INFORMATION TO USERS

This dissertation was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

University Microfilms

300 North Zeeb Road
Ann Arbor, Michigan 48106

A Xerox Education Company

Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/3355

72-29,895

LAKE, David Wayne, 1944-
A STUDY OF LANDSCAPE EVOLUTION IN THE CROWS-NEST PASS REGION, 1898-1971.

The University of Oklahoma, Ph.D., 1972
Geography

University Microfilms, A XEROX Company, Ann Arbor, Michigan

© 1972

DAVID WAYNE LAKE

ALL RIGHTS RESERVED

THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

A STUDY OF LANDSCAPE EVOLUTION IN THE CROWSNEST PASS REGION, 1898-1971

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

BY

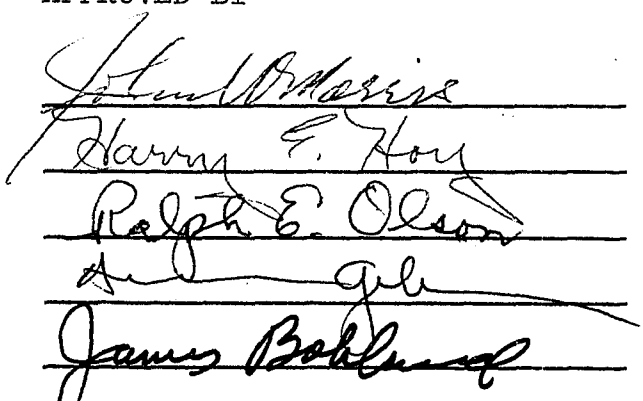
DAVID W. LAKE

Norman, Oklahoma

1972

A STUDY OF LANDSCAPE EVOLUTION IN THE CROWSNEST PASS REGION, 1898-1971

APPROVED BY



DISSERTATION COMMITTEE

PLEASE NOTE:

Some pages may have

indistinct print.

Filmed as received.

University Microfilms, A Xerox Education Company

ACKNOWLEDGEMENTS

I wish to thank the many present and past residents of the study area who supplied the information on which this dissertation is largely based, and who rendered assistance in other ways. The cooperative spirit demonstrated by government officials and officials of coal, lumber, and lime companies in the Region is much appreciated. The consent to reproduce aerial and surface photographs from the Alberta and British Columbia governments, private individuals, Terry Bland Photography, and private companies is gratefully acknowledged.

Dr. John W. Morris supervised my work, and I thank him for his encouragement and constructive criticism of the dissertation at its various stages. The benefit of suggestions and constructive criticism from students and staff of the Department of Geography, University of Oklahoma is acknowledged. I wish to express my gratitude to Mrs. F. Olney for typing the manuscript.

TABLE OF CONTENTS

Page

LIST OF TABLES vi

LIST OF ILLUSTRATIONS. vii

Chapter

I. THE STUDY AREA, THE PROBLEM AND ITS MEANS OF SOLUTION. 1

The Study Area as a Region. 3
The Problem and Its Justification 8
Methodology and Sources 16
Chapter Organization. 23

II. THE CROWSNEST PASS REGION PRIOR TO 1898 25

Indian Tribes Adjacent to the Southern Canadian Rocky Mountains. 25
Early Exploration 28
Construction of a Railroad. 33
Summary 35

III. THE COLONIZING PERIOD OF RAPID EXPANSION (1898-1911) 37

Relationships between Resource Extraction, Railroads, and the Settlement Pattern 38
The Establishment and Maintenance of Fernie's Dominant Position Among Settlements on the British Columbia Side of the Pass 43
The Crow's Nest Pass Coal Company's Role in the Colonization of the Pass. 52
The Non-dominance of Any One Settlement on the Alberta Side of the Pass. 55
Summary 65

Chapter Page

IV. THE PERIOD OF MODERATE EXPANSION (1911-1951). . . 81

Changing Markets for Coal and Its Products. . . 82
Consolidation of Extractive Industries. 88
Mechanization of the Lumber Industry. 91
Mechanization of the Coal Industry. 94
The Impact of Consolidation and Mechanization upon the Settlement Pattern 100
Sensitization to Aesthetically Pleasing Settlements 108
Summary 112

V. THE PERIOD OF CONTRACTION (1952-1967) 114

Declining Coal Markets. 115
Economic Diversification. 123
Summary 130

VI. THE PERIOD OF RENEWED EXPANSION (1968-1971) . . . 133

The Coal Industry: Expansion, Mechanization, and Sensitization to Aesthetics 133
The Lumber Industry: Consolidation and Mechanization 148
Settlements: Centralization of Service Industry and Sensitization to Aesthetics. . . . 149
Summary 163

VII. CONCLUSION. 164

BIBLIOGRAPHY 171

LIST OF TABLES

Table		Page
1.	Population of the Settlements in the Crowsnest Pass Region.	62
2.	Coke Ovens in the Crowsnest Pass Region.	86
3.	Pre-1952 Closures of the Operations of Companies Engaged in Coal, Clay, or Limestone Extraction	89
4.	Strip Mining in the Crowsnest Pass Region Prior to 1952.	98
5.	Comparison of the New Elko and Natal Mills of Crows Nest Industries	151

LIST OF ILLUSTRATIONS

Figure		Page
1.	Map: Location of the Crowsnest Pass Region. . .	1
2.	Map: The Crowsnest Pass Region, 1971.	4
3.	Photograph: Elko and the Western End of the Core, 1952	5
4.	Photograph: Burmis and the Eastern End of the Core, 1965	6
5.	Map: Geology.	9
6.	Map: Exploration and Land Division in and near the Crowsnest Pass Region prior to 1898 .	27
7.	Map: Role of Internal Migration in the Spread of Settlements during the Colonizing Period of Rapid Expansion	39
8.	Map: Juxtaposition of Most Raw Material Sources with Associated Processing Facilities of the Coal and Lumber Industries during the Colonizing Period of Rapid Expansion	40
9.	Photograph: Juxtaposition of Coal Creek Colliery and Settlement, about 1920.	42
10.	Photograph: Limestone Quarry, Processing Plant, and Housing at Hazell, about 1952 . . .	42
11.	Photograph: Remains of the Mine-Settlement Complex of Morrissey, 1952	46
12.	Photograph: Original Settlement of Fernie, 1898	48
13.	Photograph: Juxtaposition of Coke Ovens and the Settlement of Fernie, 1901	48

Figure Page

14. Photograph: Elk River Lumber Company's Mill at West Fernie, about 1907. 50

15,16. Photographs: McClaren Lumber Company's Flume and Dam along Allison Creek and Mill at Blairmore, about 1920 50

17. Photograph: Mine-Settlement Complex of Michel-Natal-Sparwood, 1952 54

18. Map: Frank and the Turtle Mountain Slide, 1911 . 58

19. Photograph: Mine-Settlement Complex of Frank, about 1907. 59

20. Photograph: Mine-Settlement Complex of Lille, about 1907. 59

21. Map: Consolidation of Settlements after the Colonizing Period of Rapid Expansion. 61

22. Photograph: Juxtaposition of International Mine Buildings, Coke Ovens, and the Central Business District of Coleman, about 1910. . . . 63

23. Photograph: Mine-Settlement Complex of Blairmore, about 1914 63

24. Graph: Population, Coal Employment, and Coal Production in the Crowsnest Pass Region 67

25. Graph: Population, Coal Production, and Coke Production at the Mine-Settlement Complex of Greater Fernie-Coal Creek. 68

26. Graph: Population, Coal Production, and Coke Production at the Mine-Settlement Complex of Michel-Natal-Sparwood. 69

27. Graph: Population, Coal Production, and Coke Production at the Mine-Settlement Complex of Morrissey. 70

28. Graph: Population, Coal Production, and Coke Production at the Mine-Settlement Complex of Hosmer 71

Figure Page

29. Graph: Population and Coal Production at the Mine-Settlement Complex of Corbin. 72

30. Graph: Population and Coal Production at the Mine-Settlement Complex of Frank 73

31. Graph: Population, Coal Production, and Coke Production at the Mine-Settlement Complex of Lille 74

32. Graph: Population, Coal Production, and Coke Production at the Mine-Settlement Complex of Greater Coleman-Tent Mountain-Vicary Creek-Racehorse Creek. 75

33. Graph: Population and Coal Production at the Mine-Settlement Complex of Blairmore-Grassy Mountain 76

34. Graph: Population and Coal Production at the Mine-Settlement Complex of Bellevue-Adanac . . 77

35. Graph: Population and Coal Production at the Mine-Settlement Complex of Hillcrest Mines . . 78

36. Graph: Population and Coal Production at the Mine-Settlement Complex of Passburg. 79

37. Graph: Population and Coal Production at the Mine-Settlement Complex of Burmis. 80

38. Map: Juxtaposition of Industries and Settled Area at Blairmore, 1951. 84

39. Photograph: Mine-Settlement Complex of Blairmore, 1950's. 85

40. Photograph: International Mine Buildings at Coleman, 1950's 85

41. Map: Areal Dispersion of the Chief Raw Material Sources for the Coal and Lumber Industries after the Colonizing Period of Rapid Expansion 92

42. Photograph: First Preparation Plant at Coal Creek, 1898. 96

Figure Page

43. Photograph: Shell of the Third Preparation Plant at Coal Creek, 1970. 96

44. Photograph: A Strip Pit at Adanac, 1970 101

45. Photograph: Crowsnest, 1971 102

46. Photograph: The Core in the Vicinity of the Frank Slide, 1965. 105

47. Photograph: Former Site of Corbin, 1970 107

48. Photograph: Mine-Settlement Complex of Corbin, about 1930 107

49. Photograph: Thermal Power Plant at Sentinel beside Crowsnest Lake, about 1952. 109

50. Photograph: Part of the Settlement of Michel, about 1907 109

51. Map: The Preponderance of Consolidation over a Numerical Expansion of Basic Industrial Processing Plants During the Periods of Contraction and Renewed Expansion. 117

52. Photograph: Mine Buildings of West Canadian Collieries at Bellevue, about 1950 120

53. Photograph: Former Site of Mine Buildings of West Canadian Collieries at Bellevue, 1970 . . 120

54. Photograph: Settling Ponds along McGillivray Creek at Coleman, 1970 122

55. Photograph: Sentinel Industrial Complex, 1971 . 122

56. Photograph: Coleman and the Sentinel Industrial Complex, 1965 124

57. Map: Principal Tourist Facilities, 1971 129

58. Photograph: Sanatorium at Frank, prior to 1930. 131

59. Photograph: Coleman and the New Preparation Plant of Coleman Collieries, 1971. 131

60. Map: Coal Operation of Kaiser Resources Limited, 1971. 135

Figure Page

61. Photograph: Harmer I Strip Pit of Kaiser Resources, 1970. 136

62. Photograph: Offices and Preparation Plant of Kaiser Resources, 1970. 136

63. Map: Coal Operation of Fording Coal Limited, 1971. 138

64. Photograph: Construction Site of Fording Coal Preparation Plant, 1971 139

65. Photograph: Coal Prospecting in Line Creek Basin, 1969. 139

66. Map: Land Leased and Owned by Coal Companies, 1970 140

67. Photograph: Reseeded Slack Pile at Natal, 1971 147

68. Photograph: Deposit of Overburden from the Harmer I Strip Pit in the Elk Valley, 1971 . . 147

69. Photograph: Lumber Mill of Crows Nest Industries at Natal, early 1960's. 150

70. Photograph: Newly-completed Lumber Mill of Crows Nest Industries at Elko, 1969. 150

71. Photograph: Elk Valley at Sparwood, 1970. . . . 153

72. Photograph: Vacant Buildings along Coleman's Main Street, 1971. 153

73. Map: Centralization of Service Industries between 1960 and 1970. 155

74. Photograph: Results of Renovation in Fernie's Central Business District. 158

75. Photograph: Fernie, 1969. 158

76. Photograph: Sixty-five Years of Vegetation Growth on top of Derelict Coke Ovens at Morrissey, 1970. 159

77. Photograph: Progress Made in the Demolition of Michel, as of 1970. 159

Figure Page

78. Photograph: Shopping Center at Sparwood, 1971. . 161

79. Photograph: New Residential Area at Sparwood, 1971. 161

80. Diagram: Spatial-temporal Model of Major Cause-effect Relationships Involving Processes and Landscape Patterns in the Crowsnest Pass Region 165

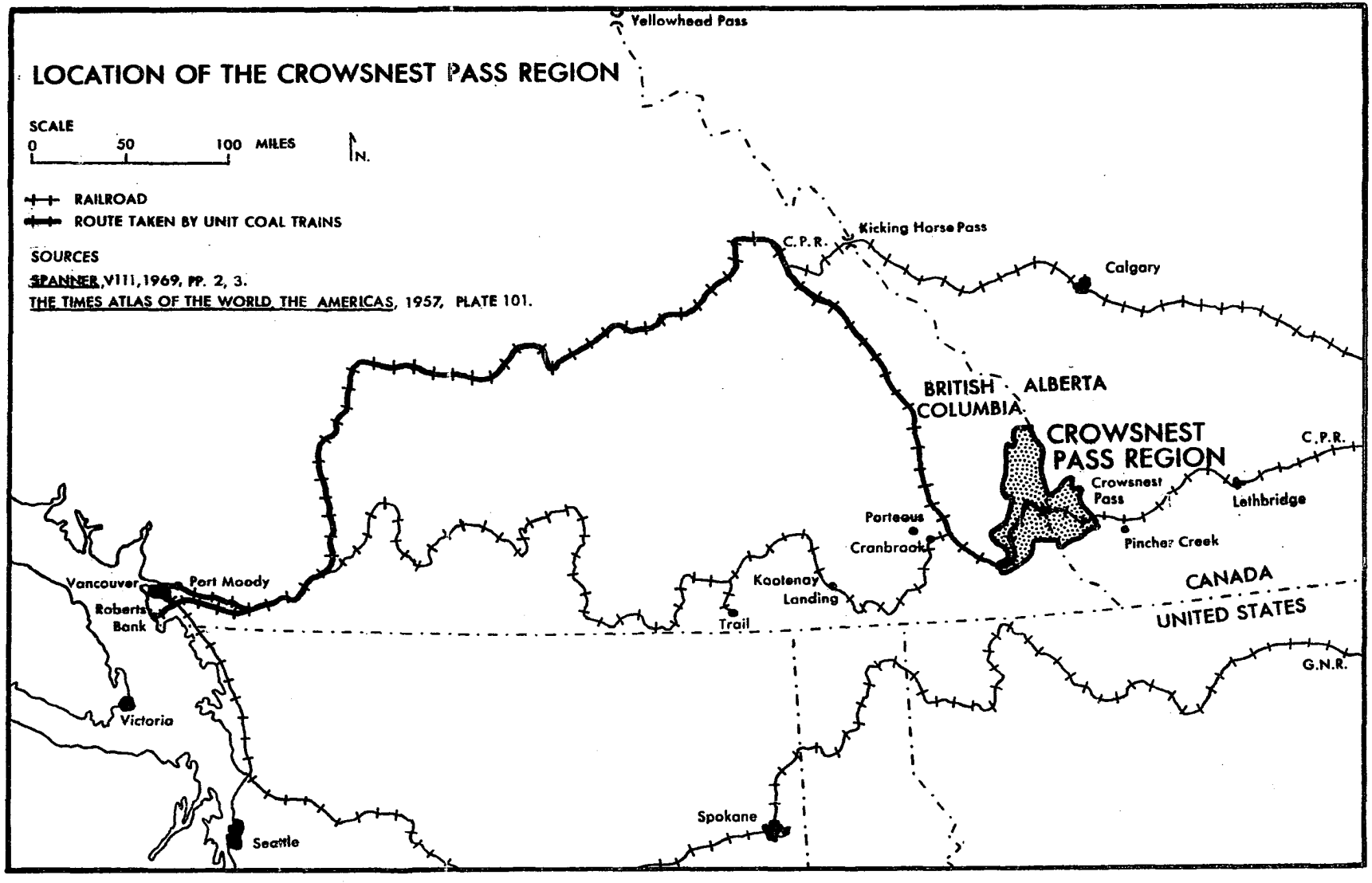

LOCATION OF THE CROWSNEST PASS REGION
SCALE
0 50 100 MILES
N.
RAILROAD
ROUTE TAKEN BY UNIT COAL TRAINS
SOURCES
SPANNER, VIII, 1969, PP. 2, 3.
THE TIMES ATLAS OF THE WORLD, THE AMERICAS, 1957, PLATE 101.
Yellowhead Pass
Kicking Horse Pass
C.P.R.
Calgary
BRITISH COLUMBIA
ALBERTA
CROWSNEST PASS REGION
C.P.R.
Crowsnest Pass
Lethbridge
Pincher Creek
Fernie
Cranbrook
Kootenay Landing
Trail
Vancouver
Port Moody
Roberts Bank
Victoria
Seattle
Spokane
CANADA
UNITED STATES
G.N.R.

FIGURE 1

A STUDY OF LANDSCAPE EVOLUTION IN THE CROWSNEST PASS REGION, 1898-1971

CHAPTER I

THE STUDY AREA, THE PROBLEM AND ITS MEANS OF SOLUTION

The Crowsnest Pass[1] is an opening in the Rocky Mountains, situated forty-four miles north of the Montana border and 4,450 feet above mean sea level. Through popular usage, the term has been extended to include a wide area on either side of the Pass in the provinces of British Columbia and Alberta. This area, designated here as the Crowsnest Pass Region, is also called the Pass and the Region (Fig. 1).

---

[1]There is no unanimity concerning the spelling of the name of the study area. The Canadian Board on Geographical Names has adopted the form, "Crowsnest," and this is reflected in the naming of the settlement of Crowsnest, Crowsnest River, Crowsnest Lake, Crowsnest Ridge, and Crowsnest Trough. Most contemporary, professional writers employ this form. On the other hand, there is the Crow's Nest Pass Coal Company, Crow's Nest Pass Railway, and Crows Nest Industries. The grammatically correct form, "Crows' Nest Pass," has never been used. Cousins discusses the issue exhaustively, including the origin of the name and the various spellings of it as used by early explorers. He prefers "Crow's Nest Pass" because this is the form employed by the majority of Pass residents (W. J. Cousins, "A History of the Crow's Nest Pass," [Edmonton: unpublished M.A. thesis, Department of History, University of Alberta, 1952], pp. 21-25.

Human activity in this 1,400-square mile Region has been concentrated in a linear core, seventy-five miles long, located in the valleys of the Crowsnest and Elk rivers and Michel Creek (Fig. 2). Through these valleys pass the southern transprovincial highway and railroad beside one another. Since 1970, the core has been extended twenty miles north from Sparwood, so that it is now 'T'-shaped. At Elko, the Elk Valley broadens abruptly into the Kootenay Valley to the west; this point approximates the western end of the core. The eastern end occurs less than one mile east of Burmis, where the eastern margins of the Crowsnest Forest reserve and the Crowsnest Trough approximately coincide with the strike of the Livingstone Range (Figs. 3 and 4).

The Study Area as a Region

First, the area can be viewed as a functional region. For varying distances on either side of the linear core is found the hinterland of the valley-situated settlements and processing industries--coal for the preparation plants,[2] trees for the lumber processing mills and retail stores, and abundant space to serve the recreation needs of Pass residents.[3]

---

[2]The only present-day preparation plant outside the core is that of Fording Coal Limited, located twenty miles northeast of Elkford (Fig. 2).

[3]This is not meant to imply that no timber from the study area's hinterland is shipped outside the Pass for processing, or that nonresidents of the Pass do not recreate here. This external circulation, however, is less important than the internal circulation of people and raw materials ("Pass Tourism Termed Dead Duck," Lethbridge Herald,

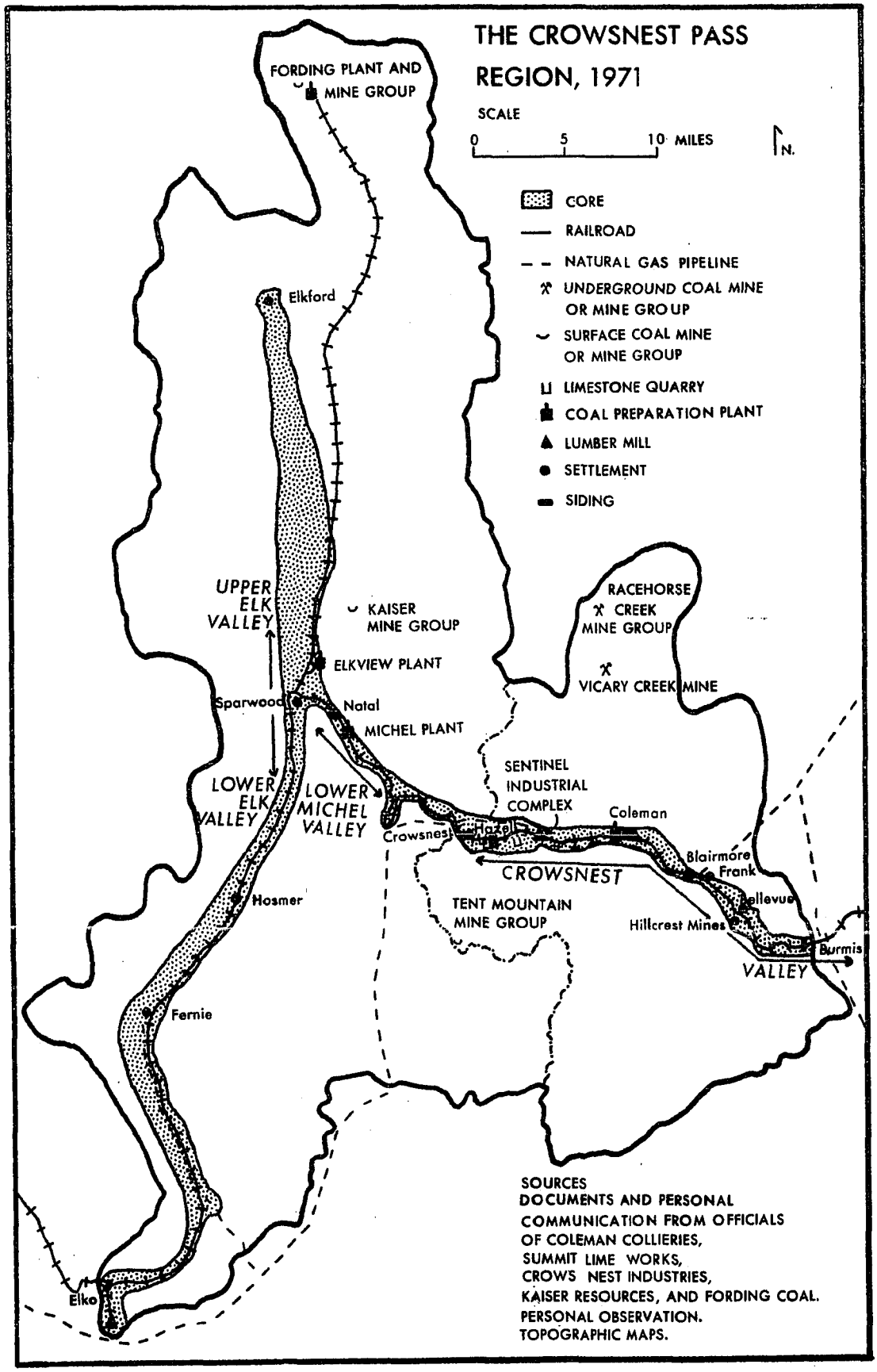

THE CROWSNEST PASS
REGION, 1971
SCALE
0 5 10 MILES
N.
CORE
RAILROAD
NATURAL GAS PIPELINE
UNDERGROUND COAL MINE OR MINE GROUP
SURFACE COAL MINE OR MINE GROUP
LIMESTONE QUARRY
COAL PREPARATION PLANT
LUMBER MILL
SETTLEMENT
SIDING
FORDING PLANT AND MINE GROUP
Elkford
UPPER ELK VALLEY
KAISER MINE GROUP
ELKVIEW PLANT
Sparwood
Natal
MICHEL PLANT
LOWER ELK VALLEY
LOWER MICHEL VALLEY
RACEHORSE CREEK MINE GROUP
VICARY CREEK MINE
SENTINEL INDUSTRIAL COMPLEX
Coleman
Crowsnest
Hotel
CROWSNEST
Blairmore
Frank
Bellevue
Hillcrest Mines
Burmis
VALLEY
TENT MOUNTAIN MINE GROUP
Hosmer
Fernie
Elko
SOURCES
DOCUMENTS AND PERSONAL COMMUNICATION FROM OFFICIALS OF COLEMAN COLLIERIES, SUMMIT LIME WORKS, CROWS NEST INDUSTRIES, KAISER RESOURCES, AND FORDING COAL.
PERSONAL OBSERVATION.
TOPOGRAPHIC MAPS.

FIGURE 2



FIGURE 3

ELKO AND THE WESTERN END OF THE CORE, 1952

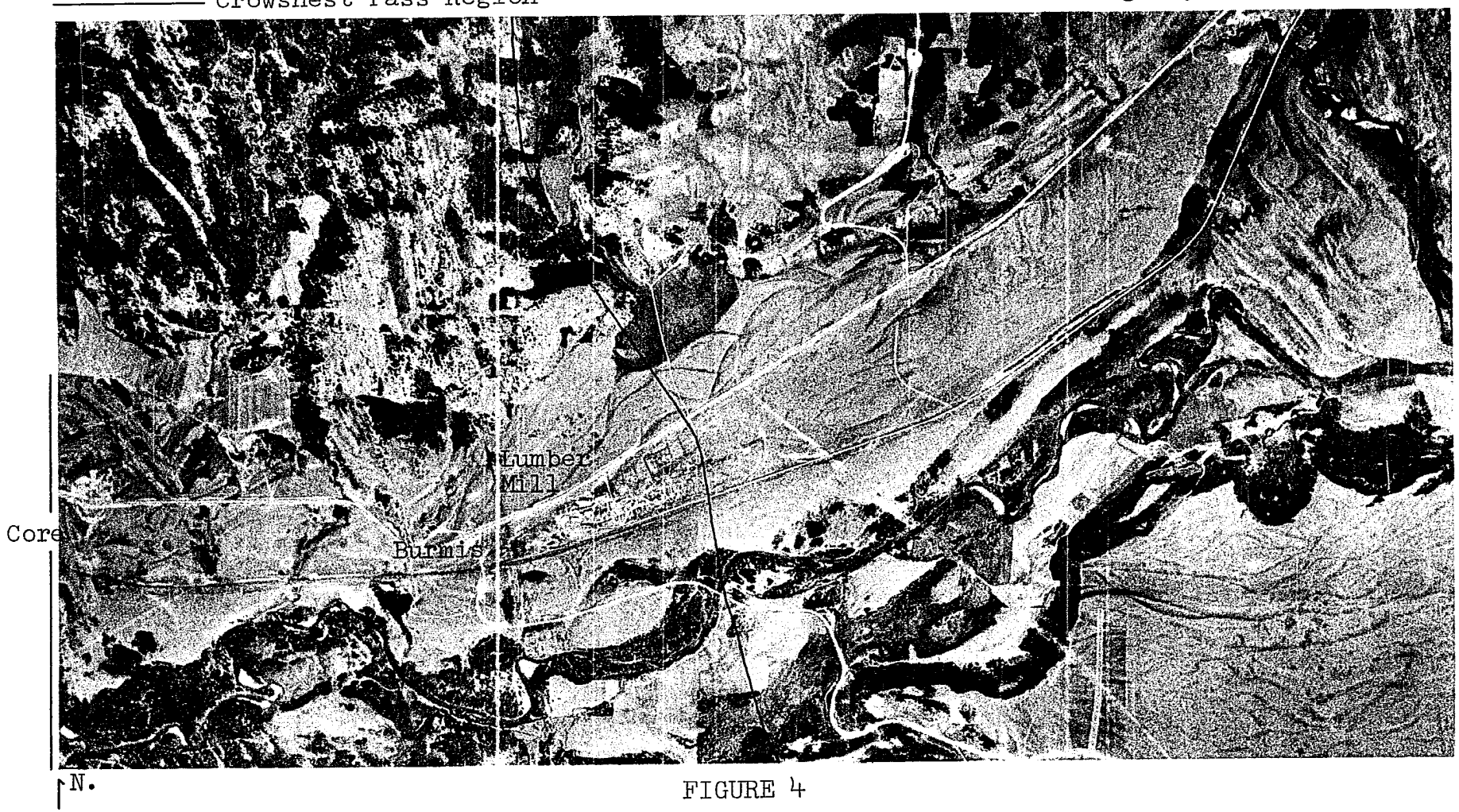


FIGURE 4

BURMIS AND THE EASTERN END OF THE CORE, 1965

During the twentieth century, the Region has expanded to its current areal extent because of technological improvements in the transportation of men and materials, coupled with a progressive exhaustion of timber and coal near the settlements and/or expanding markets for these same products. Possible coal exploitation in the upper Elk Valley north of Elkford suggests a future northward movement of the present Regional boundary. The boundaries of the Pass, then, are the farthest limits of the current hinterland, except for the core-based lumber and petroleum companies which have obtained their raw materials as far away as fifty miles from the Region since the 1950's.

The study area can also be considered as a formal region. Its raison d'être has been coal mining, and the coal industry continues to be the predominant economic activity, having accounted for 75 percent of employment in basic industry[4] in the Pass during 1969. Deposits of bituminous coal are

---

February 4, 1965). Most timber licenses in the Region are held by companies which process the harvested timber within the Pass (maps provided by W. R. Wilson of Crows Nest Industries and J. R. Hamilton of the Alberta Forest Service).

[4]Basic employees are those persons working for companies which make their sales outside the Pass or whose source of income is from outside the Pass. Non-basic employment is employment generated by the purchasing power of basic employees within the Region (Oldman River Regional Planning Commission, Alberta Crowsnest Pass Subregional Plan: 2--Population and Economy [Lethbridge: Oldman River Regional Planning Commission, 1969], pp. 109, 110; personal communication with officials of Crows Nest Industries, Kaiser Resources, and Coleman Collieries, Fernie, Sparwood, and Coleman, 1970 and 1971).

distributed ubiquitously through the Region, and to the north and south of it, following the strike of the Rocky Mountains (Fig. 5). The northern and southern boundaries are determined largely by the areal limits of coal mining, not by an absence of coal deposits outside the Region. A second criterion is the omnipresence of mountainous topography, and this helps to impart a physical homogeneity to the Pass, when compared with areas to the west and east. A notable exception to the general homogeneity is the transition towards taller trees and a greater tree density from east to west, which is explained by greater precipitation and weaker winds on the British Columbia side of the Pass. Almost all valleys are narrow and tributary to the Elk and Crowsnest rivers. Residents of the Pass have developed a Regional identity which has existed since the early twentieth century largely because of (1) the ease of travel along the core, (2) the isolation of the Pass from the densely-populated lower Fraser Valley through the interposition of several formidable, north-south trending mountain ranges, and (3) the aversion that coal miners have had for the farmers on the prairies.

The Problem and Its Justification

The problem is (1) to identify and (2) to interrelate economic and social processes which have been operative in the Crowsnest Pass Region, and then (3) to demonstrate the effects of these on the Region's landscape from 1898 to 1971. The problem thus has three aspects, each intimately related

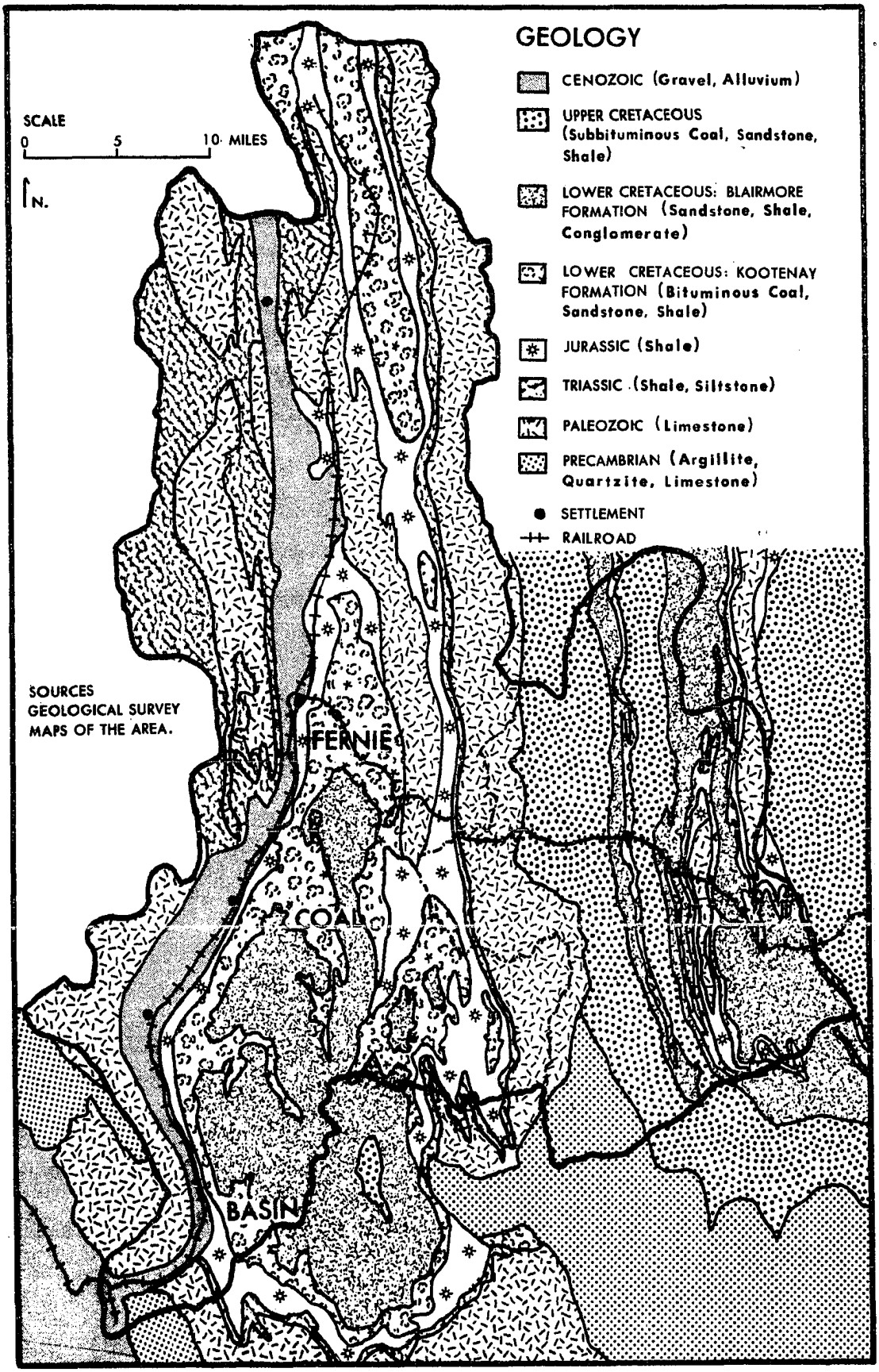
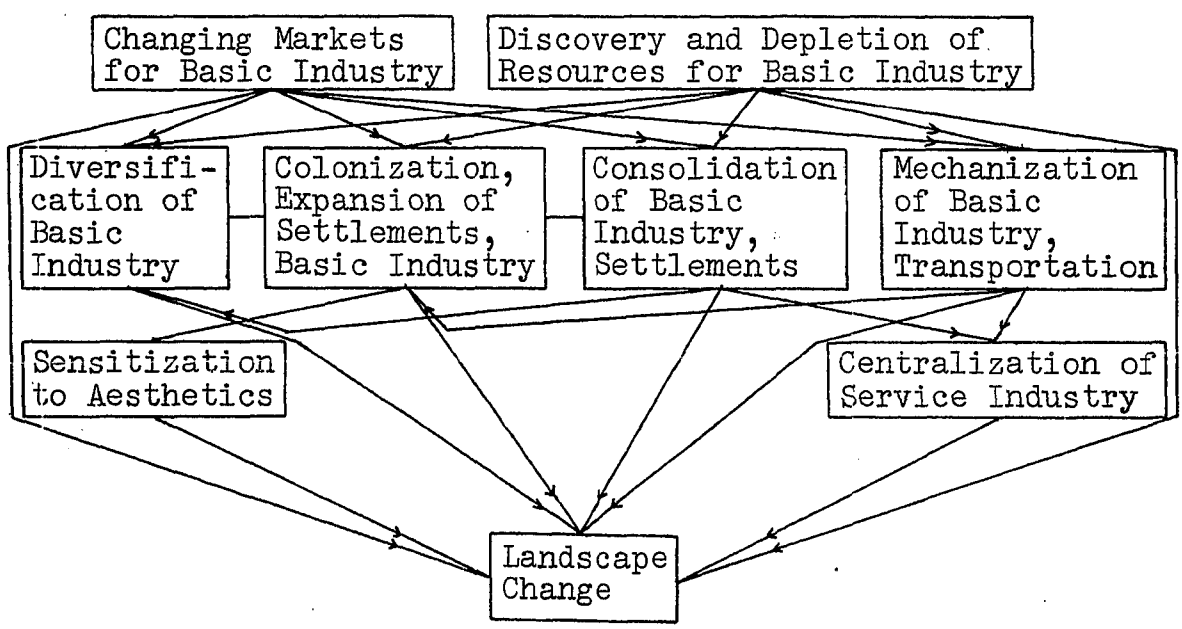

GEOLOGY
CENOZOIC (Gravel, Alluvium)
UPPER CRETACEOUS (Subbituminous Coal, Sandstone, Shale)
LOWER CRETACEOUS: BLAIRMORE FORMATION (Sandstone, Shale, Conglomerate)
LOWER CRETACEOUS: KOOTENAY FORMATION (Bituminous Coal, Sandstone, Shale)
JURASSIC (Shale)
TRIASSIC (Shale, Siltstone)
PALEOZOIC (Limestone)
PRECAMBRIAN (Argillite, Quartzite, Limestone)
SETTLEMENT
RAILROAD
SCALE
0 5 10 MILES
N.
SOURCES
GEOLOGICAL SURVEY
MAPS OF THE AREA.
FERNIE
COAL
BASIN

FIGURE 5

one to another. The identification of a process is not a geographical exercise in itself, but, rather, is a necessary prerequisite to assessing the nexus between cause and effect. The processes are postulated to be part of the cause and landscape change one of the effects. By identifying the evolving landscape effects of a process, its existence is thereby proven. The second aspect of the problem requires the postulate that, in some cases, a given landscape change is caused by the operation of two or more processes acting in concert. On this basis, the following model of cause-effect relationships involving processes and landscape in the Crowsnest Pass Region has been derived:



The term "process" is defined in this dissertation as a phenomenon which has an expression in space (including the landscape), and which shows a continuous change in time. This geographically oriented definition is somewhat similar

to the definition of the term as found in the Oxford Universal Dictionary on Historical Principles: "a continuous or regular action or succession of actions taking place or carried on in a definite manner, and leading to the accomplishment of some result."[5] Blaut feels that relative space is fused to relative time, the two forming the space-time manifold, or simply process.[6] Sack alludes to three levels of complexity of "process laws" and exhorts geographers to distinguish between process as description and process law as explanation.[7] When the writer, then, attempts to relate one or more currently-operative processes to future landscape change, Sack may consider this to be an attempt to derive a "historical process law," which "predicts no more than one state, and only part of a state at that."[8] The writer holds a different view than Sack might take concerning the explanatory value of the processes identified in this dissertation. No attempt is made here to unravel the complete nexus of cause-effect relationships involving process and landscape change, nor to identify all the causes of landscape change,

---

[5]J. Eichenbaum and S. Gale, "Form, Function, and Process: A Methodological Inquiry," Economic Geography, XLVII, 1971, p. 526.

[6]J. M. Blaut, "Space and Process," Professional Geographer, XIII, 4, 1961, p. 2.

[7]R. D. Sack, "Geography, Geometry, and Explanation," Annals of the Association of American Geographers, LXII, 1972, p. 66.

[8]Ibid., p. 67.

but an attempt is made to demonstrate the causative attributes of the processes identified.

Some geographers (including the writer) do not restrict the role that history can play in geographical description:

> The full perspective of the time sequence in so far as it is related to geographic patterns and processes is essential if we are to read the story of contemporary differences correctly. The regional concept . . . embraces not only the idea that patterns and associations of phenomena in particular places give distinctive character to those places, but also that the meaning of likenesses and differences between places is to be understood in terms of complex, continuous change, growing out of the past, and going on into the future.[9]

This particular philosophy towards cultural historical geography has been asserted most prominently by Carl O. Sauer. According to Sauer, the landscape of an area passes through phases under the influence of a given culture, itself changing through time. He views landscape, a term derived from the German word, Landschaft, as an "area composed of a distinct association of forms, both physical and cultural," and has "form, structure and function, and hence position in a system."[10] Unfortunately, a perusal of Sauer's own

---

[9]P. E. James, "Toward a Further Understanding of the Regional Concept," Annals of the Association of American Geographers, XLII, 1952, p. 205.

[10]C. O. Sauer, "The Morphology of Landscape," University of California Publications in Geography, II, 1925, pp. 25, 26, 46. The New Cassell's German Dictionary defines Landschaft as "landscape, scenery; district, region." Notice the two meanings of the term as separated by the semicolon. Sauer's idea of Landschaft is a combination of these two meanings.

publications reveals no explicitly process-oriented case studies of small areas.[11] Despite this, the Berkeley emphasis[12] has been upon cultural processes and geographical change through time. Broek's study of landscape changes in the Santa Clara Valley over a period of almost two centuries constitutes a good example of the Berkeley approach:

> Each period until the 'present' was a geography of the past. The somewhat original device I used was to divide the treatment of each period in two parts. The first was explanatory: it analyzed the forces and functions that shaped the mode of life in the valley. The second part described the cultural landscape resulting from the social-economic determinants. In this manner, 'process' received due attention, but its scope was guided and restrained by the relevance of its forces to the purpose of the study, namely, understanding the landscape.[13]

In the writer's dissertation, the term "cultural processes" is used interchangeably with the term "economic and social

---

[11]Nineteen of Sauer's published writings are included in Land and Life: A Selection from the Writings of Carl Ortwin Sauer, edited by John Leighly. References made to cultural processes are limited to articles contained in Parts III and IV, which treat subjects from broad, ill-defined areas. A complete list of Sauer's publications up to 1963 is provided in Land and Life. Several of these that have not been reprinted in the book have been examined, for example, The Geography of the Ozark Highland of Missouri. His regional studies constitute well-organized explanatory description with no explicit emphasis on process.

[12]Sauer is the founder of the Berkeley school of historical geography at the University of California at Berkeley.

[13]J. O. M. Broek, Geography: Its Scope and Spirit (Columbus, Ohio: Merrill, 1965), pp. 28, 29. The original study described is: J. O. M. Broek, The Santa Clara Valley, California: A Study in Landscape Changes (Utrecht: Oosthoek, 1932), 185 pp. Broek worked at Berkeley "for a time" (A. H. Clark, "Historical Geography," in American Geography: Inventory and Prospect, edited by P. E. James and C. F. Jones [Syracuse: Syracuse University Press, 1954], p. 86).

processes." A relatively greater emphasis than would typify a Sauerian-like study of landscape change is placed on the more economically-oriented processes because of the supposition that the cumulative impact of these on the landscape is more important than that of the more socially oriented processes. No attempt is made to separate the social and economic aspects of an individual process on account of the imprecise, artificial nature of the separation of the two aspects.

Harvey has espoused the following philosophy towards historical geography:

> We need first to examine the genesis of cultural forms, and this, in itself, is a matter for careful historical scholarship. . . . We need, second, to understand the processes of change over space and time. Scholarly studies abound in historical geography. But studies of processes of change are less common. Yet these processes are critical to our understanding of present-day distributions; they mould and create them.[14]

One of the few studies of this type is a paper by Harvey which relates changes in land use patterns in the Kentish hop industry to the economic processes of agglomeration, cumulative change, and diminishing returns.[15] Speaking of the study of process in human geography, Harvey has this to say:

> We know very little about process and still assume mechanisms rather than investigate them. To this degree

---

[14]D. W. Harvey, "Models of Spatial Patterns in Human Geography," in Models in Geography, edited by R. S. Chorley and P. Haggett (London: Methuen, 1967), pp. 549, 550.

[15]D. W. Harvey, "Locational Change in the Kentish Hop Industry and the Analysis of Land Use Patterns," Transactions and Papers of the Institute of British Geographers, XXXIII, 1963, pp. 123-144.

> temporal modes of explanation are undoubtedly inferior in human geography, for there are few, if any, situations where we can point with reasonable confidence to a set of processes which we know are applicable and therefore can serve to explain a particular configuration of phenomena.[16]

A search of the mining literature has revealed little material of relevance to the approach adopted in this dissertation. Miller, Deasy, and Griess from Pennsylvania State University have published a considerable number of articles on Appalachian coal mining that focus on production and employment without being related to landscape change, except in one case.[17] Historians and historical geographers have written many books, theses, and dissertations on individual mining areas or towns, in which a few generalizations were usually made, but there was no attempt at model building or the development of theory.[18] Wilson broke this tradition

---

[16]D. W. Harvey, Explanation in Geography (London: Edward Arnold Publishers, 1969), p. 429.

[17]E. W. Miller, G. F. Deasy, and P. R. Griess have had articles on this subject published in the Annals of the Association of American Geographers and Economic Geography in 1952, 1953, 1955, 1957 (2), 1965, and 1967. The sole article concerned with landscape change is by Miller: "Penn Township--An Example of Local Governmental Control of Strip Mining in Pennsylvania," Economic Geography, XXVIII, 1952, pp. 256-260.

[18]M. Lewis, The Mining Frontier: Contemporary Accounts from the American West in the Nineteenth Century (Norman: University of Oklahoma Press, 1967), 231 pp.; R. G. Taylor, Cripple Creek (Bloomington: Indiana University Press, 1966), 214 pp.; A. A. den Otter, "A Social History of the Alberta Coal Branch" (Edmonton: unpublished M.A. thesis, Department of Geography, University of Alberta, 1967), 170 pp.; R. C. West, "The Mining Community in Northern New Spain: The Parral Mining District." Ibero-Americana, XXX, 1949, pp. 1-147.

with his study of the New South Wales Coalfield in 1968.[19] His evolutionary model concerns the location of coal mines, a less comprehensive model than the one developed in this study. A search of several well-known geographical journals[20] has failed to uncover further studies which place a large stress on generalizations or model building with respect to mining areas. Thus, there is a need for research of the type represented by this dissertation.

Methodology and Sources

The writer's familiarity with the Region dates back to a Geography Graduate Field Camp held in southwestern Alberta during one week of September, 1966. The writer undertook a study of the coal industry of the Pass as his field project. Interviews were conducted with officials of Scurry Rainbow Company, Coleman Collieries, and Crows Nest Industries. A guided tour of the various mines of Coleman Collieries was given. The core was investigated in a preliminary manner. Field research on the dissertation began in June of 1970, was interrupted by the onset of teaching commitments and cold weather in September, and resumed again during the

---

[19]M. G. A. Wilson, "Changing Patterns of Pit Location on the New South Wales Coalfields," Annals of the Association of American Geographers, LVIII, 1968, pp. 78-90.

[20]The journals consulted were: Annals, Proceedings, and Professional Geographer, published by the Association of American Geographers; Economic Geography; Journal of Geography; Geographical Review; Canadian Geographer; Scottish Geographical Magazine; and Geography.

summer of 1971. Interviews with past residents and researchers of the Region have been conducted at Edmonton, Lethbridge, Cranbrook, and Vancouver.

Given that this study proposes to deal with man-environment relationships evolving through time, field observation and interviews with past residents of the Pass must necessarily complement one another. To be sure, there are relics of past landscapes found in the present landscape, but much more of the former can be determined via the memories of Pass residents. For the coal industry, the mine manager, general manager, and general superintendent have tended to be the most useful interviewees, since decision-making and comprehensive, accurate knowledge of a coal mining operation are usually limited to these senior supervisory staff. Other office-based staff such as accountants, secretary-treasurers, and geologists have also provided much useful information. Boards of directors and shareholders are the ultimate decision-makers on important matters, but, in most cases, they have followed the recommendations of the senior supervisory staff, who comprise the vital link between the internal functioning of the mine and external functions such as marketing the coal, public relations, and obtaining capital for expansion. To a considerable extent, this vital link has become decentralized in the case of large companies like Kaiser Resources and Crows Nest Industries, so that the attainment of comprehensive knowledge of their operations

depends upon interviews with several officials rather than one or two. Annual reports to the shareholders and company-produced pamphlets sometimes provide a perspective on the overall operation, but these usually lack the detailed information of interest to academic researchers.

Maps, surface photographs, and aerial photographs are used in the dissertation to represent landscape change pictorially. Mining companies, government departments, and private individuals have often provided photographs and information that could be portrayed cartographically at the time of interview. In the case of photographs of past landscapes, it is a comparatively simple matter, in theory, to go to the site of the original photograph and rephotograph the scene. In practice, however, the older the original photograph, the greater has been the problem of locating the exact site and capturing the same scene, because of regrowth of vegetation between the camera site and the landscape to be photographed. Unfortunately, aerial photographs of Western Canada do not exist prior to the 1940's. Existing photographs are available from provincial and federal governments, but at different scales and with complete coverage only for the series of two miles to the inch. Much of the present cultural landscape of the Pass is a relict of the past. Field reconnaissance with long-time residents, and the use of one's imagination, old maps, and old photographs has, in many instances, led to the reconstruction of past landscapes far more completely than by

merely observing the present relict landscape and noting what is there. Surprisingly little travel on foot was required because the road network is quite dense by Western Canadian standards. Observing the Region by helicopter or airplane was not attempted because of the cost and the availability of aerial photographs.

Statistics concerning the coal industry on the British Columbia side of the Pass have been obtained from various Provincial Government departments in Victoria and the district mine inspector's office in Fernie. Corresponding statistics for the Alberta side of the Region have been collected from the Mines Branch of the Department of Mines and Minerals in Edmonton. Since March of 1972, this branch has been moved to Calgary.

The writer has experienced no major problems in carrying out his research. A minor problem faced was the existence of two political jurisdictions encompassing the study area. Coal production figures for British Columbia mines were given in long tons (2,240 pounds) up to 1948 and in short tons (2,000 pounds) thereafter. Much more complete decennial population figures for the settlements on the Alberta side of the Pass are obtainable than for the British Columbia settlements. Nationwide censi have been carried out in Canada every ten years beginning in 1871. A partial census has sometimes been conducted at halfway intervals between decennial censi. Unfortunately, most population results from the

1971 census have not, as yet, been released to the public. The writer has had to rely chiefly on written source material for the discussion of the colonizing period of rapid expansion. Few people who were older than small children prior to 1911 are still living, or are able to coherently and accurately describe that period.

Locating suitable interviewees has not posed a problem since most residents possessed a wide circle of friends, and usually maintained contact with those friends who moved out of the Pass. Indeed, the City of Fernie staged a reunion of past residents in 1970, and the Crow's Nest Pass Association stages get-togethers of past and present residents each year in Calgary. The writer did not find it necessary to attend these reunions as private talks with interviewees in a more serious frame of mind could be obtained more readily by going to their homes or places of business. These people were quite eager to talk about their communities, and did not object when a tape recorder was used, although a few interviewees wanted the recorder shut off when controversial issues were being discussed. The advantages of using a tape recorder are twofold: (1) a complete record of the interview is obtained, and (2) a more conversational atmosphere is obtained when note-taking becomes unnecessary. The interviewer can listen better and has more time to formulate questions as the interview progresses.

The flexible, conversational type of interview employed in this study has advantages as well as limitations.

A large number of individual responses to specific predetermined questions is not possible unless the interviewer can somehow weave these questions into each interview. A typical longtime resident of the Region is used to reminiscing about the history of his town and the extractive industry in which he probably worked. The same can be said of mining officials vis-à-vis the operation of their companies. They are not accustomed to thinking of their settlement or company's operation in spatial-temporal terms. Questions, therefore, as to where certain activities took place and why they occurred where they did were injected into the conversation without requiring the interviewee to derive spatial patterns or to explicitly relate the spatial content of his answer to processes. The diagnostic task of identifying processes and spatial patterns on the landscape, and of assessing the relationships between the two only began after a considerable amount of raw data had been collected by means of interviews, and supplemented by observation of the landscape and study of documentary material.

Until the last decade, comparatively little had been written about the Pass. A few articles and books had focussed upon early exploration, geology, and the colorful history of the area.[21] In the last ten years, however, government and

---

[21]The Fernie Free Press published souvenir editions in 1905, 1907, and 1909 which dealt primarily with the history, economics, and sociology of the area between Cranbrook and Pincher Creek (Fig. 1). Dawson (1880's), Selwyn (1891), Dowling (1915), and MacKay (1932) described the geology of the

academic researchers have published a considerable amount of material on selected problems within the study area.[22] Much of the information, therefore, that has been incorporated into this dissertation has come from non-written sources. Indeed, a secondary purpose of this study is to preserve in written and pictorial form some further information concerning the area's past that might otherwise have been lost for future generations.

Region, as of many other areas in Western Canada. Hughes (1944) and Cousins (1952) wrote theses which treated the history of the East Kootenay District (this includes the British Columbia portion of the Pass) and the Region, respectively, in a comprehensive manner. The Coleman Board of Trade (1953) published a history of the town.

[22]The Alberta Society of Petroleum Geologists carried out a field trip in the Rocky Mountains between Banff and the 49th parallel in 1962. Reports of their findings were published in the Journal of the Alberta Society of Petroleum Geologists in the same year. The Department of Geography at the University of Alberta has conducted field schools in southwestern Alberta in 1966 and 1969, out of which have come four papers that are relevant to this study: D. W. Lake, "The Coal Industry of the Crow's Nest Pass"; G. R. Lamont, "Field Project, Sparwood-Natal"; C. J. Perritt, "A Pilot Study of the Spatial Distribution of Coal Mines and Settlement in the Crowsnest Pass of Alberta"; and M. S. P. King, "An Activities-Interaction Study of Blairmore, Alberta." These field reports are no more than introductory analyses since only one or two days could be spent in field research in each case. Jamieson and Bonikowsky (1969) have studied the relocation of Michel and Natal to Sparwood from an architectural point of view. The Oldman River Regional Planning Commission, an arm of the Government of Alberta, has put out a short brochure of the Alberta portion of the Region in 1963, followed by more detailed reports in 1969 and 1970. Meyer has completed a geography thesis in 1970 concerning railway evolution in the Kootenays. Contemporaneous with these scholarly reports have come popular accounts: histories of Blairmore (1962), Fernie and district (1967), and Michel-Natal (1971); and accounts of the "romantic" Crowsnest Pass, the Frank slide of 1903, and the Hillcrest mine explosion of 1914, published by Frontiers Unlimited in the late 1950's and 1960's.

Chapter Organization

A chronological organization of chapters has been adopted. Chapter II discusses the era prior to White settlement in order to establish the genesis of the economic activities and associated human occupance, which have greatly modified the Region's landscape since 1898. The span of time covered by Chapters III to VI is so chosen as to focus upon one, two, or three processes whose influence is particularly strong during that time. The periods of rapid expansion, moderate expansion, contraction, and renewed expansion represent stages in the evolution of the Region's cultural landscape. The titles of Chapters III to VI are not meant to imply that temporal overlap has not occurred among the stages. Some of the industries and settlements in existence in the Pass since 1898 were expanding while others were declining; hence, the selection of the temporal limits of the various stages is an exercise in best-fit approximation. Chapter VII contains conclusions that are based on the processes discussed in the preceding four chapters. It has almost been a tradition in historical geography dissertations to have a chapter near the beginning concerning the physical setting of the study area. This approach has not been followed for two reasons:

(1) Man-land relationships can better be discussed side by side, rather than by placing human activity and the physical environment into separate chapters.

(2) Since this study is only concerned with the physical environment as it relates to human activity, a general discussion of the physical setting would tend to include extraneous material.

CHAPTER II

THE CROWSNEST PASS REGION PRIOR TO 1898

The development of the Crowsnest Pass Region by Whites had to await the discovery of its coal deposits and the linking of these with markets by means of railroads. The Region was penetrated by explorers both from the east and from the west after 1845. After Phillipps had discovered the Crowsnest Pass, and, simultaneously a promising east-west route for a railroad through the Region, it seemed to be only a question of time before its landscape would exhibit extensive, permanent signs of man's presence.

Indian Tribes Adjacent to the Southern Canadian Rocky Mountains

In the first half of the nineteenth century, the westward movement of fur traders led to the acquisition of firearms by the Blackfoot Confederacy prior to their purchase by the mountain tribes. As a precautionary measure, the later-named Kootenai Tribe of the southeastern foothills of the Canadian Rocky Mountains migrated across the Rockies into

the Kootenay[1] Valley downstream from the mouth of Bull River. An important habitation site of the Kootenai Tribe was Tobacco Plains, located on the floodplain of the Kootenay River, and straddling the international boundary (Fig. 6). A small group of Kootenais, who likely were a branch of one of the larger groups in the Kootenay Valley, resided for a time in the Elk Valley near the mouth of Coal Creek and constitute the only recorded reference to permanent Indian habitation in the Pass.[2] The Skalzi Indians, consisting of the Flatbow and Kootenai tribes, numbered over 1,000 in the mid-nineteenth century.[3]

During periods of peace between the North Peigan Tribe of the Confederacy and the Kootenais, the two groups traded with each other in the North Fork country between the Livingstone Range and the Rocky Mountains and, more frequently, at Hudson's Bay Company posts in the Kootenay floodplain. Consequently, there was a familiarity with the mountain passes of the study area. The principal trail crossed North Kootenay Pass, which was a more direct route between the territory of the North Peigan tribe and Tobacco Plains

---

[1]This is the Canadian spelling for the River, which becomes the Kootenai River south of the international boundary.

[2]I. G. Turner, "'. . . In the Beginning'," In R. Crisafio, Backtracking with Fernie Historical Association (Fernie: Fernie Historical Association, 1967), p. 9.

[3]H. M. Chittenden and A. T. Richardson, editors. The Life and Travels of Pierre-Jean De Smet (New York: Francis P. Harper, 1905), p. 957.

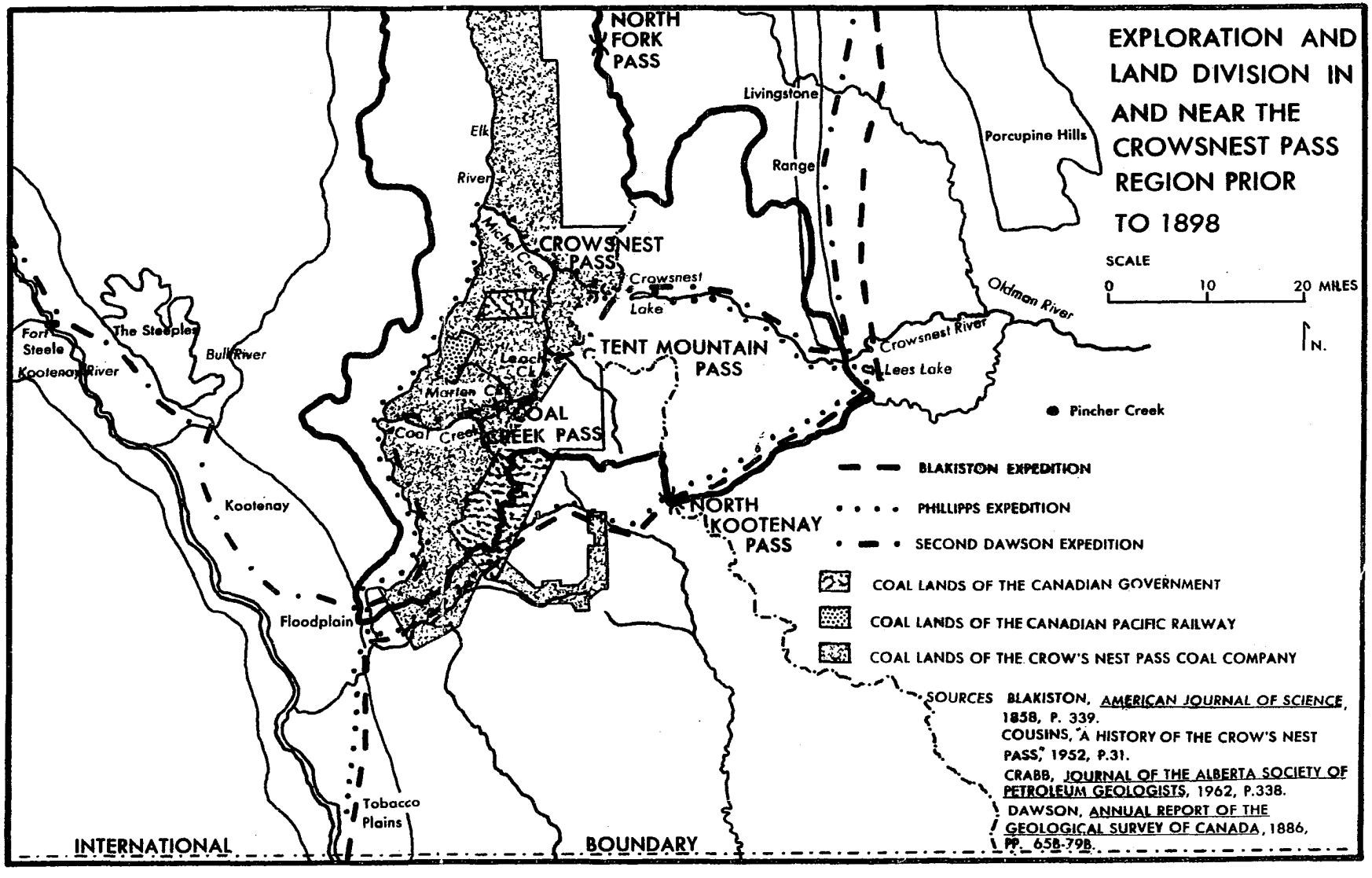

EXPLORATION AND LAND DIVISION IN AND NEAR THE CROWSNEST PASS REGION PRIOR TO 1898
SCALE
0 10 20 MILES
N.
NORTH FORK PASS
Livingstone Range
Porcupine Hills
Elk River
Michel Creek
CROWSNEST PASS
Crowsnest Lake
Oldman River
Crowsnest River
Lees Lake
TENT MOUNTAIN PASS
Leach Cr.
Marten Cr.
COAL CREEK PASS
Coal Creek
Fort Steele
Kootenay River
The Steeples
Bull River
Kootenay
Floodplain
Tobacco Plains
NORTH KOOTENAY PASS
Pincher Creek
BLAKISTON EXPEDITION
PHILLIPPS EXPEDITION
SECOND DAWSON EXPEDITION
COAL LANDS OF THE CANADIAN GOVERNMENT
COAL LANDS OF THE CANADIAN PACIFIC RAILWAY
COAL LANDS OF THE CROW'S NEST PASS COAL COMPANY
SOURCES BLAKISTON, AMERICAN JOURNAL OF SCIENCE, 1858, P. 339.
COUSINS, "A HISTORY OF THE CROW'S NEST PASS," 1952, P.31.
CRABB, JOURNAL OF THE ALBERTA SOCIETY OF PETROLEUM GEOLOGISTS, 1962, P.338.
DAWSON, ANNUAL REPORT OF THE GEOLOGICAL SURVEY OF CANADA, 1886, PP. 65B-79B.
INTERNATIONAL BOUNDARY

FIGURE 6

than passes to the north, and did not necessitate a crossing of the fast-flowing, deep Elk River (Fig. 6). The Region was utilized essentially as a travel corridor and hunting ground for tribes living to the east and west.

Early Exploration

The first White man to enter the Region was Father De Smet, a Roman Catholic missionary to the Indians of Northwestern North America. These included the Kootenai tribe, whom the priest visited for the first time in 1845. De Smet recorded some prophetic words in a letter of September 2, 1845:

> The fine river Des Chutes comes roaring down and crosses the plain before it joins its waters to the McGilvray (Kootenai), which tranquilly pursues its course. The quarries and forests appear inexhaustible; and having [observed] large pieces of coal along the river, I am convinced that this fossil could be abundantly procured.[4]

The Des Chutes must be the Elk River, the only one noted for coal in Southeastern British Columbia. Evidently, De Smet travelled along a part of the Elk Valley, having entered the Region from the Kootenay Valley. In the same year, the missionary visited the Lundbreck area from the west, probably using North Kootenay Pass.

Reports of the Blakiston party of the Palliser Expedition (1857-1860) constitute the first recorded reference to the "Crow-nest" Pass by that name. Travelling southwards

---

[4] Ibid., pp. 492, 493.

between the Livingstone Range and the Porcupine Hills, the Blakiston party passed across the eastern entrance to the core, and observed a well defined path "coming in from the plaines [sic] on the left bank of the Crow-nest River. . . . By report of the natives, it is a very bad road and seldom used."[5] In another report, Blakiston stated that "its eastern entrance is on the river of the same name, while it emerges in the vicinity of the 'Steeples' or Mount Deception" (Fig. 6).[6]

Michael Phillipps was the first White man to traverse the core. In 1873, he and John Collins started up the Elk Valley from its mouth on a prospecting expedition, probably for gold. Having reached the point where Michel Creek empties into the Elk River, they travelled through heavy timber along Michel Creek for several days, after which large trails were located that took them to Crowsnest Lake (Fig. 6). Phillipps writes:

> We found trees covered with Buffalo hair and it was evident to both of us that we had passed through the Rocky Mountains without going over any range. This is the first trip ever made by what is now known as the Crow's Nest Pass.[7]

---

[5]T. Blakiston, "Report on the Exploration of Two Passes (the Kootanie and Boundary Passes) of the Rocky Mountains in 1858," American Journal of Science, XXVIII, 1859, p. 341.

[6]T. Blakiston, Further Papers (included in the Report of the Palliser Expedition), p. 60; taken from W. J. Cousins, "A History of the Crow's Nest Pass," p. 14.

[7]M. Phillipps, "Memories of Thirty Years Ago," published in a special edition of the Fernie Free Press in 1905;

In 1874, Phillipps and three other men prospected for coal in the lower Elk drainage basin, within what was to be known as the Fernie Coal Basin (Fig. 5). They found plenty of coal along Morrissey, Coal, and Michel creeks.

Through the promotional efforts of Phillipps, an east-west running trail was completed through the Pass by 1879 by the British Columbia Government. The trail followed the core east of Crowsnest Lake, but its exact route west of this point is not known with certainty. Cousins in 1952 felt that the trail must have followed Michel Creek to its mouth, and thence south along the Elk Valley, because Phillipps did not mention in his memoirs that the trail of 1879 had been built along a different route than the one he travelled in 1873.[8] However, explorers in the Region during the 1880's specifically mention that they used a trail extending from Crowsnest Lake to the Elk Valley at the mouth of Coal Creek via Tent Mountain Pass, Leach Creek, Marten Creek, Coal Creek Pass, and Coal Creek (Fig. 6). This southern route was about ten miles shorter, but involved a crossing of the colder and snowier Tent Mountain and Coal Creek passes. Their elevations of 4,900 and 5,500 feet found no equivalent in the

---

taken from W. J. Cousins, "A History of the Crow's Nest Pass," p. 31.

[8]W. J. Cousins, "A History of the Crow's Nest Pass," p. 32. Nine years later, Cousins had changed his mind, and stated that "the trail when it was cut went up Coal Creek" (W. J. Cousins, "Blairmore and the Pass," The Story of Blairmore-Alberta, 1911-1961, edited by Blairmore Lions Club [Blairmore: Blairmore Lions Club, 1961], pp. 8, 9).

northern route, whose elevation steadily decreased from a maximum of 4,450 feet at Crowsnest Pass. The southern route would have been easier to construct, because its greater altitude resulted in a less dense tree cover, and there were fewer crossings of large streams required. For travel by horseback or on foot,[9] this route was superior, and more likely than not, was the site of the trail completed in 1879.

George Dawson of the Geological Survey of Canada became the first person to provide an accurate, written account of a portion of the geology and topography of the Region. In 1881, he explored an area near the eastern entrance to the core, and discovered two coal seams in the bank of Crowsnest River "a few miles" below Lundbreck Falls (Fig. 6).[10] On a second trip in 1883, the geologist traversed the Region from east to west via the Crowsnest Trough, Tent Mountain Pass, and Coal Creek Pass (Fig. 6). The coal-bearing area along the route was approximately defined and examined in a preliminary way. Dawson was not impressed by the route west and south of Leach Creek, which he called "desolate in the extreme, the forests . . . having been almost entirely destroyed by repeated fires, which have swept over the region

---

[9]Because of its lower elevation and flatter grades, the northern route was the obvious choice for a railroad.

[10]G. M. Dawson, Preliminary Report on the Geology of the Bow and Belly River Region, N.W. Territory, with Special Reference to the Coal Deposits: Report of Progress for 1880-81-82 (Montreal: Dawson Bros, 1883), p. 18B.

since the Crow Nest Pass has become a travelled route."[11] His impressions of the vegetation on the eastern side of the continental divide were quite different. The mostly grass-covered Crowsnest Trough[12] was bordered on the north and south by dense forest, which Dawson found difficult to penetrate on horseback.[13]

Acting on information supplied by Michael Phillipps, William Fernie, an experienced coal miner from Fort Steele, began prospecting in the Elk Valley in 1887. After realizing that the area contained huge coal reserves, Fernie took men from Fort Steele to the lower Elk basin and Marten Creek basin for further prospecting during each summer of the next ten years (Fig. 6). In 1888, a charter authorizing the construction of the British Columbia Southern Railway was obtained from the Provincial Government[14] in order to provide better access to this coal area. During 1889 and 1890, the same Government granted 10,000 acres of freehold lands along

---

[11]G. M. Dawson, "Preliminary Report on the Physical and Geological Features of That Portion of the Rocky Mountains Between Latitudes 49° and 51°30'," Annual Report of the Geological Survey of Canada, I, 1886, p. 74B. According to Dawson, the "Crow Nest Pass" comprised the Crowsnest Trough, the southern route, and the Elk Valley between Coal Creek and the Kootenay Valley.

[12]By 1888, ranching had extended westwards as far as Lees Lake, but cattle were pastured temporarily in the Trough west of the gap between Turtle Mountain and Bluff Mountain (Fig. 6).

[13]Ibid., p. 66B.

[14]British Columbia became a province of Canada in 1871.

Marten Creek, Morrissey Ridge, and Marten Ridge to a Company formed the previous year, of which William Fernie was a leading figure (Fig. 6). This Company became known as the Crow's Nest Pass Coal Company by 1897.

Construction of a Railroad

In 1881, the Canadian Pacific Railway[15] conducted an exploratory survey of the core, in addition to surveys of the Kicking Horse and Yellowhead routes further north, in order to ascertain the best route for Canada's first transcontinental railroad. The Kicking Horse route was chosen over the Crowsnest route primarily because the Canadian Government opposed the construction of this link to the West Coast so near the international boundary for military reasons.[16]

Meyer suggests that the need to compete with the Great Northern Railway[17] for the mining traffic of the Kootenays was the most important of eight reasons for the construction of a C.P.R. line westwards from Lethbridge through the Pass.[18] The mining of base and precious metals in the Kootenays during the 1870's had resulted primarily from a northward flow of men and

---

[15]Hereafter in this dissertation, C.P.R. will be used instead of Canadian Pacific Railway.

[16]J. M. Gibbon, Steel of Empire (Indianapolis: Bobbs-Merrill, 1935), p. 340.

[17]Hereafter in this dissertation, G.N.R. will be used instead of Great Northern Railway.

[18]R. H. Meyer, "The Evolution of Railways in the Kootenays" (Vancouver: unpublished M.A. thesis, Department of Geography, University of British Columbia, 1970), p. 54.

capital from Montana and Idaho, partly because topographic barriers had effectively isolated the coastal ecumene of British Columbia from its interior hinterland. In 1883, the British Columbia Government had begun to encourage railroad construction by granting large tracts of public lands to all railroad companies that would build in the province. By 1889, the Government's policy had become more discriminating. A land subsidy bonus of up to 20,000 acres per mile of railroad completed was made available only to Canadian-owned railway projects "in an attempt to forestall American interests.[19] The draining of wealth southwards seemed as if it might increase as the transcontinental line of the G.N.R. was being built westwards through Montana, Idaho, and Washington. After 1891, the C.P.R. had hoped to construct a line through the core in order "to protect the Company's interests in southern British Columbia, including the Kootenay district which is now assuming great importance owing to its remarkable mineral developments."[20]

In 1898, the C.P.R. obtained a charter from the Government of Canada for the construction of a railroad between Lethbridge and Kootenay Landing via the core. The C.P.R.,

---

[19]R. E. Cail, "Disposal of Crown Lands in British Columbia, 1871-1913" (Vancouver: unpublished M.A. thesis, Department of History, University of British Columbia, 1956), p. 263.

[20]Canadian Pacific Railway, Annual Report, Montreal, 1891, p. 12; taken from R. H. Meyer, "The Evolution of Railways in the Kootenays," p. 40.

the British Columbia Southern Railway, and the Crow's Nest Pass Coal Company entered into a tripartite agreement which resulted in (1) the construction of the Crowsnest line by the C.P.R.; (2) the conveyance of 50,000 acres of coal lands to the Canadian Government, a condition for the granting of a federal subsidy of $11,000 per mile of railroad built by the C.P.R.; (3) the conveyance of 3,840 acres of coal lands to the C.P.R. with the condition that the Company could not mine coal in this area until December 19, 1908;[21] and (4) the conveyance of 250,000 acres of coal lands to the Crow's Nest Pass Coal Company (Fig. 6). By December, 1897, the end of steel was at Pincher Creek, but there were several construction camps and sawmills strung out through the core, the farthest of which was located near the site of Fernie. The main camp in the Pass was located on the shore of Crowsnest Lake. By the spring of 1898, this camp had become completely depopulated. The Crow's Nest Pass Coal Company had 8,000 to 9,000 tons of coal ready for shipment when the railroad reached the new settlement of Fernie in the fall of 1898.

Summary

The period between 1845 and 1898 is not renowned for striking landscape changes. It was, however, the period during which detailed studies of the area were being made and the land acquired that led to future changes. Generally

---

[21] H. H. Yuill, "The Hosmer Mines, Limited, B.C.," Journal of the Canadian Mining Institute, XIII, 1910, p. 235.

speaking, the amount of topographical and geological information about the Pass that was gathered prior to 1898 decreased with distance from the core. The impetus for mining coal came from the Crow's Nest Pass Coal Company, and, indirectly, the Government of British Columbia, while the Montreal-based Canadian Pacific Railway was the chief proponent of a railroad through the core. Both were mutually complementary schemes. When interested parties from the ecumene of British Columbia and Eastern Canada negotiated a mutually beneficial agreement in 1897 to take advantage of some of the geological and topographical attributes of the small part of the interposed wilderness that was to become known as the Crowsnest Pass Region, the stage was set for the colonizing period of rapid expansion.

CHAPTER III

THE COLONIZING PERIOD OF RAPID EXPANSION (1898-1911)

The colonizing process, or the means by which settlements[1] and sidings were established on the landscape, gave rise to a spatial pattern that possessed more similarities than differences from settlement to settlement in the Pass. In most cases, a mining-based settlement was established with the aid of capital and planning from a coal company. A mining-based settlement and the infrastructure of a mine or mine group[2] were always juxtaposed temporally, usually juxtaposed spatially, and functionally integrated. Such a relationship is termed a mine-settlement complex in this dissertation, whether or not the settlement was spatially contiguous.

---

[1]A settlement is defined as having at least 100 permanent residents, as distinguished from sidings or communities.

[2]Two or more underground mines, two or more surface pits, or combinations of both were often operated by the same company within two miles of each other. Any of these three situations is classified and numbered as one mine by the Government of Alberta, and as a mine group in this dissertation. The British Columbia Government has never numbered its mines.

Relationships between Resource Extraction, Railroads, and the Settlement Pattern

Between 1898 and 1911, the colonizing process resulted in the establishment of twelve settlements inside the core, two outside the core, and two both inside and outside the core (Fig. 7). Of the twelve mine-settlement complexes that came into being during the period, ten were partially or wholly situated in the core. Since the core was the most practical route for the southern transprovincial railroad within the Region, and because of the immature state of coal transportation technology (by 1972 standards) at the turn of the century, it was usually economically sound to locate a mine and preparation plant beside the mainline in the core. It was in or near the core that the erosive action of Crowsnest River and Michel, Coal, and Morrissey creeks had bisected the coal seams of the Kootenay Formation, making them accessible by horizontal entries at places where the pitch of the seam was small (Fig. 5). The existence of accessible coal deposits, therefore, was a prerequisite for the construction of the railroad, but the location of the railroad placed limitations on the location of coal mines, which, in turn, limited the situation of settlements (Figs. 7 and 8).

Coal mining was the raison d'être of the Pass during its first thirteen years of existence as a permanently-settled area: only three settlements were not mining-based settlements. Sparwood's existence depended on a lumber mill, Crowsnest became a divisional point for the C.P.R., and Elko

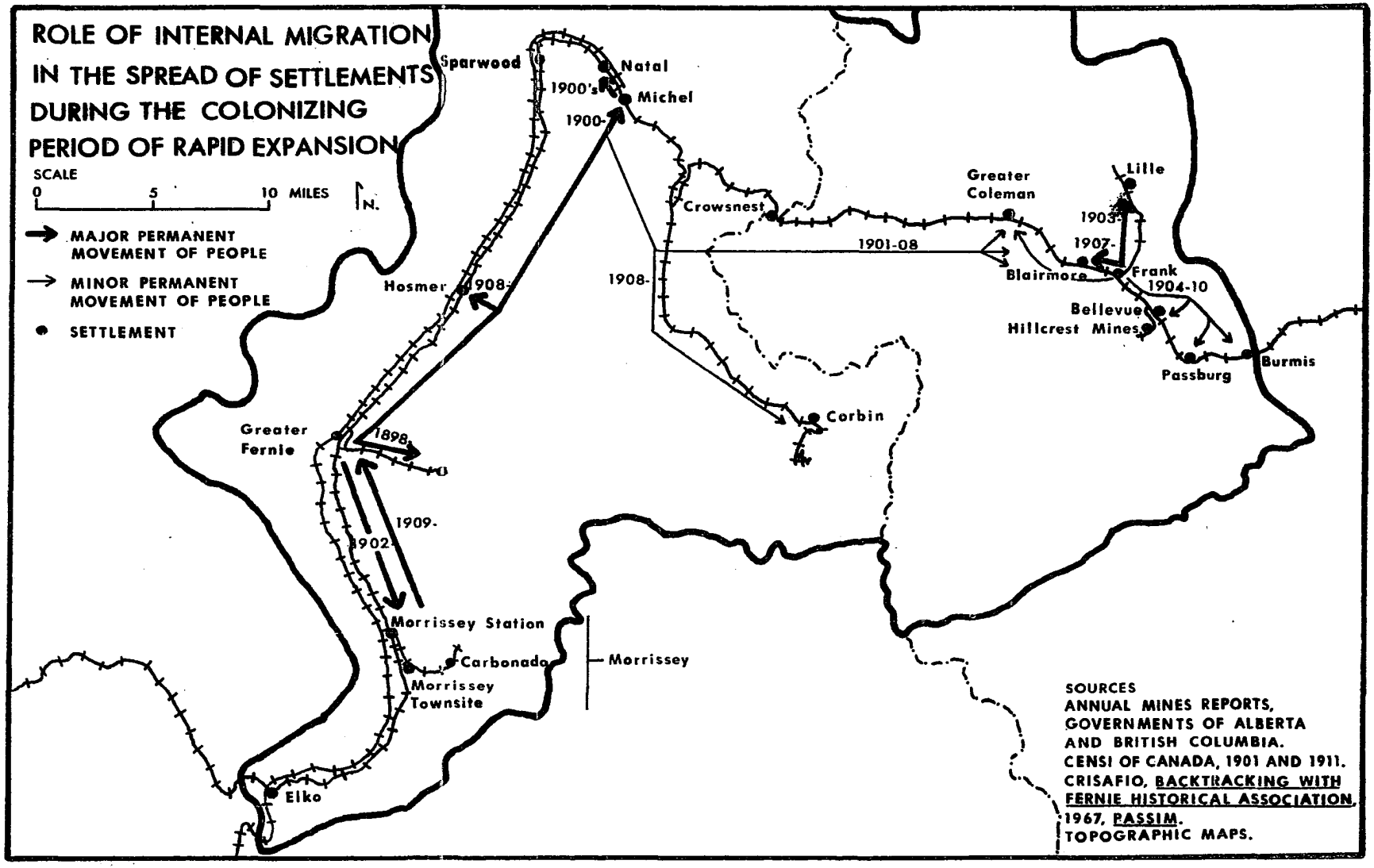

ROLE OF INTERNAL MIGRATION IN THE SPREAD OF SETTLEMENTS DURING THE COLONIZING PERIOD OF RAPID EXPANSION
SCALE
0 5 10 MILES
N.
MAJOR PERMANENT MOVEMENT OF PEOPLE
MINOR PERMANENT MOVEMENT OF PEOPLE
SETTLEMENT
Sparwood
Natal
1900's
Michel
1900-
Crowsnest
Greater Coleman
Lille
1903-
1907-
1901-08
Blairmore
Frank
1904-10
Bellevue
Hillcrest Mines
Passburg
Burmis
1908-
Hosmer
1908-
Corbin
Greater Fernie
1898-
1909-
1902-
Morrissey Station
Carbonado
Morrissey
Morrissey Townsite
Elko
SOURCES
ANNUAL MINES REPORTS, GOVERNMENTS OF ALBERTA AND BRITISH COLUMBIA.
CENSI OF CANADA, 1901 AND 1911.
CRISAFIO, BACKTRACKING WITH FERNIE HISTORICAL ASSOCIATION, 1967, PASSIM.
TOPOGRAPHIC MAPS.

FIGURE 7

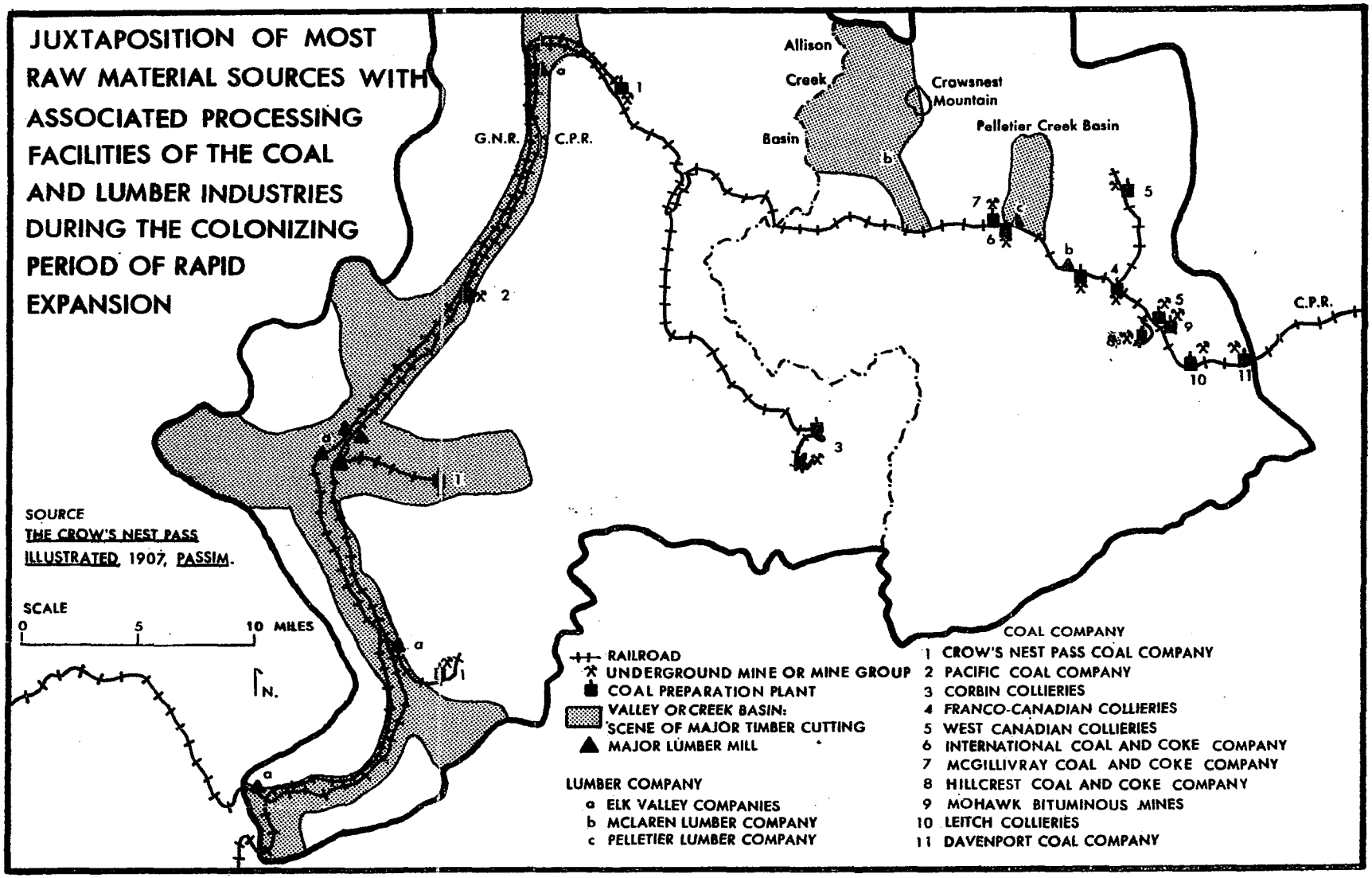
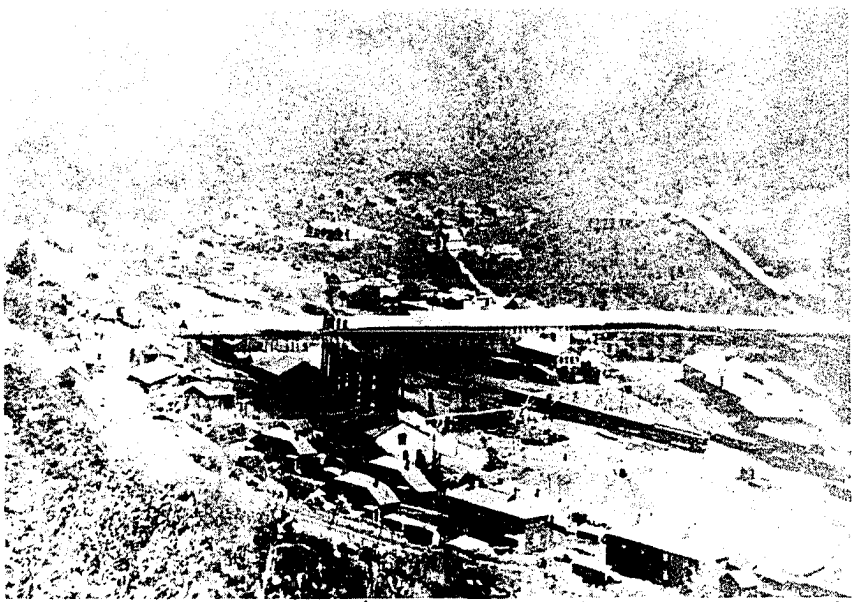

JUXTAPOSITION OF MOST RAW MATERIAL SOURCES WITH ASSOCIATED PROCESSING FACILITIES OF THE COAL AND LUMBER INDUSTRIES DURING THE COLONIZING PERIOD OF RAPID EXPANSION
SOURCE
THE CROW'S NEST PASS ILLUSTRATED, 1907, PASSIM.
SCALE
0 5 10 MILES
N.
G.N.R.
C.P.R.
Allison Creek Basin
Crowsnest Mountain
Pelletier Creek Basin
RAILROAD
UNDERGROUND MINE OR MINE GROUP
COAL PREPARATION PLANT
VALLEY OR CREEK BASIN: SCENE OF MAJOR TIMBER CUTTING
MAJOR LUMBER MILL
LUMBER COMPANY
a ELK VALLEY COMPANIES
b MCLAREN LUMBER COMPANY
c PELLETIER LUMBER COMPANY
COAL COMPANY
1 CROW'S NEST PASS COAL COMPANY
2 PACIFIC COAL COMPANY
3 CORBIN COLLIERIES
4 FRANCO-CANADIAN COLLIERIES
5 WEST CANADIAN COLLIERIES
6 INTERNATIONAL COAL AND COKE COMPANY
7 MCGILLIVRAY COAL AND COKE COMPANY
8 HILLCREST COAL AND COKE COMPANY
9 MOHAWK BITUMINOUS MINES
10 LEITCH COLLIERIES
11 DAVENPORT COAL COMPANY

FIGURE 8

possessed both lumbering and railroad repair and maintenance functions. In addition, there were six railroad sidings located about halfway between the more widely spaced settlements (Fig. 7). Small sawmills, limestone quarries, and brick plants sprang up in close proximity to pre-existing sidings and settlements, chiefly for the purpose of supplying railroad ties, mine props, and building materials for bridges, residences, and commercial buildings within the Pass. Sometimes the converse was true, that is, a siding owed its origin to the prior establishment of a small basic industry other than coal mining. In 1903, for example, Summit Lime Works took over a limestone quarry and built a processing plant and a few houses in an area of Paleozoic strata (Fig. 10). The siding of Hazell resulted, even though Crowsnest was only one and one-half miles to the west (Fig. 2).

Most settlements were concentrated in the core between Burmis and Coleman, and Michel and Elko (Fig. 7). Only one settlement, Crowsnest, existed in the portion of the core between Coleman and Michel, a distance of eighteen miles by road, because deposits of coal suitable for the railroad market were lacking, except in the westernmost four miles. Volcanic ridges and Upper Cretaceous, Paleozoic, and Jurassic strata, respectively, from east to west contain no coal measures other than a small amount of subbituminous (Upper Cretaceous) coal near Sentinel (Fig. 5).



← N. (Mine Inspector's Office, Fernie)

FIGURE 9

JUXTAPOSITION OF COAL CREEK COLLIERY AND SETTLEMENT, ABOUT 1920



← N. (Coleman's Anniversary Booklet)

FIGURE 10

LIMESTONE QUARRY, PROCESSING PLANT, AND HOUSING AT HAZELL, ABOUT 1952

The Establishment and Maintenance of Fernie's Dominant Position Among Settlements on the British Columbia Side of the Pass

Fernie owed its existence indirectly to the generosity of the British Columbia Government towards the Crow's Nest Pass Coal Company. In 1899, the Government issued Crown grants for the subsidy lands involved in the tripartite agreement to the British Columbia Southern Railway, which subsequently conveyed title to the various parties of the agreement of 1897.[3] The Company now owned 260,000 acres of land within the Fernie Coal Basin. This left few coal-bearing areas within fifteen miles of the C.P.R. mainline for other companies (Fig. 6).

The opening of the Company's mines at Coal Creek, Michel, and Morrissey, respectively, was spaced at two-year intervals, which corresponded approximately with the period needed to operationalize a mine and processing plant. If the opening of these mines was a fulfillment of a predetermined master plan by the Company, it would make sense to establish its operational headquarters at a central location that was readily accessible by rail with each mine. In any event, the headquarters was placed at Fernie. Michel was twenty-four

---

[3]The "controlling interest" in the British Columbia Southern Railway was the same as in the Crow's Nest Pass Coal Company (J. J. Crabb, Vice President of Crows Nest Industries, known as the Crow's Nest Pass Coal Company prior to 1965, "Coal Mining in Southeast British Columbia: An Historical Outline," Journal of the Alberta Society of Petroleum Geologists, X, 1962, p. 336).

miles to the northeast, Coal Creek six miles to the east, and Morrissey ten to fourteen miles to the southeast.

A study of the contrasting settlement pattern that evolved in the Coal, lower Michel, and Morrissey creek basins up to 1911 sheds some light on the policy of the Company towards the settlements that it founded or helped to found. The topography of the lower portions of the three basins is similar--deep valleys, one-quarter of a mile or less in width, and tributary in each case to the Elk Valley, one mile or more wide, by contrast. The majority of residents in the Coal Creek basin lived at Fernie at the mouth of the Creek. Fernie's raison d'être, the Coal Creek mine group, was six miles away. By 1905, about 1,000 people lived at Coal Creek (Fig. 9), but the majority of employees at Coal Creek Colliery resided at Fernie and commuted to work via a Company-built railroad[4] for the reason somewhat overstated by a provincial mines inspector in 1898:

> It is expected that all the employees will live at or near Fernie, as there is no room for houses at the mines, the valley being deep and narrow, and bounded by steep hills, so steep that in winter the sun seldom strikes down into the valley.[5]

---

[4]The non-juxtaposed relationship of Fernie to the Coal Creek mine group was thus made possible by a mechanized journey to work, whose contribution to landscape change in the Region only became strong after the colonizing period of rapid expansion.

[5]Department of Mines, Annual Report of the Minister of Mines (for 1898), Government of British Columbia, Victoria, 1899, p. 999.

Settlement in Morrissey Creek basin took on a form intermediate to that of the other two basins. The mine-settlement complex of Morrissey consisted of: (1) Morrissey Station on the C.P.R. mainline; (2) Morrissey Townsite, two and one-half miles away along Morrissey Creek, but still in the Elk Valley, where most of the service industries were found; (3) Morrissey Mines, one mile further upstream, where the mine, preparation plant, and coke ovens were situated; and (4) Carbonado, a further one-half mile upstream, the site of most of the housing, which was aligned along the strike of the valley in four terraced rows because of a paucity of flat land (Fig. 11).[6] The settlement focus in the portion of the Michel Creek Basin located in the core was at Michel-Natal. Sparwood, at the mouth of the Creek, owed its origin to a large lumber mill nearby which was not part of the Crow's Nest Pass Coal Company.[7]

The question as to why the Company built the main settlement next to a producing mine group in two cases but not in the third case can only be answered by asserting that locational decision-makers in the Company held a special attitude towards Fernie. Cousins speculates that the Company "had

---

[6]Photographs of the component parts of Morrissey, taken during the period under study, are found in Backtracking with Fernie Historical Association, a copyrighted publication whose editors have forbidden the reproduction of all photographs contained therein.

[7]The inclusion of Sparwood in the mine-settlement complex of Michel-Natal postdated the period under study.



(B. C. Government)

N.

FIGURE 11

REMAINS OF THE MINE-SETTLEMENT COMPLEX OF MORRISSEY, 1952

the idea that Fernie was to be the 'Pittsburgh of Canada,' and did not anticipate that Michel and particularly Natal would grow to the size that they did."[8] This opinion, if true, helps to explain why a settlement located in the Elk Valley was chosen as the Company's headquarters. Some flat land constituted part of the site of Coal Creek settlement (Fig. 9), despite the statement made by the provincial mines inspector, but Coal Creek definitely could not have satisfactorily accommodated 4,000 people. A second consideration was the fact that the high officials of the Company lived at Fernie, which, by far, was the most habitable of the Company's settlements.

Typifying a mining-based settlement, the growth of Fernie was extremely rapid during the first decade of its existence, as a comparison of Figures 12 and 13 indicates. The settlement was sited on Coal Creek, immediately east of the C.P.R. tracks, an "unlovely place with two rows of shacks flanking a muddy lane" in 1898 (Fig. 12).[9] In 1904, the settlement became incorporated as a city, and by 1907, Greater Fernie was described as "the busy, thriving metropolis of

---

[8]Personal communication W. J. Cousins, Professor of History at the University of Lethbridge, Lethbridge, July 13, 1971. The City was first described as the "Pittsburgh of Canada" in the Fernie Free Press in 1908. Obviously, the Company hoped that Fernie would become an important industrial city, but not necessarily as large as Pittsburgh or with the same industrial base.

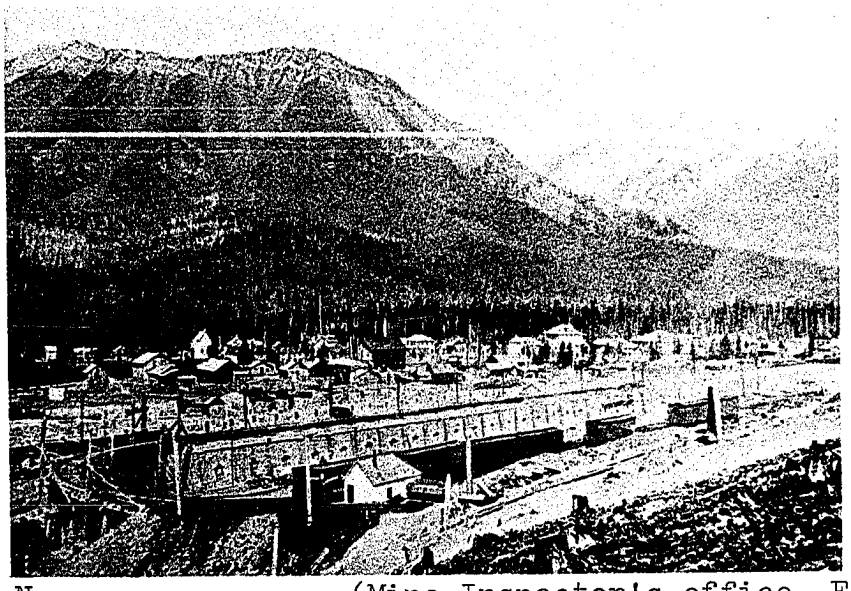
[9]L. Mangan, Backtracking with Fernie Historical Association, p. 25.



N. ↗ (Crow's Nest Pass Illustrated)

FIGURE 12

ORIGINAL SETTLEMENT OF FERNIE, 1898



N ↗ (Mine Inspector's office, Fernie)

FIGURE 13

JUXTAPOSITION OF COKE OVENS AND THE SETTLEMENT OF FERNIE, 1901

Eastern British Columbia," having a population in excess of 4,000. Hosmer and Corbin were just about to come into existence, the Morrissey mine produced very little coal that year, and Michel had an estimated population of 1,200 (Figs. 25-27).[10] The number of men employed at Michel Collieries was almost as large as the employment at Coal Creek Colliery, but there was far more employment in the lumbering industry at Fernie than at Michel-Natal. In 1907, four large sawmills were operating in close proximity to the City, and there were ten other mills in the Elk Valley from Sparwood to Morrissey Station whose business was tributary to Fernie (Figs. 8 and 14).

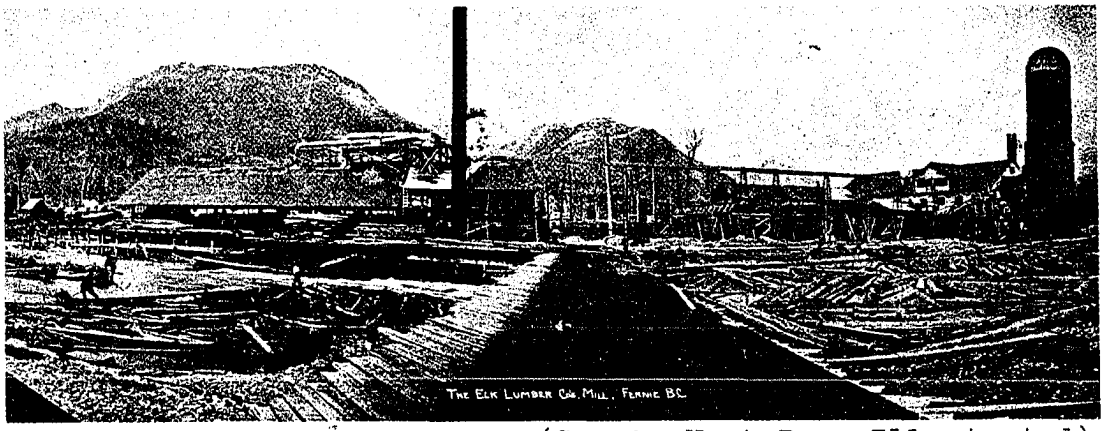
Forest fires in 1904 and 1908 razed large sections of the City, whose buildings were constructed overwhelmingly of wood (Fig. 13). The "great fire" of August 1-2, 1908 caused property losses of $5,000,000 at Fernie, and standing and cut timber losses of almost the same amount in the Elk River basin.[11] Only the Coal Company office built of limestone blocks, a wholesale warehouse built of concrete, the G.N.R. station, and fifty frame houses not in the path of the fire, survived the holocaust. The fire was described as follows:

> It commenced about seven miles down the west bank of the Elk river below West Fernie, coming up through the woods, and jumped across the river at Mutz's Brewery, burned down through the Old Town, . . . and extending up the valley through Hosmer to Michel, . . . is now burning up

---

[10] Ibid., pp. 37, 53.

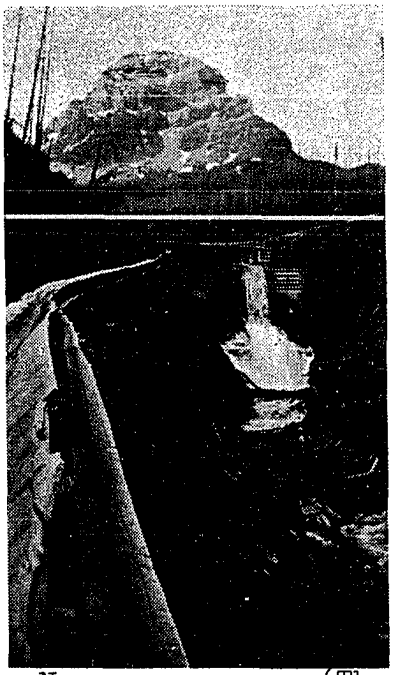
[11] Ibid., p. 37.



N.— (Crow's Nest Pass Illustrated)

FIGURE 14

ELK RIVER LUMBER COMPANY'S MILL AT WEST FERNIE, ABOUT 1907



N. (The Story of Blairmore) N.

FIGURE 15

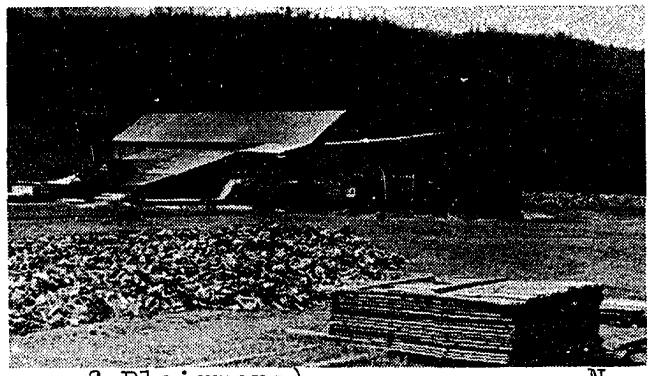


FIGURE 16

MCLAREN LUMBER COMPANY'S FLUME AND DAM ALONG ALLISON CREEK AND MILL AT BLAIRMORE, ABOUT 1920

> the Elk Valley [north of the mouth of Michel Creek]. Roughly speaking there is a fire area of thirty miles in length, and from two to ten miles wide. Everything is cleaned up on both sides of the river, and the trees in many instances were uprooted [by the strong south wind] before they were burned. . . .
>
> . . . . . .
>
> On Sunday [August 2] I went to Michel. . . . The fire was all around on the mountains . . . , but as a previous fire had wiped the valley [Michel Creek] out to a height of about 100 feet on each side, no fire raged closer than this, and there was nothing to burn.[12]

Realizing the need for more fire-proof buildings, brick and stone structures came to dominate the City's central business district by 1910, in contrast with the small-town appearance of the other Pass settlements. Permits were granted to erect commercial frame buildings on condition that they be replaced after six months by buildings of stone blocks, brick, or concrete.[13] After the fire of 1908, the Fernie Brick Company was turning out 20,000 bricks per day for local use. In the other Pass settlements in existence at this time, the lesson to be learned from the Fernie tragedy was also heeded, but the trend away from wooden-frame commercial buildings occurred more gradually. Because limestone and clay suitable for creating stone blocks, cement, and bricks were much more prevalent on the Alberta side, the Fernie fire provided much less of an economic stimulus to the other

---

[12]Letter, President of the Crow's Nest Pass Coal Company to the Company's head office in Toronto, August 5, 1908, Crows Nest Industries Limited, Office at Fernie.

[13]L. Mangan, Backtracking with Fernie Historical Association, pp. 37, 39.

settlements on the British Columbia side than to those on the Alberta side.

Fernie dominated the British Columbia side in other ways. It possessed the only brewery in the Region, dating from 1900. By 1911, the City possessed eleven hotels, a greater number than in all of the other settlements[14] on the western side. The Trites-Wood Company opened branch stores in Morrissey for a short time and at Michel and Coal Creek, but the Company's largest department store was at Fernie, where the owners lived.

The Crow's Nest Pass Coal Company's Role in the Colonization of the Pass

The Company played a significant role in the development of all but one of the mine-settlement complexes on the British Columbia side of the Region. Its holdings and headquarters were located in a different province and too far from the Region's settlements east of the continental divide

---

[14]Morrissey, which contained only sixty-five residents in 1911, had lost its settlement status because its mine had closed two years earlier due to dangerous workings, gas outbursts, and bumps. Bumps are caused by the subsidence of the roof of a mine shaft, leaving an unsupported span of rigid rock strata above the roof. The strata eventually collapse, producing a hammerlike blow that results from rocks striking the roof. The blow is imparted downwards, breaking timber, causing shaft cave-ins, and sending tremors through the rock strata. Because the mass of overlying rock increases with an increase in the depth of mining, the likelihood of bumps occurring below 2,500 feet underground militates against mining below this depth in the Pass (J. Hughes, "A History of Mining in the East Kootenay District of British Columbia" [Edmonton: unpublished M.A. thesis, Department of History, University of Alberta, 1944], p. 90).

in order to influence their development appreciably. Corbin was founded as a closed company town, unlike the other settlements in the Pass. Corbin Collieries owned the entire town and could control all activities that took place therein. This control was facilitated by the isolated situation of the settlement outside the core along a railroad owned by the same Company. The chief contribution of the Crow's Nest Pass Coal Company to Corbin and points eastward was a few of its miners, particularly after the Morrissey mine closed in 1909.

The need for personnel to construct mine-settlement complexes at Michel and Morrissey resulted in a considerable migration of Company employees from Fernie-Coal Creek to Michel in 1900 and to Morrissey in 1902 (Fig. 7). Michel's proximity to the Company's Michel Collieries (including coke ovens) and its constricted site were major reasons why Natal was built soon afterwards, one mile downvalley (Fig. 17). Rather than being founded by the Company itself, Natal was established by individual employees of the Company, many coming from Michel. This was made possible by the Company's desire to be involved as little as possible in the housing business.

In 1908, the C.P.R.-controlled Pacific Coal Company became free of a legal agreement negotiated eleven years earlier with the Crow's Nest Pass Coal Company not to mine coal on the former's property north of Fernie and east of the C.P.R. tracks. These tracks were located towards the eastern



(B. C. Government)

FIGURE 17

MINE-SETTLEMENT COMPLEX OF MICHEL-NATAL-SPARWOOD, 1952

margin of the Elk Valley next to the C.P.R. block, leaving little room for a settlement on Company-owned property. It was desirable that the settlement of Hosmer be situated on both sides of the C.P.R. tracks in order to minimize the distance between houses, service industries, and the mine. By virtue of the tripartite agreement of 1897, the Crow's Nest Pass Coal Company owned the land between the C.P.R. tracks and the Elk River (Fig. 6), and sold two sections of it to the C.P.R. in 1908. Until this event, the Crow's Nest Pass Coal Company had played a neutral or inhibitory role in the colonization of non-Company lands on the British Columbia side of the Pass.

The Non-dominance of Any One Settlement on the Alberta Side of the Pass

It is no coincidence that eight of thirteen mine-settlement complexes and thirteen of eighteen mines established in the Region up to 1911 were located on the eastern side, despite the fact that there was less coal here than on the western side. Individual prospectors and companies alike flocked to the Alberta side of the Pass because no one company controlled more than a small fraction of the coal lands.[15] Whether the Canadian Government had a more

---

[15]West Canadian Collieries became the largest landholder on the Alberta side of the Pass up to 1911, controlling 20,000 acres, or 8 percent of the holdings of the Crow's Nest Pass Coal Company. Until 1905, when Alberta became a province, Alberta Territory was part of the Northwest Territories, which was administered by the Canadian Government.

restrictive policy or a less cooperative attitude than the British Columbia Government in this regard is not known. The explanation could be that the Crow's Nest Pass Coal Company possessed a better knowledge of the quantity and quality of coal on the British Columbia side and had formed a closer relationship with the C.P.R. and British Columbia Government than did other prospective entrepreneurs on either side of the Pass.

Prior to April, 1903, Frank gave some indication of becoming the "Fernie" of the eastern side of the Pass.[16] Canadian-American Coal and Coke Company opened the first mine on the Alberta side at Frank in 1901. Two years later, the Lille mine of United Coal Fields of British Columbia came into production. The Company's operational headquarters was placed at Frank where coke ovens were also to be located.

The 1903 slide[17] of seventy to ninety million tons of rock from Turtle Mountain did not deal an immediately fatal

---

[16]W. J. Cousins, The Story of Blairmore-Alberta, 1911-1961, p. 10.

[17]There are various theories as to the cause of the slide. The month of April is a time when slides in the Canadian Rockies are quite frequent. The subterranean vibrations generated by a train which had just passed by the mountain are thought by some to be the triggering mechanism of the slide. The mountain itself is unstable, a large block of limestone being overthrust on shale, sandstone, and coal beds. The mining of the mountain's coal undoubtedly increased its instability. According to the Indian legend which gave the mountain its name, Indians refused to camp near its base because they said that it was moving slowly--like a turtle.

blow to the settlement,[18] but the stage was set for Frank's loss of population dominance (Fig. 30). The slide sealed the mine entrances, and destroyed the mine plant and the small part of the town located east of Gold Creek, but did not seriously damage the mine itself (Fig. 18). A temporary preparation plant was built and a new shaft opened two months later.[19] With, however, mountains on three sides and the slide now on the fourth side, most of the 160 acres contained therein was already taken up by buildings and transportation facilities, leaving little room for future expansion of the settlement (Figs. 18 and 19). The slide covered the site of the planned coke ovens, later located at Lille by West Canadian Collieries, which purchased the assets of the United Coal Fields Company (Fig. 20). One year later, the Canadian Metal Company's lead-zinc smelter at Frank closed without coming into commercial production (Fig. 19). Canadian Coal Consolidated purchased the mining operation in 1909, but other accidents and financial difficulties continued to trouble it. The most important blow to Frank came in 1911 after a study of the stability of Turtle Mountain by a commission appointed by the Federal Government.[20] The main

---

[18]The slide had one beneficial effect upon Frank, in that a small kiln was built in 1909 at the eastern edge of the slide to convert limestone rock to lime (Fig. 18).

[19]An up-to-date, permanent tipple was constructed by the Company in 1905.

[20]R. A. Daly, W. G. Miller, and G. S. Rice, Report of the Commission Appointed to Investigate Turtle Mountain,

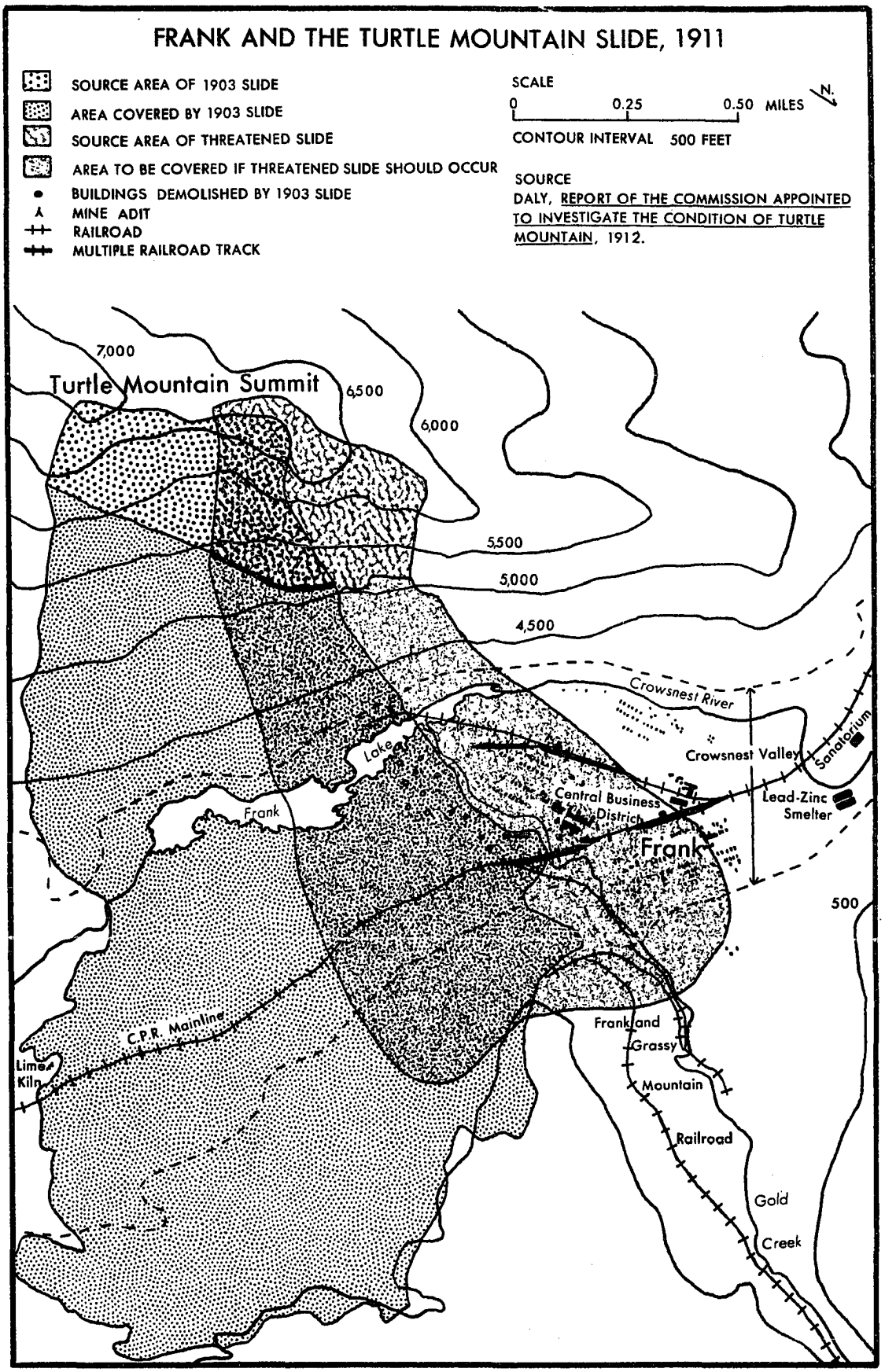
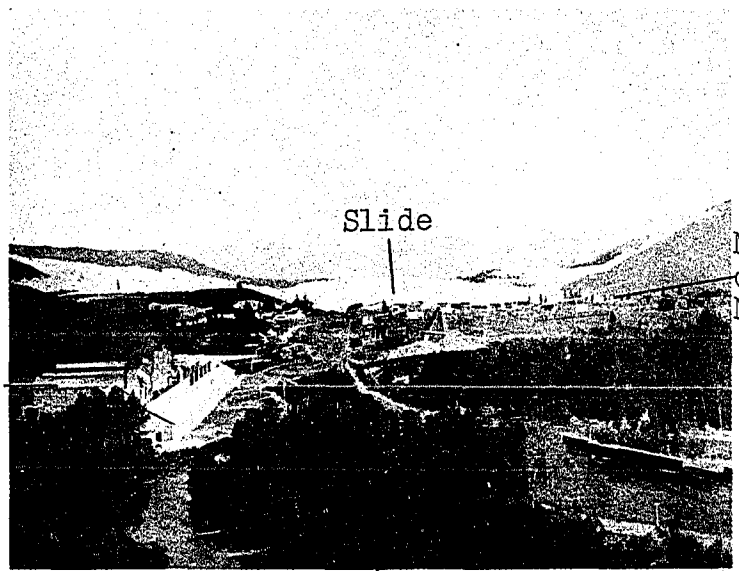

FRANK AND THE TURTLE MOUNTAIN SLIDE, 1911
SOURCE AREA OF 1903 SLIDE
AREA COVERED BY 1903 SLIDE
SOURCE AREA OF THREATENED SLIDE
AREA TO BE COVERED IF THREATENED SLIDE SHOULD OCCUR
BUILDINGS DEMOLISHED BY 1903 SLIDE
MINE ADIT
RAILROAD
MULTIPLE RAILROAD TRACK
SCALE
0 0.25 0.50 MILES
N.
CONTOUR INTERVAL 500 FEET
SOURCE
DALY, REPORT OF THE COMMISSION APPOINTED TO INVESTIGATE THE CONDITION OF TURTLE MOUNTAIN, 1912.
7,000
Turtle Mountain Summit
6,500
6,000
5,500
5,000
4,500
Crowsnest River
Crowsnest Valley
Sanatorium
Lake
Central Business District
Lead-Zinc Smelter
Frank
Frank
500
C.P.R. Mainline
Lime Kiln
Frankland
Grassy
Mountain
Railroad
Gold
Creek

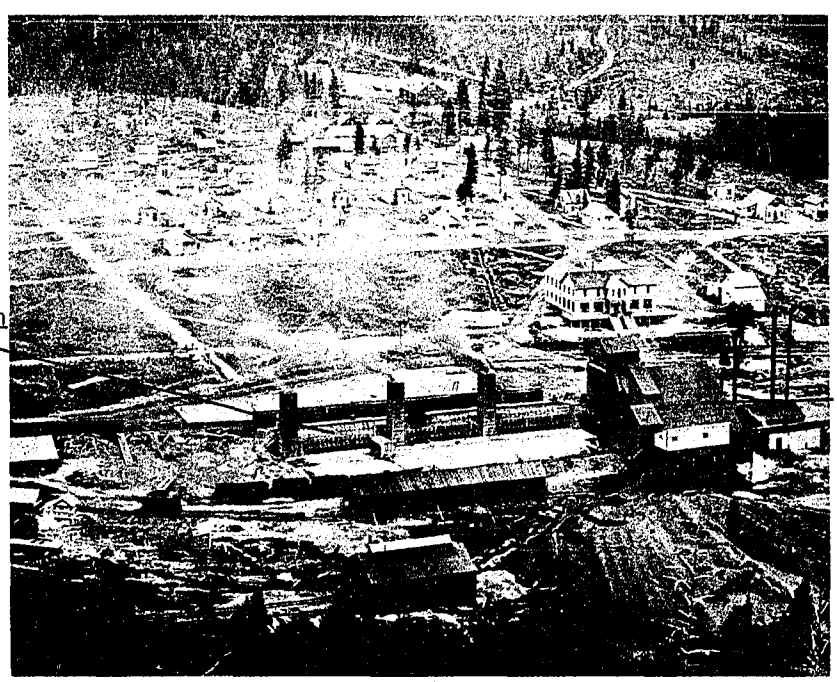
FIGURE 18



(Crow's Nest Pass Illustrated)

FIGURE 19

MINE-SETTLEMENT COMPLEX OF FRANK, ABOUT 1907



(Crow's Nest Pass Illustrated)

FIGURE 20

MINE-SETTLEMENT COMPLEX OF LILLE, ABOUT 1907

portion of the settlement, situated south of the C.P.R. tracks, was considered unsafe for human occupance, and, consequently, the rate of outmigration to the developing centers of Blairmore, and, secondarily, Bellevue and Hillcrest increased after 1911 (Fig. 21).

Coleman and Blairmore superceded Frank in population during the later part of the colonizing period of rapid expansion (Table 1). Established in 1898 as a railroad siding two miles west of Frank, Blairmore began to grow when McLaren Lumber Company constructed a large mill on its western outskirts between 1900 and 1902 (Fig. 16). Very little building, however, took place between 1901 and 1907, since no one could obtain clear title to land in Blairmore because of conflicting claims and a resultant long litigation. Coleman obtained a headstart on Blairmore chiefly because of earlier and larger scale coal operations, those of International Coal and Coke Company in 1903 and McGillivray Coal and Coke Company six years later (Figs. 22 and 32). About 1905, Carbondale and Pelletier lumber companies built mills on Coleman's northern and eastern outskirts, respectively. In 1908 and 1909, three small-scale operations, a cement plant,[21]

Frank, Alberta, 1911 (Ottawa: Geological Survey of Canada, Department of Mines, Government of Canada, 1912), 34 pp.

[21]The cement plant began production in May, 1908, three months prior to the "great fire" in the Elk Valley (Fig. 23). Thus, the fire did not lead to the building of the plant, although the factory must have benefited from the market in Fernie for its product after the fire.

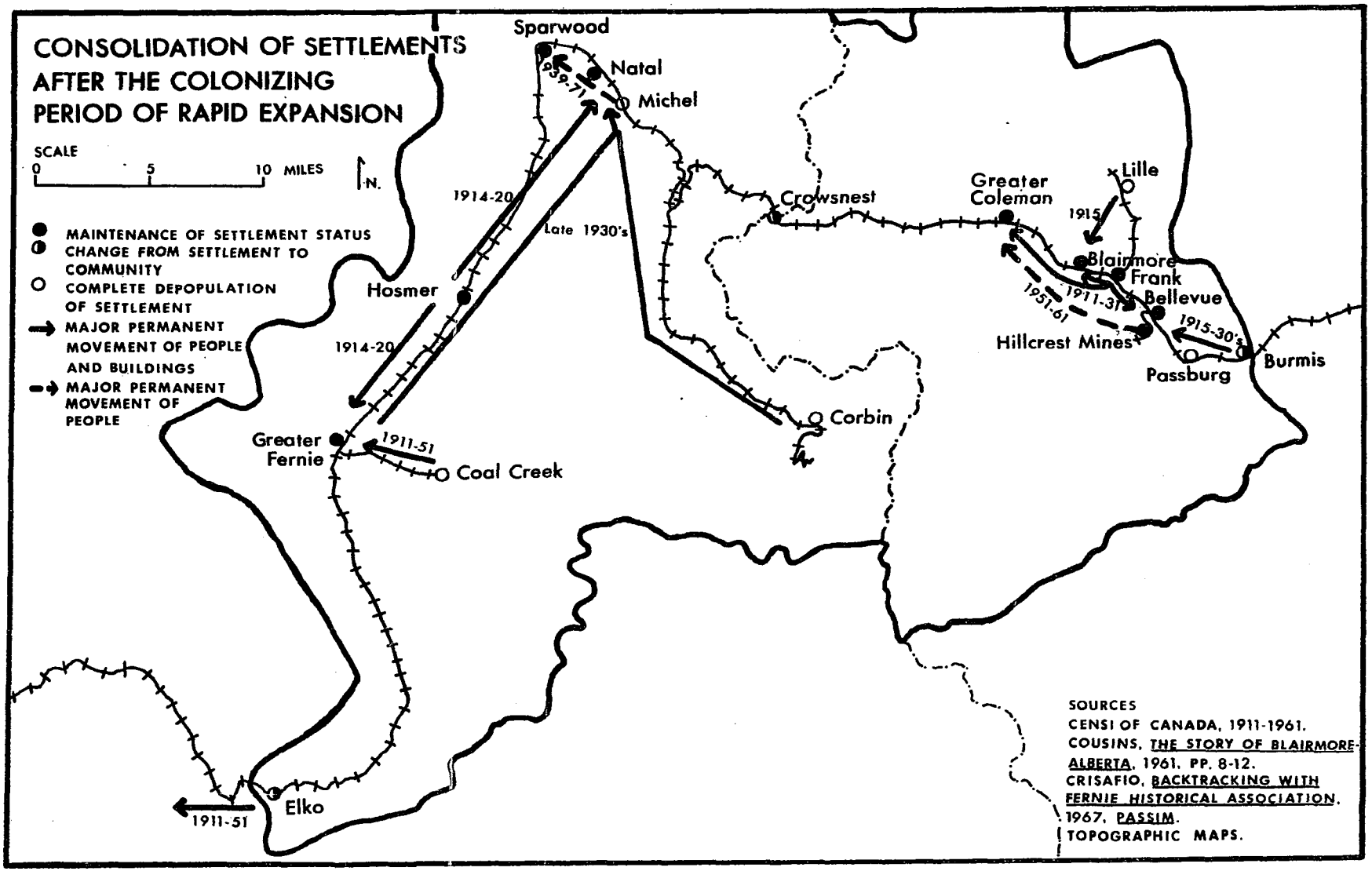

CONSOLIDATION OF SETTLEMENTS
AFTER THE COLONIZING
PERIOD OF RAPID EXPANSION
SCALE
0 5 10 MILES
N.
MAINTENANCE OF SETTLEMENT STATUS
CHANGE FROM SETTLEMENT TO COMMUNITY
COMPLETE DEPOPULATION OF SETTLEMENT
MAJOR PERMANENT MOVEMENT OF PEOPLE AND BUILDINGS
MAJOR PERMANENT MOVEMENT OF PEOPLE
Sparwood
Natal
Michel
1914-20
Late 1930's
Hosmer
1914-20
Crowsnest
Greater Coleman
Lille
1915
Blairmore
Frank
Bellevue
1911-31
1951-61
1915-30's
Hillcrest Mines
Passburg
Burmis
Corbin
Greater Fernie
1911-51
Coal Creek
Elko
1911-51
SOURCES
CENSI OF CANADA, 1911-1961.
COUSINS, THE STORY OF BLAIRMORE-ALBERTA, 1961, PP. 8-12.
CRISAFIO, BACKTRACKING WITH FERNIE HISTORICAL ASSOCIATION, 1967, PASSIM.
TOPOGRAPHIC MAPS.

FIGURE 21

TABLE 1

POPULATION OF THE SETTLEMENTS IN THE CROWSNEST PASS REGION

Settlement	1901	1911	1921	1931	1941	1951	1961	1971
Fernie	1,640	3,146	2,802	2,732	2,545	2,551	2,661	4,170
West Fernie	0	500[b]	450[b]	450[b]	450[b]	433	400[b]	400[b]
Coal Creek	400[b]	816	415	83	171	0	0	0
Michel[a]	476	1,376	1,171	1,050	1,066	825	591	0
Natal	0	400[b]	600[b]	643	1,117	1,302	829	150[b]
Sparwood	0	n.a.[c]	10[b]	10	21	125	295	2,400[b]
Morrissey	0	65	59	7	7[b]	7[b]	7[b]	7[b]
Hosmer	0	1,200[b]	75	153	117	144	104	150[b]
Corbin	0	264	403	560	0	0	0	0
Elko	400[b]	300[b]	276	167	134	49	50	50[b]
Crowsnest	n.a.[c]	177	129	82	116	135	68	50[b]
Blairmore	231	1,137	1,552	1,629	1,731	1,933	1,980	2,037
Frank	19	806	401	268	204	239	223	224
Lille	3	303	0	0	0	0	0	0
Bellevue	3	463	1,084	1,270	1,182	1,884	1,323	1,242
Coleman	0	1,557	1,590	1,704	1,870	1,961	1,713	1,534
Suburbs of Coleman	0	0	900[b]	900[b]	1,000[b]	1,000[b]	800[b]	770[b]
Hillcrest Mines	0	481	1,040	1,183	783	890	618	525[b]
Passburg	0	305	25[b]	0	0	0	0	0
Burmis	0	100[b]	92	92	63	81	67	19[b]
Sentinel	0	0	0	65	65	36	138	90[b]
Other Known Population	0	100[b]	300[b]	500[b]	850[b]	850[b]	225[b]	1,100[b]
Population of Region (1,000's)		2.8[b]	13.5[b]	13.4[b]	12.9[b]	13.5[b]	14.5[b]	12.1[b] 14.9[b]

[a]Michel's population includes that of Middletown.

[b]Estimated population.

[c]Not available (no accurate estimate possible).

Sources

Crisafio, Backtracking with Fernie Historical Association, passim.

Oldman River Regional Planning Commission, Crowsnest Pass Subregional Plan: 2--Population and Economy, p. 10.

Personal observation.

Statistics Canada, Decennial Censi of Canada, 1901-1971.



FIGURE 22

JUXTAPOSITION OF INTERNATIONAL MINE BUILDINGS, COKE OVENS, AND THE CENTRAL BUSINESS DISTRICT OF COLEMAN, ABOUT 1910

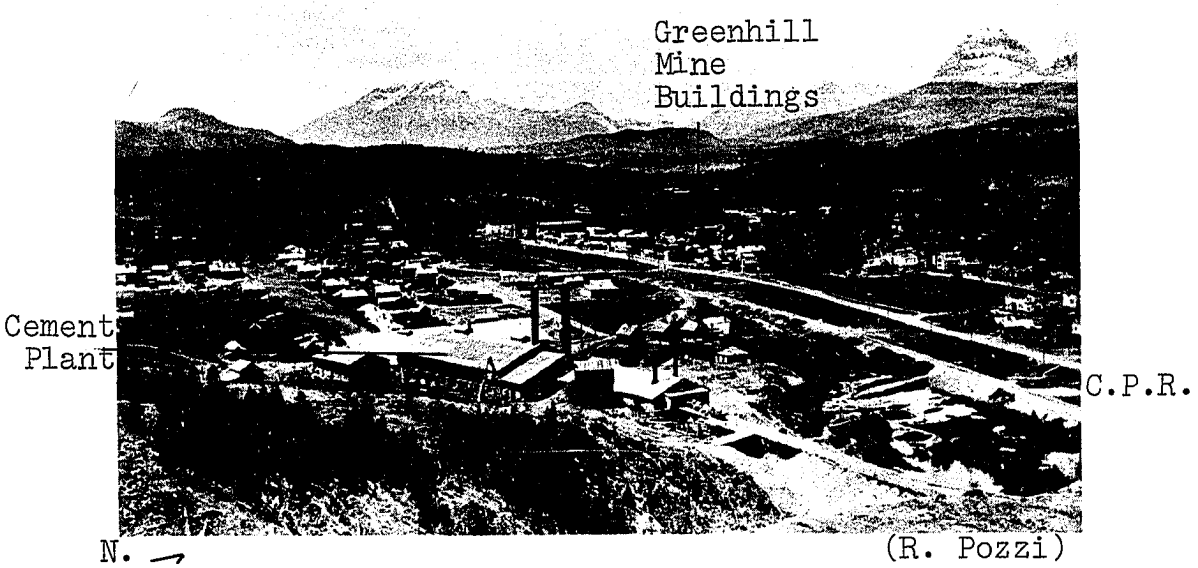


FIGURE 23

MINE-SETTLEMENT COMPLEX OF BLAIRMORE, ABOUT 1914

brick works, and the South Mine of West Canadian Collieries made their appearance in Blairmore (Fig. 33). During the period under study, there was only one inconclusive piece of evidence to suggest that West Canadian Collieries was aware that its largest producing mine would be developed at Blairmore after 1913. This was the transfer of the Company's operational headquarters in 1908 from Frank to Blairmore,[22] which at this time did not even possess a producing coal mine. By 1911, the population of Greater Coleman was 50 percent greater than that of Blairmore, a town which had not, as yet, become a mining-based settlement.

East of the Frank slide, there was an insufficient economic base for the existence of a settlement the size of Coleman or Blairmore, let alone one the size of Fernie. West Canadian Collieries and Hillcrest Coal and Coke Company began large-scale operations at Bellevue in 1904, and at Hillcrest Mines in 1906, respectively (Figs. 34 and 35). The quality and quantity of accessible coal reserves declined eastwards from Bellevue, but the size and density of timber decreased even more. As a result, the mines established at Maple Leaf (1908), a suburb of Bellevue, Passburg (1907), and Burmis (1907) were smaller operations than those to the west, and comprised the sole basic industry of Passburg and Burmis (Figs. 36 and 37).

---

[22]The relocation of the headquarters was a reasonable move in the light of the danger of further slides from Turtle Mountain.

Summary

There was no equivalent on the eastern side of the Pass to the economically dominant position held by Fernie on the western side throughout the colonizing period of rapid expansion. No one settlement on the Alberta side possessed the combination of ingredients necessary for dominance. First, there was no other coal company having the number of mines, capital, quantity of coal reserves, and the largest mine group and headquarters in the same mine-settlement complex as was to be found with the Crow's Nest Pass Coal Company. Second, lumbering was never as important to the economy of any Alberta Pass settlement as at Fernie, because timber was much less abundant in and immediately adjacent to the core on the Alberta side. Third, only Blairmore rivalled Fernie in having sufficient well-drained, easily serviced land on its margins to accommodate a population of several thousand. Fourth, the merchants of Fernie furnished many of the supplies for the founding of the settlements on the British Columbia side of the Pass by virtue of the fact that it was the first settlement to be established. Frank, the first settlement built on the Alberta side, was unable to retain enduring basic industries, with the result that service industries also did not develop as they did in Fernie.

During the period of rapid expansion, colonization established a pattern of juxtaposed settlements and basic industries on the landscape. This pattern was brought into

being largely because prevailing technology necessitated a journey to work on foot in most cases. Railroads constituted the chief means of travel between settlements and the sole means of transporting people and goods to and from the outside world. The core comprised the site of most of the settlements and possessed a sufficiently gentle slope for railroad construction: hence, railroads were concentrated in the core. The rapidity with which settlements were founded (and rebuilt in the case of Fernie) reflected the Zeitgeist of the Region's residents, as exemplified by Fernieites:

> The West requires our coal, our coke, and our lumber, and is demanding it in rapidly increasing volume. To keep pace with this rapidly growing demand is the object of our mines and mills. For the expansion of these industries we have almost inexhaustable [sic] resources. In their certain development lies the destiny of Fernie.[23]

This commonly held belief in the virtual inexhaustibility of timber resources contributed to the denudation of timber from the British Columbia portion of the core by 1911. Coal mining technology was insufficiently advanced to remove this resource as rapidly. In the development of coal and timber without thought of conservation lay the seeds of economic decline, as events after 1911 were to substantiate in part.

---

[23]Fernie Free Press, The Crow's Nest Pass Illustrated (Fernie: Fernie Free Press, 1907), n.p.

Filmed as received

without page(s) 67 .

UNIVERSITY MICROFILMS.

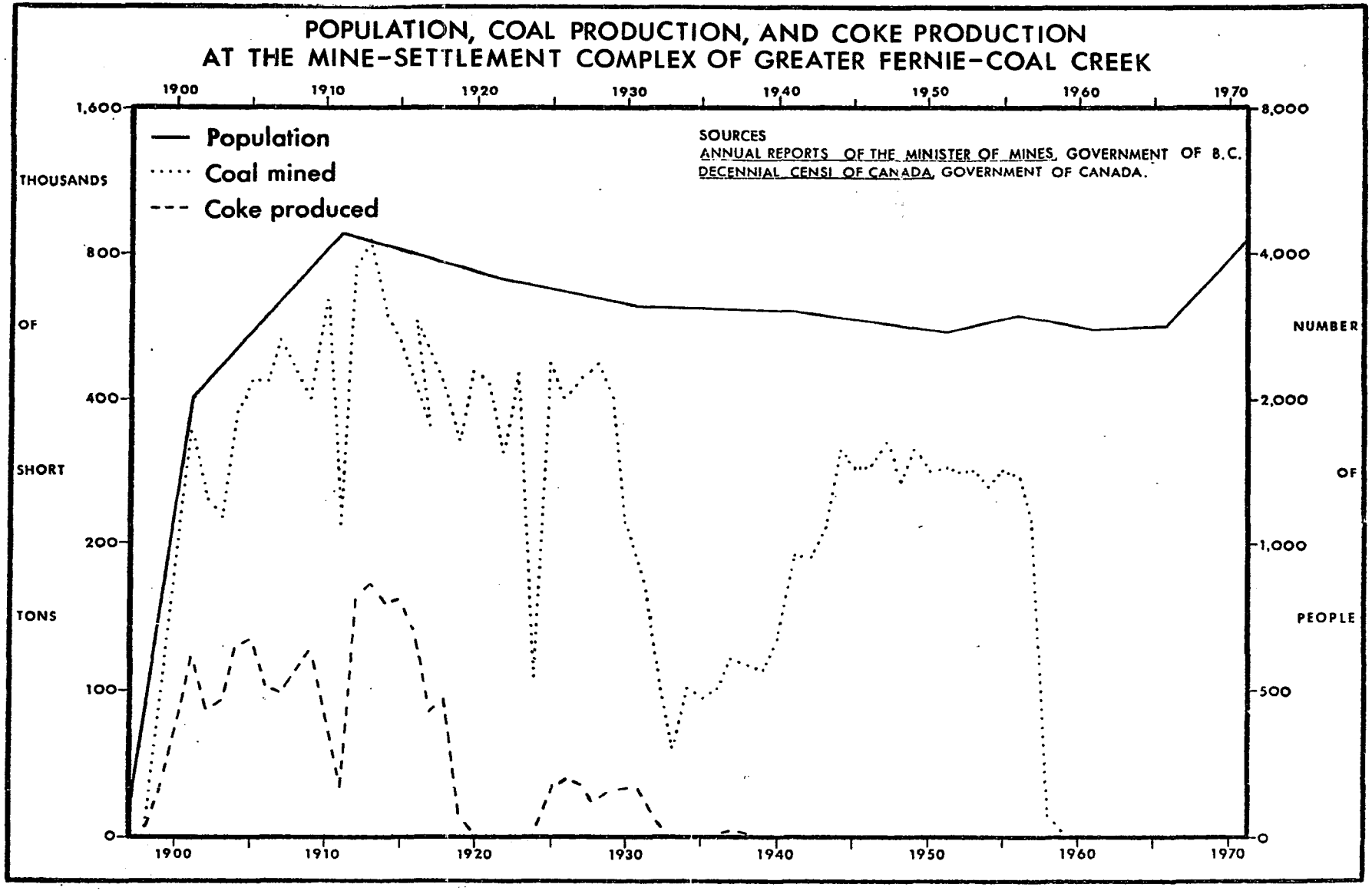

POPULATION, COAL PRODUCTION, AND COKE PRODUCTION
AT THE MINE-SETTLEMENT COMPLEX OF GREATER FERNIE-COAL CREEK
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
Coke produced
SOURCES
ANNUAL REPORTS OF THE MINISTER OF MINES, GOVERNMENT OF B.C.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 25

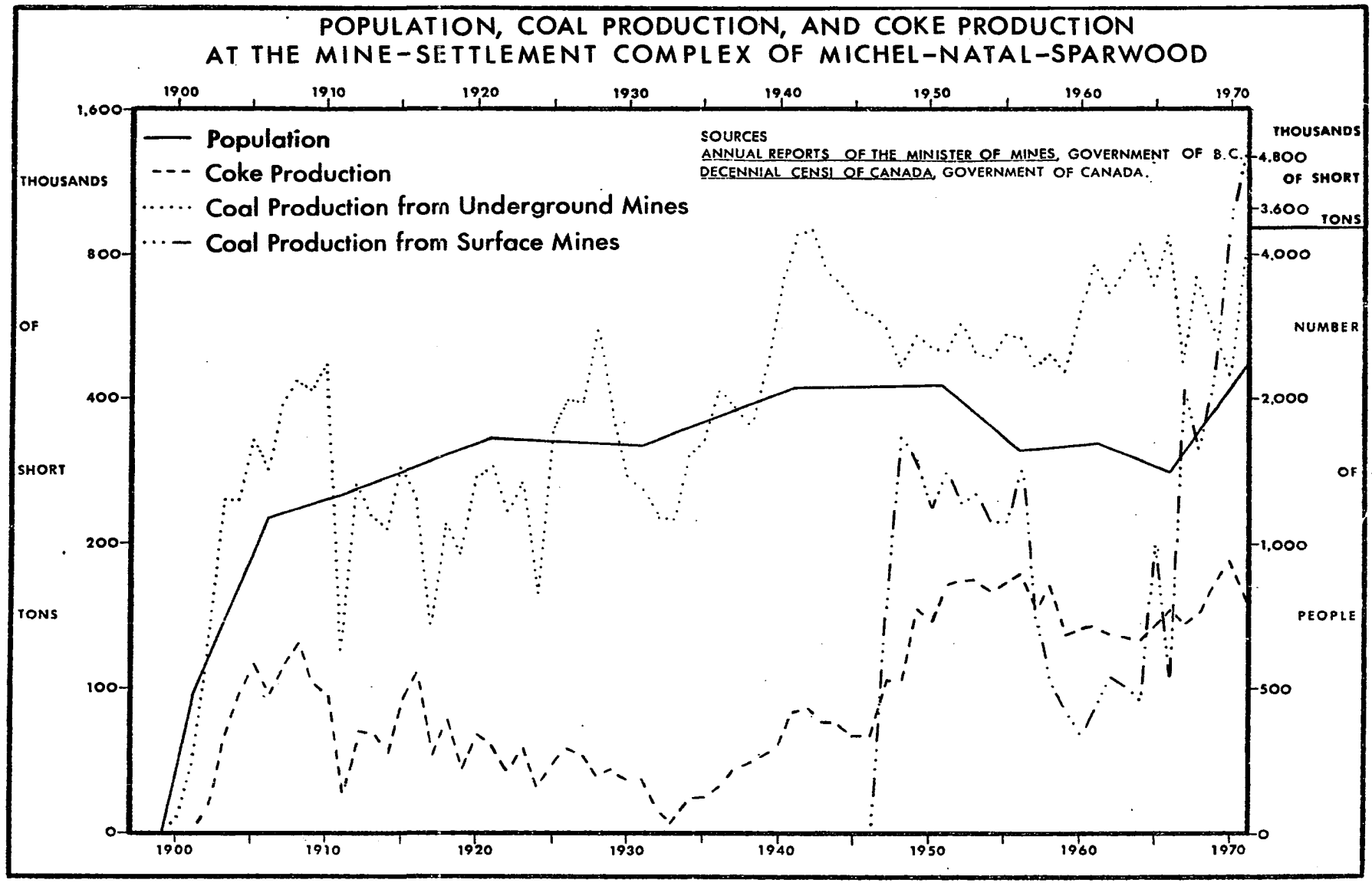

POPULATION, COAL PRODUCTION, AND COKE PRODUCTION
AT THE MINE-SETTLEMENT COMPLEX OF MICHEL-NATAL-SPARWOOD
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
Population
Coke Production
Coal Production from Underground Mines
Coal Production from Surface Mines
SOURCES
ANNUAL REPORTS OF THE MINISTER OF MINES, GOVERNMENT OF B.C.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.
THOUSANDS
OF SHORT
TONS
4,800
3,600
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE

FIGURE 26

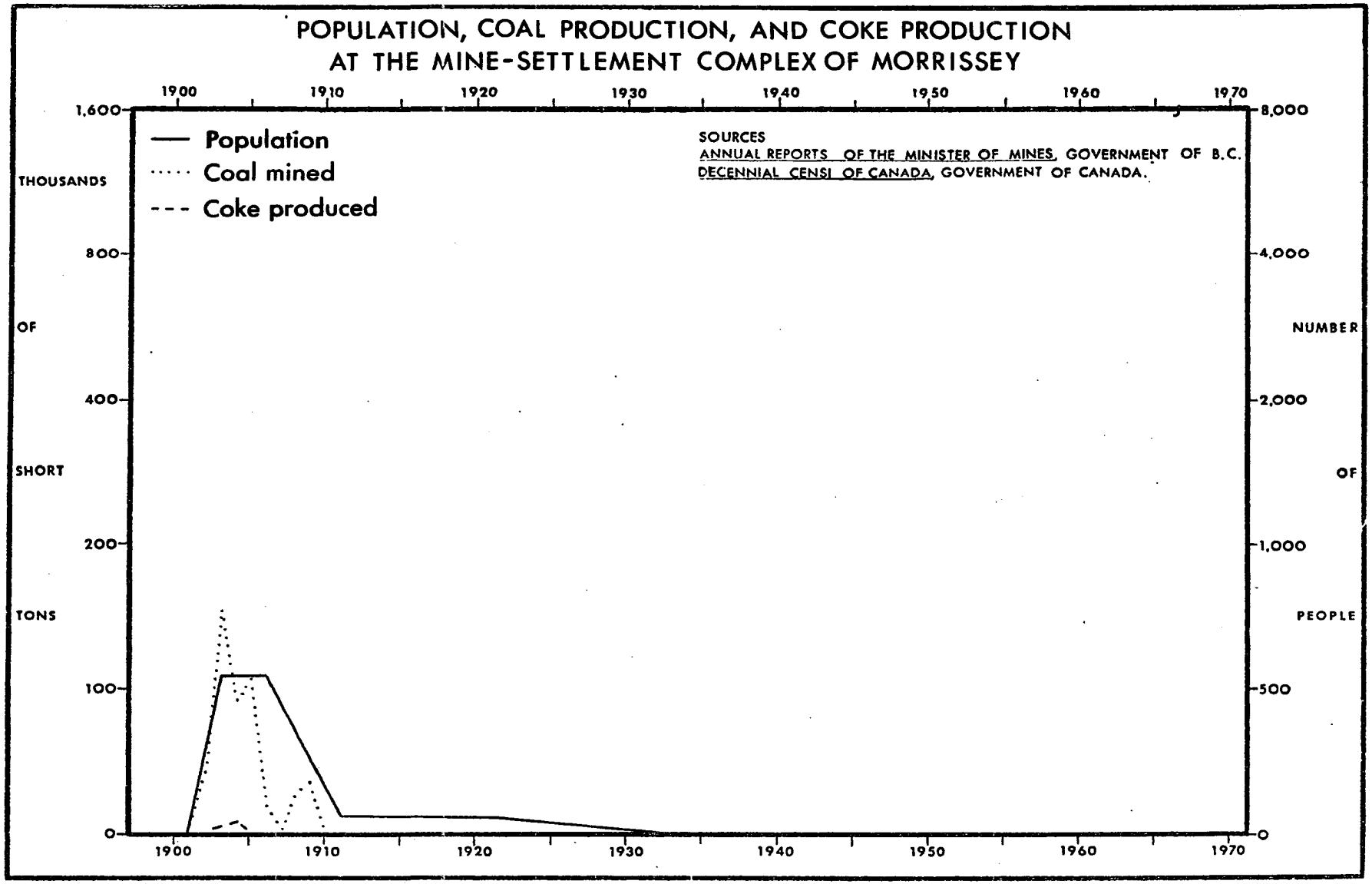

POPULATION, COAL PRODUCTION, AND COKE PRODUCTION
AT THE MINE-SETTLEMENT COMPLEX OF MORRISSEY
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
Coke produced
SOURCES
ANNUAL REPORTS OF THE MINISTER OF MINES, GOVERNMENT OF B.C.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 27

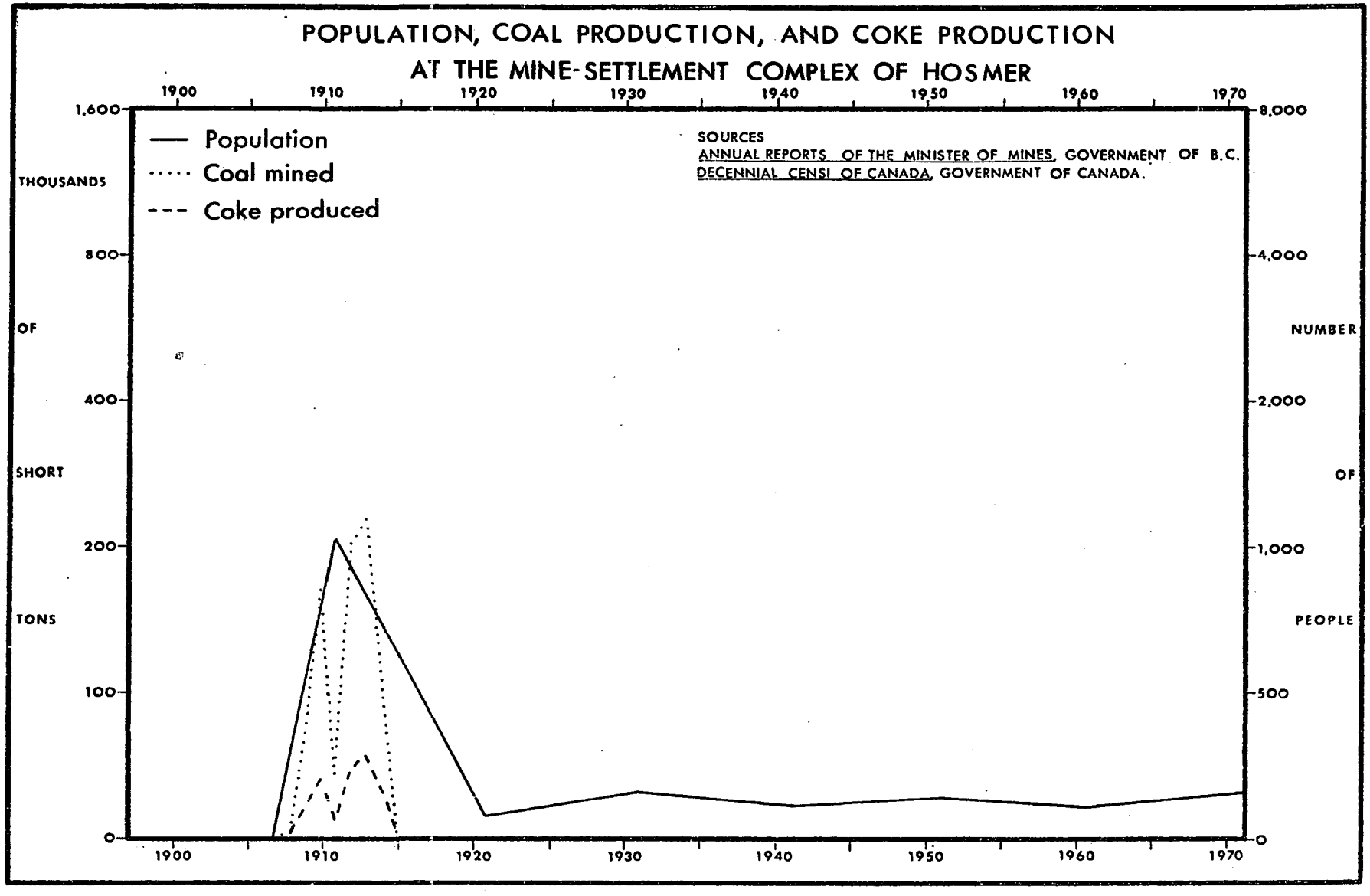

POPULATION, COAL PRODUCTION, AND COKE PRODUCTION
AT THE MINE-SETTLEMENT COMPLEX OF HOSMER
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
Coke produced
SOURCES
ANNUAL REPORTS OF THE MINISTER OF MINES, GOVERNMENT OF B.C.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 28

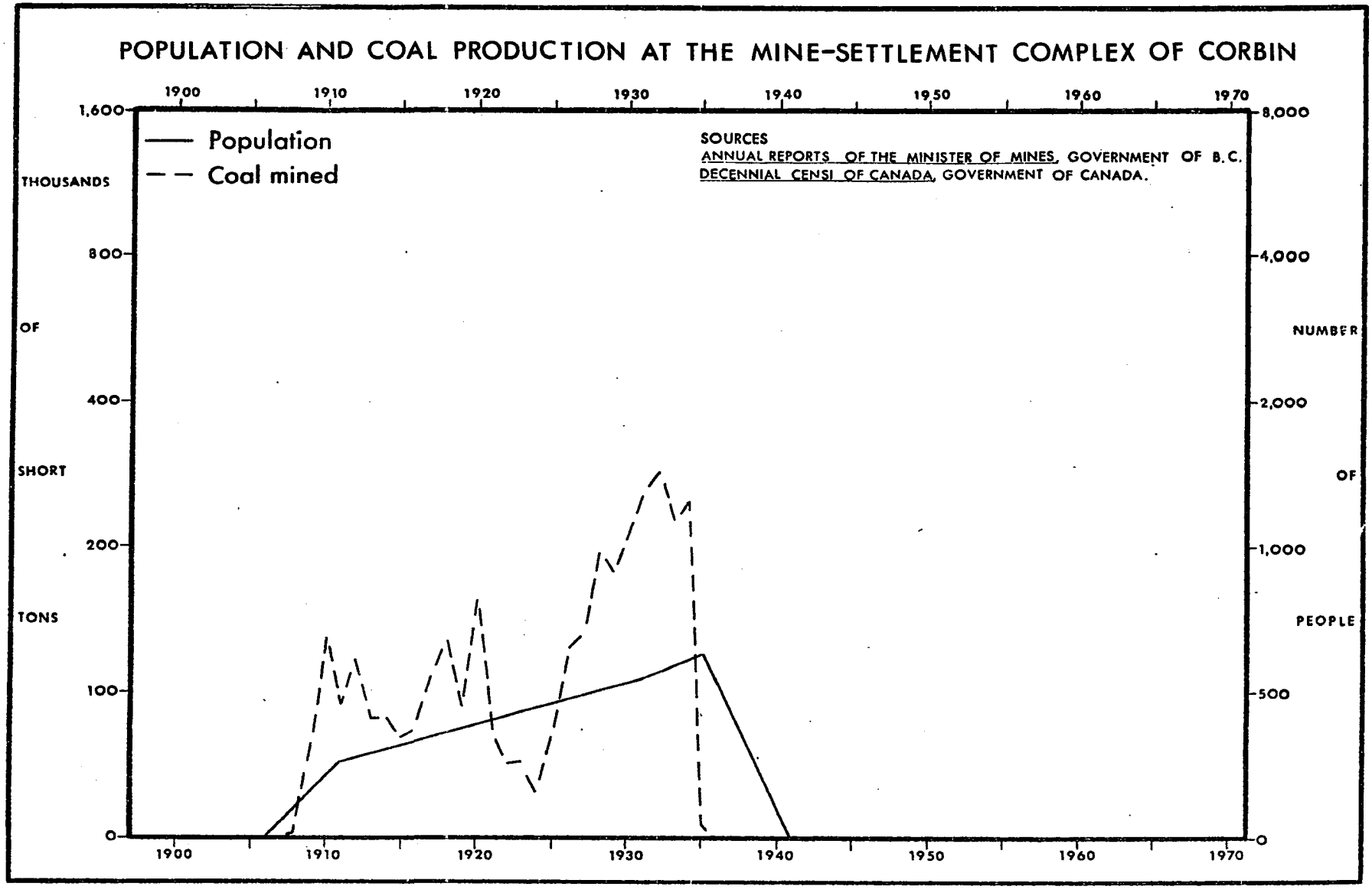

POPULATION AND COAL PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF CORBIN
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
SOURCES
ANNUAL REPORTS OF THE MINISTER OF MINES, GOVERNMENT OF B.C.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 29

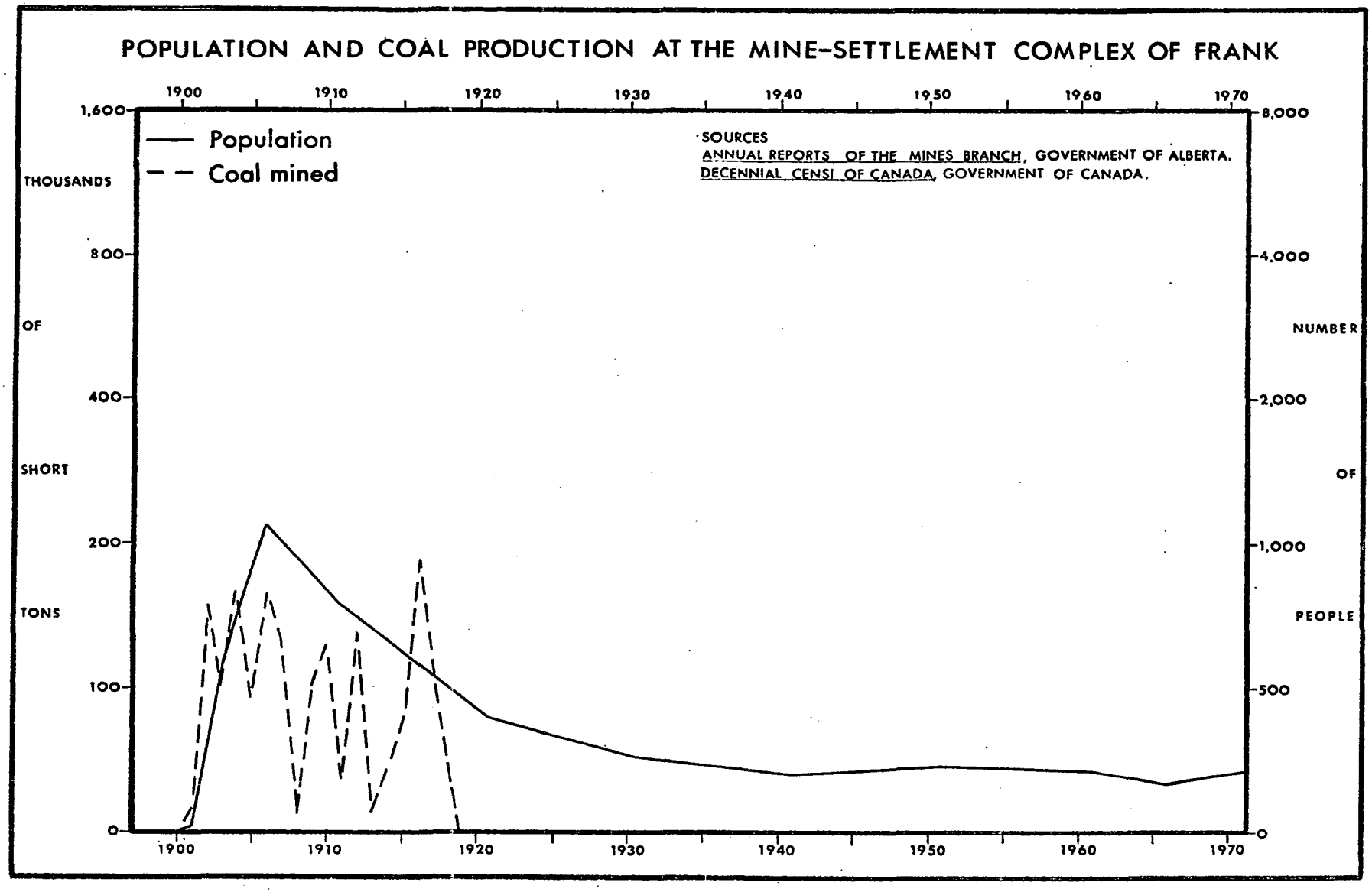

POPULATION AND COAL PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF FRANK
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
8,000
4,000
2,000
1,000
500
0
Population
Coal mined
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.
THOUSANDS
OF
SHORT
TONS
NUMBER
OF
PEOPLE

FIGURE 30

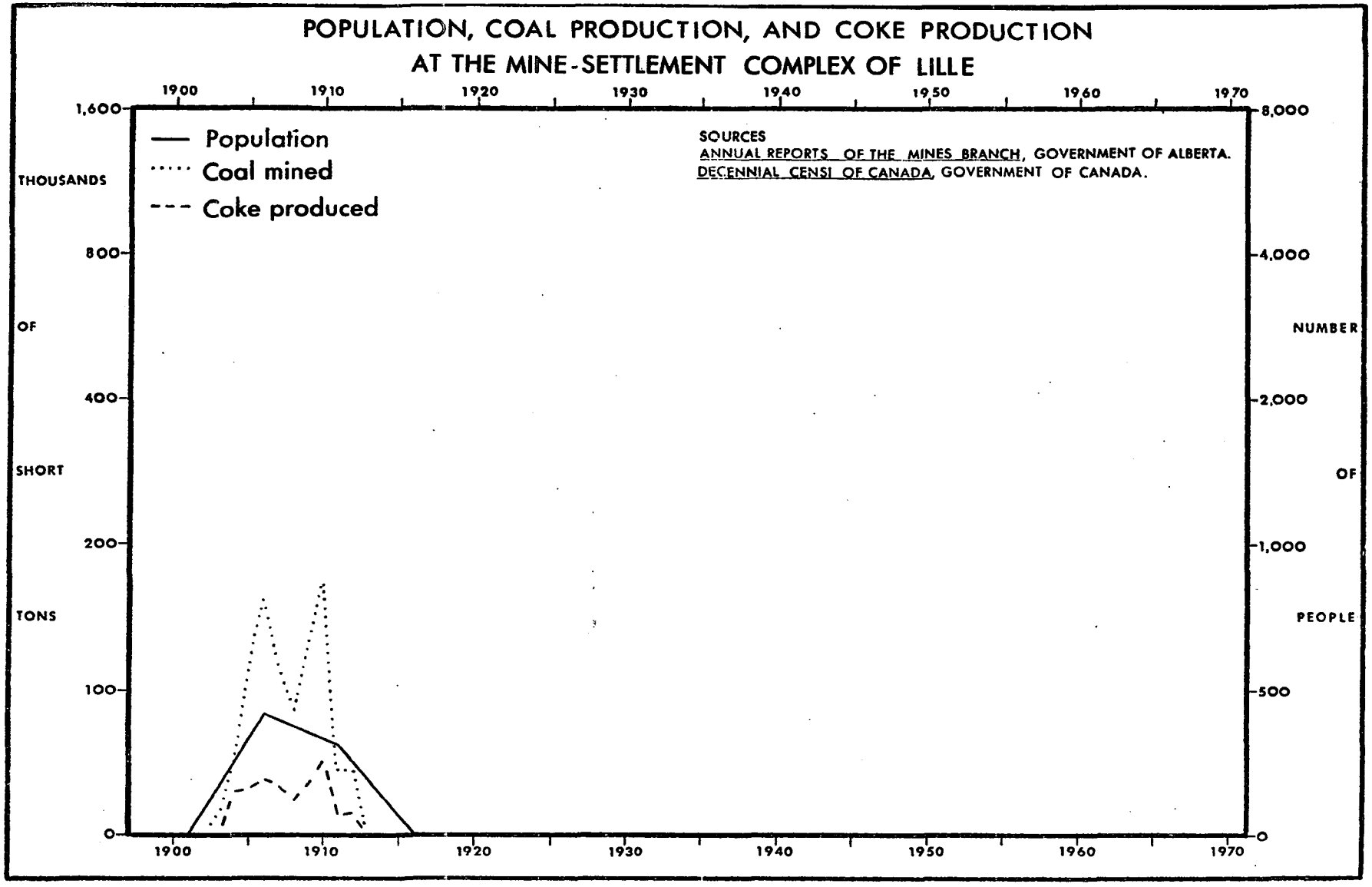

POPULATION, COAL PRODUCTION, AND COKE PRODUCTION
AT THE MINE-SETTLEMENT COMPLEX OF LILLE
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
Coke produced
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 31

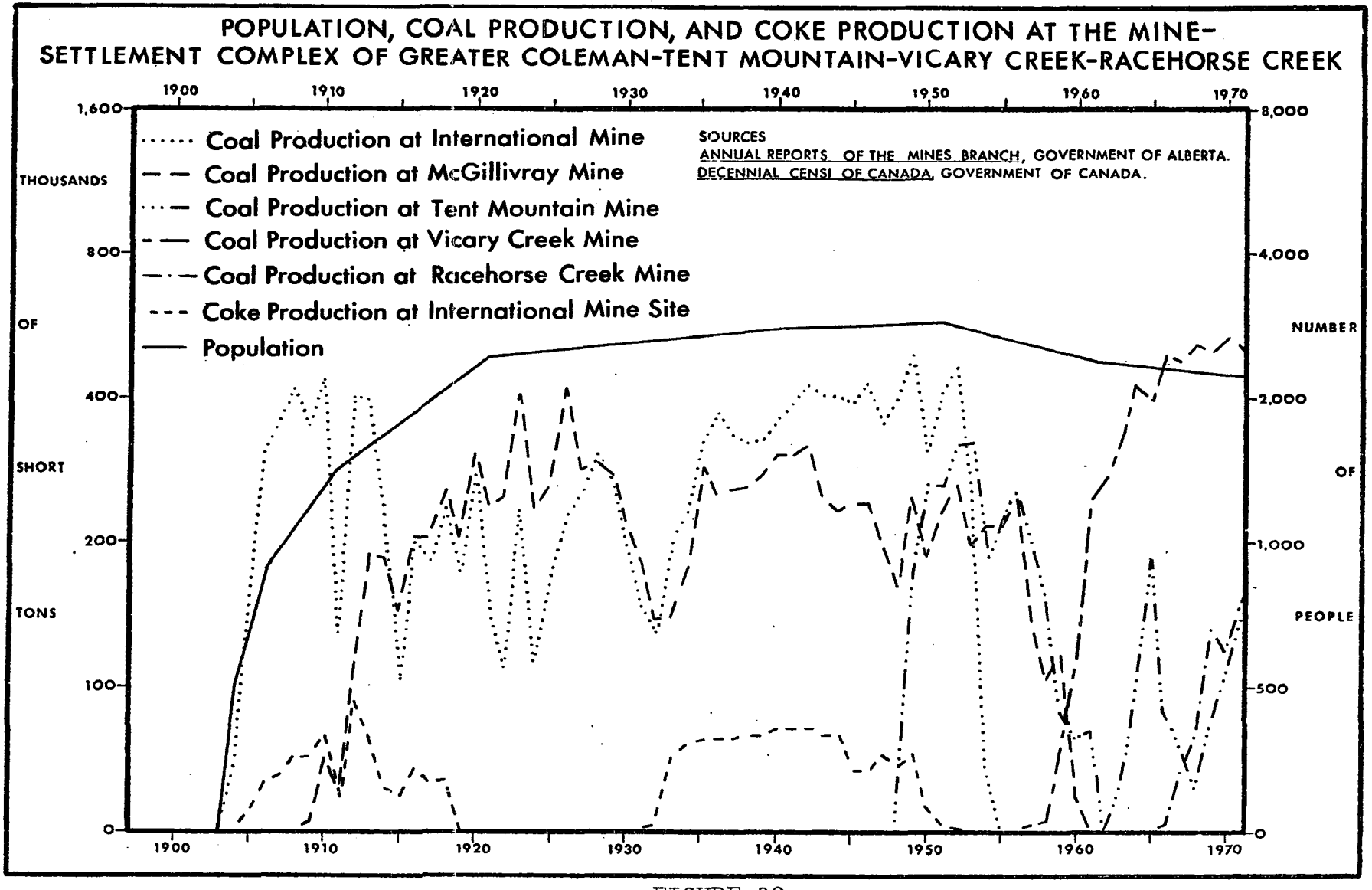

POPULATION, COAL PRODUCTION, AND COKE PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF GREATER COLEMAN-TENT MOUNTAIN-VICARY CREEK-RACEHORSE CREEK
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Coal Production at International Mine
Coal Production at McGillivray Mine
Coal Production at Tent Mountain Mine
Coal Production at Vicary Creek Mine
Coal Production at Racehorse Creek Mine
Coke Production at International Mine Site
Population
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 32

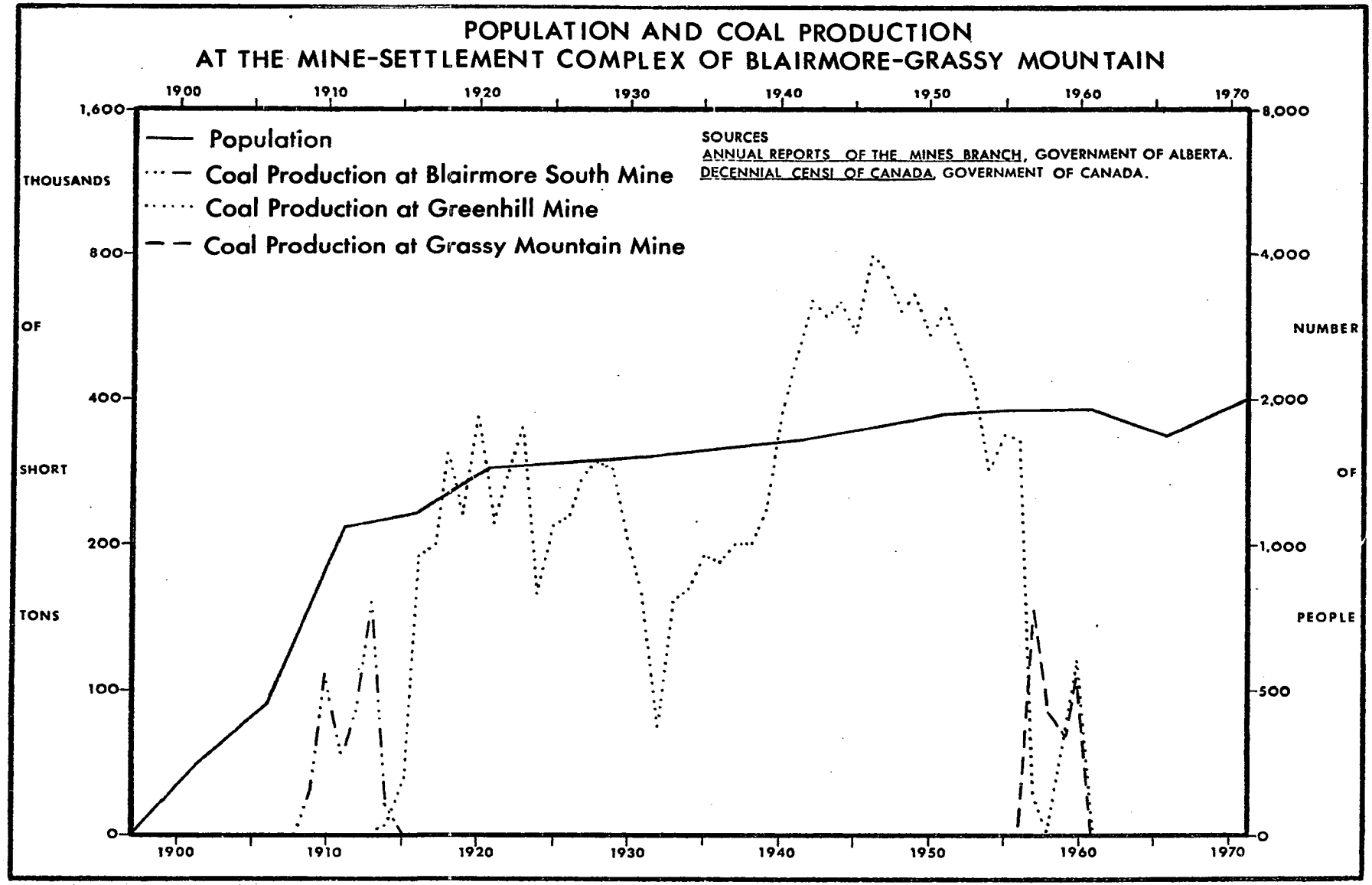

POPULATION AND COAL PRODUCTION
AT THE MINE-SETTLEMENT COMPLEX OF BLAIRMORE-GRASSY MOUNTAIN
Population
Coal Production at Blairmore South Mine
Coal Production at Greenhill Mine
Coal Production at Grassy Mountain Mine
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.
THOUSANDS
OF
SHORT
TONS
NUMBER
OF
PEOPLE
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
8,000
4,000
2,000
1,000
500
0

FIGURE 33

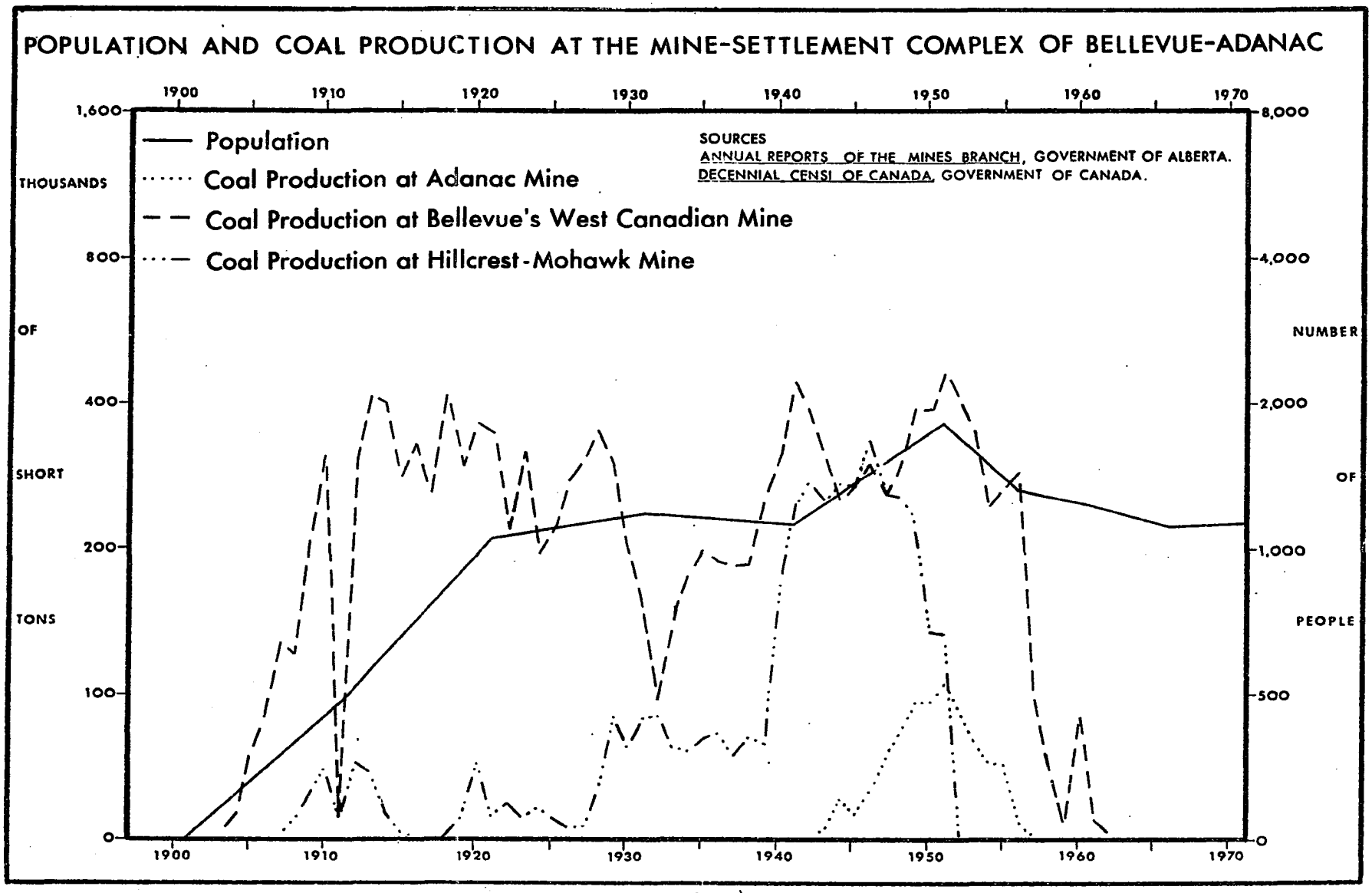

POPULATION AND COAL PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF BELLEVUE-ADANAC
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal Production at Adanac Mine
Coal Production at Bellevue's West Canadian Mine
Coal Production at Hillcrest-Mohawk Mine
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 34

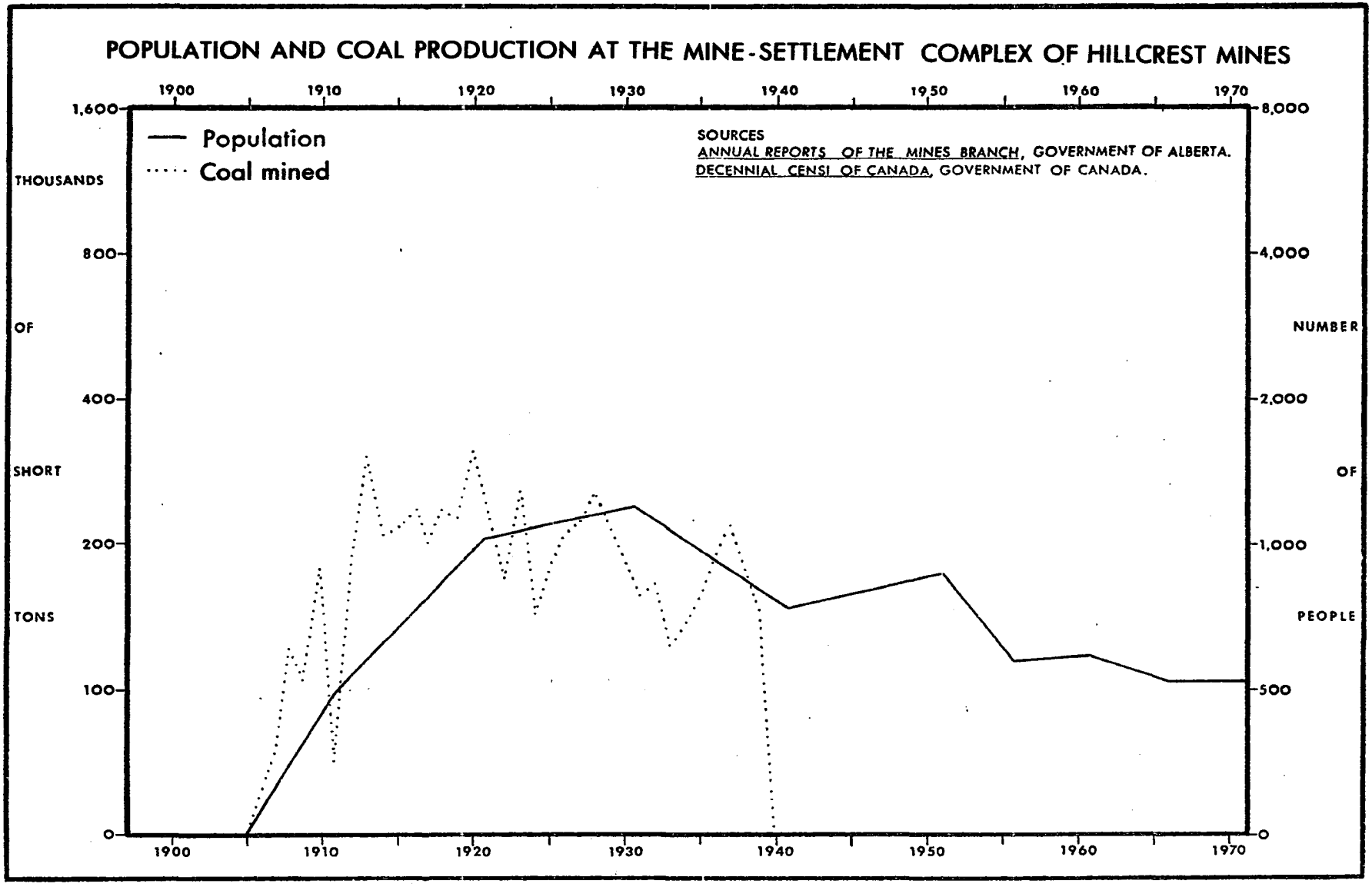

POPULATION AND COAL PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF HILLCREST MINES
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 35

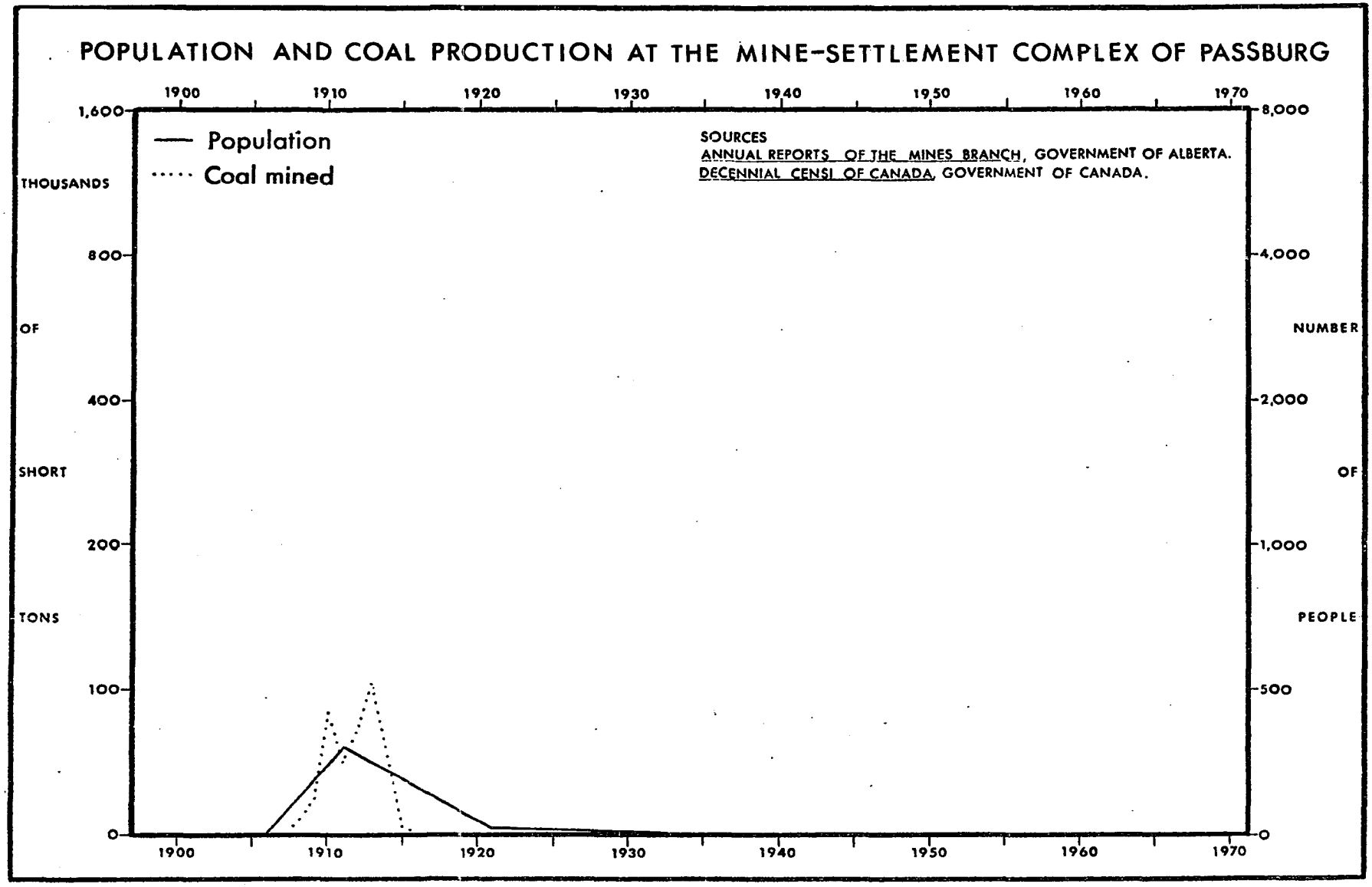

POPULATION AND COAL PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF PASSBURG
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
THOUSANDS
OF
SHORT
TONS
8,000
4,000
2,000
1,000
500
0
NUMBER
OF
PEOPLE
Population
Coal mined
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 36

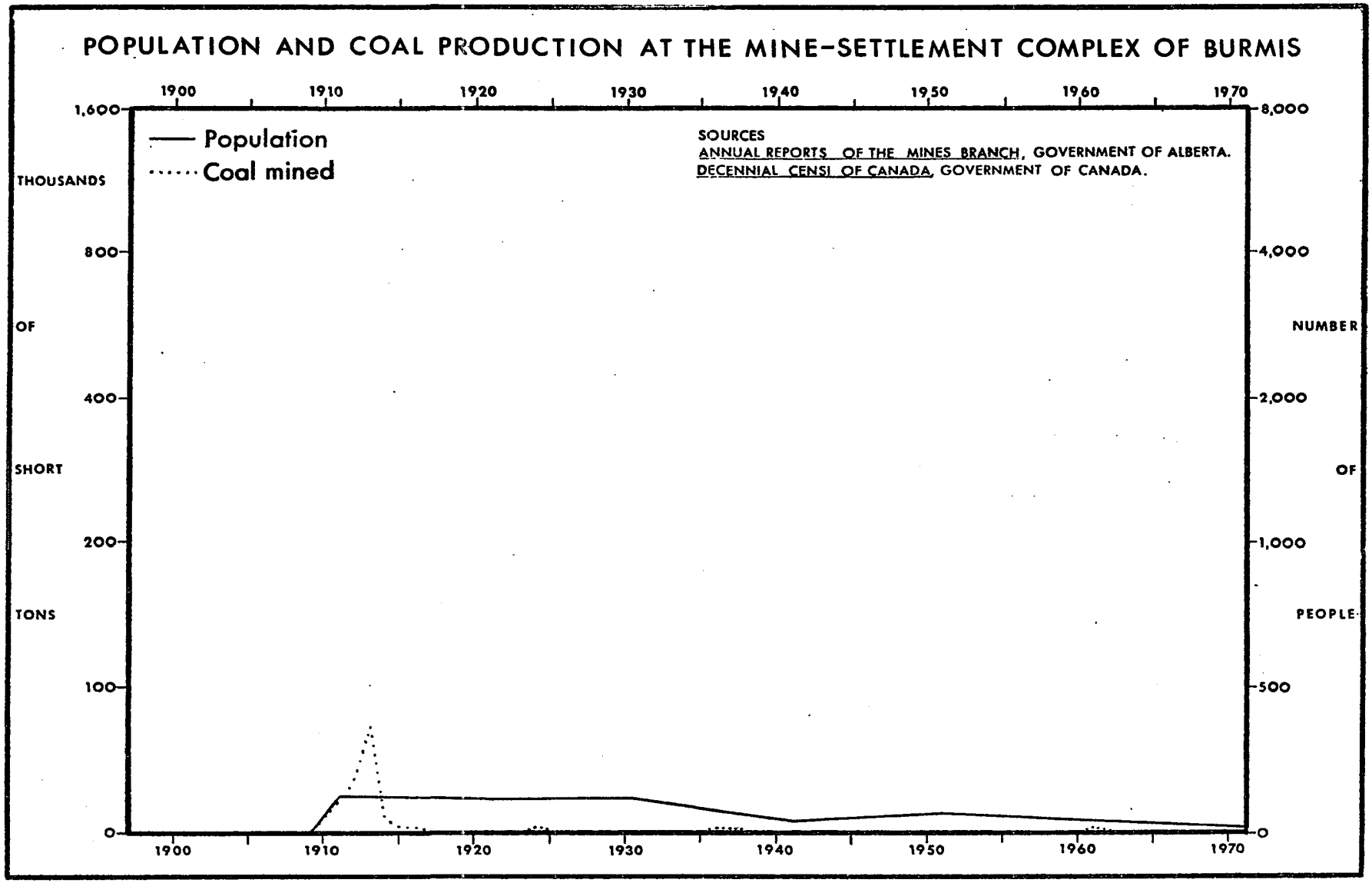

POPULATION AND COAL PRODUCTION AT THE MINE-SETTLEMENT COMPLEX OF BURMIS
1900
1910
1920
1930
1940
1950
1960
1970
1,600
800
400
200
100
0
8,000
4,000
2,000
1,000
500
0
THOUSANDS OF SHORT TONS
NUMBER OF PEOPLE
Population
Coal mined
SOURCES
ANNUAL REPORTS OF THE MINES BRANCH, GOVERNMENT OF ALBERTA.
DECENNIAL CENSI OF CANADA, GOVERNMENT OF CANADA.

FIGURE 37

CHAPTER IV

THE PERIOD OF MODERATE EXPANSION (1911-1951)

During 1911, a turning point in the economic fortunes of the Pass could be detected. The colonizing period in the Region had occurred simultaneously with the railroad expansion of Prime Minister Laurier's time and the filling up of the agricultural lands of the Canadian prairie. As 1911 marked the end of fifteen consecutive years of rule by the federal Liberal Party and the beginning of an economic recession in Canada, capital became much harder to obtain. Secondly, a number of investments in the Region's basic industries prior to 1911 had not been successful. From their beginnings, some of these had no chance of remaining economically viable over a long period of time. At least one promoter had used photographs of another Company's mine infrastructure in order to obtain capital for the development of what was in reality unproven and undeveloped property. Partly as a result of these events, only one large-scale mine was opened between 1911 and 1943.

During the period of moderate expansion, there was a slight overall increase in population and coal production

(Fig. 24), but the number of settlements and the number of companies engaged in various extractive economic activities decreased. In 1911, eleven settlements existed inside the core, two outside the core, and one both inside and outside the core. By 1951, the corresponding statistics were nine, zero, and zero, respectively. The number of coal mining companies had decreased from eleven to four, but the reduction in the number of operating mines and mine groups was less, from fourteen to nine. There was an even sharper reduction in the number of companies extracting other raw materials in the Region.

Changing Markets for Coal and Its Products

The railroad market, which accounted for 70 to 90 percent of the Region's coal production between 1911 and 1951, was the most stable market, but there were changes here too. The G.N.R. converted to diesel-burning locomotives and promptly removed its track, sidings, and stations from Michel to Elko in 1926, and from Elko to the Montana border via the Kootenay floodplain in 1938. The C.P.R. came to demand a progressively lower percentage of slack in the coal that the Company received.[1] Coleman and Michel used some slack for making coke, but the rest, and that from mines with no coke-making facilities, began to accumulate beside the preparation plants (Fig. 23). Slack could be used in thermal power plants which

[1]Slack is the finest screenings of coal coming from a preparation plant.

utilized pulverized coal, but there was only one of these in the Region, established at Sentinel in 1927. In 1947, West Canadian Collieries at Blairmore began to produce briquettes, containing 95 percent slack held together by 5 percent asphalt. These new uses, however, did not require sufficient slack to fully compensate for the progressive decline in the smelter market for coke after 1911, let alone eliminate the huge piles (Figs. 38 and 39).

The market for coke did not prove to be as stable as that for steam coal. The chief market for the Region's coke prior to 1911 had been base metal smelters in southern British Columbia. These had been overbuilt, resulting in the closure of all but the smelter at Trail between 1911 and 1914. The production of all coking operations was adversely affected (Figs. 25, 26, 28, 31, and 32). At Hosmer and Lille, where 30 to 50 percent of the coal produced had been coked,[2] the mines and coke ovens were closed permanently. A further contraction in the smelter market at the end of World War I resulted in sporadic coke production at Coleman and Fernie, and the cessation of coke-making at Fernie in 1932, except

---

[2]Approximately three tons of coal were used to produce two tons of coke from beehive ovens, found wherever coke was produced except at Lille, where Belgian coke ovens were built (Fig. 20, Table 2). The former, shaped internally like a beehive, were twelve feet in diameter and constructed of fire brick in double rows. Between each row was built a railway track, along which side-discharging cars were hauled by light locomotives (Fig. 13). Each oven was charged with coal from the top and the resultant coke was extracted from the side opening.

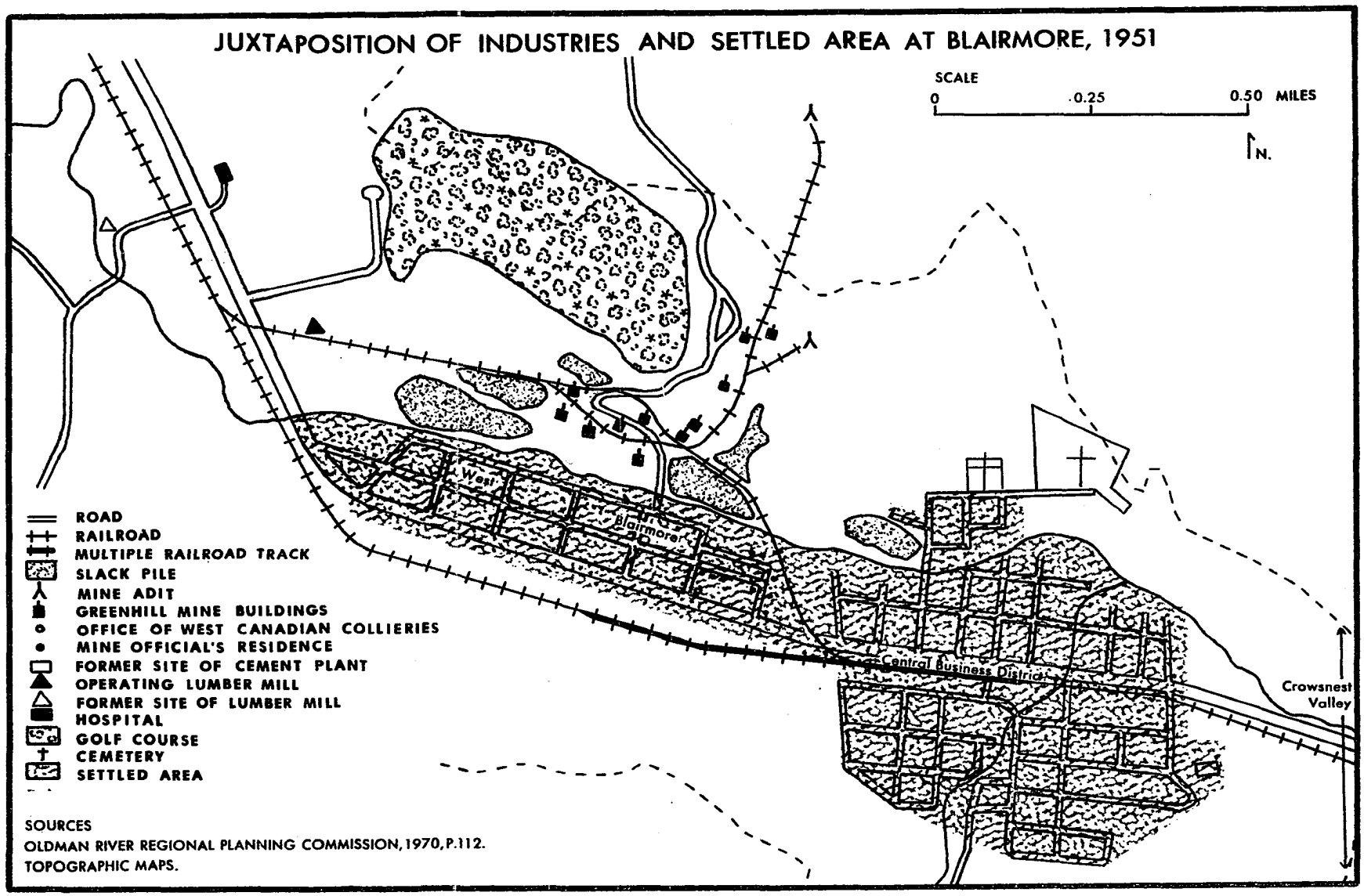

JUXTAPOSITION OF INDUSTRIES AND SETTLED AREA AT BLAIRMORE, 1951
SCALE
0
0.25
0.50 MILES
N.
West Blairmore
Central Business District
Crowsnest Valley
ROAD
RAILROAD
MULTIPLE RAILROAD TRACK
SLACK PILE
MINE ADIT
GREENHILL MINE BUILDINGS
OFFICE OF WEST CANADIAN COLLIERIES
MINE OFFICIAL'S RESIDENCE
FORMER SITE OF CEMENT PLANT
OPERATING LUMBER MILL
FORMER SITE OF LUMBER MILL
HOSPITAL
GOLF COURSE
CEMETERY
SETTLED AREA
SOURCES
OLDMAN RIVER REGIONAL PLANNING COMMISSION, 1970, P.112.
TOPOGRAPHIC MAPS.

FIGURE 38



FIGURE 39

MINE-SETTLEMENT COMPLEX OF BLAIRMORE, 1950'S

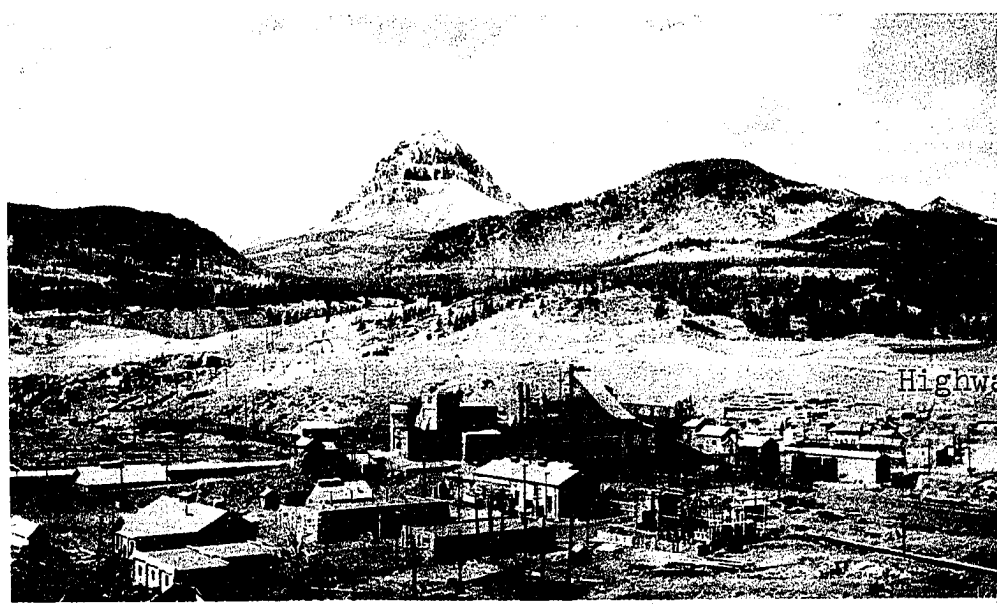


FIGURE 40

INTERNATIONAL MINE BUILDINGS AT COLEMAN, 1950'S

TABLE 2

COKE OVENS IN THE CROWSNEST PASS REGION

Location	Company	Period of Operation[a]	Type of Oven[c]	Number	Date of Complete Demolition
Fernie	Crow's Nest Pass Coal Company	1898-1919; 1925-1932; 1937	Beehive	424	1967
Michel	Crow's Nest Pass Coal Company	1902-1952.	Beehive.	464	1952
		1939-1971	Curran-Knowles Byproduct	52	Still Operating
Morrissey	Crow's Nest Pass Coal Company	1903-1905	Beehive	240	228 Still Standing
Lille	West Canadian Collieries	1904-1912	Bernard, Belgian	50	Circa 1913
Coleman	International Coal and Coke Company	1905-1918; 1932-1952	Beehive	216	21 Still Standing
Passburg	Leitch Collieries	Nil[b]	Beehive	100	Circa 1915
Hosmer	Pacific Coal Company	1908-1914	Beehive	240	90 Still Standing

[a]As measured from the operation of the first oven to the cessation of operation of the last oven. Not all ovens at any one location were necessarily built or ceased to function at the same time.

[b]Built in 1907 but never operated.

[c]The Belgian and beehive ovens are portrayed in Figures 13 and 19.

Sources

Cousins, "A History of the Crow's Nest Pass," passim.
Department of Mines and Minerals, Annual Reports of the Mines Branch, Government of Alberta.
Department of Mines and Petroleum Resources, Annual Reports of the Minister of Mines, Government of British Columbia.
Personal observation.

for a brief reopening in 1937. The depressed economic conditions of the 1930's[3] may have forced the Crow's Nest Pass Coal Company to consolidate its coke operations at Michel, but it is noteworthy that 1932 happened to be the year that the Consolidated Mining and Smelting Company at Trail negotiated a long-term coke contract with the International company at Coleman. C.P.R. financial interests in the Trail and Coleman companies, and the controlling interest held by the C.N.R. in the Crow's Nest Pass Coal Company probably explain why the contract did not go to the Crow's Nest Pass Coal Company. Coke production at Coleman ceased in 1952 (Fig. 40), shortly before the C.P.R. financial interest in the Coleman mines was purchased by the organizers of Coleman Collieries.[4] Michel's coke production continued after 1952 from more efficient but more costly Curran-Knowles byproduct coke ovens, which gradually replaced the beehive ovens between 1939 and 1952. Thus, changing markets and changing technology caused the gradual disappearance of a prominent linear source of illumination on the nocturnal landscape of the Pass.

---

[3]Hereafter in this dissertation the use of the term "the Depression," will refer to the depressed economic conditions of the 1930's.

[4]Young states that "in the late 1940's, the Consolidated Mining and Smelting Company held a 42 percent interest in the Coleman mines." Soon after the merger of the Hillcrest-Mohawk, International, and McGillivray companies to form Coleman Collieries at the end of 1951, F. J. Harquail, the President of Coleman Collieries, personally bought all the Consolidated Mining and Smelting Company stock in the McGillivray and International companies (personal communication D. B. Young former General Manager of Hillcrest-Mohawk Collieries and Coleman Collieries, Edmonton, July 23, 1971).

Consolidation of Extractive Industries

The spatial effect of merging, absorbing, and liquidating companies engaged in the extraction of raw materials from above and below the earth's surface was to concentrate these activities in fewer locations (Table 3). Between 1910 and 1925, large forest fires and intensive cutting within the core put several lumber companies out of business, and forced the rest to look outside the core and readily accessible tributary valleys for their source of timber. For example, on the Alberta side, McLaren Lumber Company flumed logs for six miles through the valley of Allison Creek into Crowsnest River where the logs were floated to the Company's sawmill west of Blairmore (Figs. 8, 15, and 16). Pelletier Lumber Company flumed logs through the valley of Pelletier Creek directly to a sawmill on the eastern edge of Coleman. During the 1920's and 1930's, both operations closed permanently, largely because continuing forest fires had destroyed most of the accessible saw timber on the northern fringes of the Crowsnest Trough. Between 1925 and 1935, there was virtually "nobody in the business" because of a paucity of merchantable timber and "poor economic conditions."[5]

During the period of moderate expansion, most consolidations involved the smaller-scale companies, which, in

---

[5]Personal communication W. R. Wilson, Land Commissioner, Crows Nest Industries, Fernie, September 15, 1971. By 1926, most of the small lumber operators had abandoned their railside mills, and, therefore, the removal of the G.N.R. line had little effect upon the Region's lumber industry.

TABLE 3

PRE-1952 CLOSURES OF THE OPERATIONS OF COMPANIES ENGAGED IN COAL, CLAY, OR LIMESTONE EXTRACTION

Date of Consol-idation	Co. Operation or Co. Consolidated	Location	Nature of Closure	Co. Operation or Co. Merged With or Absorbed Into
1909	Crow's Nest Pass Coal Co.	Morrissey	Absorption	Coal Creek and Michel Coll. of Same Co.
1910	Pelletier Brick Works	Blairmore	Absorption	Rocky Mountain Cement Co.
1912	West Canadian Coll.	Lille	Absorption	Greenhill Mine of Same Co.
1914	West Canadian Coll.	South Blairmore	Absorption	Greenhill Mine of Same Co.
1914	Rocky Mountain Cement Co.	Blairmore	Absorption	Canada Cement Co.
1914	Pacific Coll.	Hosmer	Liquidation	-
1915	Leitch Coll.	Passburg	Liquidation	-
1916	Davenport Coal Co.	Burmis	Liquidation	-
1918	Canadian Coal Consolidated	Frank	Liquidation	-
1923	Frank Lime Co.	E. edge of Frank Slide	Liquidation	-
1924	Fernie Brick Works	Fernie	Liquidation	-
1930	Sunburst Coal Co.	Blairmore	Liquidation	-
1931	Byron Creek Coll.	Byron Creek	Adsorption	Hillcrest Coal and Coke Co.
1935	Corbin Coll.	Corbin	Liquidation	-
1939	Hillcrest Coal and Coke Co.	Hillcrest Mines	Merger	Mohawk Bituminous Mines

Sources

Department of Mines and Minerals, Annual Reports of the Mines Branch, Government of Alberta.

Department of Mines and Petroleum Resources, Reports of the Minister of Mines, Government of British Columbia.

Personal communication W. J. Cousins, Lethbridge, July 13, 1971.

many cases, did not possess sufficient capital to progressively mechanize their operations, so as to remain competitive with the larger companies. The two largest coal companies to cease operations were the last to do so during this period. "Rumbles of impending labor troubles" were heard in Corbin in 1929 as miners became unemployed because Corbin Collieries began to use steam shovels to strip mine coal instead of less mechanized techniques and equipment.[6] These problems culminated in a massive strike of workers in 1935 that resulted in the permanent closure of the operation (Fig. 29). Four years later, Hillcrest Coal and Coke Company merged with Mohawk Bituminous Mines to form Hillcrest-Mohawk Collieries. The Hillcrest Company possessed more capital and better equipment, while the Mohawk Company had more abundant reserves of accessible coal.[7] Consequently, a new preparation plant was constructed on the eastern outskirts of Bellevue, and the Hillcrest operation closed.

The coal companies exported a much greater proportion of their production from the Region and generally had less exhaustible reserves than did the other extractive industries. The proportionate decrease in the number of coal companies,

---

[6]L. Phillips, Backtracking with Fernie Historical Association, p. 85.

[7]Personal communication J. Currie Sr., former employee of Hillcrest Coal and Coke Company, Hillcrest-Mohawk Collieries, and Coleman Collieries, Hillcrest, July 17, 1970; personal communication D. B. Young, Edmonton, July 23, 1971.

therefore, was less, particularly during the 1920's when the internal market for building materials declined drastically from a peak reached during the colonizing period of rapid expansion. This drastic decline was ultimately caused by a decrease in the growth rate of the Region's economic mainstay, coal mining.

Mechanization of the Lumber Industry

The process of mechanizing the lumber industry increased the accessibility of timber outside the core. Prior to 1935, horses were used to transport logs from the cutting site to the mill, when and where water transport of logs was unfeasible.[8] Between 1935 and 1940, several small operators began to log in the distant reaches of creek basins adjacent to the Elk Valley with portable mills and caterpillar tractors, instead of with fixed mills, flumes, and horses (Fig. 41). After 1945, the availability of more advance road-building machinery and the construction of heavy-duty logging trucks further expanded the spatial distribution of the lumbering industry. Instead of cutting timber within a ten-mile radius of a fixed and permanent mill, as was generally the case prior to 1930, it now became economically feasible to harvest timber twenty or more miles away from the permanent

---

[8]For example, McLaren Lumber Company owned a ranch ten miles by road southeast of Burmis, where "hundreds of horses" were kept and put in shape for logging in winter, when water bodies were frozen (A. M. Burnett, The Story of Blairmore-Alberta: 1911-1961, p. 39).

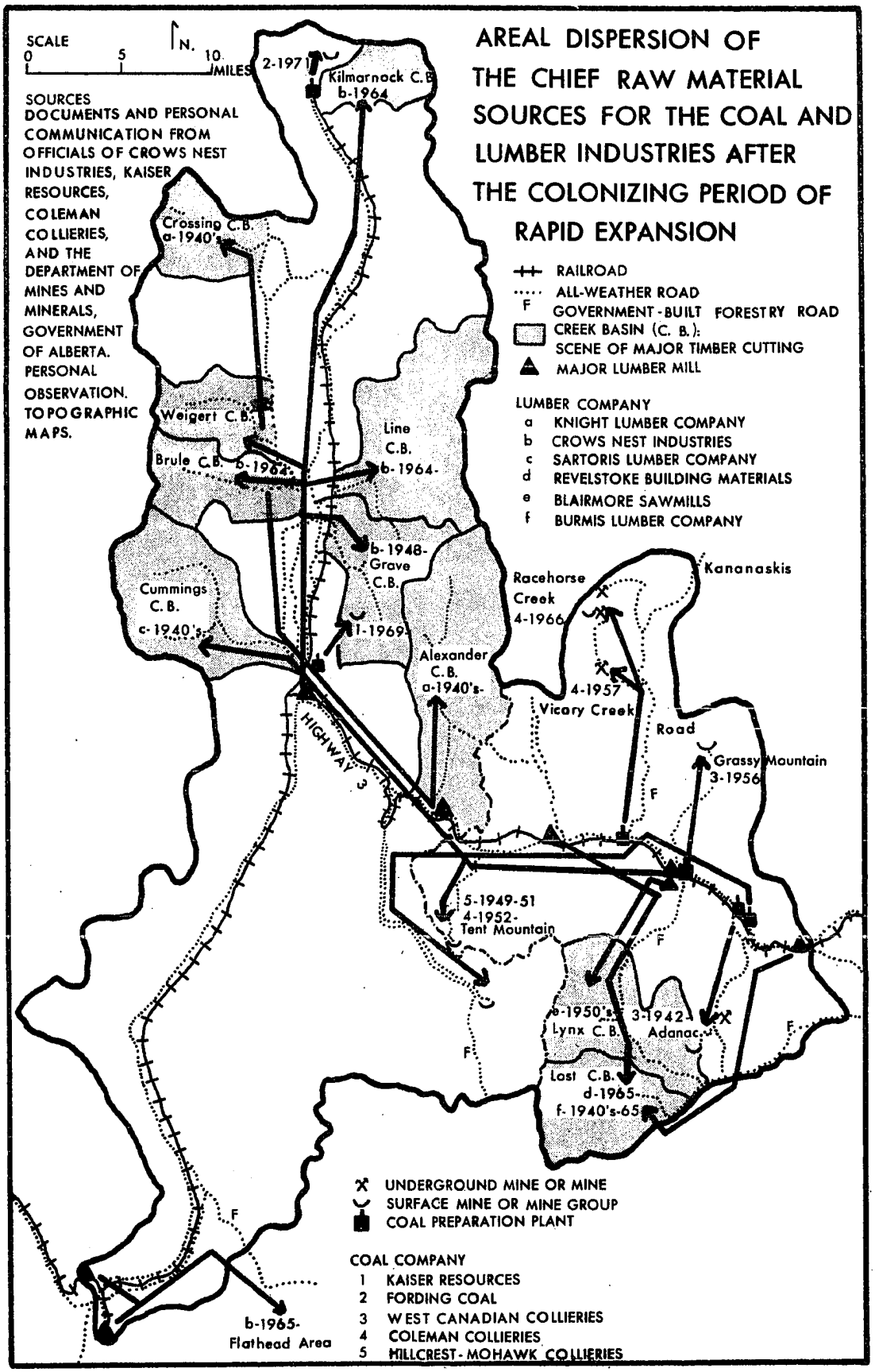

AREAL DISPERSION OF THE CHIEF RAW MATERIAL SOURCES FOR THE COAL AND LUMBER INDUSTRIES AFTER THE COLONIZING PERIOD OF RAPID EXPANSION
SCALE 0 5 10 MILES
N.
SOURCES
DOCUMENTS AND PERSONAL COMMUNICATION FROM OFFICIALS OF CROWS NEST INDUSTRIES, KAISER RESOURCES, COLEMAN COLLIERIES, AND THE DEPARTMENT OF MINES AND MINERALS, GOVERNMENT OF ALBERTA. PERSONAL OBSERVATION. TOPOGRAPHIC MAPS.
RAILROAD
ALL-WEATHER ROAD
F GOVERNMENT-BUILT FORESTRY ROAD
CREEK BASIN (C. B.): SCENE OF MAJOR TIMBER CUTTING
MAJOR LUMBER MILL
LUMBER COMPANY
a KNIGHT LUMBER COMPANY
b CROWS NEST INDUSTRIES
c SARTORIS LUMBER COMPANY
d REVELSTOKE BUILDING MATERIALS
e BLAIRMORE SAWMILLS
f BURMIS LUMBER COMPANY
2-1971
Kilmarnock C.B. b-1964
Crossing C.B. a-1940's
Weigert C.B.
Brule C.B. b-1964
Line C.B. b-1964
b-1948-
Grave C.B.
Cummings C.B. c-1940's
1-1969
Alexander C.B. a-1940's-
Racehorse Creek 4-1966
Kananaskis
4-1957
Vicary Creek
Road
Grassy Mountain 3-1956
HIGHWAY 3
5-1949-51
4-1952-
Tent Mountain
e-1950's
Lynx C.B.
3-1942-
Adanac
Last C.B.
d-1965-
f-1940's-65
b-1965-
Flathead Area
UNDERGROUND MINE OR MINE
SURFACE MINE OR MINE GROUP
COAL PREPARATION PLANT
COAL COMPANY
1 KAISER RESOURCES
2 FORDING COAL
3 WEST CANADIAN COLLIERIES
4 COLEMAN COLLIERIES
5 MILLCREST-MOHAWK COLLIERIES

FIGURE 41

mill. Sartoris Lumber Company used portable mills in the basin of Cummings Creek, a tributary of the Elk River, and transported logs by truck to the Company's main mill at Blairmore, a distance of twenty-five to thirty miles. Knight Lumber Company operated in the Crossing Creek and Alexander Creek basins and had a mill at Elko that was supplied with timber from the Flathead country. Between 1948 and 1950, logging roads were built north of Sparwood along the east side of the Elk Valley and into Grave Creek basin to supply some of the needs of mills at Natal and Fernie. On the Alberta side, Burmis Lumber Company established a lumber camp on Lost Creek, a tributary of the Carbondale River, and transported logs by truck to the Company's mill at Burmis. In addition to these companies, which exported most of their products from the Region, numerous small companies continued to supply timber for the mines.

Continued timber cutting without thought for sustained yield management and fires outside the core might have decimated the remaining merchantable timber in the Region after 1935, had there not been government intervention. The Alberta and British Columbia portions of the Pass had become part of the Crowsnest Forest and Elk Provincial Forest, respectively, shortly after 1911, but access to the area outside the core had been very limited until the late 1930's, when the forestry departments of the two provincial governments began adding to the network of existing logging and mining roads in

order to improve the range of increasingly mechanized fire-fighting efforts (Fig. 41). Largely as a result, there were no serious forest fires on the Alberta side of the Pass between 1937 and 1951, and the record on the British Columbia side was almost as good. Quotas were imposed on the amount of timber that each company could harvest annually. Cousins, a native of the Region, remarked in 1952 that the lower slopes bordering the Crowsnest Trough "have a much greener look than they had thirty years ago."[9] When the Kananaskis Highway was built north of Coleman during 1949, a regrowth of pine trees, fifteen to twenty feet in height, was observed in an area which had been burned and logged many years previously (Figs. 8 and 41).

Mechanization of the Coal Industry

The process of mechanizing the coal industry from 1911 to 1951 occurred at all stages of the operation: the removal of coal at the seam, its transportation to the preparation plant, its processing, and its loading and shipment to markets. Mechanization of coal extraction and processing, however, are more relevant to the problem of this dissertation, since they have affected the landscape much more than the other two phases of the operation.

Coal preparation has undergone a continuous evolution from simple to complex techniques and equipment. The

---

[9]W. J. Cousins, "A History of the Crow's Nest Pass," p. 145.

statement that each of the three International tipples "grew by bumps and hollows" until a point was reached at which the entire structure had to be replaced, could well describe any of the long-term, large-scale coal operations in the Region.[10] During its sixty years of existence, the Coal Creek mines also had three tipples, the first one costing $200,000, compared with $1,500,000 for the third one, which was constructed in 1942 (Figs. 42 and 43).[11] The unsophisticated means of preparing the raw coal for shipment at the International mine in 1907 was described as follows (Fig. 22):

> The coal comes from the mine in trains of 30 cars, hauled by one of the compressed air locomotives. . . . The cars are then run onto the cage of the tipple hoist and hoisted to the top of the tipple where the self-dumping cage dumps the coal over the screens. Passing over the screens the slack is taken out and the coal goes onto the picking tables [two 5 by 40 foot hand-picking tables], thence into the bins for shipment. The slack runs into [another] bin, from whence it is hauled away to the [coke] ovens.[12]

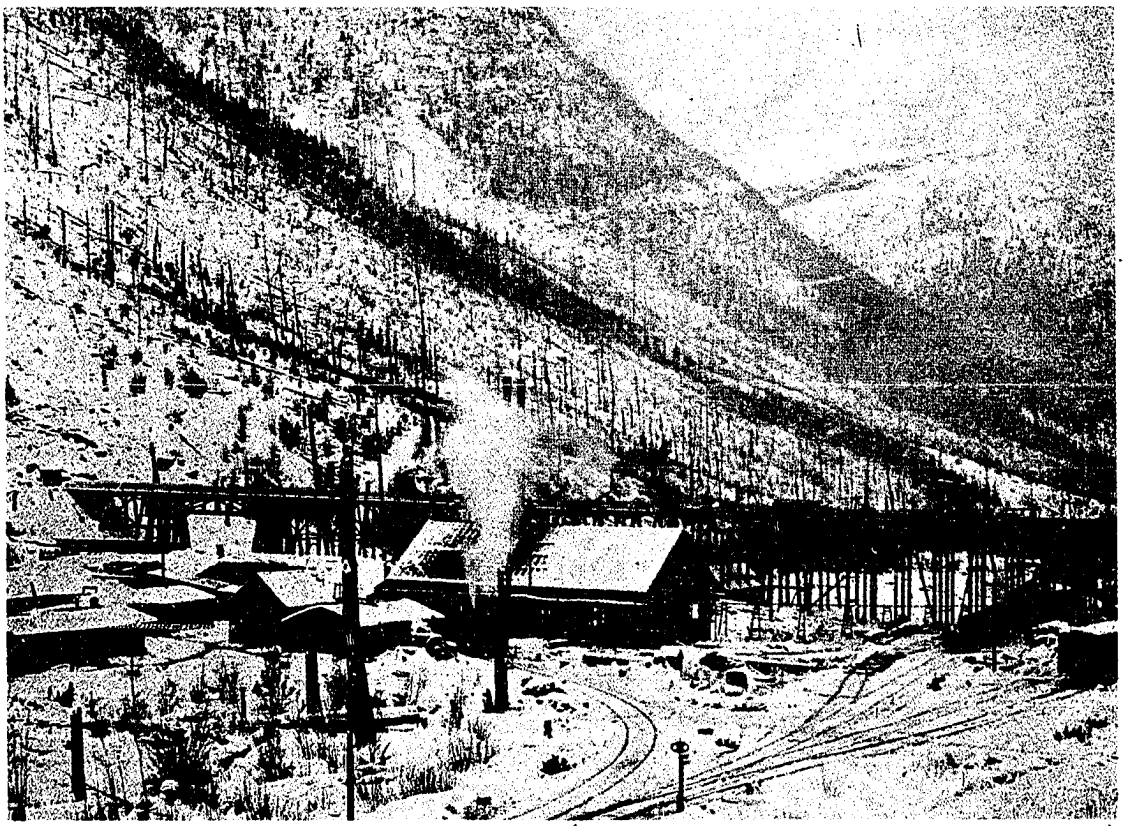
Given a more demanding railroad market, increasing labor costs, and the fact that labor intensive picking tables and shaking screens did nothing more than crudely sort the coal, more mechanized sorting and cleaning facilities became necessary. Replacing the old wooden tipple at the

---

[10]Personal communication D. B. Young, Edmonton, July 23, 1971.

[11]Fernie Free Press, The Crow's Nest Pass Illustrated, n.p.; L. Mangan, Backtracking with Fernie Historical Association, p. 43.

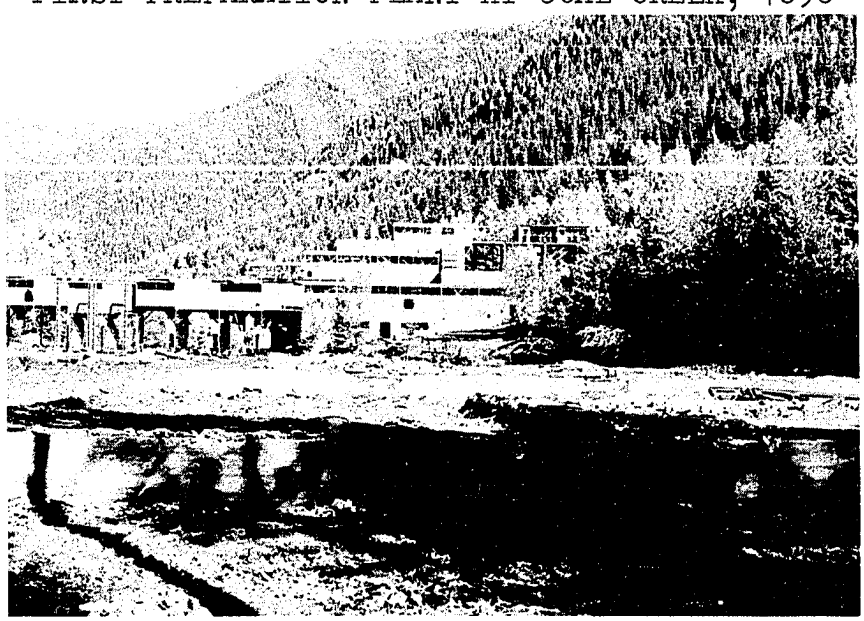
[12]Fernie Free Press, The Crow's Nest Pass Illustrated, n.p.



↖ N. (Crow's Nest Pass Illustrated)

FIGURE 42

FIRST PREPARATION PLANT AT COAL CREEK, 1898



← N.

FIGURE 43

SHELL OF THE THIRD PREPARATION PLANT
AT COAL CREEK, 1970

International mine was a steel tipple and dry cleaning plant, constructed in 1926 to divide the raw coal into more than two sizes and to increase somewhat the quality of the processed product. This plant, in turn, was replaced about ten years later by a larger concrete and steel structure that included a wet washery with jigs and driers, which further decreased the moisture and ash content of the cleaned product (Fig. 39). The nature and timing of changes in the International preparation plant generally typified those taking place at other mines, except that fires destroyed some tipples before obsolescence did. Abandoned tipples did not long remain in usable condition or even intact, as their equipment and parts of the buildings could be used in other tipples. Accidently or deliberately-caused fires often completed the demolition process.

Probably the most significant change in the means of removing coal from the seam was the advent of strip mining.[13] Corbin Collieries began to strip coal from Coal Mountain in 1915, but it was not until the early 1940's that wartime demands for coal and military recruits, and the increasing cost of underground mining resulted in the widespread use of stripping because it was a less labor intensive method of mining coal (Table 4). The number of suitable sites for the strip mining in the Region was far fewer than for underground mining, since (1) underground mining could be

---

[13]Strip mining, stripping, and surface mining are equivalent terms.

TABLE 4

STRIP MINING IN THE CROWSNEST PASS REGION PRIOR TO 1952

Date of Commencement of Strip Mining	Company	Location
1915	Corbin Collieries	Coal Mountain
1943	Consolidated Mining and Smelting Company; Hillcrest-Mohawk Collieries	Coal Mountain
1943	West Canadian Collieries	Adanac, near a simultaneously established underground mine
1945, 1947	West Canadian Collieries	two mines at Blairmore, near the Greenhill mine
1947	Crow's Nest Pass Coal Company	south of Michel
1947	International Coal and Coke Company	York Creek
1948	McGillivray Coal and Coke Company	north of the McGillivray mine
1949	Hillcrest-Mohawk Collieries	Tent Mountain

Sources
Department of Mines and Minerals, Annual Reports of the Mines Branch, Government of Alberta.
Department of Mines and Petroleum Resources, Annual Reports of the Minister of Mines, Government of British Columbia.

economically successful at depths that precluded the removal of overburden for surface mining, and (2) there was a paucity of thickened pockets of coal located near the surface. After 1942, all the coal companies then in existence began to strip mine coal (Table 4). The Coal Mountain, Adanac, Michel, and Tent Mountain strip mines were the largest ones, and occurred where particularly strong compressive forces had markedly thickened the coal seams. Tent Mountain and Coal Mountain contained coal measures 400 to 450 feet thick.[14] The overburden at Tent Mountain ranged from 0 to 150 feet.[15] The Adanac and Tent Mountain strip mines were both situated 2,500 feet and about eight circuitous miles by road above the Crowsnest Trough (Fig. 41). As with lumbering at this time, the development of sophisticated road-building equipment and trucks was a prerequisite for the expansion of coal mining into these heretofore inaccessible locations. Of the stripping operations, the one at Coal Mountain was most accessible to rail transport from the mining site. Even here, however, following the closure of the mine and removal of the Company's track to the C.P.R. mainline in 1935, succeeding

---

[14]These zones included some non-coal measures. For example, the maximum thickness of one of the coal seams at Coal Mountain was 180 feet.

[15]Hillcrest-Mohawk Collieries and Coleman Collieries used to strip mine coal in the 1940's and 1950's when the stripping ratio was 1-1.5 to 1 (Personal communication D. B. Young, Edmonton, July 23, 1971). The stripping ratio is the ratio of the thickness of overburden to the thickness of the coal seam.

companies shipped the coal to the Hillcrest-Mohawk preparation plant by means of Highway 3 and a private road built on the railroad bed alongside the forestry road (Fig. 41).

There was no governmental regulation of strip mining prior to 1952. Consequently, the coal was usually stripped and the overburden deposited (using shovels) in the most inexpensive way, which tended to maximize the area disturbed. No reclamation was undertaken. A typical example is afforded by one of the five Adanac strip pits. An incision approximately 500 by 100 yards was made along the strike of the coal seam (Fig. 44). This comprised an area of ten acres. The overburden was deposited downslope, resulting in a fivefold increase in the area disturbed.[16]

The Impact of Consolidation and Mechanization upon the Settlement Pattern

The consolidating process resulted in the abandonment of all settlements outside the core by 1951, together with a concomitant increase, or decreased rate of decline, in the population of other settlements (Fig. 21). There was a gradual movement of residents of Coal Creek to Fernie after 1911 (Table 1) because Fernie was a more habitable settlement. The only advantage that Coal Creek possessed over Fernie was its proximity to the mine (Fig. 9), and this advantage was partially eliminated in 1942, when the Coal Creek mine and

---

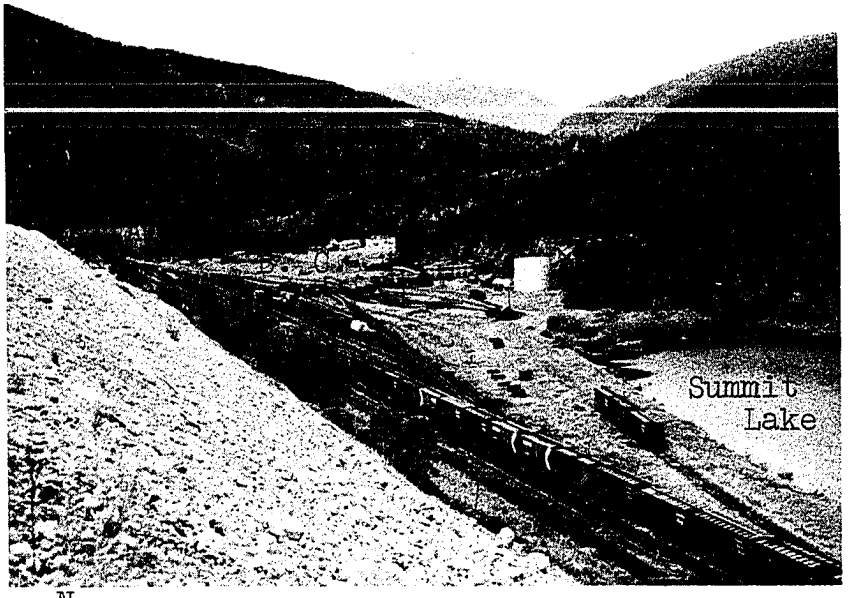
[16]These results are derived from personal observation and map analysis.



N. ↗

FIGURE 44

A STRIP PIT AT ADANAC, 1970



← N.

FIGURE 45

CROWSNEST, 1971

preparation plant relocated one mile closer to Fernie. There were only eight houses left standing at the site of Coal Creek settlement in 1949 when an aerial photograph was taken. Corbin and Lille were more isolated than Coal Creek. Lille was situated in a narrow, steep valley four miles from the C.P.R. mainline along the seven-mile Frank and Grassy Mountain Railway, which had sixteen trestle bridges over Gold Creek along its course. Given an increase in precipitation with increasing altitude, these Company-built tracks were more susceptible to washouts than those in the core. Although the major reasons for the closure of the Lille mine in 1912 were the increasingly poor quality of coal being mined and declining markets for coke, the cost of maintaining track and the isolation factor were contributing reasons. Blairmore increased its population at the expense of Lille, as West Canadian Collieries absorbed most of the Lille employees into its newly-opened Greenhill mine (Figs. 31 and 33). Coincident with the opening of the Greenhill mine, Blairmore expanded westwards into the area immediately south of the mine, in keeping with the principle of juxtaposition of mine and settlement. The opening of the Greenhill mine occurred contemporaneously with the closure of the brick and cement plant (Table 3).[17] Until 1928, when a forestry road eighteen miles long was built from the core to Corbin, "lack

[17]There is no demonstrable connection between the opening and the two closures.

of convenient transportation" tended to keep the settlement "in the backwash of life in the Pass and very few of its teams appeared in the various Crow's Nest Pass sports leagues."[18]

During the period of decreasing expansion, the C.P.R. reduced the number of its sidings in the Region. A growing public demand for increased speed and greater sophistication of freight and passenger trains resulted in fewer stops being made and a concentration of repair and maintenance facilities at Crowsnest (Fig. 45), which was situated about 100 miles in either direction from the nearest C.P.R. divisional points at Lethbridge and Cranbrook (Fig. 1). As a result, the population and number of hotels and stores at other sidings decreased markedly, while the population of Crowsnest remained relatively constant, and a few additional service industries for the travelling public were added (Table 1).

If the raison d'être of a settlement was a sole basic economic activity located within walking distance, and if this activity ceased permanently between 1911 and 1951, the settlement did not necessarily lose its population within one or two years. The date of cessation of the activity, and the settlement's situation vis-à-vis other settlements in the Region, and whether or not the houses were individually owned, largely determined the rate of decline of the settlement. Settlements that had lost their raison d'être prior to 1939 and had

---

[18]W. J. Cousins, "A History of the Crow's Nest Pass," pp. 60, 61, 106.

not been located within two miles of a neighboring settlement became virtually or completely depopulated within a few years. Morrissey, Hosmer, Corbin, Lille, and Passburg fit into this category (Figs. 27-29, 31, and 36). In contrast, the mine at Frank closed permanently in 1918, but the consolidated settlement north of the C.P.R. tracks continued to have a population in excess of 200 because of employment possibilities at Blairmore, one mile to the west (Figs. 30 and 46).

The Depression resulted in the implementation of government-sponsored projects to employ those out of work. Road-building was one such project. With the advent of greater prosperity in the late 1930's, automobiles were purchased by many residents,[19] and driven on the all-weather roads now connecting many of the settlements in the core. When the Hillcrest mine closed in 1939, most of the miners remained in their privately-owned houses, and were transported by Company bus to Hillcrest-Mohawk Collieries at Bellevue (Fig. 46). After the latter mine closed in 1951, many residents at Hillcrest mines used their private vehicles and the Company bus to travel to work at the Coleman mines.

Corbin, by contrast, was a company town, owned in its entirety by Corbin Collieries. When the mine closed in 1935,

---

[19] L. L. Morgan, the owner of Crows Nest Pass Motors in Blairmore, states that his Company sold over 100 new cars in 1929. The year 1932 was the worst in the Company's history for car sales, but the figure had risen to 82 in 1940 (personal communication L. L. Morgan, Blairmore, July 15, 1971).

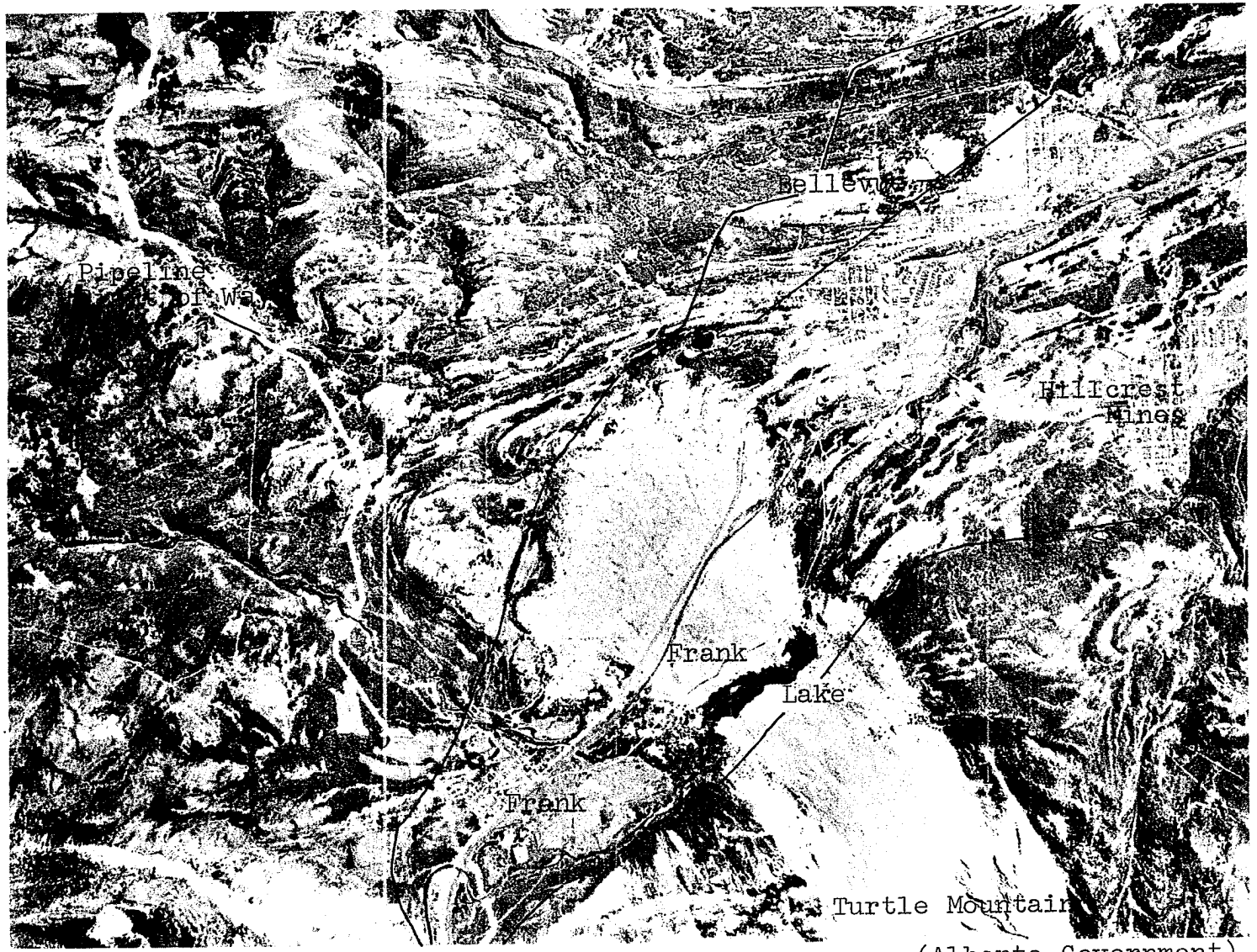


FIGURE 46

THE CORE IN THE VICINITY OF THE FRANK SLIDE, 1965

the buildings in Corbin became worthless *in situ*, and, consequently, it was to the Company's economic benefit to sell all it could of the mine-settlement complex for use elsewhere.[20] Every commercial building and most of the houses were removed or destroyed (Fig. 47).

Mechanization in the mining industry resulted in a considerable demand for electrical power through the installation of more sophisticated coal-cleaning apparatus and the conversion from hand picks and hand drills to air picks and jack hammers. In 1922, East Kootenay Power Company put through a line bringing hydroelectric power to the mines and settlements of the core from a plant at Bull River, located between Elko and Cranbrook. In 1924, the Company's initial generating capacity of 5,000 kilowatts was increased by the construction of a dam and a 12,000-kilowatt hydroelectric plant on the Elk River at Elko (Fig. 3). This resulted in the building of several homes on the southern outskirts of Elko, and partially compensated for the decline of the settlement's function as a pivotal center for railroad traffic distribution. In 1926, the Company constructed a thermal power plant at Sentinel at the eastern end of Crowsnest Lake, and two years later, a second generating unit increased the plant's capacity to 10,000 kilowatts (Fig. 49). The Company

---

[20]Very few buildings were constructed in the Pass between 1911 and 1951 because the population grew very little, and because it was usually less expensive to move all or parts of a building to the nearest settlement than to construct a house or store with new building materials.

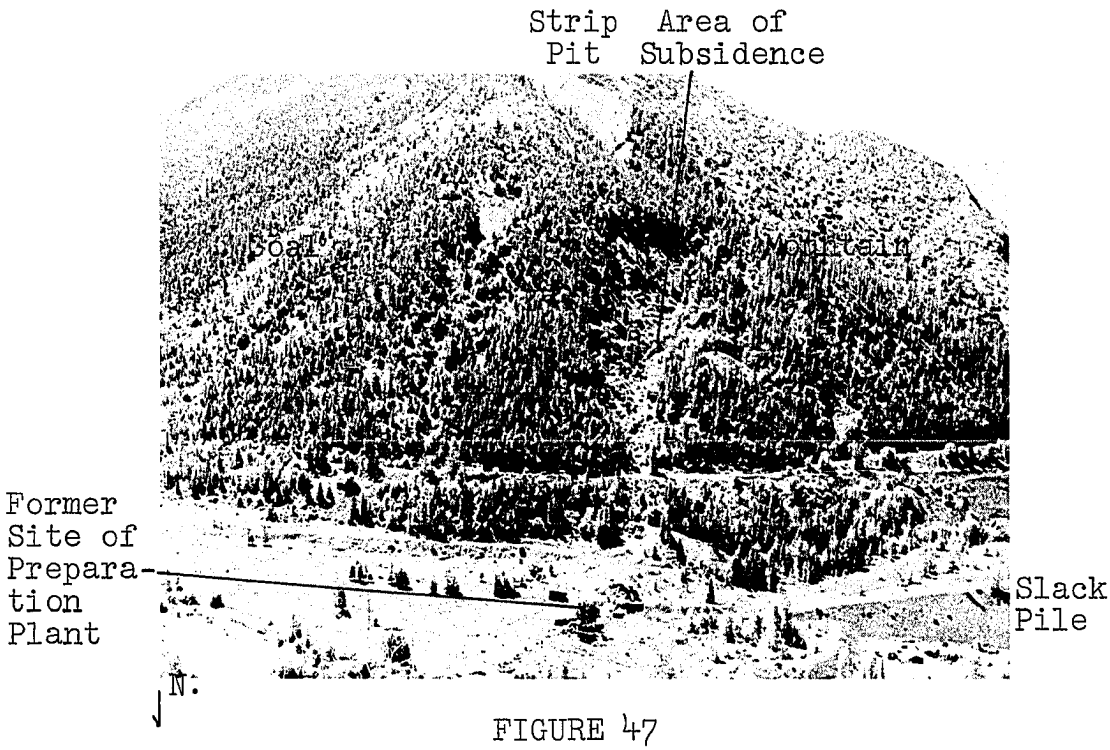


FIGURE 47

FORMER SITE OF CORBIN, 1970

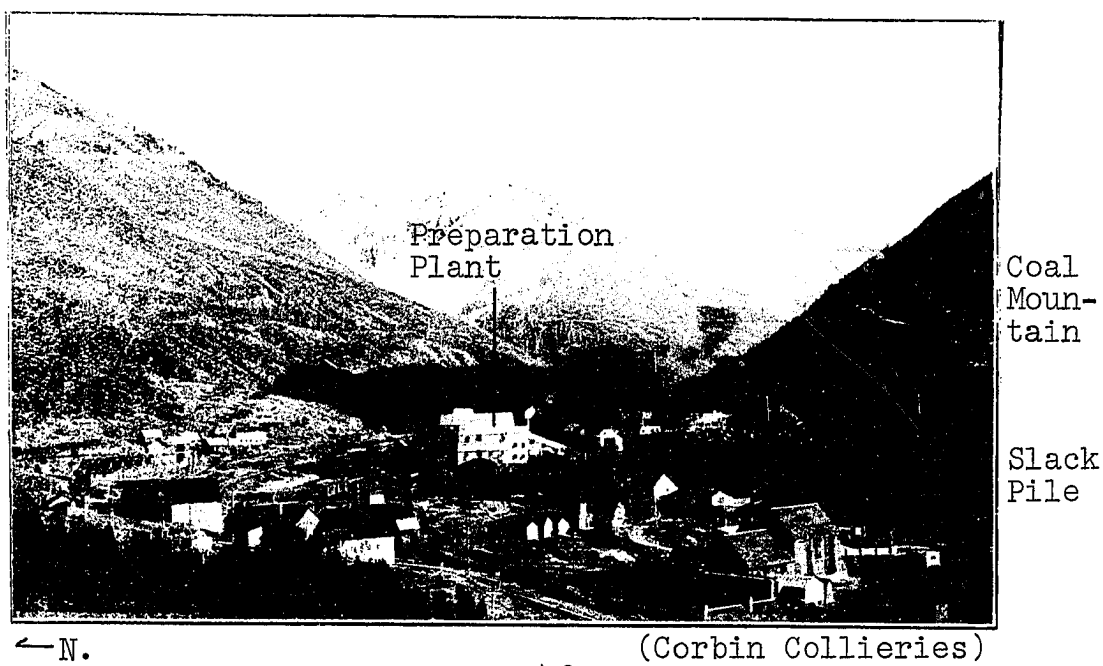


FIGURE 48

MINE-SETTLEMENT COMPLEX OF CORBIN, ABOUT 1930

built seven houses and a large staff house for an operating crew that has since averaged slightly more than twenty. As with Hazell, the community of Sentinel was too small to support service functions, which were handled by Coleman.

Sensitization to Aesthetically Pleasing Settlements

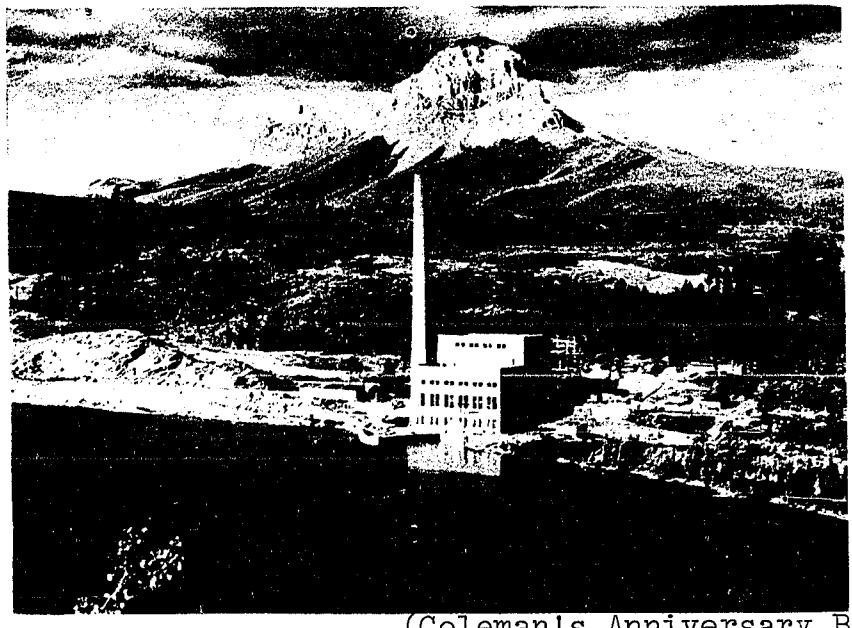
By and large, company towns and company involvement in the construction of a settlement constituted an unwanted financial millstone for the companies, but, at the same time, these were necessary means to the desired end of producing coal profitably. Miners had to be housed and given basic services, both of which private enterprise and governments were often slow to provide in the early twentieth century.[21] The distinctive feature of company-built housing was its monotonous similarity. It can be debated whether or not this uniformity was aesthetically pleasing (Figs. 11, 20, 48, and 50).[22]

The Crow's Nest Pass Coal Company, however, must have been insensitive to aesthetic considerations at the time it

---

[21]Corbin was the only company town in the Region, but companies were often involved in the initial construction and ownership of buildings in the settlements. Company disengagement from this entrepreneurial function was rapid after the economic recession of 1911.

[22]The writer has counted ten houses in West Blairmore, built originally for officials of West Canadian Collieries, and situated in a dispersed fashion between the Company's office and the Greenhill mine (Fig. 38). These houses have a gray plaster exterior and are larger and of better quality than surrounding houses, which have wooden exterior finishing.

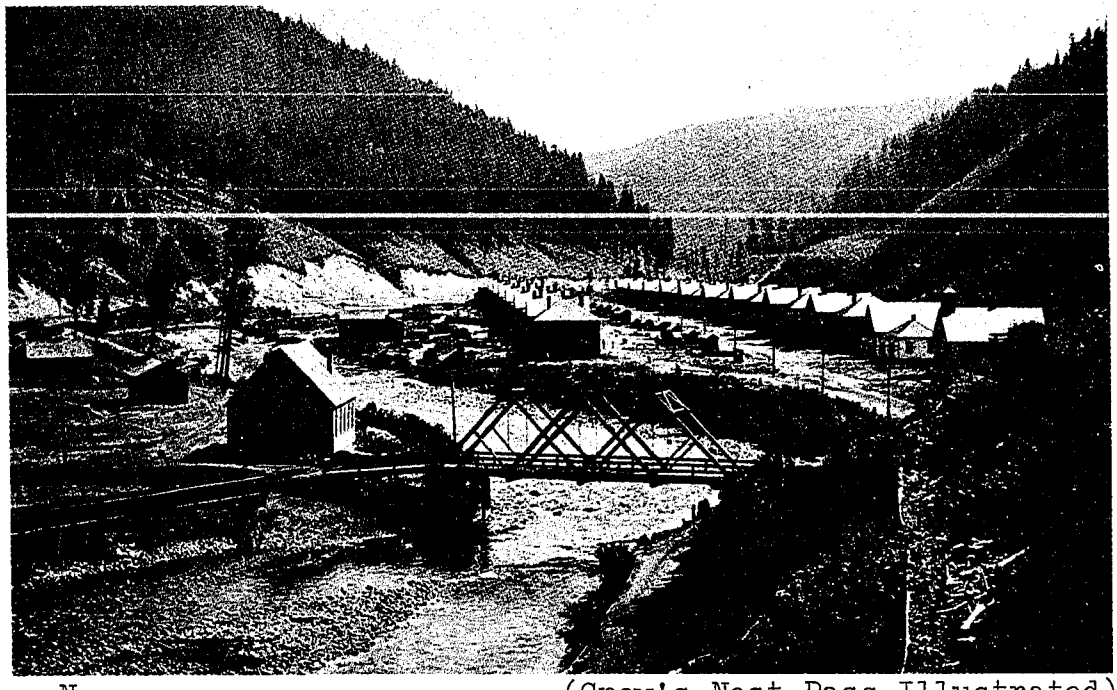


(Coleman's Anniversary Booklet)

N.

FIGURE 49

THERMAL POWER PLANT AT SENTINEL BESIDE
CROWSNEST LAKE, ABOUT 1952



←N.

(Crow's Nest Pass Illustrated)

FIGURE 50

PART OF THE SETTLEMENT OF MICHEL, ABOUT 1907

determined the site of Michel. In 1906, Michel consisted essentially of 160 unicolored duplex houses and 50 cottages, which were arranged in rows running parallel to the strike of a valley one-quarter of a mile wide (Fig. 50). The back sheds of one row of houses had been built a few feet from the front doors of the row behind. The tipple, coke ovens, and slack piles of the Company's Michel operation bordered the town on the northwest (Fig. 17). A gray color was soon imparted to each building in Michel by means of aeolian transfer of coal dust. Natal's buildings, having been privately built, were more varied in construction, and did not exhibit the effects of air pollution quite so much because the town was situated slightly less than one mile upwind from the coal plant. The physical site, nevertheless, was nearly as constricted as Michel's, and southeasterly winds are not completely absent from the valley (Fig. 17).

Sparwood was reborn in 1939 when the Company sold lots there for $1 each and lumber at cost to its employees living at Michel and Natal in an effort to encourage the depopulation of these settlements. The Company was simply encouraging a migration of people from a less habitable to a more habitable settlement as it had in the case of Coal Creek and Fernie. Instead of a subsidized journey to work, the incentive this time was free land and inexpensive building materials. As houses became vacant in Michel, the Company sold them for a small sum on condition that they be torn down or

hauled away. The Company's decision to encourage this migration largely resulted from an increasing concern for aesthetically pleasing settlements for its employees, a need to improve its public image, and a desire to leave the housing business. By 1951, this consolidation of Michel and Natal at Sparwood had made little progress, because a majority of the former's residents preferred not to move,[23] and the Company was not about to force them to move, although it could have in the case of the residents of Michel. There were only a few houses and 125 people at Sparwood, compared with 2,127 at Michel-Natal (Fig. 49).

A nearby settlement benefited aesthetically from the closure of coke ovens. Residents of Coleman have pointed out that more air pollution resulted from the operation of the International coke ovens than from the operation of the preparation plant and the aeolian removal of fines from exposed slack piles (Fig. 22). Since Fernie did not have a coal preparation plant nearby, the closure of its coke ovens must have improved the quality of the City's air tremendously, and given it a further advantage in habitability over other settlements in the Pass. During the period of moderate expansion, however, and particularly during the Depression, the

---

[23]Results of a survey undertaken by the Oldman River Regional Planning Commission on the Alberta side of the Region in 1968 indicated that 86 percent of sample residents would not like to move to another community (Oldman River Regional Planning Commission, Alberta Crowsnest Pass Subregional Study: 2--Population and Economy, p. 5.

amount of unemployment was of much greater concern to the residents of the Region than the quality of the air that they breathed.[24] This attitude towards air pollution produced by mining is similar to that possessed by the residents of Asbestos, Quebec towards the destruction of part of their town to enlarge an asbestos pit:

> For the people of Asbestos, encroachment has become an accepted fact of life. Since about two-thirds of the town's labor force is employed by the Canadian Johns-Manville Company, there has been little resistance to the Company's acquisition of private land. . . . In the words of a visiting journalist, "They know that the big crater at their back door is their livelihood."[25]

Summary

The period of moderate expansion saw the least amount of change in the landscape, despite the fact that this period encompasses forty of the seventy-three years under study. Depletion of resources and mechanization were equally important causative agents of landscape change, when compared with changing markets for coal, coke, lumber, limestone, lime, and bricks. Mechanization helped to maintain the viability of the coal industry by decreasing the role of the increasingly expensive labor component in coal mining through the

---

[24]Gillespie states that the miners and their families accepted air pollution from coal mining as a necessary evil (personal communication D. Gillespie, coal miner at Coleman between 1906 and 1950, Lethbridge, July 13, 1971).

[25]W. G. Ross, "Encroachment of the Jeffrey Mine on the Town of Asbestos, Quebec," Geographical Review, LVII, 1967, pp. 536, 537. The visiting journalist is Brian Swarbrick (B. Swarbrick, "The Hole That's Eating a Town," Canadian Weekly, March 5, 1965, p. 12).

use of stripping, and the greater use of mechanized equipment in underground mines. The dispersal of raw material sources into the distant reaches of the Pass resulted mainly from a depletion of raw material sources in and near the core. A simultaneous occurrence was a concentrating of the Region's settlements in the core, partly because of a growing preference for living in less isolated and more habitable settlements. Between 1911 and 1951, the habitability of the core and bordering areas was enhanced through the regrowth of spruce, pine and poplar. The viability of some settlements that had lost their raison d'être was preserved by means of a mechanized journey to work. Mechanization, therefore, resulted in some landscape change, but, simultaneously, functioned to prevent landscape change that would otherwise have taken place. The loss of the G.N.R. market for steam coal and most of the coke market had significant effects on the landscape, but the influence of changing markets on the landscape was not nearly as great as it would be during the period of contraction after 1951.

CHAPTER V

THE PERIOD OF CONTRACTION (1952-1967)

The 1950's saw the complete loss of the railroad and household fuel markets for the Region's coal production. Several times prior to 1950, the C.P.R. had experimented with diesel-burning locomotives,[1] but invariably returned to a complete reliance on coal-burning engines. Shortly after the discovery of oil near Leduc, Alberta in 1948, the C.P.R. became certain of an adequate supply of inexpensive diesel fuel, and, as a result, undertook a complete conversion to diesel locomotives. The Company began to reduce its orders for coal in 1950, but preparations for military defense moderated the degree of reduction until the conclusion of the Korean War in 1953 (Fig. 24). Between 1951 and 1961, employment in coal mining declined by 63 percent, but the population of the Pass decreased by only 16 percent (Fig. 24). The main reasons for the differing percentages were the decision of many unemployed coal miners to remain in the Pass, the expansion of lumbering

---

[1]Personal communication R. H. Meyer, Vancouver, September 17, 1971.

and tourism, and the initiation of gas processing and gas pipeline construction.

Declining Coal Markets

Traditionally, the C.P.R.'s policy had been to sign one-year contracts with the Region's coal companies.[2] The comparatively abrupt constriction, therefore, in the railroad market for coal was an unexpected blow to the economy of the Pass, and, consequently, associated landscape changes generally followed, rather than preceded the decision. Cousins claims that between the Depression and 1952, the inhabitants of the Pass did not have confidence in the future of their coal industry (presumably because of uncertain markets), and this caused a lack of house construction, despite an acute housing shortage.[3] If Cousins' statement is completely valid, it follows that there should likewise have been little or no commercial building. In support of this argument, Coleman's community hall was destroyed by fire in 1948 and not replaced. On the other hand, large covered arenas in Fernie and Natal, a seventy-two-bed municipal hospital between Coleman and Blairmore, and a two-room school in Blairmore were completed between 1949 and 1952. In Coleman, an average of ten houses per year was built between 1947 and 1952. This is a modest

---

[2]Personal communication D. B. Young, Edmonton, July 23, 1971.

[3]W. J. Cousins, "A History of the Crow's Nest Pass," p. 200.

figure when compared with the total number of houses in existence in the town, 690, but does not constitute a "lack of house construction," at least in Coleman.[4] A recent study has revealed that 15, 8, and 14 percent of the buildings found in the main commercial areas of Bellevue, Blairmore, and Coleman, respectively, were constructed between 1940 and 1955.[5] Furthermore, a housing shortage during and immediately following World War II existed across Canada, not just in the Pass. Since a good many of these new buildings must have been financed or owned by residents of the Pass, Cousins' statement is at best only partially valid.

Mines closed whose coal was not of sufficient coking ability[6] to supply the relatively stable smelter market and, after 1960, the Japanese iron and steel industry. Since the coking ability of coal deposits declines from west to east in the Region, the mines on the Alberta side were hardest hit (Fig. 51). The mine and preparation plant of Hillcrest-Mohawk

---

[4]H. A. Dempsey, Publicity Bureau, Government of Alberta, "The Coleman Story," Coleman's 50th Anniversary Booklet, p. 6. Dempsey derived the statistics from the Provincial Government Economic Survey of the Town of Coleman, 1953.

[5]Oldman River Regional Planning Commission, Alberta Crowsnest Pass Subregional Study: 3--Regional Development and Urban Renewal (Lethbridge: Oldman River Regional Planning Commission, Government of Alberta, 1970), p. 74.

[6]The coking ability of coal is measured by its swelling index or coke button. The value of the coke button varies directly with the coking ability of the coal. Tests conducted on cleaned coal sent to Japan from Coleman Collieries and Crows Nest Industries revealed a coke button ranging from 6 to 8.5.

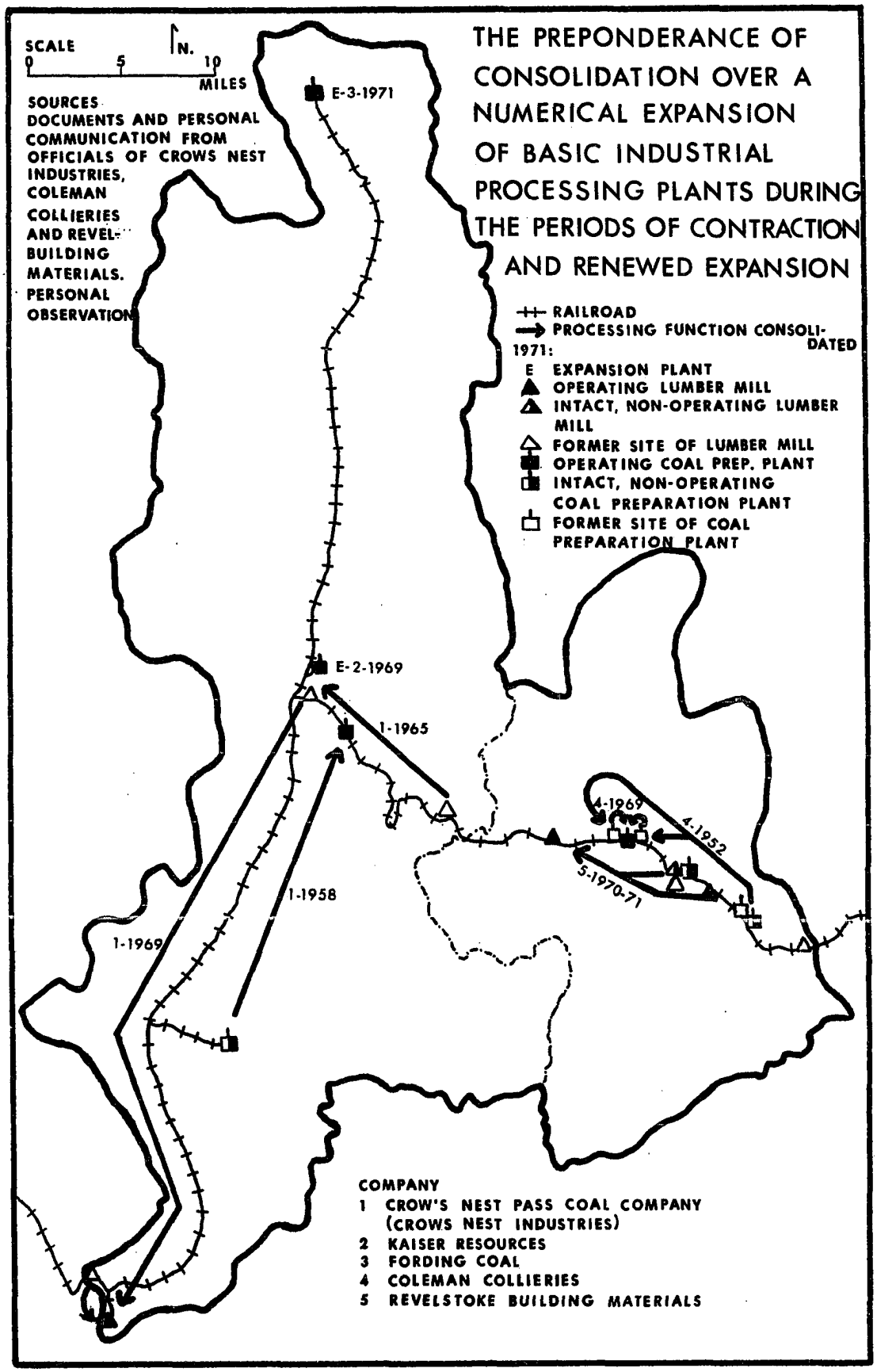

THE PREPONDERANCE OF CONSOLIDATION OVER A NUMERICAL EXPANSION OF BASIC INDUSTRIAL PROCESSING PLANTS DURING THE PERIODS OF CONTRACTION AND RENEWED EXPANSION
SCALE
0 5 10
MILES
N.
SOURCES
DOCUMENTS AND PERSONAL COMMUNICATION FROM OFFICIALS OF CROWS NEST INDUSTRIES, COLEMAN COLLIERIES AND REVEL-BUILDING MATERIALS. PERSONAL OBSERVATION
RAILROAD
PROCESSING FUNCTION CONSOLIDATED 1971:
E EXPANSION PLANT
OPERATING LUMBER MILL
INTACT, NON-OPERATING LUMBER MILL
FORMER SITE OF LUMBER MILL
OPERATING COAL PREP. PLANT
INTACT, NON-OPERATING COAL PREPARATION PLANT
FORMER SITE OF COAL PREPARATION PLANT
E-3-1971
E-2-1969
1-1965
1-1958
1-1969
4-1969
4-1952
5-1970-71
COMPANY
1 CROW'S NEST PASS COAL COMPANY (CROWS NEST INDUSTRIES)
2 KAISER RESOURCES
3 FORDING COAL
4 COLEMAN COLLIERIES
5 REVELSTOKE BUILDING MATERIALS

FIGURE 51

Collieries in Bellevue closed after the Company merged with the International and McGillivray Companies of Coleman to form Coleman Collieries.[7] Between 1954 and 1961, the International and McGillivray mines at Coleman, the Greenhill mine at Blairmore, the sole remaining Bellevue mine, and the Adanac strip and underground mine group closed. In place of the International and McGillivray mines, Coleman Collieries, in 1957, opened an underground mine at Vicary Creek whose coal was of greater coking ability. Coal from the Vicary Creek and Tent Mountain mines was transported twelve and fifteen miles, respectively, by truck to the International and McGillivray preparation plants at Coleman (Fig. 41). West Canadian Collieries sent sample shipments of coal to Japan, but commercial shipments did not follow on account of the insufficient coking quality of the sample. The Company did not have well-developed smelter markets for the same reason, and there was no accessible thermal power market other than the small plant at Sentinel. Consequently, the Company ceased operations at all its mines by 1962, including a strip mine opened at Grassy Mountain in 1956, and sold its assets to the Scurry Rainbow Company in 1966 (Fig. 37).[8] The preparation plant at Bellevue was completely demolished in stages during the 1960's (Figs.

---

[7]The International and McGillivray Companies had come under joint management in 1935 as an economy measure (Coleman Board of Trade, Coleman's 50th Anniversary Booklet [Coleman: Coleman Board of Trade, 1953], p. 29).

[8]By this time, the Company's assets did not include residential or non-coal commercial buildings in Blairmore.

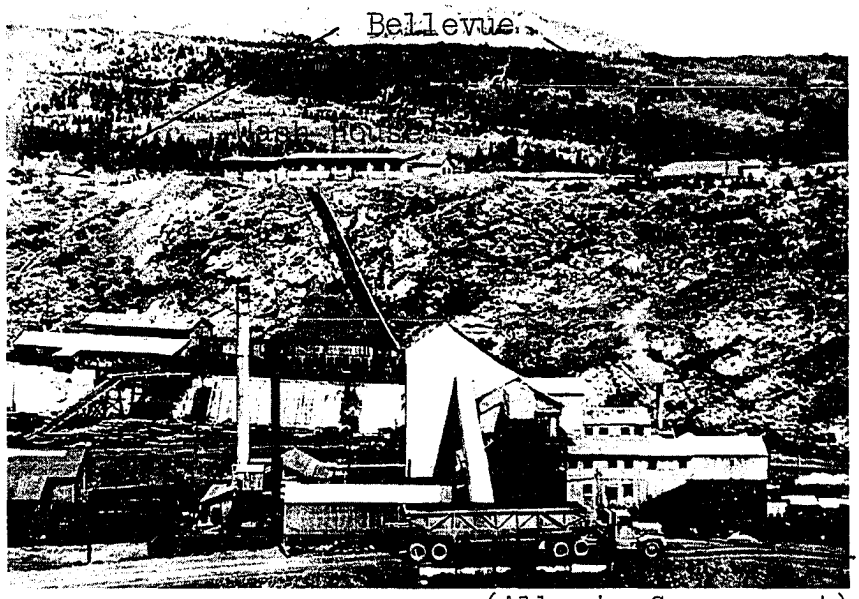
52 and 53), but the Blairmore plant has remained intact, as have the compressor building and power substation at the site of the underground operation at Adanac.[9]

The Crow's Nest Pass Coal Company was the only coal company in operation on the British Columbia side of the Pass between 1952 and 1967. The Company had established markets for its coke in various parts of Canada and the Western United States, and these maintained its viability during the interval between the loss of the C.P.R. market on one hand, and the limited development of the Japanese market for coking coal and the Company's simultaneous entry into the export lumber business on the other hand.[10] During this interval, in 1958, the Coal Creek mine was abandoned and much of the equipment in the preparation plant was removed, but the shell of this modern-looking tipple, constructed in 1942, remains on the landscape (Figs. 43 and 51). A briquette plant, built in 1954 as part of the Michel preparation plant, was dismantled in 1961, and the building materials were used in the

---

[9]A preparation plant at Adanac never existed because West Canadian Collieries chose to transport the raw coal by truck from surface and underground mines at Adanac to the Company's preparation plants at Bellevue and Blairmore.

[10]Personal communication W. Thomson, Former Accountant with the Crow's Nest Pass Coal Company, Fernie, July 10, 1970. The coke market also maintained the viability of Coleman Collieries. Between 1957 and 1970, the Federal Government subsidized the transportation cost of moving coal from the Region to Vancouver by amounts ranging from $2.19 to $4.50 per ton. The subvention, however, was limited to 400,000 tons per year for each company, and neither exported more than this amount to the Japanese market each year.

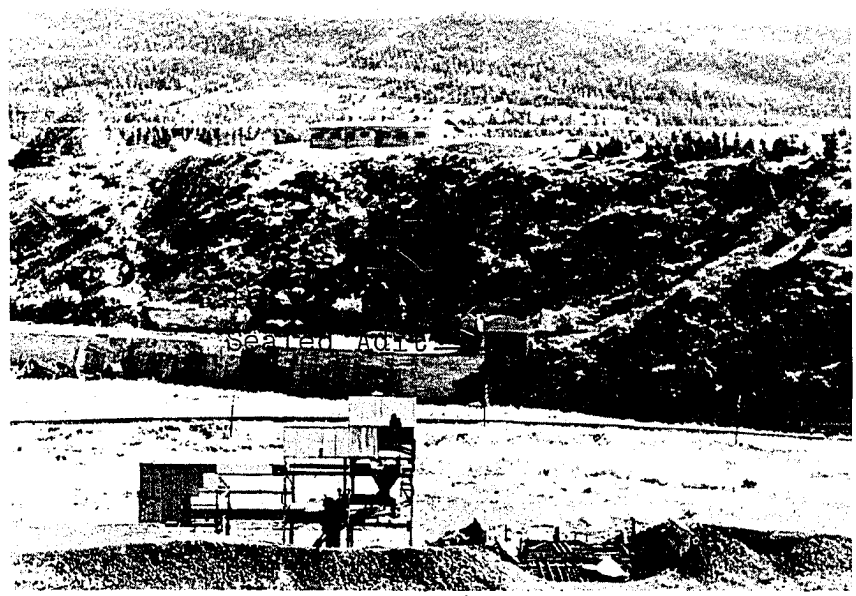


(Alberta Government)

N.

FIGURE 52

MINE BUILDINGS OF WEST CANADIAN COLLIERIES
AT BELLEVUE, ABOUT 1950



C.P.R.

N.

FIGURE 53

FORMER SITE OF MINE BUILDINGS OF WEST CANADIAN
COLLIERIES AT BELLEVUE, 1970

construction of a new fine-coal cleaning plant. The coal operation of the Company, hence, was consolidated at Michel.

There were two common landscape changes associated with the closure of an underground coal mine. Government directive required a sealing of the mine entrances in order to prevent human or animal entry. This was accomplished by boarding up the adit or covering it with earth (Figs. 53 and 54). A subsiding of the ground above often accompanied mine abandonment. Subsidence inevitably resulted when the supporting pillars of coal were mined in succession from the face of the seam to the adit, if the room and pillar system of mining was employed. At other times, the decay of timber supports in the shaft led to massive cave-ins, which, in turn, resulted in visible subsidence of land at the surface. Two noticeable areas of subsidence are an area north of Bellevue and on Coal Mountain at Corbin (Fig. 45).

As in the period of moderate expansion, there were a large number of mine closures during the period of contraction. The reason for this is basically unrelated to inefficiencies in production and processing, exhaustion of the resource, or the degree of availability of capital for mechanization, but, rather, to the sudden loss of the main market for the coal of each mine. The influence of changing markets for coal was suddenly all-pervasive and all-powerful: every mining company in the Region was affected deleteriously. Large, long-established mining enterprises, therefore, were just as prone to close as were small mines.



N.

FIGURE 54

SETTLING PONDS ALONG MCGILLIVRAY CREEK AT COLEMAN, 1970



FIGURE 55

SENTINEL INDUSTRIAL COMPLEX, 1971

Economic Diversification

Expansion of other basic industries helped to cushion the economic impact of the sharp contraction in the coal industry during the period under study. Although the number of lumber mills decreased, overall production and employment in the industry increased on account of an expanding and prosperous Canadian economy. In 1957, for example, Atlas Lumber Company constructed a mill two miles east of Sentinel. Ten years later, this mill had expanded to become the largest one on the Alberta side of the Pass. Natural gas was discovered in 1954 in the Savanna Creek basin north of the Alberta portion of the Region. This resulted in the construction of two gas processing plants[11] along the route of a newly constructed natural gas pipeline from Alberta to the West Coast, and next to the Atlas mill at what was becoming the Sentinel industrial complex (Fig. 55). The building of the pipeline resulted in two additional changes to the landscape: (1) the removal of woody vegetation from a strip of land about fifty yards wide extending in a northeast-southwest line through the Region (Figs. 2, 46, and 56); and (2) the construction of a meter station and pipeline maintenance shop at the Sentinel industrial complex (Fig. 56) and a pumping station two miles northwest of Crowsnest in the core.

---

[11]The plant of Saratoga Processing Company converts raw natural gas into sour gas and purified natural gas. The latter is pumped back into the pipeline, while the sour gas is processed into sulphur by the juxtaposed plant of Jefferson Lake Petrochemicals of Canada.



(Alberta Government)

FIGURE 56

COLEMAN AND THE SENTINEL INDUSTRIAL COMPLEX, 1965

N.

Some of the economic diversification in the Pass occurred as a conscious attempt to increase the stability of a company or the Region's economy. The Crow's Nest Pass Coal Company supplemented earnings from its dwindling coal operation during the late 1950's by expanding the lumber segment of the Company and by entering the petroleum industry. In addition to acquiring some petroleum interests in Alberta outside the Region, the Company attempted unsuccessfully to commercially extract petroleum from its property on the British Columbia side. From its inception the Company had been in the lumbering business in order to supply the needs of its coal mines, but did not penetrate the export lumber market successfully until after 1948. The Company purchased the assets of five small lumber companies, three of which had operated sawmills in the Pass at Elko, Natal, and at the mouth of Alexander Creek. These mills were demolished and two new mills built at Natal and Elko by 1965. Further dispersal of timber cutting operations occurred when roads were constructed up Grave and Line creeks and along the Fording River to Kilmarnock Creek for logging purposes (Fig. 41). What entailed diversification for the Company constituted the beginning of a second phase of consolidation of the lumbering industry in the Region, as evidenced by the fact that the Crow's Nest Pass Coal Company had increased its proportion of the annual harvest of timber in the Fernie Sustained Yield

Unit to 97 percent by 1965.[12] That same year the Company changed its name to Crows Nest Industries Limited, a reflection of its movement away from a nearly exclusive dependence on coal mining.

In 1963, the Government of Canada enacted legislation to grant tax concessions to new industrial projects which would begin in certain designated areas of static growth in the Dominion.[13] The Blairmore National Employment Service District, whose boundaries approximately coincided with those of the Crowsnest Pass Region, was the first such area to be chosen in Western Canada. This legislation accelerated the diversification of basic industry in the Pass. By 1966, a cable plant had located at the Sentinel industrial complex, and two smaller plants had been built at Blairmore, one to produce wooden reels for storing and shipping the cable produced by the Sentinel plant, and the other to manufacture hammer drills, which are primarily designed for overburden drilling.

---

[12] Crows Nest Industries Limited Sixty-Ninth Annual Report, 1966, n.p. The Fernie Sustained Yield Unit includes the British Columbia portion of the Pass.

[13] Oldman River Regional Planning Commission, Industrial Brochure: Crowsnest Pass, Alberta (Lethbridge: Oldman River Regional Planning Commission, Government of Alberta), circa 1964, n.p. The basic tax concessions were as follows:
(1) New industrial enterprises to be freed from corporation tax for the first three years;
(2) New machinery and equipment to be depreciated for tax purposes in two equal annual installments, instead of the usual 20 percent per year on the diminishing balance;
(3) Concessions to apply to projects commenced within two years of an area being chosen as a designated area.

The Sentinel industrial complex provides another instance of the spatial separation of processing plants and settlements. Prior to its establishment processing plants and settlement were juxtaposed spatially, except for the Michel preparation plant and the settlement of Sparwood, which was much more habitable than the cramped settlements of Michel and Natal settlement. The Sentinel complex, however, is sited in a large, well-drained, and gently undulating portion of the Crowsnest Trough; yet only three houses, a ranch, and a motel of eight units are situated within one and one-half miles of the complex (Fig. 56). Almost all of the 200 employees of the complex resided at least four miles away at Coleman and points eastward in 1967. The industrial complex is situated in one of the windiest areas of the Pass, but there are more important reasons for the paucity of housing here. The various companies locating at this site did so partly because of advantages to be gained from being spatially separated from settlements:

(1) The complex is located in Improvement District Number 10, sufficiently removed from incorporated settlements, so as not to be annexed by them in the future, which would involve increased taxation.

(2) Individual plants have plenty of room in which to expand.

(3) There are established settlements a few minutes away by motor vehicle along a first-class, paved highway, and

at the same time, air pollution from the complex does not perceptibly increase the air pollution problem of Coleman and Blairmore because of the distance factor.

Tourism began to make its mark on the landscape of the Pass following the paving of Highway 3 in the early 1950's. Up to 1968, almost all of the tourist trailer courts and motels were constructed at Fernie and Blairmore (Fig. 57). Provincial campsites were distributed in a less concentrated fashion: at Morrissey Station, near Fernie, on the shore of Island Lake, and at the western edge of the slide at Frank (Fig. 57). The vast majority of tourists, however, pass through the Region without stopping, except for food, gasoline, overnight lodging, and a look at the Frank slide. During the period under study, ski hills and golf courses at Fernie and Blairmore were used almost exclusively by residents of the Pass.[14] The perception of the Region by most tourists is undoubtedly one which focuses on air pollution and visual pollution of slack piles and rundown coal mining settlements. The Pass has many beautiful natural features, but these are also found to the north and south in the national parks, which also contain amenities and services that most tourists desire. In 1964, a study[15] was made concerning the feasibility of

---

[14]Since 1968, the Fernie hill has been used increasingly by skiers from the Prairie provinces.

[15]G. M. Rekken and Associates, "Development Feasibility Report to the Crow's Nest Pass Development Association," Edmonton: unpublished document, 1964, n.p.

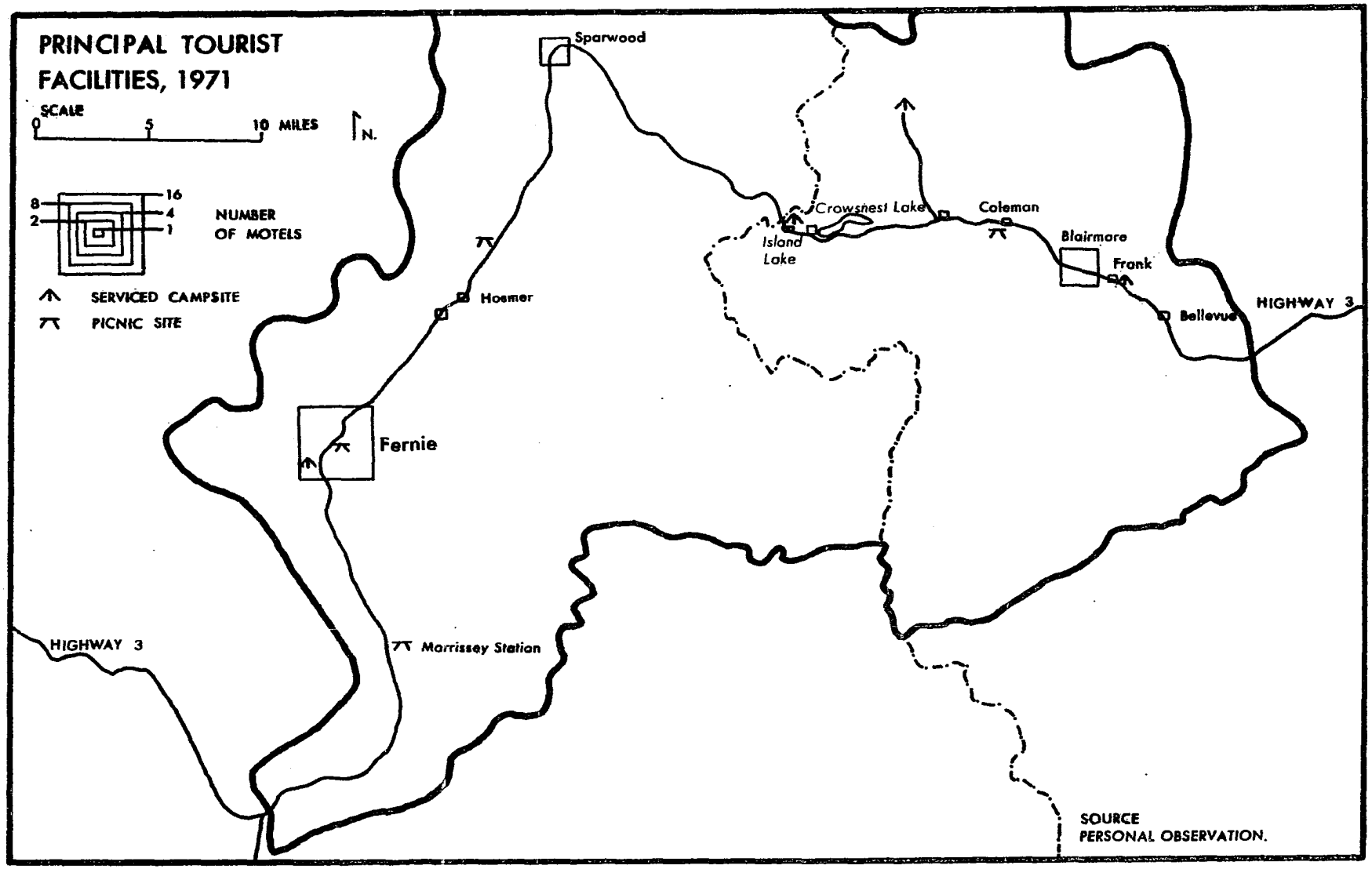

PRINCIPAL TOURIST FACILITIES, 1971
SCALE
0
5
10 MILES
N.
8
16
2
4
1
NUMBER OF MOTELS
SERVICED CAMPSITE
PICNIC SITE
Sparwood
Crowsnest Lake
Coleman
Island Lake
Blairmore
Frank
Bellevue
HIGHWAY 3
Hosmer
Fernie
Morrissey Station
HIGHWAY 3
SOURCE
PERSONAL OBSERVATION.

FIGURE 57

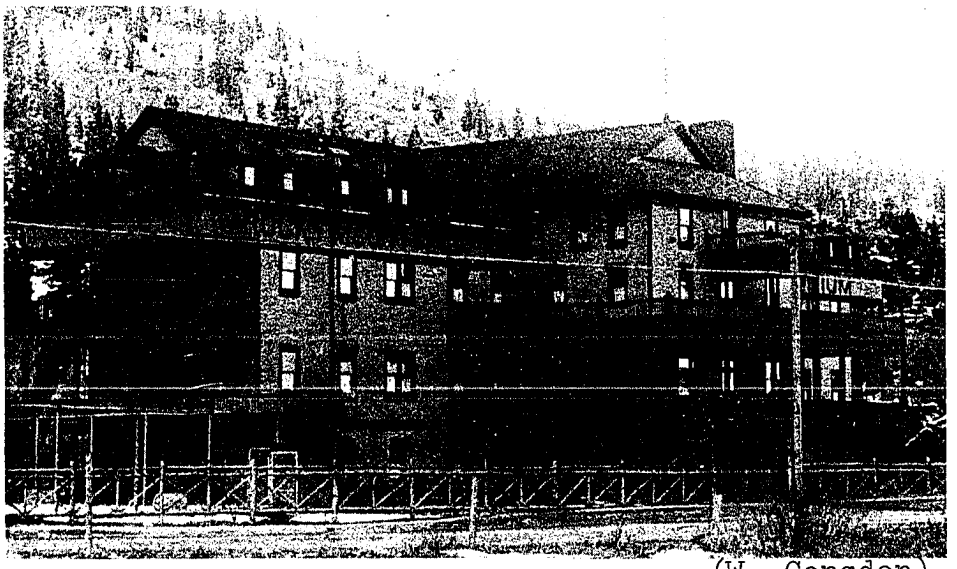
constructing a large recreation complex at Frank in close proximity to the slide and a mineral spring at the base of Turtle Mountain, but not since the days of the sanatorium[16] have plans of this nature or magnitude been fulfilled. Tourism, thus, has contributed only slightly to the economic diversification of the Region.

Summary

The Crowsnest Pass Region during the 1950's constituted a good example of the pitfalls of being too heavily dependent on a single product and on a single market for that product. Were it not for the stable coke markets of the Crow's Nest Pass Coal Company and the subventions of the Federal Government on the movement of coking coal to the new Japanese market during the early 1960's, Coleman Collieries and the Crow's Nest Pass Coal Company would have had to follow the example of West Canadian Collieries and cease operations. One result may have been the complete or virtual depopulation of settlements that had not developed tourist or lumbering industries, and that could not attract new industry even with

---

[16]Shortly after the turn of the century, French capital built a prestigious looking, four-story sanatorium (Fig. 58) on the present site of the more modest Turtle Mountain Motor Hotel. Sulphur water from a spring at the base of Turtle Mountain was piped into the sanatorium, which contained several small pools that could accommodate fewer than six people in each. Following World War I, the building was sold to the Federal Government and used as a rehabilitation center for tubercular war veterans until its demolition about 1930 (Personal communication C. Drain, Member of the Alberta Legislature for Pincher Creek-Crowsnest, Blairmore, July 18, 1970).

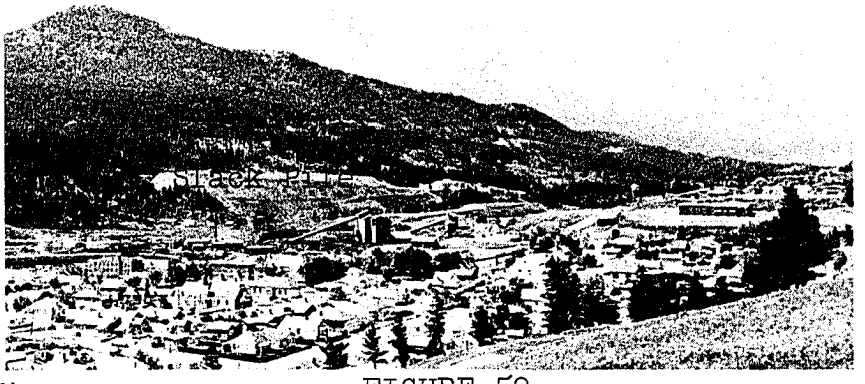


(W. Congdon)

N.

FIGURE 58

SANATORIUM AT FRANK, PRIOR TO 1930



N.

FIGURE 59

COLEMAN AND THE NEW PREPARATION PLANT OF
COLEMAN COLLIERIES, 1971

Federal Government incentives. The closing of Coal Creek Colliery rather than Michel Collieries favored a maintenance of the status quo on the landscape. Fernie was a much more habitable settlement than Michel or Natal. Miners from Fernie would have travelled twenty-four miles to work at Michel more readily than residents of Michel-Natal would have journeyed thirty miles to work at Coal Creek. As on the Alberta side, most miners also found it economically advantageous to remain in their own homes rather than to break tradition and move to another settlement in the Pass. During the 1950's, only the expanding lumber industry provided substantial job opportunities for unemployed coal miners. In the 1960's, the manufacturing industries of the Sentinel industrial complex further slowed the outmigration of residents from the Region. Highway 3 was paved and became a lifeline for most of the settlements situated along the linear core, both for access to shopping, school, and other cultural facilities, and for access to sites of employment.

CHAPTER VI

THE PERIOD OF RENEWED EXPANSION (1968-1971)

The impact of mechanization, centralization of service industries, and sensitization to aesthetics on the landscape has been greatly increased since 1968. There has been a pronounced influx of new residents into the Pass. This is correlated with the implantation of mobile homes in clusters on the landscape, and the construction of new housing subdivisions and renovation of central business districts in certain settlements. The greater landscape changes are taking place on the British Columbia side of the Pass, accompanying the more substantial investment of new capital in coal mining and lumbering there.

The Coal Industry: Expansion, Mechanization, and Sensitization to Aesthetics

Like the period between 1898 and 1911, the period of renewed expansion has seen an increase in the Region's population and the establishment of new coal mines and settlements, as a consequence of the need for increased coal production and increased employment in coal mining. The key to

these new developments is not the sudden emergence of a huge market for coking coal in Japan, because this market has been steadily expanding since the reconstruction of the Japanese iron and steel industry after World War II. Nor is the key the existence of proven reserves of coking coal, because these were established by 1960.[1] The triggering mechanism, rather, has been the ability of Coleman Collieries, Kaiser Resources, and the C.P.R. to produce and transport coking coal to Japan at a price competitive with that charged for coal from American, Australian, Soviet, and other Western Canadian sources. The C.P.R. has been able to reduce the toll on the movement of coal between the Pass and the West Coast termini of Port Moody and Robert's Bank by one-third through a conversion to coal unit trains of 65 to 100 cars. These are now a common sight on the Region's landscape between Coleman and Elko. Mechanization and capital intensification of the mining operation have reduced the labor cost per ton of coal entering the preparation plant by (1) increasing the percentage of coal being surface mined, (2) converting to continuous miners underground where the dip of the seam is less than fifteen degrees, and (3) successfully using hydraulic mining in one underground operation. It was the lack of sufficient capital on the part of Crows Nest Industries to mechanize and expand lumbering and coal mining simultaneously that contributed to

---

[1]Coleman Collieries Limited, Coleman Collieries Limited: Coleman, Alberta, Canada (Coleman: Coleman Collieries Limited, circa 1958), p. 1.

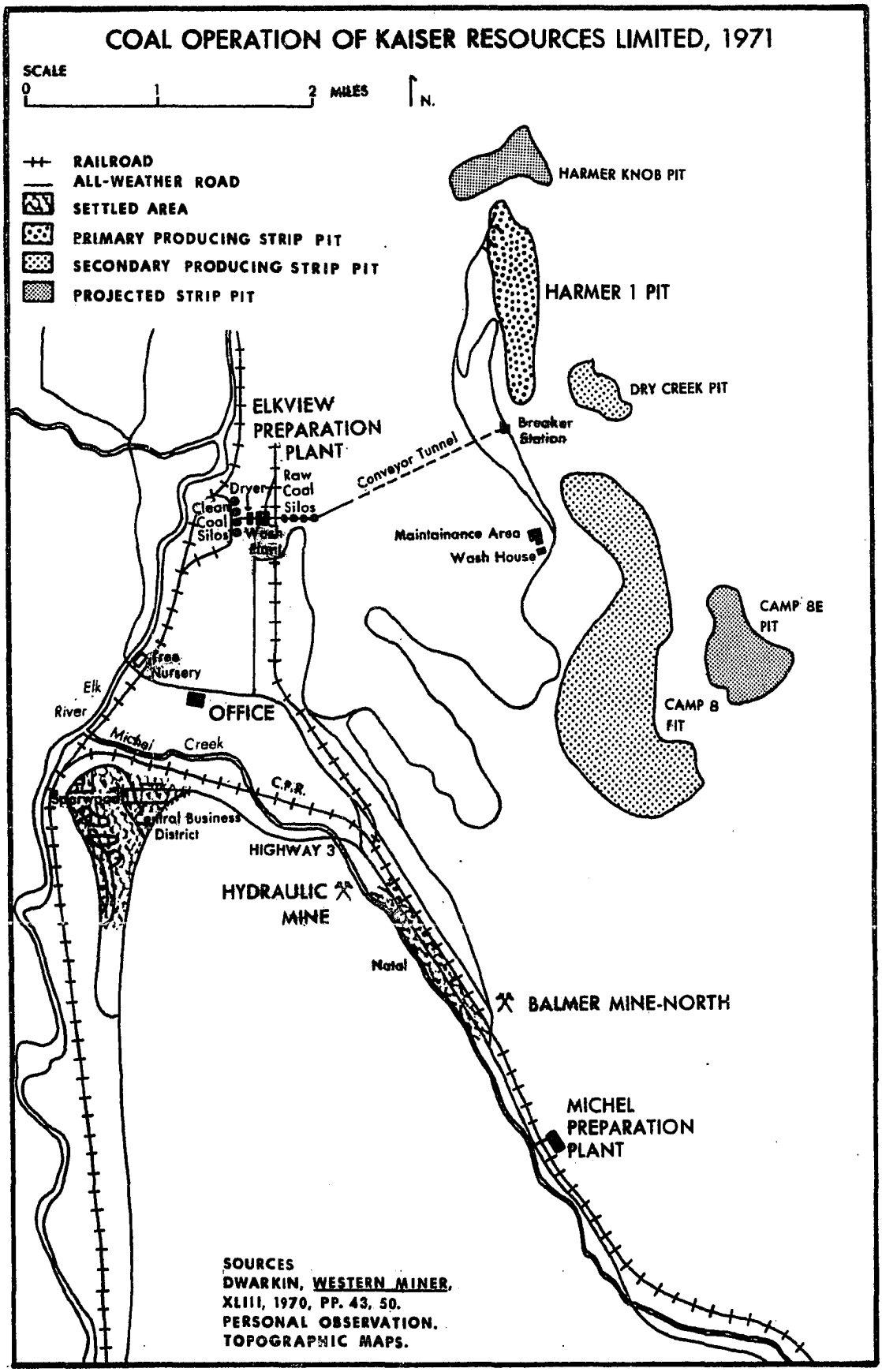

COAL OPERATION OF KAISER RESOURCES LIMITED, 1971
SCALE
0
1
2 MILES
N.
RAILROAD
ALL-WEATHER ROAD
SETTLED AREA
PRIMARY PRODUCING STRIP PIT
SECONDARY PRODUCING STRIP PIT
PROJECTED STRIP PIT
HARMER KNOB PIT
HARMER 1 PIT
DRY CREEK PIT
ELKVIEW PREPARATION PLANT
Breaker Station
Conveyor Tunnel
Raw Coal Silos
Dryer
Clean Coal Silos
Wash Plant
Maintainance Area
Wash House
CAMP 8E PIT
CAMP 8 PIT
Tree Nursery
Elk River
OFFICE
Michel Creek
C.P.R.
Central Business District
HIGHWAY 3
HYDRAULIC MINE
Natal
BALMER MINE-NORTH
MICHEL PREPARATION PLANT
SOURCES
DWARKIN, WESTERN MINER, XLIII, 1970, PP. 43, 50.
PERSONAL OBSERVATION.
TOPOGRAPHIC MAPS.

FIGURE 60

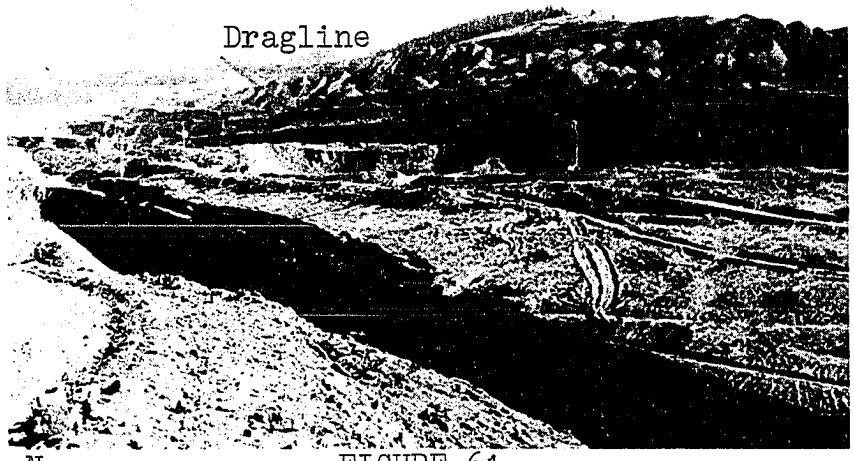


FIGURE 61

HARMER I STRIP PIT OF KAISER RESOURCES, 1970

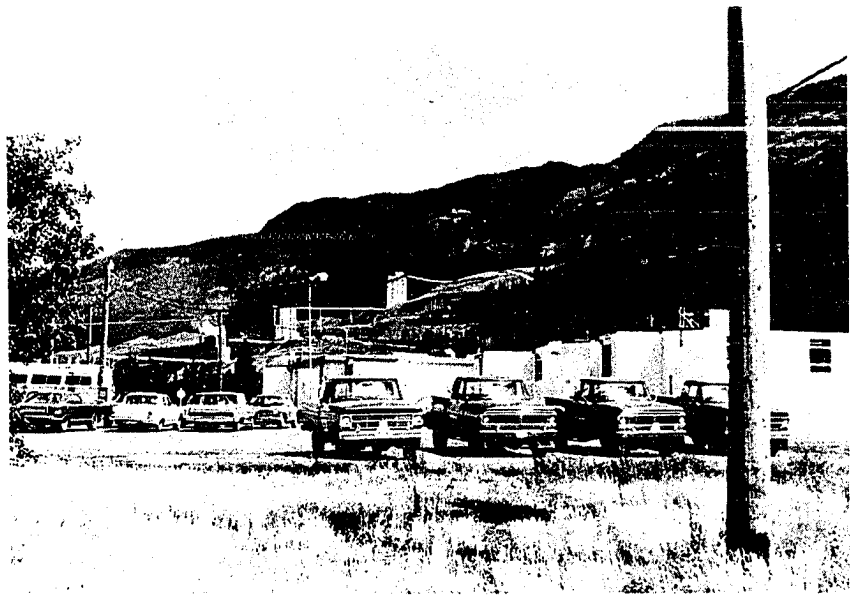


FIGURE 62

OFFICE AND PREPARATION PLANT OF KAISER RESOURCES, 1970

a mutually beneficial takeover of some of the Company's coal rights and its Michel operation by Kaiser Resources Limited, a subsidiary of Kaiser Steel Corporation.

At the beginning of 1968, Coleman Collieries was transporting coal from a strip mine at Tent Mountain and underground mines at Vicary Creek and Racehorse Creek to the old International and McGillivray preparation plants; Crows Nest Industries was conveying coal from two underground and several small strip pits to a nearby preparation plant at Michel. By the end of 1971, a strip mine was being developed at Racehorse Creek, the International and McGillivray plants had been demolished, and a new preparation plant had been built near the site of the International plant (Figs. 41 and 59). On the British Columbia side, a new hydraulic underground mine on the western outskirts of Natal and three large pits at or near Harmer Ridge were feeding the newly-constructed Elkview preparation plant of Kaiser Resources, one mile north of Sparwood (Figs. 60-62). Forty miles north of Sparwood, Fording Coal Limited was just completing the construction of a preparation plant, to be fed by three nearby strip pits (Figs. 63 and 64). Several companies were prospecting for coking coal, and in the process, scarifying the landscape north and south of Blairmore, in and adjacent to Morrissey Creek basin, in Line Creek basin, and in the Elk Valley north of the Region (Figs. 65 and 66). These landscape changes are a reflection of evolving markets and increasing mechanization in the Region's coal industry.

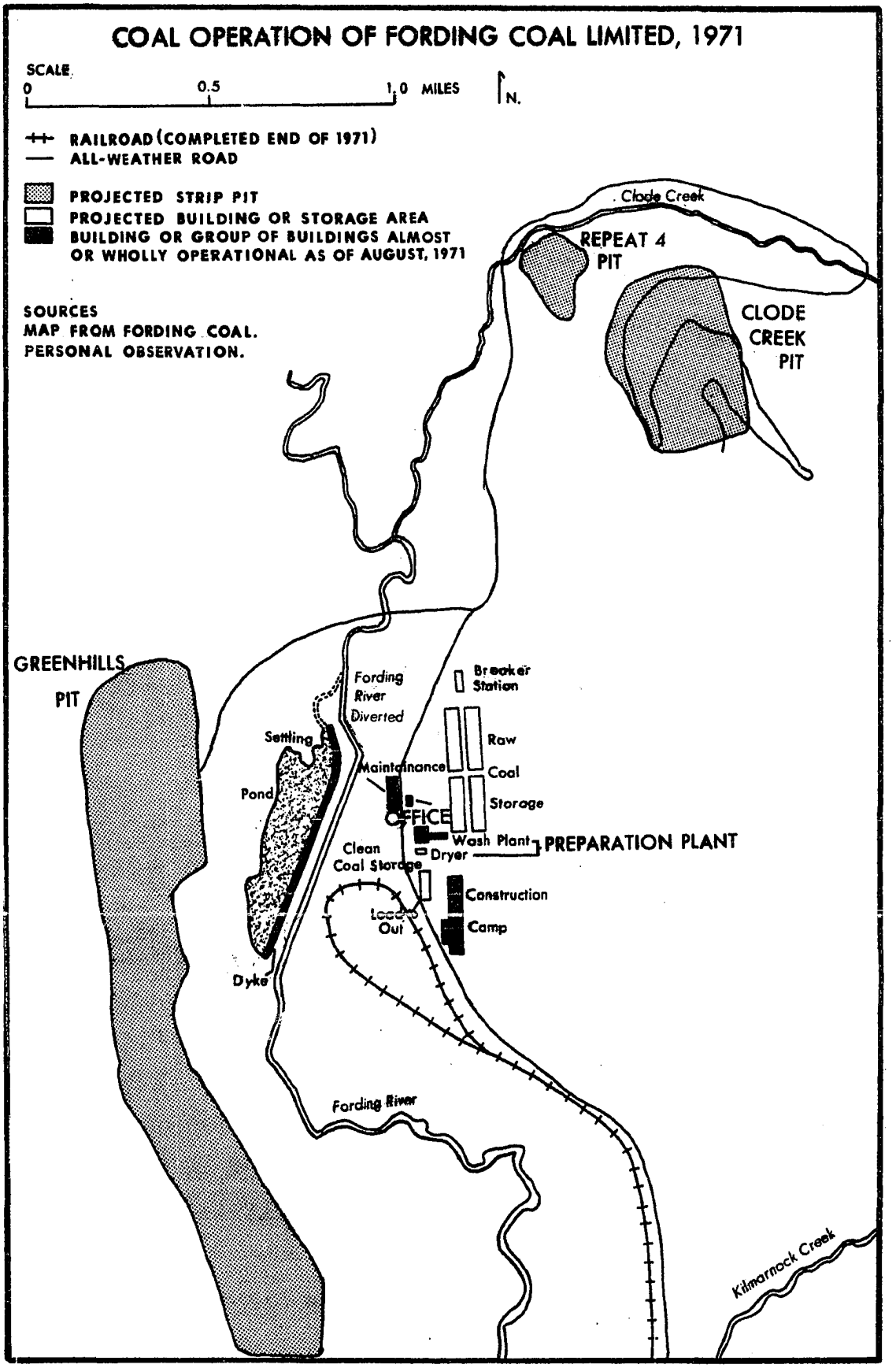
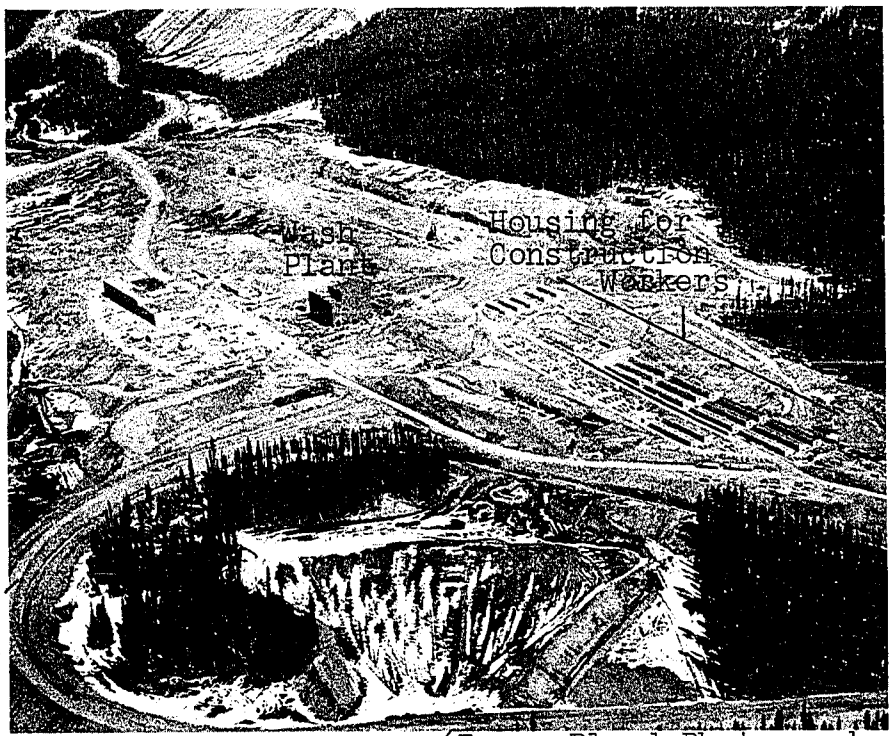

COAL OPERATION OF FORDING COAL LIMITED, 1971
SCALE
0
0.5
1.0 MILES
N.
RAILROAD (COMPLETED END OF 1971)
ALL-WEATHER ROAD
PROJECTED STRIP PIT
PROJECTED BUILDING OR STORAGE AREA
BUILDING OR GROUP OF BUILDINGS ALMOST OR WHOLLY OPERATIONAL AS OF AUGUST, 1971
SOURCES
MAP FROM FORDING COAL.
PERSONAL OBSERVATION.
Clode Creek
REPEAT 4 PIT
CLODE CREEK PIT
GREENHILLS PIT
Fording River Diverted
Breaker Station
Raw Coal Storage
Settling Pond
Maintainance
OFFICE
Wash Plant
Dryer
PREPARATION PLANT
Clean Coal Storage
Construction Camp
Loads Out
Dyke
Fording River
Kilmarnock Creek

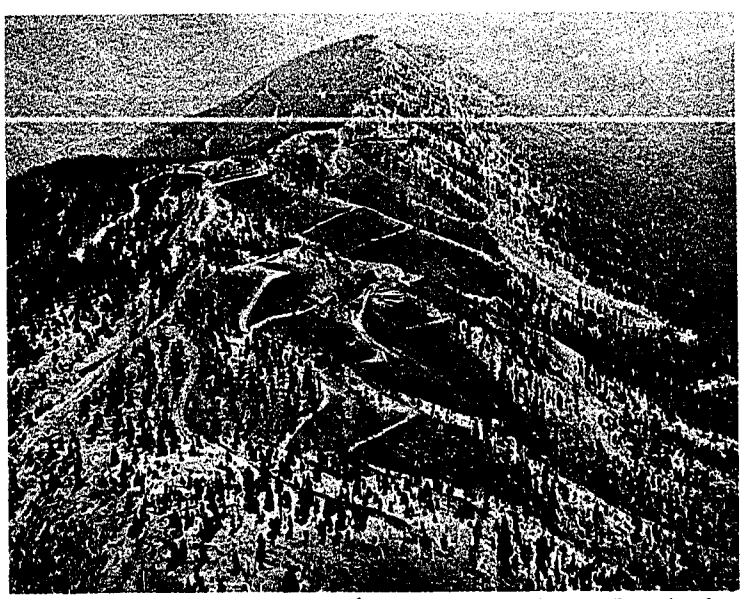
FIGURE 63



(Terry Bland Photography)

FIGURE 64

CONSTRUCTION SITE OF FORDING COAL PREPARATION PLANT, 1971



(Crows Nest Industries)

FIGURE 65

COAL PROSPECTING IN LINE CREEK BASIN, 1969

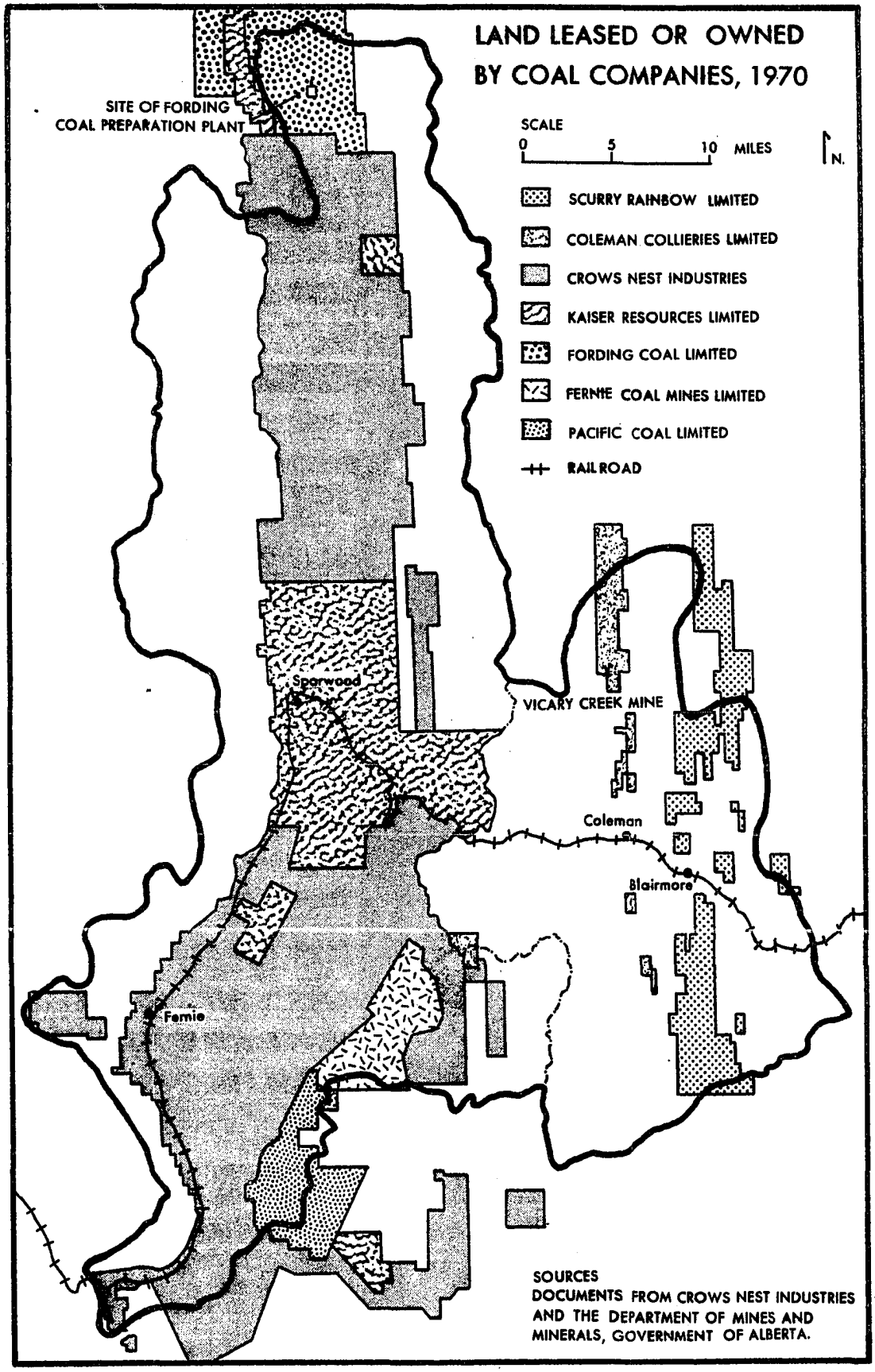

LAND LEASED OR OWNED
BY COAL COMPANIES, 1970
SITE OF FORDING
COAL PREPARATION PLANT
SCALE
0 5 10 MILES
N.
SCURRY RAINBOW LIMITED
COLEMAN COLLIERIES LIMITED
CROWS NEST INDUSTRIES
KAISER RESOURCES LIMITED
FORDING COAL LIMITED
FERNIE COAL MINES LIMITED
PACIFIC COAL LIMITED
RAILROAD
Sparwood
VICARY CREEK MINE
Coleman
Blairmore
Fernie
SOURCES
DOCUMENTS FROM CROWS NEST INDUSTRIES
AND THE DEPARTMENT OF MINES AND
MINERALS, GOVERNMENT OF ALBERTA.

FIGURE 66

The degree of mechanization is a function of the recency of a company's entry into coal mining in the Pass, and the size of the coal contract with the Japanese iron and steel industry. Coleman Collieries, Fording Coal, and Kaiser Resources have each signed long-term contracts for the shipment of one, three, and five million tons of coal per year, respectively, to Japan. The ratio of stripped to underground coal varies inversely with the length of time that each company has been mining coal. Kaiser Resources and Fording Coal are each using a dragline with a 54 and 60-cubic yard bucket, respectively, to remove the overburden and strip mine the coal, supplemented by shovels with 10 to 25-cubic yard buckets. Coleman Collieries uses shovels only. Kaiser Resources uses 100 and 200 ton trucks to haul coal from the pits to a conveyor belt leading to the preparation plant. Fording Coal employs 120 ton trucks, and Coleman Collieries 25 and 35 ton trucks to haul coal directly to their preparation plants. Despite its smaller degree of mechanization, Coleman Collieries has been operating at a profit since 1968, whereas Kaiser Resources is continuing to operate at a loss. Smaller equipment is more maneuverable than larger equipment in a strip mining operation in mountainous terrain, and the preparation costs of strip mined coal tend to be higher than those for underground coal. The Kaiser operation has experienced two major problems: (1) the dragline has not produced as much coal as expected, partly because of a maneuverability problem

(Fig. 60), and (2) the quality of cleaned coal has not met the contract specifications, which has necessitated modifications in the Elkview preparation plant.[2]

The Fording and Kaiser operations are spatially much more compact than that of Coleman Collieries (Figs. 37, 60, and 63). One reason for this trend towards spatial compactness is the rising labor cost of transporting coal by truck from the pit or adit to the preparation plant, and this is, in turn, related to mechanization and capital intensification. The major reasons for this difference, however, are the topography and the distribution of coal deposits in the Region. On the basis of current information, there is a lack of large, strippable reserves of coking coal near the preparation plant and Vicary Creek mine of Coleman Collieries. For example, the proposed strip mine at Racehorse Creek has a potential yield of only 500,000 tons of coal.[3] The vast majority of strippable coking coal is found within the Elk River basin. A joint exploration program by Crows Nest Industries and Kaiser Steel Corporation during 1967 confirmed that there were at least 100 million tons of reserves at a stripping ratio of 5.5 to 1 between Erickson Ridge and the Elk Valley. Secondly, a contemplated preparation plant has to be accessible by rail, which favors a valley site. The Elk and Fording valleys are

---

[2]Personal communication B. East, Tour Guide of Kaiser Resources Limited, Sparwood, August 19, 1970.

[3]Personal communication R. E. Upton, Secretary-Treasurer of Coleman Collieries, Coleman, August 14, 1970.

situated in close proximity to large, strippable coal deposits, a situation not found on the Alberta side. The average distance from mine to preparation plant is three to four miles for the Kaiser and Fording operations, compared with fourteen miles for the operation of Coleman Collieries.

A growing company concern for a more favorable public image has been temporally coincident with a growing public concern regarding the deleterious effects of strip mining on the landscape. The increasingly mechanized nature of strip mining and the greater percentage of coal being stripped means that an ever greater area of landscape is being scarified per ton of coal mined in the Region since the 1940's.[4] Public concern resulted in legislation by the Alberta and British Columbia governments in 1956 and 1969, respectively, to require reclamation of strip mines established after the date of enactment of the legislation.[5] Therefore, unlike the Kaiser and Fording strip mines, the Tent Mountain stripping operation is not subject to reclamation. About three square miles of land will need reclaiming during the first fifteen-year period of Kaiser stripping operations from five pits

---

[4]This statement is true of most mining areas in the world after 1945 (W. G. Ross, Geographical Review, 1967, p. 537).

[5]Neither province requires a complete restoration of the original landscape, but both require coal mining companies to ensure that the stripped area is completely revegetated. The British Columbia Government, which, unlike the Alberta Government, was not confronted with the problem of surface coal mining until 1969, requires a company to post with it a $500 bond per acre of land disturbed by strip mining.

(Fig. 60). Reclamation has not yet begun because mining has not progressed far enough to make a suitable area available for restoration. The restoration procedure will entail removing and storing the topsoil, removing rock and other material, mining the coal, replacing the topsoil on the rock without moving the latter back to its original site, and restoring plant life to the mined area.[6] Hence, the original contour of the land will not be reestablished. In 1969, the Company constructed a one-acre tree nursery in order to undertake trial plantings of pine, spruce, fir, and black locust seedlings. The tentative plan is to plant black locust shrubs and white clover initially to hold the transplanted soil in place until conifers have had a chance to take root. The white clover fixes nitrogen in the soil, which aids in tree growth.

Coal companies have voluntarily attempted to cover up coal wastes in areas exposed to public view. None of the current areas of stripping activity in the Pass can be viewed from Highway 3, nor are they easily accessible to public inspection, but between Natal and Burmis, there are numerous slack piles that can be readily observed from the highway. Kaiser Resources and, to a lesser degree, Coleman Collieries have successfully initiated vegetation regrowth on many of

---

[6]Kaiser Coal Limited, "Reclamation," Sparwood: unpublished document, January 20, 1969, p. 3. The name of the Company was changed from Kaiser Coal Limited to Kaiser Resources Limited during 1969.

these piles during the late 1960's via a hydroseeding process, whereby white clover, grass seed, and peat moss have been mixed with water, and the solution injected under pressure into the piles. The subsequent growth of brome grass is six to twelve inches in height (Fig. 67). By way of contrast, the Scurry Rainbow Company, which has not yet mined coal in the Region, has made no effort to reseed the slack piles of its predecessor, West Canadian Collieries (Fig. 38). With 'encouragement' from their respective provincial governments, Fording Coal, Kaiser Resources, and Coleman Collieries have constructed large settling ponds beside Fording River, a short distance downstream from the entry of Clode Creek into the River (Fig. 63); along Michel Creek; beside Vicary Creek, next to the 'A' level entry of the Vicary Creek mine; and on McGillivray Creek next to Highway 3 (Fig. 54). The Fording and Kaiser settling ponds filter out sediments carried there from strip pits and haulage roads during the spring runoff (Fig. 61), while the function of the ponds of Coleman Collieries is to reduce the concentration of iron oxide wastes in the water. Derived from nearby underground mines,[7] these wastes are aesthetically undesirable, but otherwise have no known deleterious effects.

---

[7]In the case of McGillivray Creek, the source of iron oxides is the rusting of mining apparatus left in the McGillivray mine at the time of abandonment (personal communication P. Melson, Director of Mines, Government of Alberta, Edmonton, June 29, 1970).

While the efforts of late by the coal industry in the Pass to minimize past and present disturbance to the landscape have been commendable, the record is not without blemish. Relatively little effort has been made to level the shells of abandoned mine buildings, particularly those somewhat removed from public view. An inspection of the mine buildings of the former Hillcrest-Mohawk Collieries has revealed that Company records are strewn over the floor of one of the buildings, and there are no barriers to entry into any of the buildings. There is filmed evidence of overflow and breaches in the dykes of Kaiser's settling ponds.[8] A short distance north of Sparwood on the road to the Fording Coal operation, a small amount of overburden from the Harmer Ridge strip pit has been pushed into the Elk Valley (Fig. 68). One Kaiser official[9] has said that this is not an accident or error in mining procedure, but such a sight is difficult to accept from an aesthetic point of view.

Fortunately, the ship mining companies' practice prior to 1960 of depositing and leaving overburden along the nearest convenient slope is rapidly falling into disfavor. Coal companies in the Region are becoming increasingly sensitized to aesthetics, partly through their own enlightened attitudes

---

[8]National Film Board of Canada, That's the Price, Ottawa: a documentary film about the Michel-Natal-Sparwood mine-settlement complex, Government of Canada, 1970.

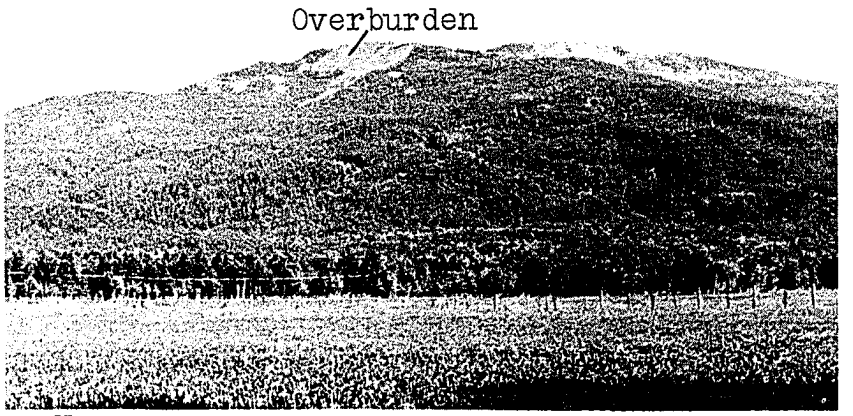
[9]Personal communication J. G. John, Manager of Industrial and Public Relations, Kaiser Resources Limited, Sparwood, September 15, 1971.



N.

FIGURE 67

RESEEDED SLACK PILE AT NATAL, 1971



N.

FIGURE 68

DEPOSIT OF OVERBURDEN FROM THE HARMER I STRIP PIT IN THE ELK VALLEY, 1971

towards the landscape, and partly because of public pressure as expressed through governmental legislation and the mass media.

The Lumber Industry: Consolidation and Mechanization

After 1967, the lumber industry neither expanded nor declined significantly in production and employment, but the process of consolidation was operative. On the Alberta side, Revelstoke Building Materials ascended to dominance at a later date than Crows Nest Industries on the British Columbia side. During 1964, Revelstoke, with extensive lumber interests outside the Region, had purchased the Atlas Lumber Company. This was the same year that Burmis Lumber Company went bankrupt, leaving Blairmore Sawmills and Revelstoke as the only two large lumber companies on the Alberta side (Fig. 51). Subsequently, Revelstoke purchased the North Fork Timber Company at Frank and continued to operate the mill sporadically. In 1969, Bodio Lumber Company, the successor to Sartoris Lumber Company, closed. The following year, Revelstoke purchased its main competitor, Blairmore Sawmills, closed its mills at Lynx Creek and Blairmore, and proceeded to absorb most of the employees into Revelstoke's expanding sawmill and planer mill at the Sentinel industrial complex.

On the British Columbia side, Crows Nest Industries also achieved a consolidation of its processing operation into one major plant. Following the sale of the Company's coal

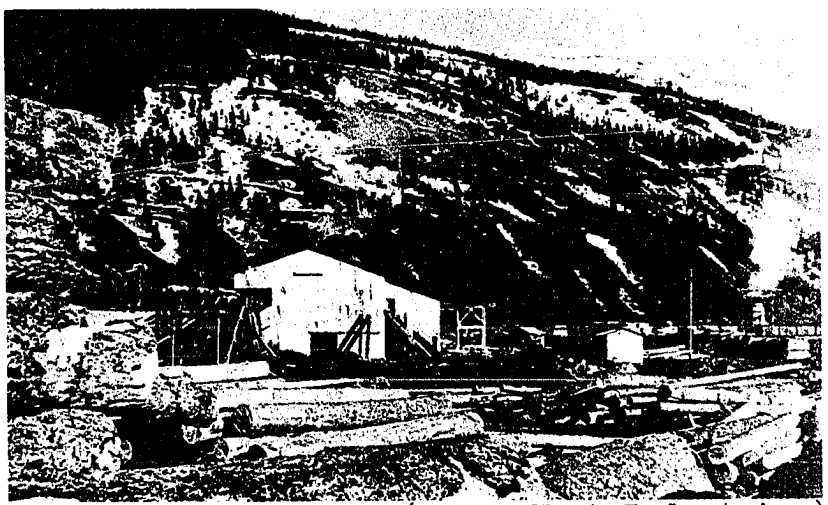
assets to the Kaiser Steel Corporation in February, 1968, Crows Nest Industries possessed the capital to finance such an undertaking. Since most of the Company's timber cutting had taken place in the Flathead area after 1965, and a forestry road had been constructed by the British Columbia Government from Morrissey Station into the Flathead country via Lodgepole Creek in 1958, the former location of Morrissey Townsite was chosen for the new mill (Fig. 8). During 1968, 117 acres at the proposed site were cleared before it was discovered that a thirty-foot layer of clay existed under the surface, and the ground was slowly subsiding, even though a settlement had existed here at one time.[10] The site was changed to Elko, an additional ten miles from Fernie, where the Company's headquarters and place of residence of the workers are located. In 1969, the new mill was completed, and the old mills at Porteous, Elko, and Natal were demolished (Figs. 1 and 51). Some indication of the increasing mechanization of the Company's operations can be had from an examination of Table 5 (Figs. 69 and 70).

Settlements: Centralization of Service Industry and Sensitization to Aesthetics

The expansion of coal mining and the need for employees skilled in contemporary, mechanized mining techniques has resulted in a considerable influx of new residents into the

---

[10]Personal communication D. Chester, employee at Crows Nest Industries, Fernie, August 18, 1970.

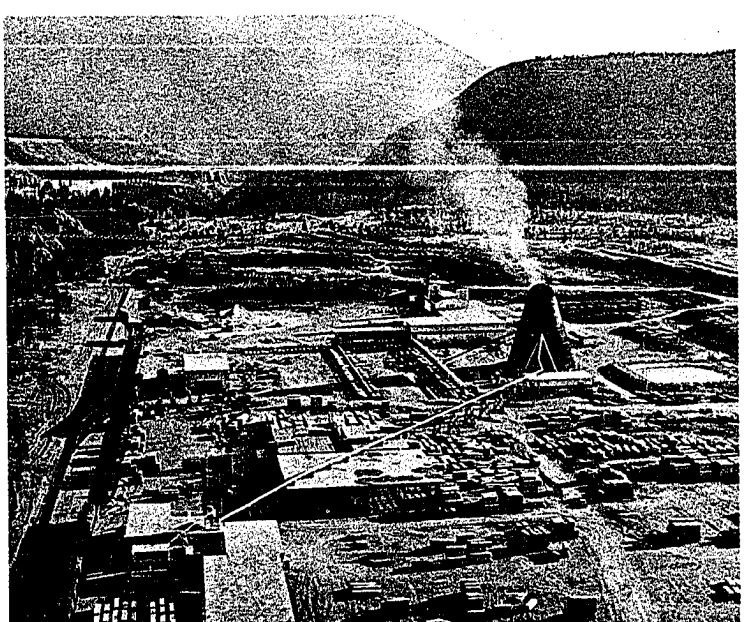


(Crows Nest Industries)

N.

FIGURE 69

LUMBER MILL OF CROWS NEST INDUSTRIES AT NATAL, EARLY 1960'S



(Crows Nest Industries)

N.

FIGURE 70

NEWLY-COMPLETED LUMBER MILL OF CROWS NEST INDUSTRIES AT ELKO, 1969

TABLE 5

COMPARISON OF THE NEW ELKO AND NATAL MILLS OF CROWS NEST INDUSTRIES

	New Elko Mill	Natal Mill
Date of opening	1969	1959
Capital investment ($)	5,300,000	500,000
Employment[a]	265	100
Area occupied by mill (acres)	60	45
Capacity (millions of board feet per year)	135	40
Products	2 inch dimension lumber pulp chips 1 inch board	1 inch board mine slabs

[a]Combined employment at the three old mills in 1968 was about 250.

Sources

Crows Nest Industries Limited. Annual Reports, 1968 and 1969.

Personal communication B. C. Pinnell, Secretary-Treasurer and Comptroller for Crows Nest Industries, Fernie, April 12, 1972.

Personal communication W. R. Wilson, Fernie, September 15, 1971.

Region from other parts of Canada and the United States. Because comparatively few new homes and service industries had been constructed since 1920, an acute housing shortage has developed, which is being alleviated by the widespread introduction of mobile homes. These trailers are often set down on a landscaped lot. Between Highway 3 and Elkford, 146 occupied trailers were counted in July, 1970, and the number had increased to 259 by August, 1971. Most of the additions have occurred at Elkford, a trailer settlement at present, but designed to attain some more permanent features when the Fording Coal operation goes into commercial production during 1972. Between Sparwood and Elko, 180 mobile homes were observed in July, 1970. As of August, 1971, there were 529 occupied mobile homes,[11] only 90 of which were on the Alberta side of the Pass. The trailers at Hillcrest, Blairmore, and Frank are interposed singly or in small clusters among residential dwellings, while almost all of the mobile homes elsewhere in the Region are found in trailer courts on the edge of settlements or removed from them (Fig. 71). This difference is accounted for by the degree of availability of vacant lots within settlements and, secondarily, the zoning regulations of each settlement.

The introduction of these mobile homes symbolizes the entry of a new type of resident into the Pass. Most of these

---

[11]This statistic excludes the trailers at tourist camps and those for sale at two establishments, one at Blairmore and the other at Hosmer.

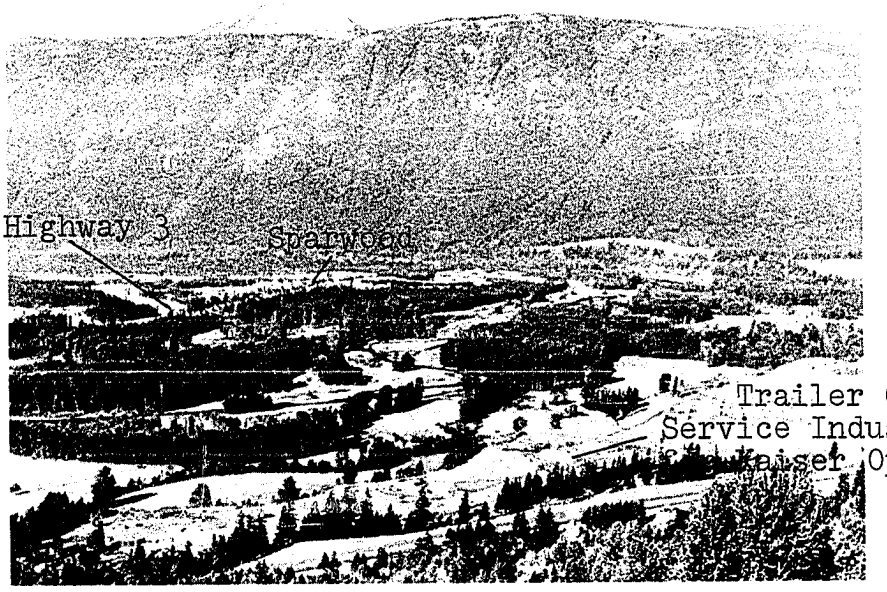


FIGURE 71

ELK VALLEY AT SPARWOOD, 1970



FIGURE 72

VACANT BUILDINGS ALONG COLEMAN'S MAIN STREET, 1971

residents have come from areas which have less air pollution and much better developed shopping centers, school facilities, and other cultural activities. Of the settlements in the Pass, they would be most attracted to Fernie and Blairmore on the basis of residing in a settlement that fulfills a good many of their desires and demands. Coleman, Hillcrest, and Bellevue would be less attractive, and Hosmer, because of its small size, and Natal, on account of its cramped site and severe air pollution, would likely be very unattractive to many of these new residents.[12] There is a temporal correlation between the entry of these new residents into the Pass, and the marked improvement in, and the accelerated centralization of, service industries. Improvements in the central business districts of Fernie and Blairmore have occurred for the following reasons: (1) the financial stability of Kaiser Resources and Coleman Collieries, and the existence of fifteen-year contracts for the shipment of coal to Japan; (2) a moderate increase in the number of people living in and around these settlements; and (3) the more affluent tastes of the newcomers.

There is a trend towards centralization of service industries at Blairmore, Fernie, and Sparwood at the expense of other settlements (Fig. 73). Changing shopping

---

[12]These are intuitive ideas of the writer, based on the fact that he has entered the Region from a milieu similar to that of many of the newcomers, and based on conversation with a few of the new residents of the Region.

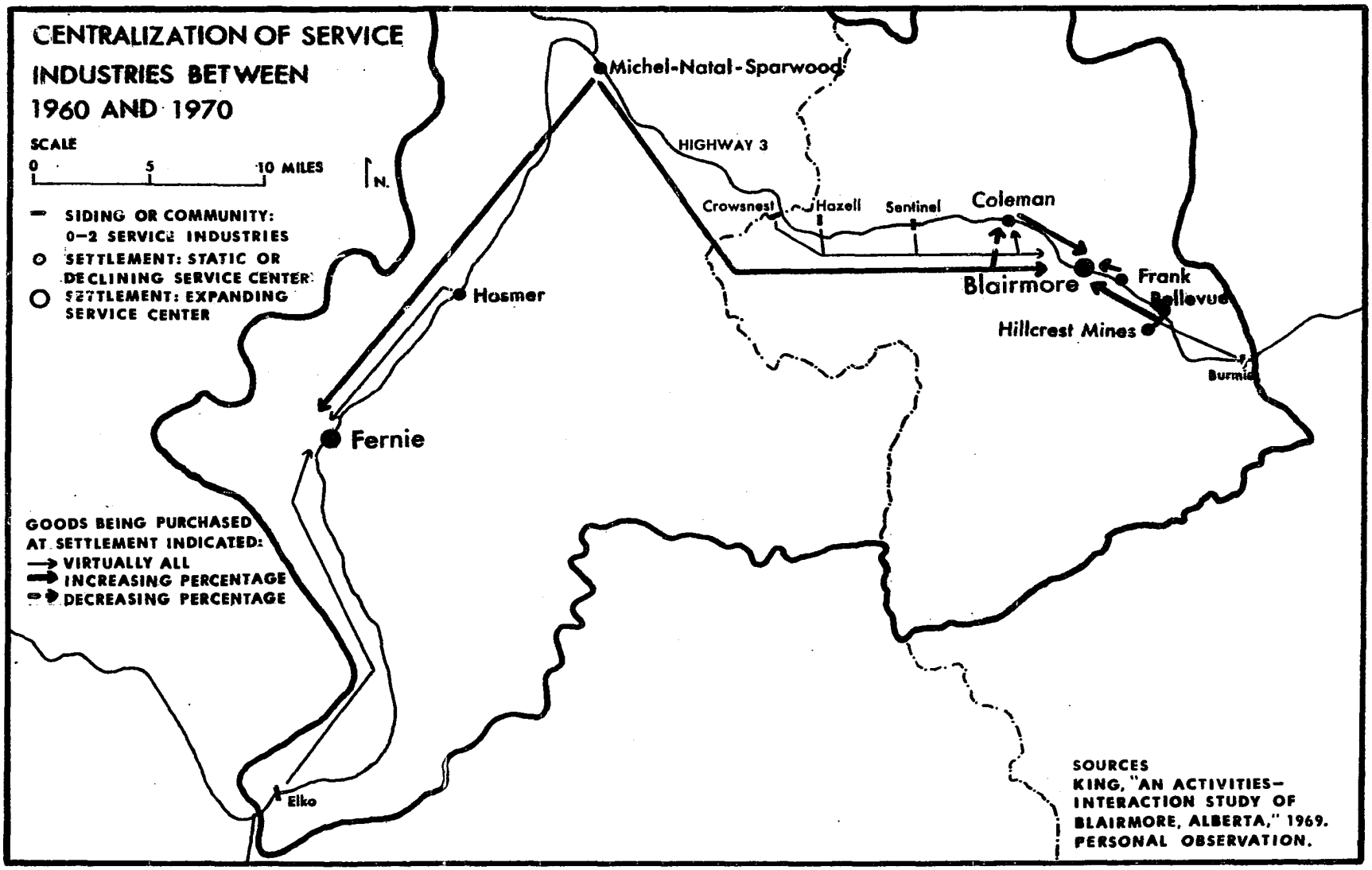

CENTRALIZATION OF SERVICE INDUSTRIES BETWEEN 1960 AND 1970
SCALE
0 5 10 MILES
N.
SIDING OR COMMUNITY: 0–2 SERVICE INDUSTRIES
SETTLEMENT: STATIC OR DECLINING SERVICE CENTER
SETTLEMENT: EXPANDING SERVICE CENTER
Michel-Natal-Sparwood
HIGHWAY 3
Crowsnest
Hazell
Sentinel
Coleman
Blairmore
Frank
Bellevue
Hillcrest Mines
Burmis
Hosmer
Fernie
Elko
GOODS BEING PURCHASED AT SETTLEMENT INDICATED:
VIRTUALLY ALL
INCREASING PERCENTAGE
DECREASING PERCENTAGE
SOURCES
KING, "AN ACTIVITIES–INTERACTION STUDY OF BLAIRMORE, ALBERTA," 1969.
PERSONAL OBSERVATION.

FIGURE 73

preferences, the increasing mobility of residents of the Region, and the advantages of economies of scale largely explain this trend. Prior to the opening of Sparwood's new shopping center in the fall of 1971, residents of Michel, Natal, and Sparwood patronized the merchants of Blairmore as much as they did the merchants of Fernie, located about the same distance away. Blairmore's smaller number of services was counterbalanced by its location in a province having no sales tax, unlike the situation in British Columbia. The contrast in the appearance and number of shopping facilities is quite noticeable in Blairmore's favor over Coleman, even though the former has 400 fewer residents than Greater Coleman. In July, 1971, sixteen of thirty-seven business establishments located on Coleman's main street in the four blocks adjacent to the nearby coal preparation plant were vacant (Fig. 72). Coal dust is as noticeable on these buildings as it is in Natal and Michel. There has been some relocation of service industries to Highway 3, located north of Coleman's central business district. Only twelve buildings remain in the commercial core of Hillcrest Mines, and four of these are vacant. Seven commercial buildings have been built in the central business district of Blairmore since 1956, compared with one in Coleman, and none in Bellevue.[13]

The central business district of Fernie has been

---

[13]Oldman River Regional Planning Commission, Alberta Crowsnest Pass Subregional Study: 3--Regional Development and Urban Renewal, p. 74.

strikingly rejuvenated in the last two years, even more so than that of Blairmore. A modern supermarket has been constructed with plenty of parking space in front, which is appealing to the new residents of the city. At least six new buildings have been constructed on what was formerly Victoria Avenue, and numerous others have been renovated (Fig. 74). These improvements have occurred simultaneously with the erection of houses and apartment buildings on a majority of 352 serviced lots in the new subdivision of Ridgemont, overlooking the commercial core from the east (Fig. 75).[14] One-half mile south of the road connecting the central business district and Ridgemont is the site of the Fernie coke ovens, which were destroyed in 1967.[15] The timing of their demolition possibly indicates that they were perceived as an eyesore only in recent years. Since the coke ovens at Morrissey are still intact (Fig. 76), the revenue realized from the sale of the oven bricks is not the major reason for the removal of the Fernie ovens from the landscape.

Changes in the type and distribution of service industries and houses in the Sparwood-Natal-Michel area are even more striking. As of July, 1971, there remained a house, hotel, and hospital in Michel (Fig. 77), and about fifty

---

[14]"Plenty of Land Available but Lot Shortage Likely," Fernie Free Press, December 18, 1969. There is also a new residential subdivision in both Coleman and Blairmore, but on a much smaller scale, when compared with Ridgemont.

[15]A few derelict coke ovens still remain next to Coleman's central business district.



N.→ FIGURE 74

RESULTS OF RENOVATION IN FERNIE'S CENTRAL BUSINESS DISTRICT, 1971



N.→ (Crows Nest Industries)

FIGURE 75

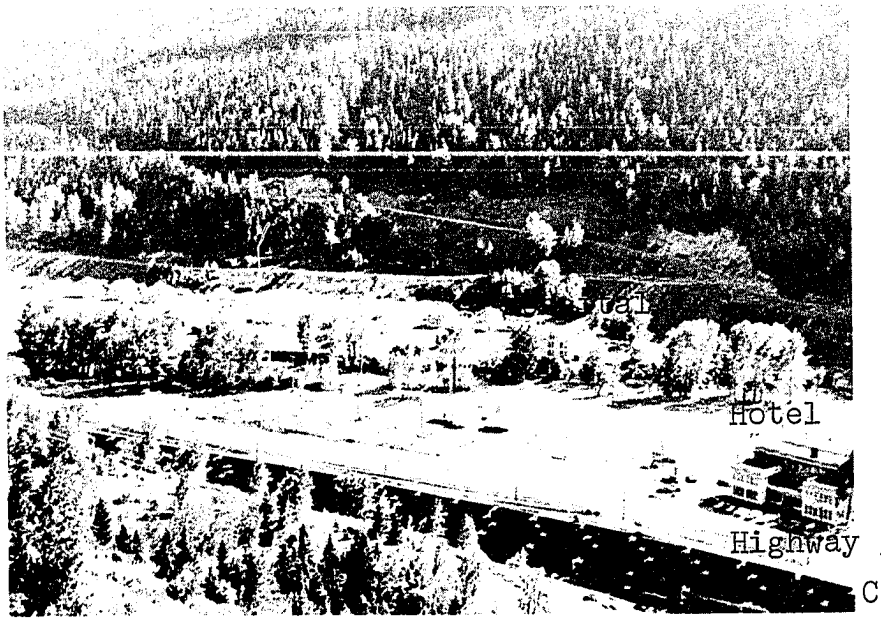
FERNIE, 1969



N.→

FIGURE 76

SIXTY-FIVE YEARS OF VEGETATION GROWTH ON TOP
OF DERELICT COKE OVENS AT MORRISSEY, 1970



←N.

FIGURE 77

PROGRESS MADE IN THE DEMOLITION OF MICHEL, AS OF 1970

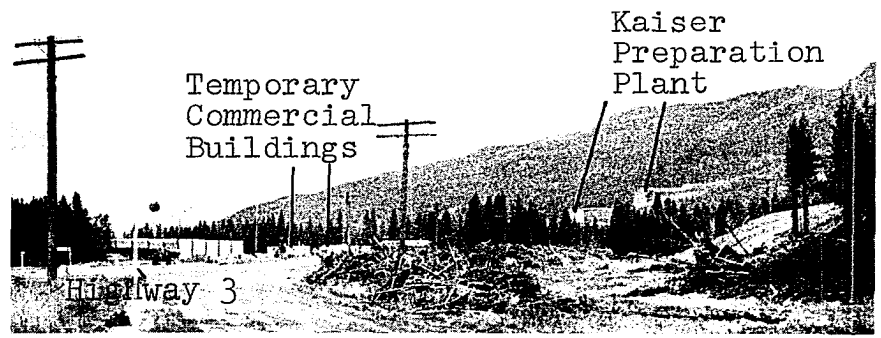
houses (forty of which were occupied), and a few commercial buildings (two of which were still occupied) in Natal. Between May, 1966 and June, 1969, fifty-six buildings were demolished, and thirty-five were "ready to go down" as of July, 1970.[16] In contrast, a shopping center and juxtaposed commercial buildings along Highway 3 at Sparwood were occupied or nearly ready for occupancy by September, 1971, in order to provide services for the population of the Municipality of Sparwood and the upper Elk Valley (Fig. 78). The bulk of these people are living in Sparwood in homes built after 1967 adjacent to the commercial core, not interspersed among commercial buildings as in Natal (Fig. 79).

Most of the residents of Sparwood are new to the Region, rather than former residents of Natal and Michel. Under the "land assembly program," administered by the Regional District of East Kootenay on behalf of the Municipal, Provincial, and Federal governments, residents and businessmen of Natal were not offered sufficiently high expropriation prices to allow them to relocate in Sparwood without undertaking heavy mortgages.[17] Many of the older residents of

---

[16]Personal observation; personal communication F. E. Bertoia, Administrator, Regional District of East Kootenay, Cranbrook, July 8, 1970; personal communication L. Montemurro, Clerk of the Municipality of Sparwood, which includes the Sparwood-Natal-Michel mine-settlement complex, Natal, July 14, 1971.

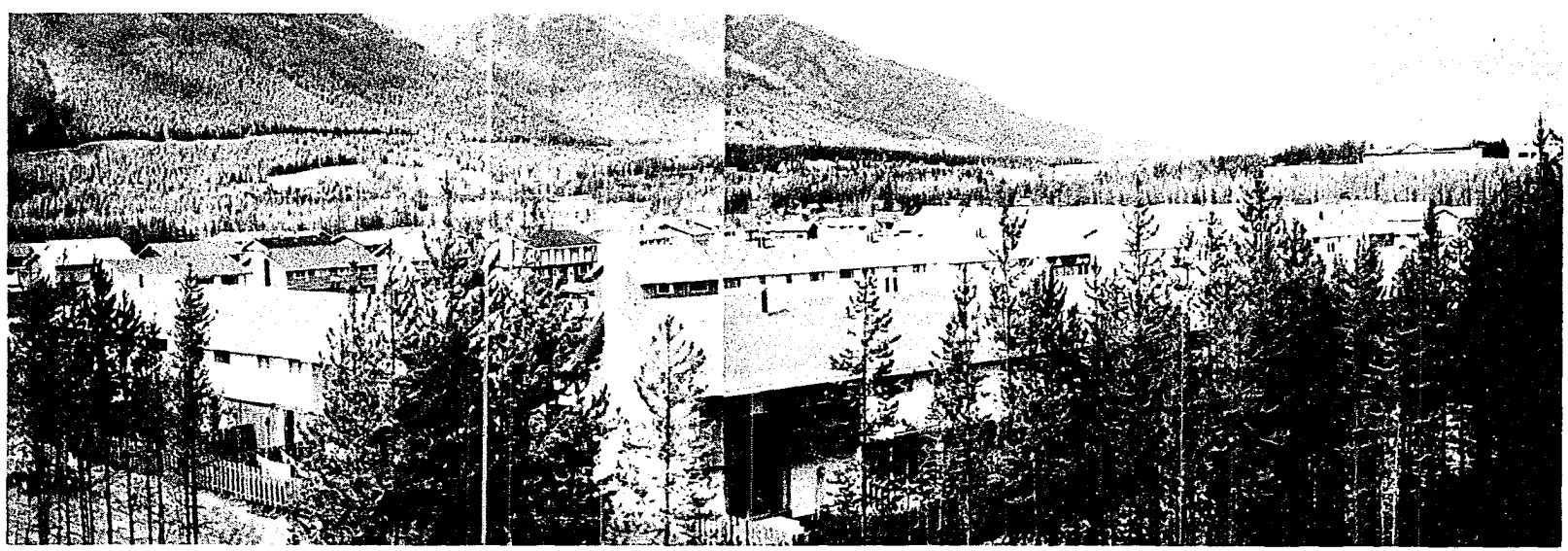
[17]Offers for individual buildings in Natal have ranged from $3,000 to $6,000, whereas the minimum cost of a new home in Sparwood is $15,000 (Personal communication A. H. G. Miller, Regional Planning Director, Regional District



N.

FIGURE 78

SHOPPING CENTER AT SPARWOOD, 1971



N.

FIGURE 79

NEW RESIDENTIAL AREA AT SPARWOOD, 1971

Michel-Natal have close ties with their settlement, and possess a quite different opinion from that of government officials and new residents as to what constitutes a habitable settlement. The long-term trend of the centralizing process is towards service-oriented settlements at Fernie, Blairmore, Sparwood, and Elkford (Fig. 73). These are situated about twenty miles apart and spatially removed from significant air pollution resulting from coal mining. Fernie has been such a settlement since the late 1950's, and Blairmore is slowly usurping service functions from its closest rival on the Alberta side, Coleman.[18] The opening of the new shopping center at Sparwood in September of 1971 should mean that this town will supplant Fernie and Blairmore as the chief provider of services for Natal, Sparwood itself, and the upper Elk Valley. Renewed expansion since 1968 has extended the core twenty miles up the Elk Valley from Sparwood. If future coal mining should occur in the valley north of Elkford, the core is not likely to be extended northward because the mining employees of such a project would likely reside at Elkford. Elkford should, in turn, supplant the service functions of

---

of East Kootenay, Cranbrook, July 8, 1970; G. R. Lamont, "Field Project, Sparwood-Natal," [Edmonton: unpublished Field School report, Department of Geography, University of Alberta, 1969], p. 4).

[18]In 1969, Blairmore serviced about 50 percent of the trading area on the Alberta side of the Pass, compared with about one-third for Blairmore (M. S. P. King, "An Activities-Interaction Study of Blairmore, Alberta," [Edmonton: unpublished Field School report, Department of Geography, University of Alberta, 1969], p. 10).

Sparwood in the area north of the junction of the Elk and Fording rivers. Elko, Hosmer, Hazell, Sentinel, Coleman, Frank, Bellevue, and Hillcrest Mines will function increasingly as residential hinterlands of these service centers.

Summary

Marked changes in the landscape have occurred during the period of renewed expansion, and the rapidity and intensity of change show no signs of abating in the immediate future. Of the other periods discussed, this period is most similar to the colonizing period of rapid expansion. The basic triggering mechanism of the current expansion is the ability of three coal companies in the Pass to penetrate successfully the Japanese market for coking coal. Like the railroad market at the turn of the century, the Japanese market appears to be a stable, long-term one. This fact has helped to generate a spirit of confidence on the part of merchants and government officials concerning the economic prospects of the Region. One result has been the construction of many new homes, schools, and commercial buildings. Service industries for the increasingly mobile, amenities-oriented population of the Pass seem to be centralizing at Fernie, Sparwood, and Blairmore. The image of coal companies is also undergoing a facelifting, as they respond positively to demands from an aesthetically sensitized public for short and long-term improvements in the appearance of areas affected by coal mining.

CHAPTER VII

CONCLUSION

Discovery of the Region's coal resources and the development of the railroad market for coal resulted in landscape change via the colonizing process, and initiated the operation of several processes which also led to landscape change (Fig. 80). The consolidating, mechanizing, and diversifying processes operated to produce direct changes in the expression of extractive industries on the landscape, and, simultaneously, affected the landscape indirectly by influencing the expansion of settlements. The colonizing period of rapid expansion saw the commencement of a multiplicity of mines, mills, and quarries by almost the same number of companies. By the beginning of the period of renewed expansion, the consolidating process had been operative, with the result that sealed mine adits, slack and sawdust piles, and foundations or shells of processing plants comprised the sites of a majority of these formerly functioning enterprises. The surviving industries intensified their use of capital and developing technology to progressively mechanize operations. Mechanization led to a dispersion of the raw material sources of

SPATIAL-TEMPORAL MODEL OF MAJOR CAUSE-EFFECT RELATIONSHIPS INVOLVING PROCESSES AND LANDSCAPE PATTERNS IN THE CROWSNEST PASS REGION

·····› Strong Relationship during the Colonizing Period of Rapid Expansion (1898-1911)

- - -› Strong Relationship during the Period of Moderate Expansion (1911-1951)

— —› Strong Relationship during the Period of Contraction (1952-1967)

——› Strong Relationship during the Period of Renewed Expansion (1968-1971)

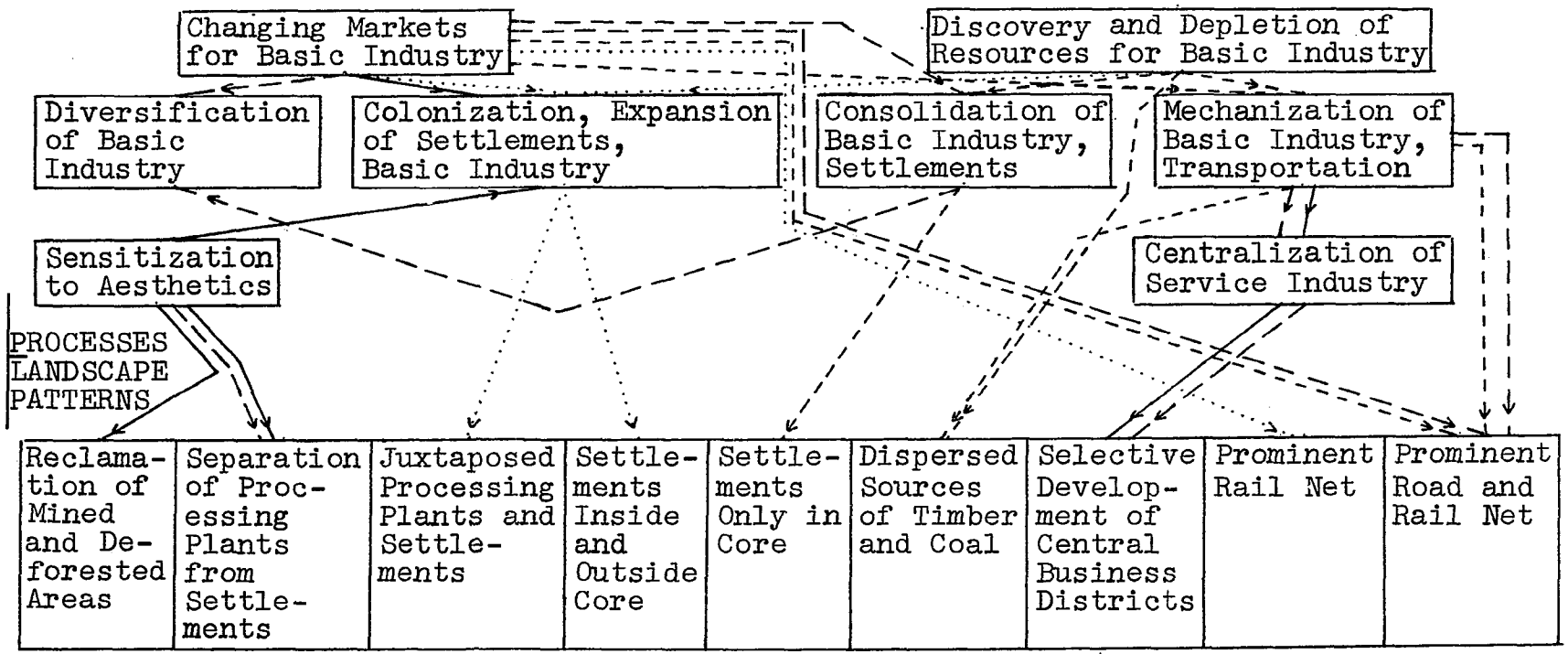


FIGURE 80

basic industry out from the core after 1911 to compensate for their progressive exhaustion inside the core.

Wilson hypothesizes that the early outcrop mines of New South Wales, Australia, all of which were located within a mile of the consuming or distributing point, constituted "something approaching a least-cost location, at least in terms of the then current knowledge of resources." Later pits would of necessity be dispersed further afield or further underground.[1] Wilson's statement is qualified sufficiently so as to be essentially applicable to the evolving locational pattern of coal mines in the Pass (Fig. 40). From this perspective, Morrissey and Lille can be thought of as mine-settlement complexes that were not situated in least-cost locations, when compared with other mining enterprises of the two companies in question. Knowledge is always finite. The railroad market was there, but geological information as to the most profitable locations for coal mining was spotty about the turn of the century. Corbin, one of the early mines, and profitably operated for many years outside the core, is an exception to Wilson's hypothesis.

If a settlement situated anywhere in the Region lost its raison d'être, further expansion ceased. The center usually became depopulated and had most of its buildings removed within a few years, unless a mechanized journey to work at a

---

[1]M. G. A. Wilson, "Changing Patterns of Pit Location on the New South Wales Coalfields," Annals of the Association of American Geographers, LVIII, 1968, p. 81.

spatially removed extractive industry was possible and deemed by its inhabitants to be preferable to moving to another settlement. Every settlement located outside the core lost its juxtaposed raison d'être and, as a consequence, its residents and virtually all of its buildings by the end of the period of moderate expansion. Isolation and constricted settlement sites, both a function of topography, further encouraged this outmigration of people. After 1950, the popularity of the journey to work by road, the loss of the railroad market for steam coal, and the inaccessibility of dispersed raw material sources to rail traffic resulted in the road network completely supplanting the rail network outside the core and duplicating it inside the core. New basic industries, like those found at the Sentinel industrial complex, could be situated several miles by road from the places of residence of the employees, because a mechanized journey to work became possible.

A fairly diversified, though unplanned primary industrial base came into existence in the Pass prior to 1911, but after 1911, the consolidating process largely aborted the operation of the diversifying process, partly obliterated the landscape changes brought about by diversification, and intensified the dominance of basic industry by the coal industry. Following the collapse of the railroad market for coal, entrepreneurial activity and government incentives during the 1950's and early 1960's brought about a second period of

economic diversification, this time deliberately planned to help stabilize the Region's economy. By 1968, the Sentinel industrial complex constituted a unique expression of the diversifying process on the landscape in that four of its five manufacturing industries were not duplicated elsewhere in the Region. The advent of large shipments of coking coal to Japan and consolidation of the lumber industry in the late 1960's reestablished an overwhelming presence of coal mining on the landscape.

The initially juxtaposed situation of a settlement and an extractive industry was necessitated by the fact that the journey to work was by foot in almost every case. Since gently-undulating topography was at a premium, settlements were often located in narrow valleys where sunlight was too scarce, and smoke from a nearby coal or lumber preparation plant was too prevalent. In addition, a uniform house type usually existed when coal companies constructed housing for their employees. Sensitization to aesthetics first found its expression on the landscape via the reestablishment of Sparwood in 1939 by the Crow's Nest Pass Coal Company. As a result of expansion in the coal industry after 1967, there occurred an influx of many new residents into the Region. This accelerated the tempo of centralization of service industries and sensitization to aesthetics. The traditional type of settlement is now aesthetically acceptable to a much smaller percentage of the current residents of the Region, who have a

stronger preference for an amenities-oriented milieu comparatively free of air, water, and visual pollution. They do not, however, seem to consider monotonous house types to be an unacceptable form of visual pollution, as evidenced by the mushrooming number of mobile homes and houses of uniform design to be observed on the landscape. The demise of Natal and Michel and the rise of nearby Sparwood, the location of Kaiser Resources and Fording Coal preparation plants at some distance from settlements, the decline of Coleman's central business district and the expansion and facelifting of the commercial cores of Fernie and Blairmore are evidence on the landscape of a sensitization to aesthetics. The government-required reclamation of strip-mined lands, the construction of settling ponds, and the reseeding of long-existent slack piles in areas exposed to public view are further indications that the attitude of governments, companies, and residents of the Region has evolved towards a greater concern for the quality of the environment. If sensitization to aesthetics is not a transient phenomenon, as it likely is not, the long-term impact on the landscape of the increasing sensitivity of coal companies and the general public to environmental quality will more than counterbalance the scarifying effects of increasingly mechanized surface mining techniques.

Most landscape change can ultimately be traced back to the two basic processes of changing markets and the discovery and depletion of resources for basic industry. Just

as the need for steam coal by the C.P.R. and coke by smelters, and the discovery of accessible reserves of coal suitable for these uses initiated the period of rapid expansion, so the need for coking coal by the Japanese iron and steel industry, and the knowledge of the coking properties of the Region's coal helped to make possible the period of renewed expansion. Correspondingly, the demise of the steam coal market and the exhaustion of economically accessible coal and timber in the vicinity of a mine or sawmill has largely contributed to the decline of a company, settlement or the Pass as a whole. The present cultural landscape of the Region is largely an expression of the outcome of the economic expansion and contraction brought about by these two basic processes. The Zeitgeist of the Region's residents is now somewhat similar to that possessed by their counterparts seventy years ago. This optimism should persist and result in further development of certain existing settlements and expanded coal production, if the market for coking coal does not decline or disappear.

BIBLIOGRAPHY

Published Articles

Anco, R. "Mountain Disaster Recalled." Lethbridge Herald, April 24, 1958.

Blakemore, W. "Pioneer Work in the Crows Nest Coal Areas." Proceedings of the Canadian Institute of Mining and Metallurgy. IV, 1901, pp. 230-243.

Blakiston, T. "Report on the Exploration of Two Passes (the Kootanie and Boundary Passes) of the Rocky Mountains in 1858." American Journal of Science, XXVIII, 1859, pp. 320-341.

Blaut, J. M. "Space and Process." Professional Geographer, XIII, 4, 1961, pp. 1-7.

Boone, A. E. "Mechanical Mining in Pitching Seams." Western Miner, XXXIX, 4, 1966, pp. 113-117.

Coleman Journal. Anniversary Edition, June 30, 1953.

Crabb, J. J. "Coal Mining in Southeast British Columbia: An Historical Outline." Journal of the Alberta Society of Petroleum Geologists, X, 1962, pp. 335-340.

"The Crow's Nest Pass Coal Co., Ltd., Fernie, B.C." Mining Record, Volume Number Not Known, 1899, pp. 17-23.

Deasy, G. F., and Griess, P. R. "Effects of a Declining Mining Economy on the Pennsylvania Anthracite Region." Annals of the Association of American Geographers, LV, 1965, pp. 239-259.

Deasy, G. F., and Griess, P. R. "Geographical Significance of Recent Changes in Mining in the Bituminous Coal Fields of Pennsylvania." Economic Geography, XXXIII, 1957, pp. 283-298.

Deasy, G. F., and Griess, P. R. "Local and Regional Differences in Long Term Bituminous Coal Production in Eastern United States." Annals of the Association of American Geographers, LVII, 1967, pp. 519-533.

Deasy, G. F., and Griess, P. R. "Some New Maps of the Underground Bituminous Coal Mining Industry of Pennsylvania." Annals of the Association of American Geographers, XLVII, 1957, pp. 336-349.

Dwarkin, L. M. "The Kaiser Coal Project: Open Pit Planning." Western Miner, XLIII, 3, pp. 48-53.

Eichenbaum, J., and Gale, S. "Form, Function, and Process: A Methodological Inquiry." Economic Geography, XLVII, 1971, pp. 525-544.

"Fording Promises Full Reclamation." Lethbridge Herald, August 12, 1970.

Harvey, D. W. "Locational Change in the Kentish Hop Industry and the Analysis of Land Use Patterns." Transactions and Papers of the Institute of British Geographers, XXXIII, 1963, pp. 123-144.

James, P. E. "Toward a Further Understanding of the Regional Concept." Annals of the Association of American Geographers, XLII, 1952, pp. 195-222.

Miller, E. W. "Connellsville Beehive Coke Region--A Declining Mineral Economy." Economic Geography. XXIX, 1953, pp. 144-158.

Miller, E. W. "Penn Township--An Example of Local Governmental Control of Strip Mining in Pennsylvania." Economic Geography, XXVIII, 1952, pp. 256-260.

Miller, E. W. "The Southern Anthracite Region: A Problem Area." Economic Geography, XXXI, 1955, pp. 331-350.

"Pass Tourism Termed Dead Duck." Lethbridge Herald, February 4, 1965.

"Plenty of Land Available but Lot Shortage Likely." Fernie Free Press, December 18, 1969.

Price, R. A. "Geologic Structure of the Central Part of the Rocky Mountains in the Vicinity of Crowsnest Pass." Journal of the Alberta Society of Petroleum Geologists, X, 7, 1962, pp. 341-351.

"Profile of a Coal Train." Spanner, VIII, 5, 1969, pp. 2, 3.

Ross, W. G. "Encroachment of the Jeffrey Mine on the Town of Asbestos, Quebec." Geographical Review, LVII, 1967, pp. 523-537.

Sack, R. D. "Geography, Geometry, and Explanation." Annals of the Association of American Geographers, LXII, 1972, pp. 61-78.

Stephens, F. H. "The Kaiser Coal Project: Introduction." Western Miner, XLIII, 3, p. 39.

Urso, P. J. "Planning and Organizing the Huge Kaiser Coal Project." Western Miner, XLIII, 3, pp. 40-47.

West, R. C. "The Mining Community in Northern New Spain: The Parral Mining District." Ibero-Americana, XXX, 1949, pp. 1-147.

Williams, J. C. "The Evolution of Unit Trains for the Transportation of Coal." Western Miner, XLIII, 3, pp. 22-32.

Wilson, M. G. A. "Changing Patterns of Pit Location on the New South Wales Coalfields." Annals of the Association of American Geographers, LVIII, 1968, pp. 78-90.

Yuill, H. H. "The Hosmer Mines, Limited, B.C." Journal of the Canadian Mining Institute, XIII, 1910, pp. 230-253.

Published Books and Booklets

Allen, J. B. The Company Town in the American West. Norman: University of Oklahoma Press, 1966.

Anderson, F. W. Canada's Worst Mine Disaster. Calgary: Frontiers Unlimited, 1969.

Anderson, F. W. Frontier Guide to the Romantic Crow's Nest Pass. Calgary: Frontiers Unlimited, n.d.

Baker, A. R. H., Hamshere, J. D.; and Langton, J. "Introduction." Geographical Interpretations of Historical Sources: Readings in Historical Geography. Edited by Baker, et al. London: David and Charles, 1970.

Bartholomew, J., editor. The Times Atlas of the World: Volume V, The Americas. London: The Times, 1957.

Betteridge, H. T., editor. The New Cassell's German Dictionary: German-English, English-German. New York: Funk and Wagnalls, 1965.

Blairmore Lions Club, editors. The Story of Blairmore-Alberta, 1911-1961. Blairmore: Blairmore Lions Club, 1961.

Broek, J. O. M. The Santa Clara Valley, California: A Study in Landscape Changes. Utrecht: Oosthoek, 1932.

Chittenden, H. M., and Richardson, A. T., editors. The Life and Travels of Pierre-Jean De Smet. New York: Francis P. Harper, 1905.

Clark, A. H. "Historical Geography." American Geography: Inventory and Prospect. Edited by P. E. James and C. F. Jones. Syracuse: Syracuse University Press, 1954.

Coleman Board of Trade, editors. Coleman's 50th Anniversary Booklet. Coleman: Coleman Board of Trade, 1953.

Coleman Collieries Limited, Coleman Collieries Limited: Coleman, Alberta, Canada. Coleman: Coleman Collieries Limited, circa 1958.

Crisafio, R., editor. Backtracking with Fernie Historical Association. Fernie: Fernie Historical Association, 1967.

Crows Nest Industries Limited. Annual Reports, 1962-1971. Fernie: Crows Nest Industries Limited.

Darby, H. C. "Historical Geography." Approaches to History. Edited by H. P. R. Finberg. London: Routledge and Kegan Paul, 1962.

Fernie Free Press. The Crow's Nest Pass Illustrated. Fernie: Fernie Free Press, 1907.

Frontiers Unlimited. The Frank Slide. Calgary: Frontiers Unlimited, n.d.

Gaal, A. B. Memoirs of Michel-Natal, 1899-1971. Place of Publication Not Known: By the Author, 1971.

Gibbon, J. M. Steel of Empire. Indianapolis: Bobbs-Merrill, 1935.

Harvey, D. W. "Models of Spatial Patterns in Human Geography." Models in Geography. Edited by R. S. Chorley and P. Haggett. London: Methuen, 1967.

Harvey, D. W. Explanation in Geography. London: Edward Arnold Publishers, 1969.

Innis, H. A. "Settlement and the Mining Frontier." Canadian Frontiers of Settlement. Edited by W. A. MacKintosh and W. L. G. Joerg. Toronto: Macmillan, 1936.

Leighly, J. Land and Life: A Selection from the Writings of Carl Ortwin Sauer. Berkeley: University of California Press, 1963.

Lewis, M. The Mining Frontier: Contemporary Accounts from the American West in the Nineteenth Century. Norman: University of Oklahoma Press, 1967.

Sauer, C. O. "The Agency of Man on the Earth." Man's Role in Changing the Face of the Earth. Edited by W. L. Thomas, Jr. Chicago: University of Chicago Press, 1956.

Sauer, C. O. Agricultural Origins and Dispersals. Cambridge: M.I.T. Press, 1969.

Sauer, C. O. The Early Spanish Main. Berkeley: University of California Press, 1966.

Sauer, C. O. The Geography of the Ozark Highland of Missouri. Chicago: University of Chicago Press, 1920.

Taylor, R. G. Cripple Creek. Bloomington: Indiana University Press, 1966.

U.S. Department of the Interior. "Impact of Surface Mining on Environment." Man's Impact on Environment. Edited by T. R. Detwyler. New York: McGraw-Hill, 1971.

West Canadian Collieries Limited. West Canadian Collieries Limited 50th Anniversary: 1901-1951. Blairmore: West Canadian Collieries Limited, 1951.

Governmental Written Publications, Films, Maps, and Aerial Photographs

Written Publications and Films

Allan, J. H. "Coal Areas of Alberta." Research Council of Alberta: Report No. 34. Edmonton: Research Council of Alberta, Government of Alberta, 1943.

Bureau of Economics and Statistics. "Fernie Area." Regional Index of British Columbia. Victoria: Department of Industrial Development, Trade, and Commerce, Government of British Columbia, 1966.

Daly, R. A.; Miller, W. G.; and Rice, G. S. Report of the Commission Appointed to Investigate Turtle Mountain, Frank, Alberta, 1911: Memoir 27. Ottawa: Geological Survey of Canada, Department of Mines, Government of Canada, 1912.

Dawson, G. M. Preliminary Report on the Geology of the Bow and Belly River Region, N.W. Territory, with Special Reference to the Coal Deposits: Report of Progress for 1880-81-82. Montreal: Dawson Bros. for the Geological and Natural History Survey of Canada, 1883.

Dawson, G. M. "Preliminary Report on the Physical and Geological Features of That Portion of the Rocky Mountains Between Latitudes 49° and 51°30'." Annual Report of the Geological Survey of Canada, I, 1886, pp. 5B-169B.

Department of Mines and Minerals. Annual Reports of the Mines Branch, 1905-1971. Edmonton: Government of Alberta.

Department of Mines and Petroleum Resources. Annual Reports of the Minister of Mines, 1874-1970. Victoria: Government of British Columbia.

Dowling, D. B. Coal Fields of British Columbia: Memoir 69. Ottawa: Geological Survey of Canada, Department of Mines, Government of Canada, 1915.

Industrial Development Branch. Survey of Coleman. Edmonton: Department of Industry and Development, Government of Alberta, 1963.

Leech, G. B. Fernie Map--Area, West Half, British Columbia: Paper 58-10. Ottawa: Geological Survey Branch, Department of Mines and Technical Surveys, Government of Canada, 1958.

MacKay, B. R. Geology and Coal Deposits of Crowsnest Pass Area, Alberta: Summary Report, Part B. Ottawa: Geological Survey Branch, Department of Mines and Technical Surveys, Government of Canada, 1932.

National Film Board of Canada. That's the Price. Ottawa: Government of Canada, 1970.

Oldman River Regional Planning Commission. Alberta Crowsnest Pass Subregional Plan: 2--Population and Economy. Lethbridge: Oldman River Regional Planning Commission, Government of Alberta, 1969.

Oldman River Regional Planning Commission. Alberta Crowsnest Pass Subregional Plan: 3--Regional Development and Urban Renewal. Lethbridge: Oldman River Regional Planning Commission, Government of Alberta, 1970.

Oldman River Regional Planning Commission. Industrial Brochure: Crowsnest Pass, Alberta. Lethbridge: Oldman River Regional Planning Commission, Government of Alberta, circa 1963.

Price, R. A. Fernie Map--Area, East Half, Alberta and British Columbia: Paper 61-24. Ottawa: Geological Survey Branch, Department of Mines and Technical Surveys, Government of Canada, 1962.

Statistics Canada. Decennial Population Censi of Canada, 1901-1971. Ottawa: Government of Canada.

Maps

Aerial Survey Section. Crowsnest Forest, 1:190,080. Edmonton: Technical Division, Department of Lands and Forests, Government of Alberta, 1968.

Brown, J. D. B. Mined Areas on the Alberta Side of the Crowsnest Pass, 1:31,680. Edmonton: Mines Branch, Department of Mines and Minerals, Government of Alberta, circa 1964.

Map Production Division. Canal Flats, 1:126,720. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1965.

Map Production Division. Cranbrook, 1:126,720. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1964.

Map Production Division. Elko, 1:126,720. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1962.

Map Production Division. Flathead, 1:126,720. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1963.

Surveys and Mapping Branch. Beaver Mines, 1:50,000, 82 G/8 W. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1960.

Surveys and Mapping Branch. Blairmore, 1:50,000, 82 G/9 W. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1945.

Surveys and Mapping Branch. Blairmore, 1:50,000, 82 G/9. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1969.

Surveys and Mapping Branch. Crowsnest, 1:50,000, 82 G/9 E. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1942.

Surveys and Mapping Branch. Crowsnest, 1:50,000, 82 G/10 E. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1961.

Surveys and Mapping Branch. Crowsnest, 1:50,000, 82 G/10 W. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1961.

Surveys and Mapping Branch. Elko, 1:50,000, 82 G/6 E. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1960.

Surveys and Mapping Branch. Fernie, 1:50,000, 82 G/11 E. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1959.

Surveys and Mapping Branch. Fernie, 1:250,000, 82 G. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1963.

Surveys and Mapping Branch. Fording River, 1:50,000, 82 J/2 W. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1960.

Surveys and Mapping Branch. Kananaskis Lakes, 1:50,000, 82 J. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1960.

Surveys and Mapping Branch. Pincher Creek, 1:190,080. Ottawa: Department of Mines, Government of Canada, 1916.

Surveys and Mapping Branch. Porcupine, 1:190,080. Ottawa: Department of Mines, Government of Canada, 1914.

Surveys and Mapping Branch. Upper Elk and Upper Highwood Rivers, B.C. and Alberta, 1:250,000. Ottawa: Department of Mines, Government of Canada, 1920.

Surveys and Mapping Branch. Upper Flathead, 1:50,000, 82 G/7 W. Ottawa: Department of Mines and Technical Surveys, Government of Canada, 1961.

Technical Division. Coal Licenses Held in the Coleman Area, 1:126,720. Department of Mines and Minerals, Government of Alberta, 1970.

Aerial Photographs

Map Production Division. Elko, 1:31,680, BC 1479:9. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1952.

Map Production Division. Morrissey, 1:31,680, BC 1478:71. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1952.

Map Production Division. Natal, 1:31,680, BC 1537:72. Victoria: Surveys and Mapping Branch, Department of Lands, Forests, and Water Resources, Government of British Columbia, 1952.

Technical Division. Burmis, 1:31,680, R52.4913.5. Edmonton: Department of Lands and Forests, Government of Alberta, 1965.

Technical Division. Coleman, 1:31,680, R52.4915.6. Edmonton: Department of Lands and Forests, Government of Alberta, 1965.

Technical Division. Frank Slide, 1:31,680, R52.4914.10. Edmonton: Department of Lands and Forests, Government of Alberta, 1965.

Technical Division. Sentinel, 1:31,680, R52.4915.5. Edmonton: Department of Lands and Forests, Government of Alberta, 1965.

Unpublished Theses, Documents, and Maps

Cail, R. E. "Disposal of Crown Lands in British Columbia, 1871-1913." Vancouver: unpublished M.A. thesis, Department of History, University of British Columbia, 1956.

Coleman Collieries Limited. "Location of Mines of Coleman Collieries Limited, 1:50,000." Unpublished map, Coleman, 1967.

Congdon, W. H. Letter, Raoul Green, former official of West Canadian Collieries, to Mrs. Kutcher regarding the Frank Slide, April 20, 1963.

Cousins, W. J. "A History of the Crow's Nest Pass." Edmonton: unpublished M.A. thesis, Department of History, University of Alberta, 1952.

Corbin Collieries, Ltd. "Corbin Collieries, Ltd. Pamphlet." Unpublished brochure, Corbin, circa 1933.

Crows Nest Industries Limited. "Crows Nest Industries Limited: Land and Coal Reserves." Fernie: unpublished document, circa 1964.

Crows Nest Industries Limited. "Fernie S.Y.U. Timber Inventory, 1:250,000." Fernie: unpublished map, 1965.

Crows Nest Industries Limited. "Coal Licenses Held by Companies in the East Kootenay, 1:126,720." Fernie: unpublished map, 1969.

Crows Nest Industries Limited. Office at Fernie. Letter, President of the Crow's Nest Pass Coal Company to the Company's head office in Toronto, August 5, 1908.

Fording Coal Limited. "Fording Operations, 1:12,000." Fording Plant Site: unpublished map, 1971.

Hughes, J. "A History of Mining in the East Kootenay District of British Columbia." Edmonton: unpublished M.A. thesis, Department of History, University of Alberta, 1944.

Jamieson, A., and Bonikowsky, D. R. "Preliminary Report on the Natal-Michel-Sparwood Area." Vancouver: unpublished manuscript, School of Architecture, University of British Columbia, 1969.

Kaiser Coal Limited. "Reclamation." Sparwood: unpublished document, January 20, 1969.

King, M. S. P. "An Activities-Interaction Study of Blairmore, Alberta." Edmonton: unpublished Field School report, Department of Geography, University of Alberta, 1969.

Lake, D. W. "The Coal Industry of the Crow's Nest Pass." Edmonton: unpublished Field School report, Department of Geography, University of Alberta, 1966.

Lake, D. W. "The Historical Geography of the Coal Branch." Edmonton: unpublished M.A. thesis, Department of Geography, University of Alberta, 1967.

Lamont, G. R. "Field Project, Sparwood-Natal." Edmonton: unpublished Field School report, Department of Geography, University of Alberta, 1969.

Meyer, R. H. "The Evolution of Railways in the Kootenays." Vancouver: unpublished M.A. thesis, Department of Geography, University of British Columbia, 1970.

Otter, A. A. den. "A Social History of the Alberta Coal Branch." Edmonton: unpublished M.A. thesis, Department of History, University of Alberta, 1967.

Perritt, C. J. "A Pilot Study of the Spatial Distribution of Coal Mines and Settlement in the Crowsnest Pass of Alberta." Edmonton: unpublished Field School report, Department of Geography, University of Alberta, 1969.

Rekken, G. M., and Associates. "Development Feasibility Report to the Crow's Nest Pass Development Association." Edmonton: unpublished document, 1964.

Seale, R. G. "Some Geographic Aspects of the Coal Industry in Alberta." Edmonton: unpublished M.A. thesis, Department of Geography, University of Alberta, 1966.

Personal Interviews

Personal communication Aschacker, M. District Inspector of Mines, Department of Mines and Minerals, Government of Alberta. Edmonton, June 29, 1970.

Personal communication Bertoia, F. E. Administrator, Regional District of East Kootenay. Cranbrook, July 8, 1970.

Personal communication Burnett, A. M. Former Bookkeeper, Sartoris Lumber Company, Blairmore, August 14, 1970.

Personal communication Chamberlain, J. Former Mine Rescue Supervisor, Government of Alberta. Blairmore, July 11, 1970.

Personal communication Chester, D. Employee, Crows Nest Industries Limited, Fernie, August 18, 1970.

Personal communication Clemmer, M. F. Manager of Industrial and Public Relations, Kaiser Resources Limited, Sparwood, July 16, 1970.

Personal communication Congdon, W. H. Manager of the Blairmore Office of Scurry Rainbow Limited. Blairmore, July 14, 1970.

Personal communication Cousins, W. J. Professor of History, University of Lethbridge. Lethbridge, July 13, 1971.

Personal communication Currie, J., Sr. Former Employee, Hillcrest Coal and Coke Company, Hillcrest-Mohawk Collieries Limited, and Coleman Collieries Limited. Hillcrest Mines, July 17, 1970.

Personal communication Davey, G. H. Deputy Director, Oldman River Regional Planning Commission. Lethbridge, August 11, 1970.

Personal communication Dickin, B. Owner, Dickin Bus Lines Limited. Fernie, July 14, 1971.

Personal communication Drain, C. Social Credit Member of the Legislature of Alberta for Pincher Creek-Crowsnest. Blairmore, July 13, 1970.

Personal communication Dwarkin, L. M. Chief Engineer, Kaiser Resources Limited. Sparwood, July 16, 1970.

Personal communication East, B. Tour Guide, Kaiser Resources Limited. July 17, 1970, and August 19, 1970.

Personal communication Fink, N. Resident of Hosmer since 1915. Hosmer, August 18, 1970.

Personal communication Garvy, T. Traffic Manager, Kaiser Resources Limited. Sparwood, July 16, 1970.

Personal communication Gatto, A. Former Employee, Hillcrest-Mohawk Collieries Limited. Bellevue, July 13, 1970.

Personal communication Gillis, C. Employee, Revelstoke Building Materials Limited. Blairmore, September 14, 1971.

Personal communication Gillespie, D. Employee, International Coal and Coke Company and McGillivray Coal and Coke Company between 1906 and 1950. Lethbridge, July 13, 1971.

Personal communication Grigel, J. Former Resident of Bellevue. Edmonton, July 11, 1970.

Personal communication Hamilton, J. R. Forester, Alberta Forest Service. Blairmore, September 16, 1971.

Personal communication Irvine, J. A. Geologist, Crows Nest Industries Limited. Fernie, July 10, 1970.

Personal communication John, J. G. Manager of Industrial and Public Relations, Kaiser Resources Limited. Sparwood, September 15, 1971.

Personal communication Littler, A. Instructor in Mine Rescue Operations, Department of Mines and Petroleum Resources, Government of British Columbia. Fernie, July 10, 1970.

Personal communication McCloud, F. H. Chief Accountant, Coleman Collieries Limited. Coleman, August 12, 1970.

Personal communication Melson, P. Director of Mines, Department of Mines and Minerals, Government of Alberta. Edmonton, June 29, 1970.

Personal communication Meyer, R. H. Map Librarian, Department of Geography, Simon Fraser University. Burnaby, British Columbia, September 17, 1971.

Personal communication Miller, A. H. G. Regional Planning Director, Regional District of East Kootenay. Cranbrook, July 8, 1970.

Personal communication Montemurro, L. Clerk, Municipality of Sparwood. Natal, July 16, 1970 and July 14, 1971.

Personal communication Montalbetti, P. C. Former Accountant, West Canadian Collieries Limited. Blairmore, August 13, 1970.

Personal communication Morgan, L. L. Owner, Crows Nest Pass Motors, Blairmore, July 15, 1971.

Personal communication Nastasi, S. J. Former Coal Miner at West Canadian Collieries Limited and Coleman Collieries Limited. Bellevue, August 11, 1970.

Personal communication Pinnell, B. C. Secretary-Treasurer and Comptroller for Crows Nest Industries Limited, Fernie, April 12, 1972.

Personal communication Pozzi, R. Former Employee, Canadian Coal Consolidated Limited (Frank) and West Canadian Collieries Limited, Blairmore, August 13, 1970.

Personal communication Rose, R. D. Official, Summit Lime Works Limited. Edmonton, February 12, 1972.

Personal communication Thomson, W. Former Accountant, Crow's Nest Pass Coal Company. Fernie, July 10, 1970.

Personal communication Upton, R. E. Secretary-Treasurer, Coleman Collieries Limited, Coleman, August 14, 1970.

Personal communication Wilson, W. R. Land Commissioner, Crows Nest Industries Limited. Fernie, September 15, 1971.

Personal communication Young, D. B. Former General Manager of Hillcrest-Mohawk Collieries Limited and Coleman Collieries Limited. Edmonton, July 23, 1971.