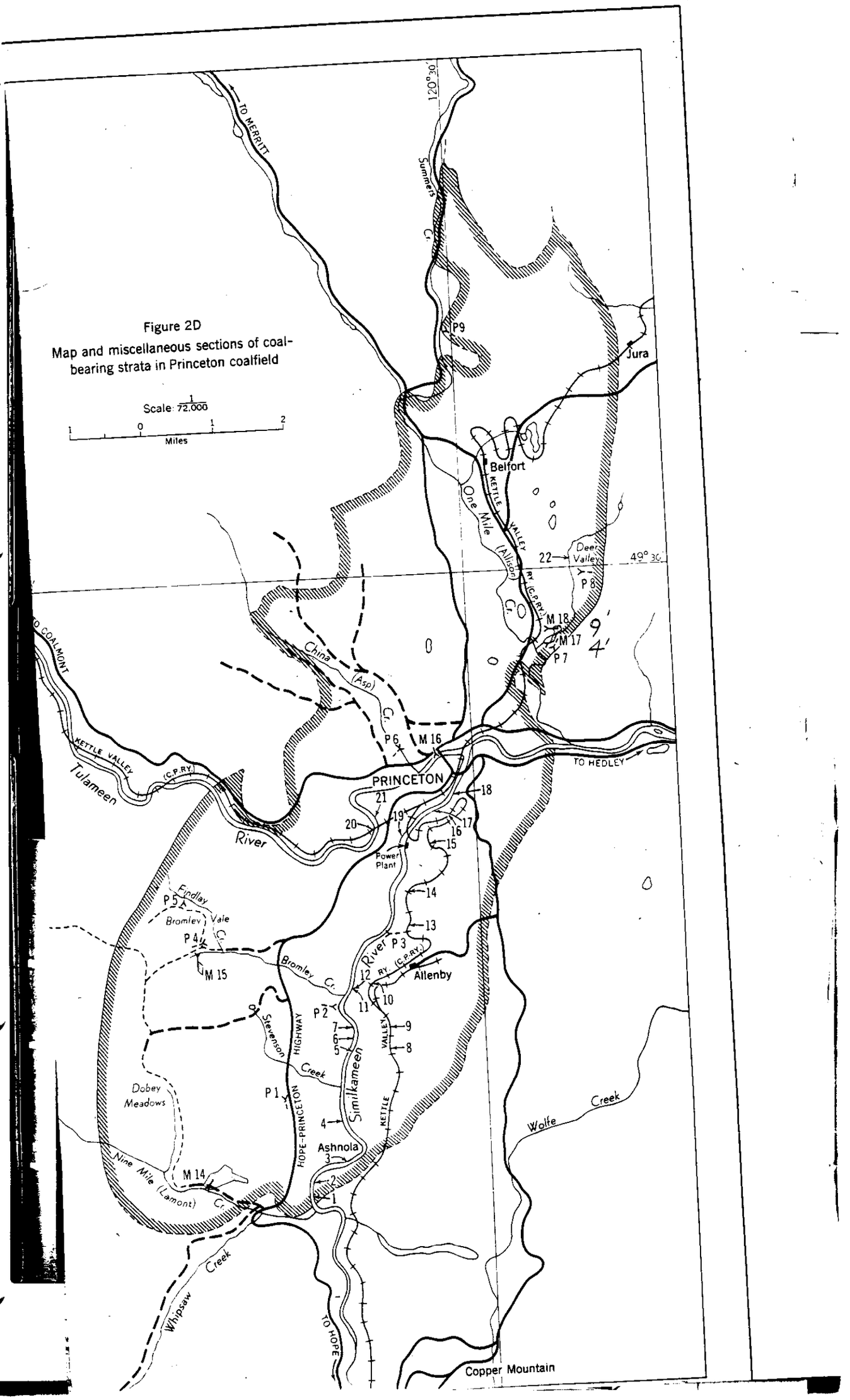


Figure 2D
Map and miscellaneous sections of coal-bearing strata in Princeton coalfield
Scale: 1/72,000
1 0 1 2
Miles
120° 30'
49° 30'
TO MERRITT
Summers Cr.
P9
Jura
Belfort
KETTLE VALLEY RY. (C.P.RY.)
One Mile (Allison) Cr.
22
Deer Valley
P8
M 18
M 17
P7
9'
4'
TO COALMONT
China (Asp) Cr.
P6
M 16
KETTLE VALLEY (C.P.RY.)
Tulameen River
PRINCETON
TO HEDLEY
21
20
19
18
17
16
15
Power Plant
14
13
Findlay Vale
P5
Bromley Cr.
P4
M 15
P3
Allenby
12
11
10
P2
7
6
5
9
8
Stevenson Creek
HIGHWAY
Similkameen River
VALLEY
KETTLE
Dobey Meadows
P1
HOPE-PRINCETON
4
Ashnola
3
2
1
Nine Mile (Lamont) Cr.
M 14
Wolfe Creek
Whipsaw Creek
TO HOPE
Copper Mountain

LEGEND RELATING TO SECTIONS

Coal . . . . . 

Dirty coal . . . . . 

Shale with coal streaks . . . . . 

Bentonite . . . . . 

Sandy shale . . . . . 

Sandstone . . . . . 

Sandstone and conglomerate . . . . . 

Shale or clay . . . . . 

Part of seam mined . . . . . 

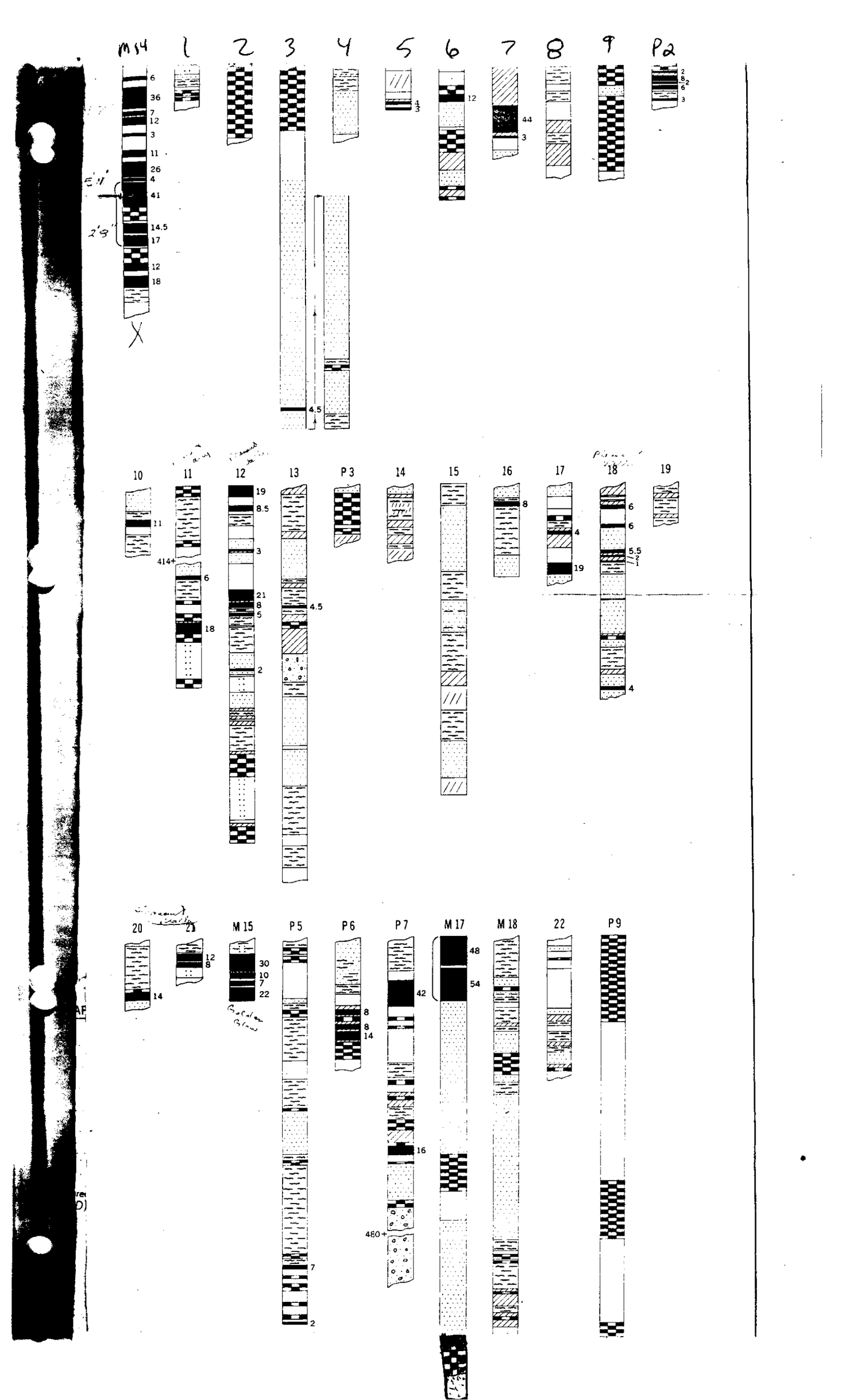
Thickness of clean coal is shown in inches at the right of sections

Vertical scale of sections: 1 inch to 120 inches

Map reference numbers:

M 14 *Section measured in mine*
P 3 *Section measured in prospect adit*
17 *Section measured in outcrop*
B.H. 6 *Section measured in bore-hole*

Geology by W. S. Shaw, 1951


M14
1
2
3
4
5
6
7
8
9
P2
6
36
7
12
3
11
26
4
41
14.5
17
12
18
E'11"
2'3"
4.5
12
44
3
4/3
2
8
1/2
6
3
10
11
12
13
P3
14
15
16
17
18
19
414+
19
8.5
3
21
8
5
2
4.5
8
4
19
6
6
5.5
2
1
4
20
21
M15
P5
P6
P7
M17
M18
22
P9
14
12
8
30
10
7
22
8
8
14
42
16
480+
7
2
48
54

FIRECLAY MINE PORTAL

790

Fireclay seam

Fireclay seam

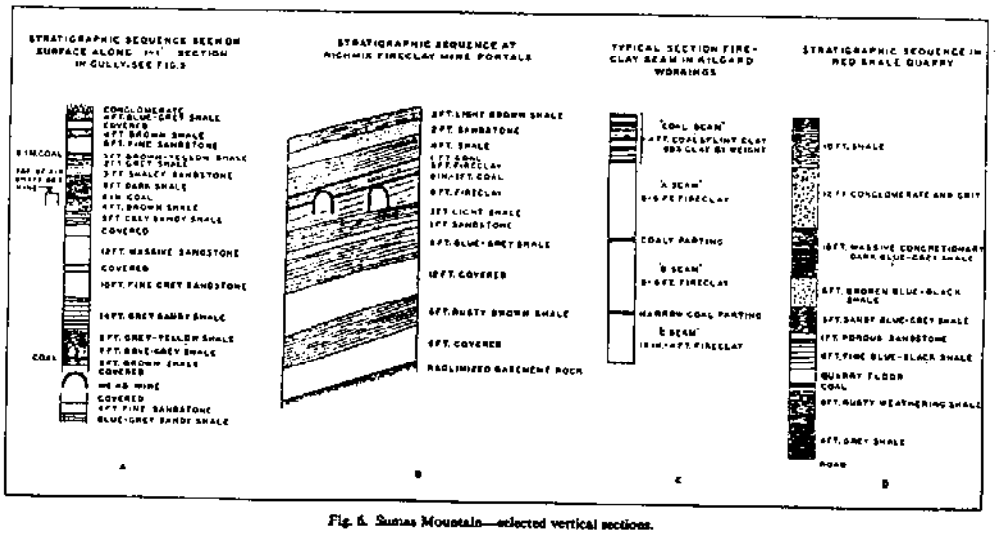
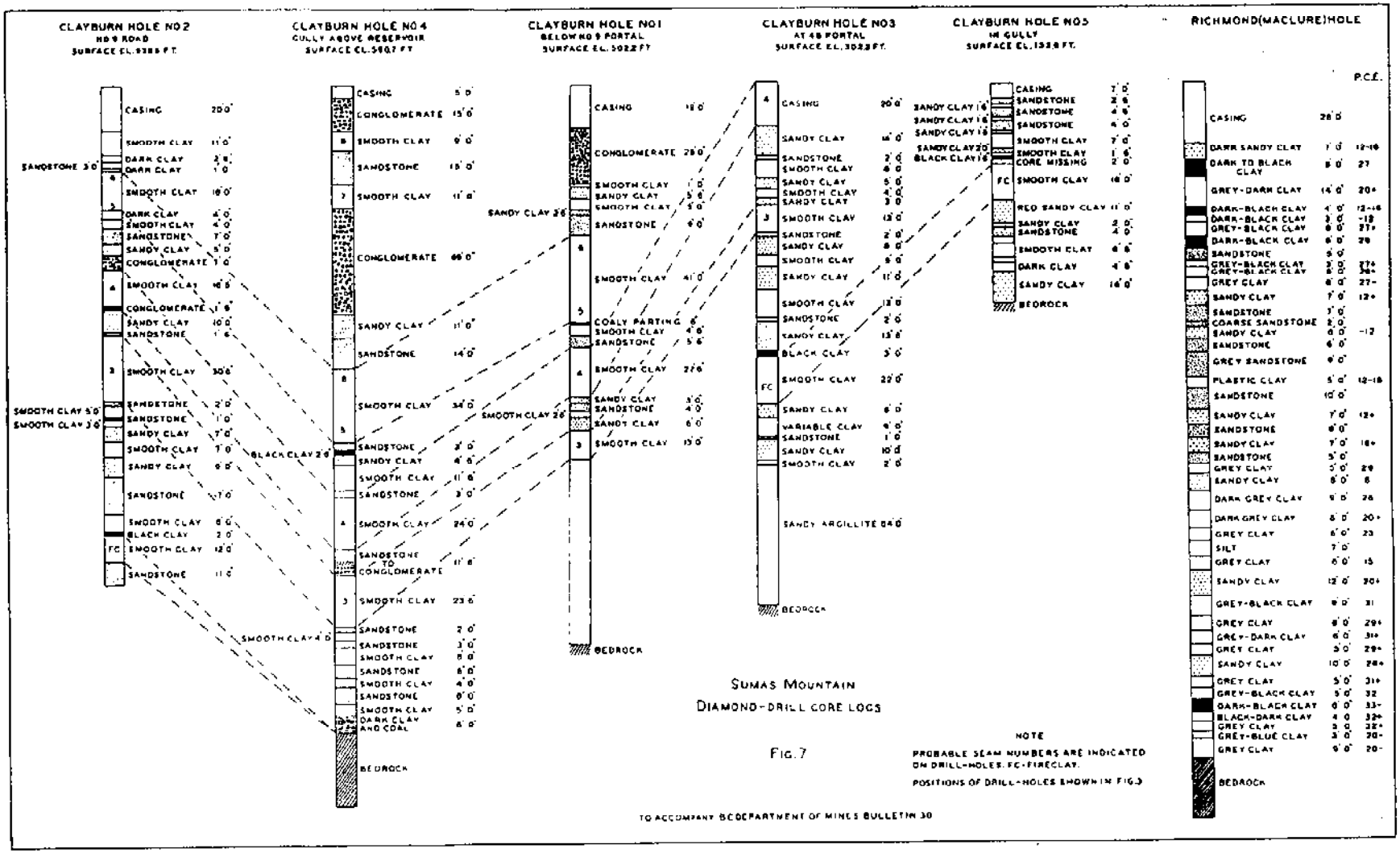


Fig. 6. Sumas Mountain—selected vertical sections.



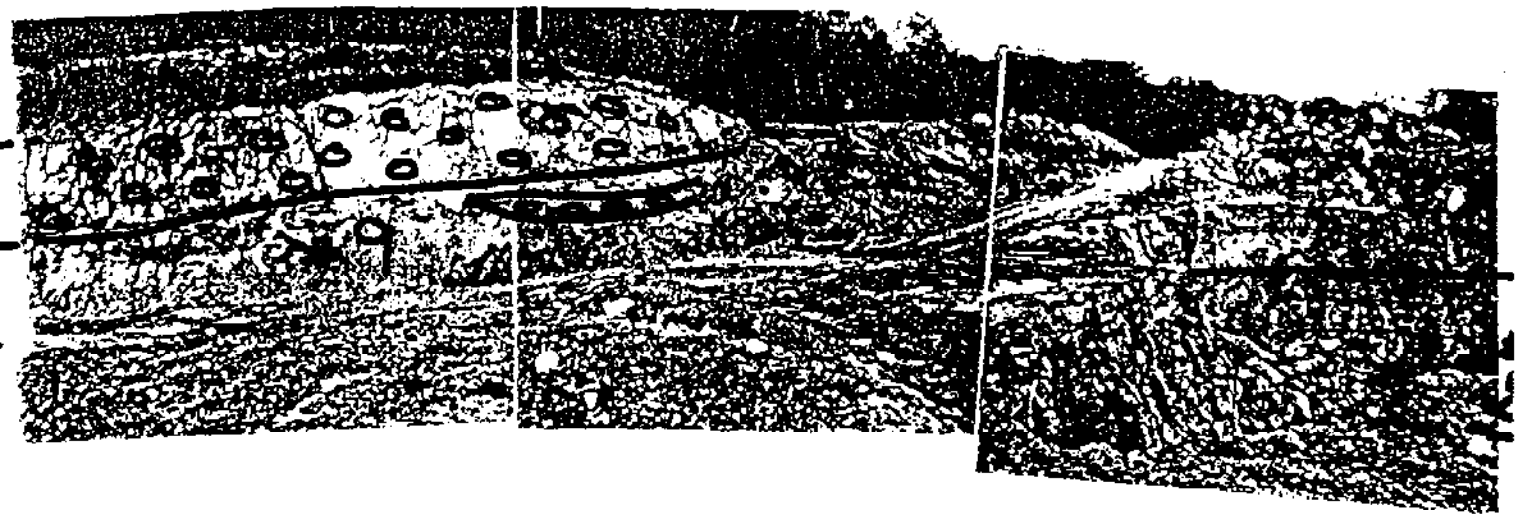
SUMAS MOUNTAIN
DIAMOND-DRILL CORE LOGS

FIG. 7

NOTE
PROBABLE SEAM NUMBERS ARE INDICATED ON DRILL-HOLES. FC-FIRECLAY.
POSITIONS OF DRILL-HOLES SHOWN IN FIG. 3

TO ACCOMPANY B.C. DEPARTMENT OF MINES BULLETIN 30

#9 PIT



Conglomerate #2

"Blue shale" #9
PCE ~ 20+

"Grey shale" #8
PCE ~ 10-13

"RED SHALE" PIT

Conglomerate #3

Conglomerate #2

Blue shale

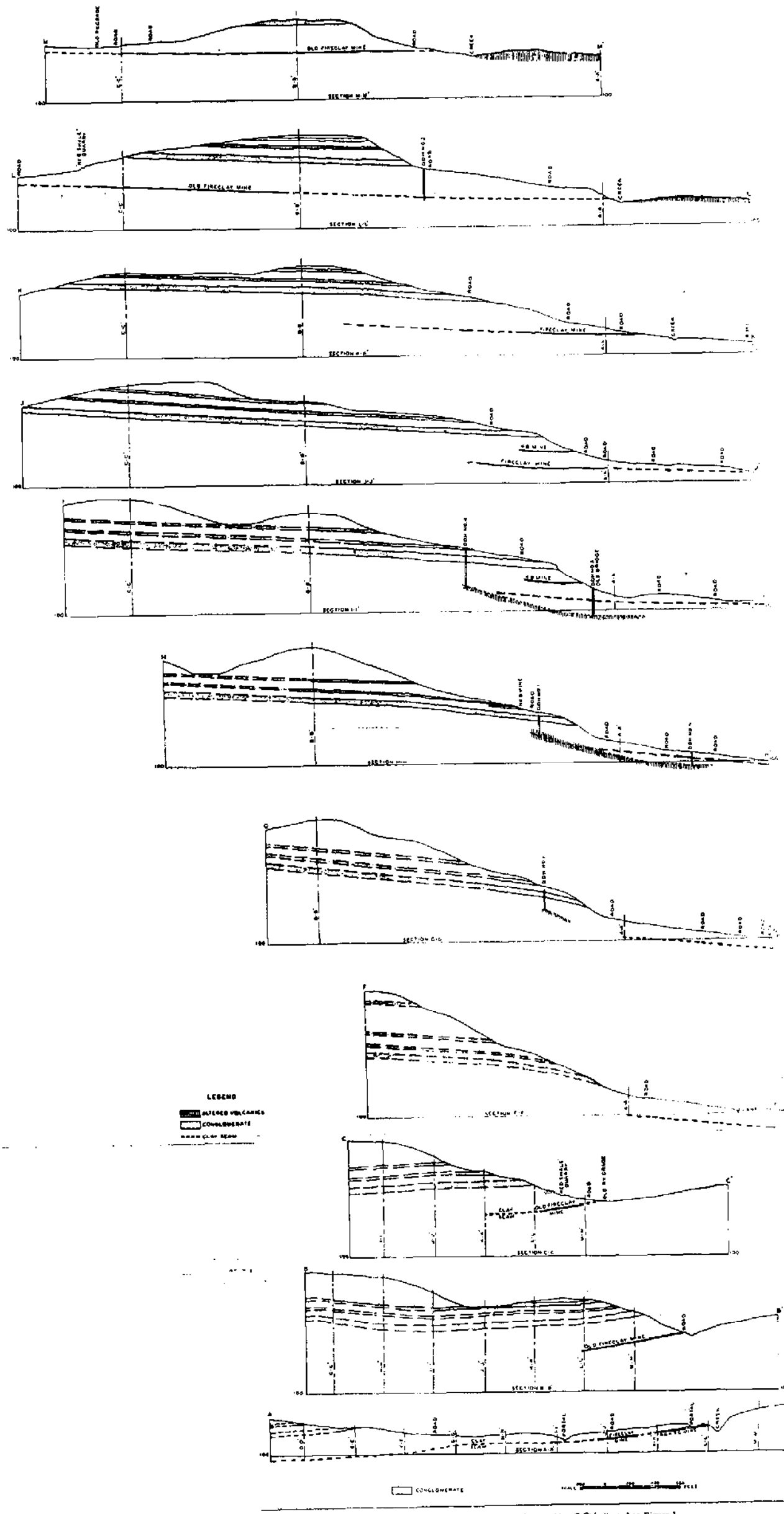


Fig. 4. Sumas Mountain—Sections A-A' to C-C' indicated on Figure 1.

KETTLE VALLEY RY. (C.P.R.)

Tulameen River

Bromley Vale

PRINCETON

TO HEDLEY

B.H. 1 T.D. 333

B.H. 2 T.D. 280

B.H. 3 T.D. 338

B.H. 4 T.D. 303

B.H. 5 T.D. 280

B.H. 6 T.D. 1010

B.H. 7 T.D. 155

B.H. 8 T.D. 257

B.H. 9 T.D. 398

B.H. 10 T.D. 610

B.H. 11 T.D. 863

M1 M2 M3 M4 M5 M6 M7 M8

HOPE-PRINCETON HIGHWAY

ALLENBY ANTICLINE

Similkameen River

KETTLE VALLEY RY. (C.P.RY.)

Allenby

Ashnola

LEGEND

Boundary of Tertiary sediments

Contour on pavement of Princeton-Black coal seam (defined, approximate, assumed, vertical interval 200 feet) 1600

Fault zone

Bore-hole ● B.H. 5

Proposed bore-hole oB

Outline of mine workings

Mine entry and main haulageways

Mine reference number M6

Scale of Miles

0 1

790

MINE No.*	NAME OF MINE	TYPE OF MINE	NAME OF COAL ZONE	TOTAL AMOUNT OF CLEAN COAL		DATE MINE ABANDONED	GENERAL REMARKS
				FEET	INCHES		
M 1	Princeton No. 2	Slope	Princeton-Black	8		1924	Coal excessively dirty on east side
M 2	Princeton No. 1	Slope	Princeton-Black	8		1924	Difficulty in mining at depth
M 3	Princeton No. 3	Shaft	Princeton-Black			1924	Excessive water forced abandonment
M 4	Princeton-Tulameen	Slope	Princeton-Black			1944	Coal is said to have improved with depth; closed because of extensive squeezing
M 5	Tulameen Nos. 1, 2, 3	Slope and water level	Princeton-Black	6		1945	Mine Nos. 1, 2, 3 all connected; soft roof caused great difficulty at depth
M 6	Pleasant Valley No. 4	Slope	Princeton-Black	5	6	1951	
M 7	Pleasant Valley No. 2	Slope	Princeton-Black	6		1937	Coal dirty toward west where only 3 to 5 feet was mineable
M 8	Granby Strip mine	Strip pit	Princeton-Black	39	6	19[illegible]	Operated by Inland Collieries Ltd; coal beds dip at 52° former site of Black mine
M 9	Pleasant Valley No. 1	Level entry and slope	Pleasant Valley-Jackson	4		19[illegible]	
M 10	Taylor-Burson	Slope	Pleasant Valley-Jackson	3	6	1949	
M 11	Jackson	Level entry	Pleasant Valley-Jackson	4	3	1951	
M 12	Gem	Water level	Gem-Bromley Vale	2	10	1929	Small production
M 13	Bromley Vale No. 1	Level entry and slope	Gem-Bromley Vale	4	2	1943	Excessive squeezing in lower levels
M 14	Blue Flame	Slope	?	8	6	1957	Reclamation of pillars started in 1951
M 15	Bromley Vale No. 2	Water level	Princeton-Glow	5	9	1941	
M 16	Assington mine	Water level				1930	Seam said to be 6 feet in thickness but dirty; total production was very small
M 17	United Empire	[illegible]		3[illegible]		1914	Quality of coal not known, two seams developed
M 18	Red Triangle	Level [illegible]		8[illegible]		1935	Mined uppermost seam found in the workings of M 17; small production

*Refers to Figure 2

Figure 10

Table of data on mines in the Princeton coalfield

790 (M2)