MINING IN THE SETTLER DOMINIONS: A COMPARATIVE STUDY OF THE INDUSTRY IN THREE COMMUNITIES FROM THE 1880S TO THE FIRST WORLD WAR

by

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Abstract

This dissertation examines the evolution of the mining industry in three British dominions during the late nineteenth and early twentieth centuries. Adopting a case study approach, it describes the establishment and growth of mining in Rossland, British Columbia; Broken Hill, New South Wales; and Waihi, New Zealand.

Separate chapters trace developments in each area, focussing on the emergence of organised labour, the growth of mining companies and the sophistication of mining operations. These underline the need to consider diverse themes, maintaining that the mining industry's pattern of growth can be understood only by adopting such a broad approach. Following the three case studies, the final chapters of the dissertation offer a comparative analysis of Rossland, Waihi and Broken Hill. The study emphasises the similarities of these three communities, especially the cycle of growth, and identifies a crucial common denominator.

Despite differences in climate, in the type and nature of the ore deposit and in the scale of mining activity, all three areas experienced a common trajectory of initial boom followed by subsequent retrenchment. The changing character of the resource base forced this fundamental alteration of productive relations. In each region, the mineral content of the ore declined as the mines went deeper. In addition, with depth the ore tended to become more difficult to treat. Faced with a decline in the value of the product of their mines,

companies had to adopt sweeping changes in order to maintain profitable operations. This re-structuring was accomplished in a variety of ways, but the most significant factors, common to Rossland, Broken Hill and Waihi, were the heightened importance of applied science and economies of scale. Both developments underlined the growing importance of the mining engineer and technological innovations, principally in milling and smelting operations. In addition, new non-selective extractive techniques reduced the significance of skilled underground labour.

The re-structuring of the industry not only had similar causes but also had a similar effect. The comparative chapter on labour relations, for example, argues that these managerial initiatives were closely associated with militant episodes in each community. While the leading companies in Rossland, Waihi and Broken Hill successfully reduced their working costs, they all faced the same ultimate end. Their long-term success or failure reflected the skill with which they coped with the inevitable depletion of their ore body.

The common experience of Rossland, Waihi and Broken Hill demonstrates the importance of placing colonial development within a larger context. Regional historians should make greater use of the comparative approach, rather than continuing to focus on the unique and the particular.

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I

INTRODUCTION

This thesis is an exercise in comparative history. A number of scholars have urged the adoption of the comparative approach, asserting that such a perspective opens up fruitful new horizons and/or suggests solutions to some of the problems which beset more conventional historiography. There is also broad agreement that few fields are more promising for comparative study than the process of European expansion, as "new" regions were brought within the orbit of European influence, culture and hegemony.[1] Developments within the British "settler dominions," one facet of this larger process, are examined in the following pages. The purpose of this introductory chapter is to explain the approach and scope of the study, to place it within the context of the existing literature and to provide an outline of subsequent chapters.

Britain was pre-eminent among the colonising nations of Europe. From the seventeenth century onward, its expansion touched virtually every part of the globe. Peoples on every continent were profoundly affected; nowhere was too remote for the geo-politicians of empire. As a topic of historical inquiry, the process is both fascinating and overwhelming; few people have tackled it in its entirety, and even fewer have done so successfully.[2] While the facade of the British imperium might appear both imposing and monolithic, contemporaries acknowledged the varieties of Empire. Colonies were secured

for a number of motives and often fulfilled several functions. At least three categories were generally recognised: the plantation colony, designed to provide products, both exotic and prosaic, unavailable in Britain; the strategic colony, astride crossroads and ensuring that key land and ocean routes remained open to British traffic; and the settler colony, to provide opportunities for Britons unable to find productive work at Home. In practice, colonies were frequently hybrids and rarely operated as "ideal types."[3] This work attempts to portray a very small part of this vast picture. The focus, in terms of both area and subject, is a narrow one: the evolution of the mining industry at Broken Hill, New South Wales, at Waihi, New Zealand and at Rossland, British Columbia, during the closing decades of the nineteenth and the first twenty years of this century.

New South Wales had the longest formal relationship with Great Britain. In 1788, less than two decades after Cook's first voyage, the British government established the colony as a penal settlement.[4] Although colonial rivalry flourished throughout the nineteenth century, particularly between a protectionist Victoria and a free trade New South Wales, the latter was the senior Australian colony until a political entity embracing the entire continent emerged in 1901. In contrast to New South Wales' premier position, New Zealand began its formal career as a British colony in 1840 as an adjunct to New South Wales, a colony of a colony. Thereafter it was an independent if isolated British possession, never quite matching the self-confidence of the neighbouring Australian colonies.[5] British Columbia was the most recent colony. European traders were active in the area during the late eighteenth century, but formal colonial status dated from 1849, when Vancouver Island was granted as a proprietary colony to the Hudson's Bay Company. Nine years passed before the Fraser River gold rush stimulated the creation of a mainland colony. In

1866 the two colonies united, joining Canada five years later as the province of British Columbia. Substantial political power within the federal system rested in central Canada, and as a result British Columbia's relationship with the government in Ottawa was often stormy.[6] Despite their differences, however, by the late nineteenth century all three areas were well-established regions within the British "settler dominions."

These years saw the rapid development and expansion of the mining industry, years described by one prominent mining journalist as "The Elizabethan age of gold-mining."[7] New mining methods and a ready supply of capital launched new mines all over the world; world production soared and mining stocks enjoyed periods of intense speculative activity.[8] During these heady times, T. A. Rickard, a well-known mining editor, described the Waihi as one of the world's three greatest gold mines.[9] J. H. Curle wrote similarly of Rossland's Le Roi mine: "it may be classed among the great gold mines of the world."[10] Broken Hill, too, was widely recognised as one of the world's greatest ore deposits.[11] The three areas attracted the attention of the international mining community, particularly the London stock market, and journals such as **The Economist** and the New York-based **Engineering and Mining Journal** kept their readers informed of events in each place. As will be argued in the following chapters, the mining industry in Rossland, Broken Hill and Waihi played a significant role in both national and international affairs during these years. For example, the collapse of Whitaker Wright's financial empire, based in part on Rossland mines, led to questions in the House of Commons and a sensational London trial; labour unrest at Broken Hill could affect the price of metals on the London market; and the tumultuous 1912 strike at Waihi helped to unite and re-direct New Zealand's labour movement.[12] Not only are these communities appropriate objects for historical inquiry, they are

particularly suited to a comparative investigation.

*

Waihi, Rossland and Broken Hill were all products of the invigoration of the mining industry which began in California during the mid-nineteenth century. Within fifteen years of the California gold rush, New Zealand, Eastern Australia and British Columbia witnessed similar scenes of wild excitement.[13] This activity was short-lived since the rich placer finds were soon depleted. With the exhaustion of the wealthiest alluvial deposits, gold mining had to become more innovative to remain profitable. Hydraulicking, for example, was a successful mining technique developed to utilize economies of scale so that working the extensive but lean alluvial gravels could become economically feasible.[14] Miners also turned to hard rock mining, learning how to extract gold from the parent rock.[15] The original scramble for water-borne gold had not directly touched Broken Hill, Waihi or Rossland, but with the gradual sophistication and reorientation of the mining industry in each country their outcrops of mineralized rock attracted the attention of prospectors.

By the late nineteenth century, mining required a far more complex environment than that which had grown up during the rushes. It became a business activity requiring government regulation, technical expertise, capital investment and wage labour. Moving from the make-shift and transitory arrangements of the rush era - the heyday of the easy-going partnership and the individual digger - to entrenched capitalist enterprises had a profound social impact.[16] The trend was spotted in New Zealand in 1876 by a government official who noted that "The character of mining also is very different to what it was in the early times of the gold fields: now a man without capital can hardly do else than work for wages..."[17] Class lines became

obvious: by the turn of the century, mine managers - employed by absentee owners - were assuming a life style well beyond the means of working miners. Both nostalgia and resentment thrived on memories of the gold rush period, which seemed in retrospect to have been a time of unbounded opportunity and relaxed egalitarianism, when class divisions were neither so distinct nor so final.[18]

The mining industries of New South Wales, New Zealand, and British Columbia followed similar trajectories. Not only did they each experience a similar process of maturation, from gold rush to business enterprise, but the common problems of production led to the adoption of similar solutions. In each region, for example, mining came to possess a cosmopolitan flavour missing in other colonial enterprises, partly because locally-based technologies had difficulty in meeting the industry's complicated requirements. Skilled managers were also in short supply and - especially in the early stages of development - the major companies of Rossland, Broken Hill and Waihi all recruited senior staff from the United States. Managers needed sophisticated geological knowledge and accurate assays to analyse the profitability of ore bodies and to determine the best method of recovering mineral values. Actual extraction created underground areas that required elaborate systems of timber supports to minimise the danger of cave-ins. Machinery was essential to ventilate and drain these subterranean spaces, as well as to operate the winding gear which gave underground access. Once on the surface, the ore went to veritable factories where the mineral content was separated out by a variety of complex processes. Sophisticated transportation facilities were needed to ship the final product. Mineral extraction created nearly identical industrial conditions in the three communities and by 1900 their landscapes were dominated by the same features: shafts capped by headframes; the

insistent noise and pollution of surface workings with their machinery, their slag heaps and their smoke stacks; and everywhere work rhythms orchestrated by "boss whistle." They were among the most industrialized environments of their day.

Railways, smelters, compressed air drills, electric and steam engines, patented metallurgical processes: mining reflected the latest advances of the nineteenth century and, as it moved to produce base metals such as copper, lead and zinc, was itself responding to the new demands of the emerging industrial markets of the world. Mining's technology and tools were at the leading edge of scientific development and industrial requirements, bringing modernity to Waihi, Broken Hill and Rossland.[19] Nonetheless, the nature of mining remained simple: a resource-based, extractive industry whose future depended on the vagaries of international trade and the uncertain quantity and quality of un-mined ore. Broken Hill, Waihi and Rossland became part of the expanding network of world trade, each dependent upon distant markets and a similar process of resource extraction. In addition to deriving their economic strength from the same process, they were "regions of recent settlement." John Fogarty has maintained that such areas "must be defined by the facts of their absorption of European migrants and capital and their involvement in the expanding international economy of the late nineteenth and early twentieth century."[20] Without question, each community participated in and relied upon "the unique growth of the nineteenth century economy and the interdependent set of linkages and transfers of resources which it evoked."[21]

The key indicators of the local industry's economic health were the price of metals and the quality of ore that the mines produced. These statistics reveal a common trend, one which followed that of the earlier placer

mining era: first abundance, then the spectre of depletion. With the exhaustion of the easily-mined ores close to the surface, production values declined in each area. Ores from deeper underground often suffered from two disadvantages: they tended to be leaner, possessing less mineral content per ton and they frequently were much more difficult to treat. Oxidised ore was common in outcrops near the surface; the chemical bonds within such rock were typically loose and it was relatively easy to recover the full mineral value. Deeper ores, on the other hand, were often refractory, that is, their mineral content was locked in tightly by its close relationship with other elements. As a result, conventional milling and smelting methods could free only a percentage of the actual mineral wealth of the rock: in 1903, for example, one Broken Hill mine produced ore that contained minerals valued at £380,000; only £90,000 of this was recovered.[22] Companies in Rossland, Broken Hill and Waihi employed highly skilled metallurgists and experimented with new milling and smelting techniques in order to find ways to recover this trapped wealth. These efforts were often successful: all three areas became pioneers in successful ore treatment, introducing mining innovations of considerable significance.

New processes helped guarantee the future viability of mining companies, but they were often a gamble and nearly always expensive to put into operation. At the same time, however, they could not be allowed to undermine profitability. One way to ensure that they did not was to introduce cost cutting measures as well. Invariably mine managers saw labour costs as one field of operations where substantial economies could be effected. The constant pressure to contain wages had a profound influence on Broken Hill, Waihi and Rossland.

By 1919, not only mineral production but also turbulent industrial relations distinguished the three towns. Strikes or lockouts had closed the mines of each area at least once, fostering a close-knit solidarity among the working people of Waihi, Rossland and Broken Hill. Confrontations with their employers - as well as with police, the courts and the political process generally - encouraged workers to adopt a critical attitude towards both mine owners and the capitalist system within which the mining industry operated. While not confined to mining communities, the radical critique of capitalism articulated in Rossland, Broken Hill and Waihi with mounting assertiveness as the years passed reflected the often bitter class struggles that marked the history of each area. Vancouver's leading labour newspaper, for example, editorialised that

> ... [in] the mining districts of the province, ... the workers seem to have been among the first to grasp the significance of modern industry and the class character of capitalist rule and all of those institutions that feed upon and defend it.... The new gospel of Labor soon spread from the mining district to city, town and village elsewhere. [23]

Throughout the industrialized world, working class organization and socialist agitation reached an unprecedented level in the quarter century before the First World War. The labour journals of New Zealand, Australia and Canada reported the international debate over strategies for change and revolution as well as the local issues confronting the working class of each area. Miners in Broken Hill, Waihi and Rossland all knew of the current debate over the need for industrial unionism, and some at least would have been readers of the burgeoning socialist corpus, especially the cheap editions pouring off the presses of Charles Kerr & Co. in Chicago. The growing assertiveness of working people had a profound impact on how government and industry viewed the labour force.

In the two decades before the First World War, governments in all three areas enacted legislation designed to contain industrial unrest. Drawing inspiration from a remarkably similar set of values and assumptions, men such as Pember Reeves and Edward Tregear in New Zealand, R. C. Clute and W. L. MacKenzie King in Canada, B. R. Wise and H. B. Higgins in Australia, sought to apply the salve of sweet reason via impartial investigation to the open wound of a crude industrialism, attempting to end disputes by applying the innovative device of compulsory conciliation or arbitration. The concepts were not novel, but they were untried. While other countries studied the pioneering efforts of the Dominions to regulate industrial relations, miners and other working people had to submit to a new regime of regulation. Negotiations between miners and their employers were governed by an the increasingly complex set of rules and procedures. Much tension followed, not only between unions and management and between unions and the state, but also between an impatient rank and file and union leaders forced into an industrial relations process which seemed to offer few rewards and many obstacles. The resulting frustration only heightened the miners' militancy and predisposition to challenge the status quo. Other contemporary aspects of government intervention, such as statutory limitation of the hours of work, safety regulation and workmen's compensation, were welcomed by miners, and often were a direct result of their persistent advocacy.

While similarities abound, the history of each area remains distinct. These essential differences deserve acknowledgement: Waihi, for example, produced only gold, a mineral which enjoyed a guaranteed market as well as a stable price. Rossland's mines yielded copper and gold, and Broken Hill's, silver and lead, and later silver, lead and zinc. Markets and prices for silver and the base metals fluctuated dramatically throughout the period.[24] The communities

were of varying size: Broken Hill was a much larger city than Rossland, with nearly ten times the mining population. Broken Hill ores were shipped out for smelting while Waihi saw its ores through all stages of treatment. Rossland's fortunes became increasingly linked with those of Trail, the neighbouring smelter centre, as well as with the emerging mining conglomerate, Cominco. Broken Hill, on the other hand, began its career with the near total dominance of one company, the Broken Hill Proprietary [BHP], but gradually opened up to a number of other companies. Rossland's miners' union was a local of the Western Federation of Miners, which possessed several levels of authority above that of the community local. The Executive Board in Denver as well as the leadership of Canadian District 6 wielded considerable power, and the decisions of both often had an important influence on labour relations in Rossland. The unions at Broken Hill and Waihi were not subject to this degree of internal control from their own organizations. Other important variables include climate, geography and location. But - while recognizing each area's distinctiveness - the cursory examination undertaken thus far indicates that both mining industry and miners in Rossland, Waihi and Broken Hill exhibited important similarities and comparable developments.

Comparative history rests on an assumption of plausibility, a belief that what is being compared is comparable. From a shared presence within the Edwardian Empire to their common resource economies, Broken Hill, Waihi and Rossland had many points of contact: their worlds were not dissimilar. A basic historical congruency justifies this exercise, whose aim is not simply to provide three narratives on a common theme, but also to identify those factors that explain the similarities and differences in each area's development. To paraphrase John Matthews' claim in his comparative study of 19th century Australian and Canadian poetry, a central assumption here is that more may be

discovered about the communities and their industry when they are compared than when they are studied in isolation.[25]

*

Most comparative work consciously adopts a theoretical framework which serves both to determine what will be accepted as evidence as well as to buttress conclusions drawn from that evidence. Two such frameworks seem particularly useful for studies comparing the British "settler dominions": the frontier thesis of Frederick Jackson Turner and the fragment thesis of Louis Hartz. An examination of the two approaches, however, indicates that their applicability to this study is negligible.

In a seminal paper on "The Significance of the Frontier in American History," published in 1893, Frederick Jackson Turner suggested that expansion into an area of "empty land" exerted a profound and lasting influence upon American society, an idea which subsequently achieved widespread fame as the "frontier thesis."[26] Turner argued that essential social qualities were generated in settling the vast new territories of the west. Despite his insistence on its uniqueness, that is, the peculiarly American nature of the frontier process, his thesis was also applied to the dominions, both separately and collectively.[27] Turner intended his interpretation to apply to a range of frontiers people, including fur traders and miners as well as farmers and ranchers. In its application, however, it has remained essentially agrarian, linked with the process of rural settlement.[28] As a result, the literature does very little to illuminate developments in mining communities. With its frequently crude social arrangements and its stormy industrial relations, the mining industry may have seemed primitive to ousiders around the turn of the century. Appearances were misleading; in fact, mines and smelters were among the most modern of

environments, in the vanguard of applied science and technology. This frontier of knowledge was very different from the frontier contemplated by Turner and his followers.

Louis Hartz's work is explicitly comparative, without the agrarian bias of much frontier historiography. He has argued in several books that the new societies created by European migrants were "fragments" of the parent culture, and that this quality is central to comprehending the later development of those settler states.[29] Although his approach performed the salutary task of shifting the focus away from the political authority exerted by the metropole to unique developments within the colonies, it was too sweeping and too simplistic to serve as a useful explanatory device.[30]

In many ways the ideas of Turner and Hartz are complementary, one concentrating upon the impact of a new environment upon subsequent social development, the other emphasising the survival, indeed the vitality, of immigrants' cultural baggage in the new land. Both theories are ultimately most concerned with social development, offering explanations for the types of societies that emerged in the regions of recent settlement. The two approaches tend to be predictive and each claims to identify the underlying forces responsible for the specific formations in the countries or regions compared. While both have stimulated interesting work, neither are particularly useful in an industrial study.

There can be little argument that the cultural baggage accompanying the settlers as well as their experience of beginning again, in a new land, had a profound impact on the shape of the settlers' world. Scholars have sought to reconcile these two influences, acknowledging the pervasive and continuing influence of the British connection while also recognising the role of the new

land in shaping colonial society. Alexander Brady, for example, identified "two common socio-political elements" shared by the British settler dominions:

> first, extensive and sparsely peopled territories, situated chiefly within the temperate latitudes, where politics and social life have been penetrated in various degrees with the spirit of a frontier; and secondly, political institutions mainly derivative, rooted ultimately in the law, culture and liberal philosophy of the British Empire.[31]

Very little work, however, has satisfactorily explored the the impact of these two factors.

A number of authors have studied the parallel evolution of the British settler dominions, although their work is frequently informed by assumptions about imperial history little changed since the late nineteenth century. The first generation of these comparative historians - in Maurice Careless's words, the Britannic or Blood is Thicker than Water School - revelled in the inevitable flowering of British institutions in the dominions, the proud march to maturity, nationhood and Commonwealth.[32] Greater academic authority, though with less interest in comparison, was achieved with the publication of the **Cambridge History of the British Empire.** In general, subsequent scholars studying the relationship between Britain and its dominions have devoted much of their attention to a rather narrow range of topics - notably imperial federation, imperial defense, and imperial conferences - about which we now know a great deal. Political themes dominate this literature, which remains largely preoccupied with the nation state, political authority and the educated elite; it is of little relevance to this comparative exercise.[33]

This study does not examine social forces, environmental influences or constitutional evolution; instead it compares a single industry in three regions. No claim is made that this is the most useful or appropriate form of

comparative history. Certainly a number of topics beg to be explored in further detail and promise particularly rich rewards to the comparative historian.[34] Limits however need to be set on any individual study, for if there is one common pitfall of comparative work it is imprecision, allowing the focus to become too diffuse.[35] Here a piecemeal approach is adopted, trying to provide a "thick description" of the mining industry in three locales.[36] The common industrial base of Waihi, Rossland and Broken Hill provides the essentially similar elements (those "same overall causes")[37] which permit a realistic comparative study.

The establishment, expansion and sophistication of the mining industry suggests a number of themes. This thesis concentrates upon three topics: initial development within each area, the emergence of dominant companies, and the evolution of labour relations. While these choices may appear both arbitrary and restrictive, several reasons dictate the approach. Comparative work is by nature thematic and selective; one cannot compare everything. Clarity and brevity require that conscious decisions be made concerning appropriate fields of study. As will be seen in the following chapters, even such a narrow focus as that adopted here forces discussion into a number of diverse areas. While clearly not exhaustive in scope, the three topics studied below are sufficiently broad as to delineate the contours of the mining industry in each region.

*

Broken Hill is the most studied of the three regions examined in the following pages. A number of useful histories have been written, particularly on the development of the mining industry and its industrial relations. Geoffrey Blainey is the most prolific and the most well-known of those who have studied Broken Hill. Australia's premier mining historian, Blainey has written a survey of Australian mining history and the history of several other mining regions, in addition to a history of Broken Hill, the biography of one of the Broken Hill Proprietary Company's leading managers, and edited the memoirs of another prominent businessman with close connections to Broken Hill.[38] Although his perspective is largely that of a business historian, Blainey's books are carefully researched, elegantly written and particularly valuable in situating Broken Hill in the wider context of the progress of the Australian mining industry.[39] His work on Broken Hill is of comparatively recent date; half a dozen earlier books as well as several important un-published typescripts and theses also provide much valuable detail on Broken Hill's mining industry.

The earliest book-length treatments of Broken Hill were written by journalists. They provide contemporary descriptions of the town and the mining community, but are otherwise of little value.[40] A trio of more interesting works appeared around the end of the First World War: a labour history written by an active trade unionist in 1918; a commissioned history of the Broken Hill Proprietary Company, published in 1920; and an exhaustive geological memoir in 1922.[41] Although written from widely differing perspectives, these three volumes reflect the maturity that Broken Hill had attained: its history could now be written. Several decades later, a leading

Broken Hill mine manager gave an address on the mining industry, which ultimately appeared in book form as **A Review of the Broken Hill Lead-Silver-Zinc Industry.**[42] Like Andrews' **Geology of Broken Hill**, much of Woodward's book is technical and often difficult to grasp, but it is impossible to comprehend the progress of mining during the 1890s and early 1900s without understanding something of both the changing structure of Broken Hill's ore and the improvements in ore treatment which that change made necessary.

Ernest Wetherell's memoir offers a more accessible picture of Broken Hill's past. A trade unionist, newspaper editor and Labor politician, Wetherell's lively account of Broken Hill describes the years before, during and immediately after the First World War.[43] A former miner himself, Wetherell makes no attempt to mask his sympathies for the cause of unionism.[44] By contrast, William Hodder's typescript "History of the South Mine" provides a management perspective.[45] Aspects of Broken Hill's labour relations have served as subjects for a number of university theses, although the best academic account is a published work written by Kenneth F. Walker.[46] Three more general histories have appeared since Blainey's **The Rise of Broken Hill** was published in 1968: R. H. B. Kearns' **Pictorial History**, Brian Kennedy's social history and the elegant coffee table volume compiled by Edward Stokes.[47] The collection of photographs assembled by Stokes is accompanied by reminiscences of Broken Hill's working people, making the book a unique and often moving testament to the rigours of life on the Barrier. Kennedy, like Blainey, is an academic historian and spent part of his youth at Broken Hill. His carefully researched book goes much of the way in explaining the sources of Broken Hill's legendary militancy.[48] Kearns' book leans towards antiquarianism, but his collection of photographs and illustrations is a valuable one. In addition to these major works, numerous articles shed much light on

the progress of mining at Broken Hill. In all, this considerable body of literature makes the work of the comparative historian much easier; unfortunately, the two other communities have not been as well served by historians.

Waihi's historiography has been dominated by the 1912 strike; two of the half dozen or so substantial works on the community and its mining industry are exclusively concerned with that event. The first of these was written shortly after the strike by H. E. Holland, "Ballot Box" and R. S. Ross. Their jointly-authored piece, **The Tragic Story of the Waihi Strike**, is as much polemic as it is history, but despite the book's obvious partisanship it remains a very readable and largely accurate account of the strike.[49] Sixty years later, Stanley Roche wrote **An Informal Account of the Waihi Strike.**[50] Her book is an unusual one, wonderfully illustrated with contemporary photographs and newspaper cartoons, while the text is part fact, part conjecture.[51] A number of articles have also explored aspects of Waihi's turbulent labour relations; unfortunately, very little else has been studied. Two unpublished theses are perhaps the most useful sources for the larger context, while two lengthy geological memoirs provide much information on the mines themselves.[52] A relatively recent book, J. B. McAra's **Gold Mining at Waihi**, also concentrates on mining operations.[53] Salmon's survey history of gold mining in New Zealand is useful for situating developments at Waihi within the broader picture of the mining industry; another valuable source is R. C. J. Stone's account of the Auckland business elite.[54] A member of this group, Thomas Russell, was largely responsible for the formation of the Waihi Gold Mining Company.

Waihi's major producer ceased mining operations in the early 1950s. Little now remains of these once-extensive workings and this in part accounts

for the relative neglect that Waihi has received from New Zealand historians, compared to the attention that Broken Hill has attracted from scholars on the other side of the Tasman. Probably the major reason for the discrepancy in the volume of literature generated is the respective size, position and importance of the two communities, both past and present. Waihi has been well-studied, however, compared to the inexplicable dearth of material on British Columbia's mining industry in general and Rossland in particular.

From the mid-nineteenth century until the First World War, mining was the staple industry of British Columbia. Despite this obvious fact, historians have been curiously slow to investigate the industry. This is the more surpising when it is remembered that one of Canada's chief contribution to economic history has been the staple theory of economic growth, pioneered by H. A. Innis.[55] Although Innis himself devoted some time to an investigation of mining in B.C., the result has been accurately assessed as his worst book.[56] However, apart from a superficial survey of limited value, Innis's **Settlement and the Mining Frontier** is virtually the only general text that attempts to treat the mining industry in a broad context. Rossland itself has fared little better. A geological memoir examines the progress of mining in Rossland although it is less useful than the more substantial works published on Broken Hill and Waihi.[57] A Rossland journalist wrote a lengthy history of Rossland and Cominco in 1945, but only part of the typescript was ever published.[58] This booklet describes the town's material progress adequately but by no means comprehensively. A similar antiquarian account has been written on Trail.[59] Unpublished scholarly works on Rossland have concentrated on a few episodes; none have attempted to deal with the development of the mining industry or the growth of Cominco, despite that company's size and importance.[60] Industrial relations has been the only topic to receive even a cursory treatment.[61]

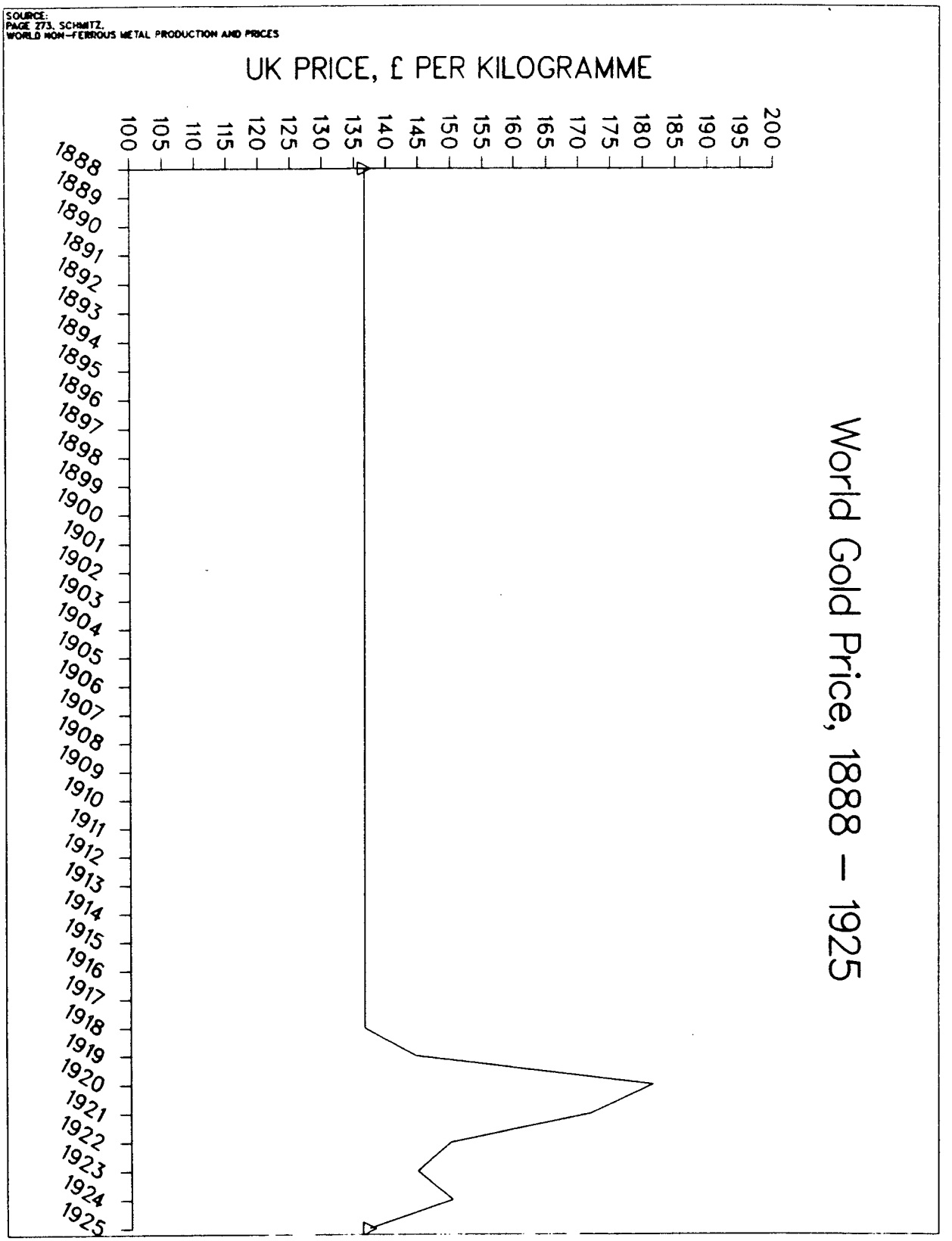
Ironically the most useful study of Rossland's development was written almost inadvertently, by a scholar studying the career of an American railway builder.[62]

The organization of this study reflects the poverty of British Columbia's historiography. Much work was necessary simply to construct a narrative account of significant events in the province's mining history, for the purposes of comparison. As a result of the vacuum in which this research was carried out, more space below is devoted to British Columbia generally and Rossland in particular than to the other two regions. Chapters two to four examine events in Rossland and the emergence of the Consolidated Mining and Smelting Company of Canada. The volume and quality of work already published on both Waihi and Broken Hill meant that the narrative chapters on those communities (chapters five to eight) were easier to assemble and required a less exhaustive approach.

The aim of chapters two to eight is straightforward: to provide chronological narratives for each of the three communities compared, based broadly on three themes, that of initial development, company formation and growth, and labour relations. The final two chapters, nine and ten, provide a comparative analysis of their respective themes of labour relations and company development while the conclusion takes a much briefer if more wide-ranging approach to the question of development.

Finally some mention should be made of what is not included in these pages. I am aware that I have dealt very briefly, in some cases not at all, with several vital areas. In particular, the social history of these three communities - such topics as ethnicity, class and gender - receive little consideration. This deficiency is not a result of deliberate neglect nor does it

imply that a lower value has been placed on these themes. For example, the ethnic dimension of Rossland's work force unquestionably had a substantial impact on the social relations of production.[63] The perennial debate over class needs no further amplification here. Despite the endearing directness of the various miners' unions' constitutions and mottoes,[64] reality always seemed more complicated. Under the onslaught of the Depression, Broken Hill's "Workers' Industrial Union of Australia" closed its membership (and thus denied employment) to all but those who had lived for some years on the Barrier.[65] And even the fiery Western Federation of Miners' local at Rossland could include among its members a future Conservative cabinet minister.[66] The role of women in mining communities is particularly illusive. That they played vital roles is not a matter of debate; they did. Evidence of their presence in Rossland, Waihi and Broken Hill is plain: Rossland women formed the WFM's first women's auxiliary, and participated enthusiastically in WFM affairs.[67] **The Tragic Story of the Waihi Strike** was dedicated "To the Splendid Women of Waihi - who through storm and stress of the industrial war never wavered in their loyalty to their class," and Broken Hill women displayed a similar loyalty during strikes there.[68] But women did not simply appear to support miners on picket lines: they lived in these communities through good times and bad. Their story, and much else besides, is left for another.[69]


SOURCE:
PAGE 273, SCHMITZ,
WORLD NON-FERROUS METAL PRODUCTION AND PRICES
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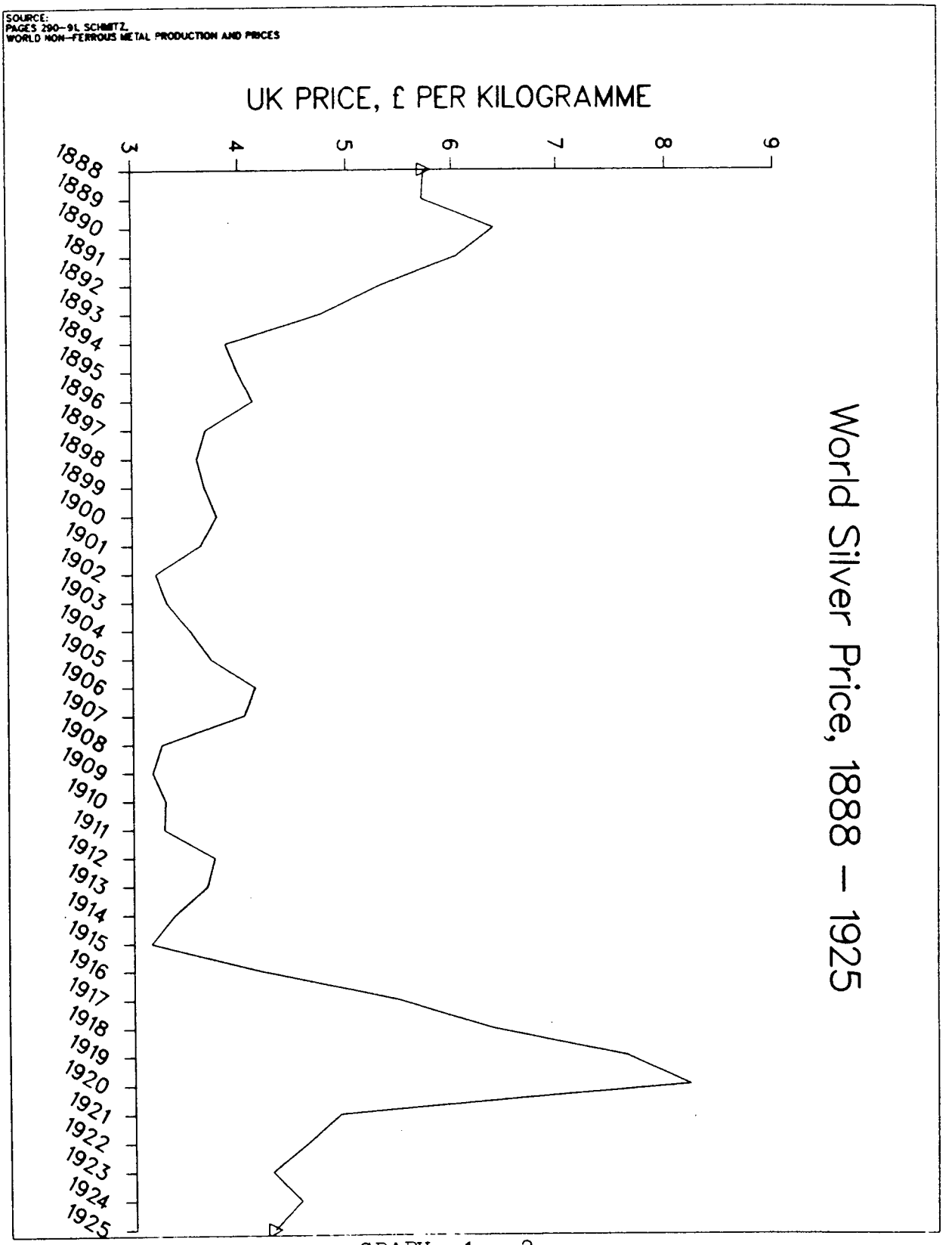
World Gold Price, 1888 – 1925

GRAPH 1 - 1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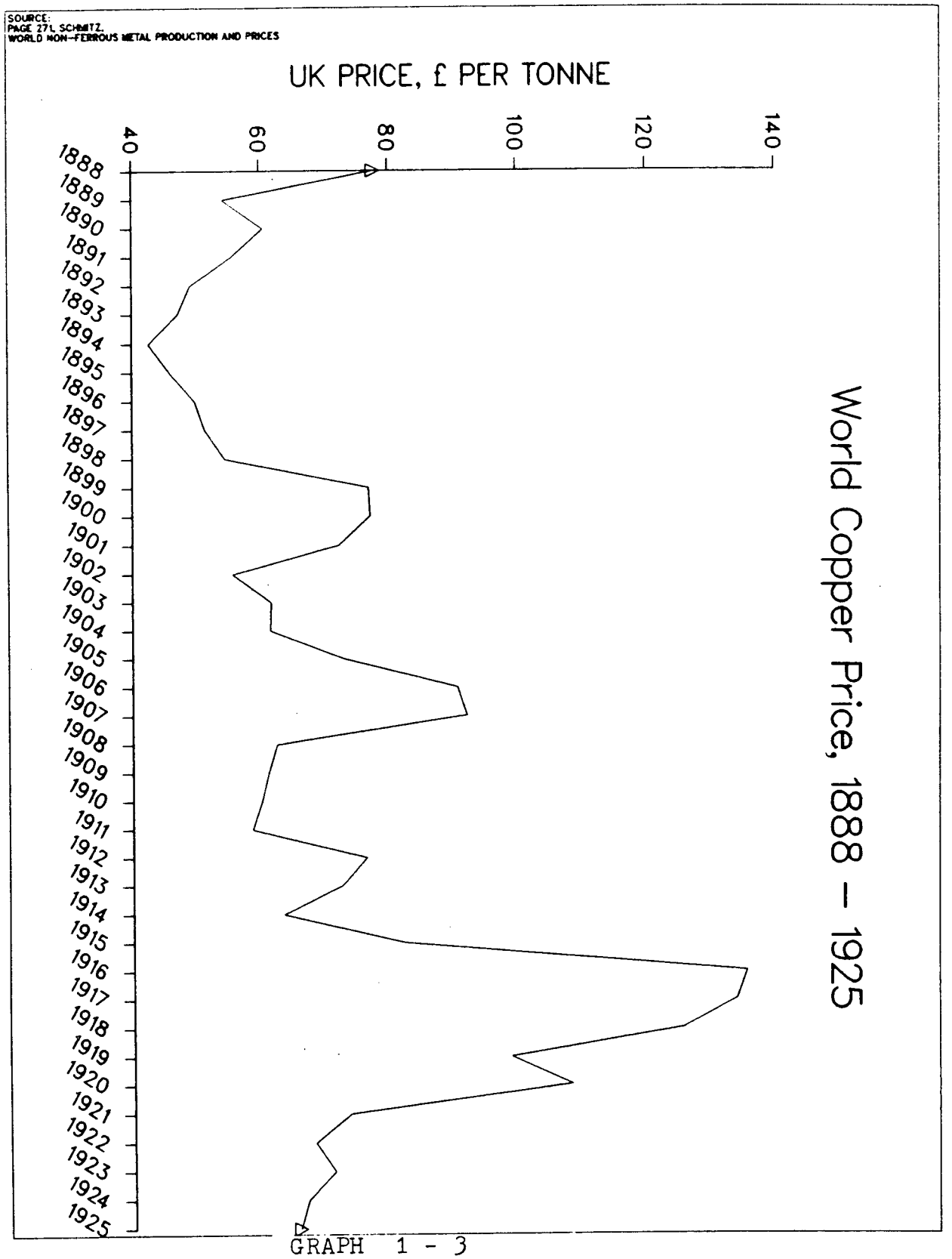
World Silver Price, 1888 – 1925

GRAPH 1 - 2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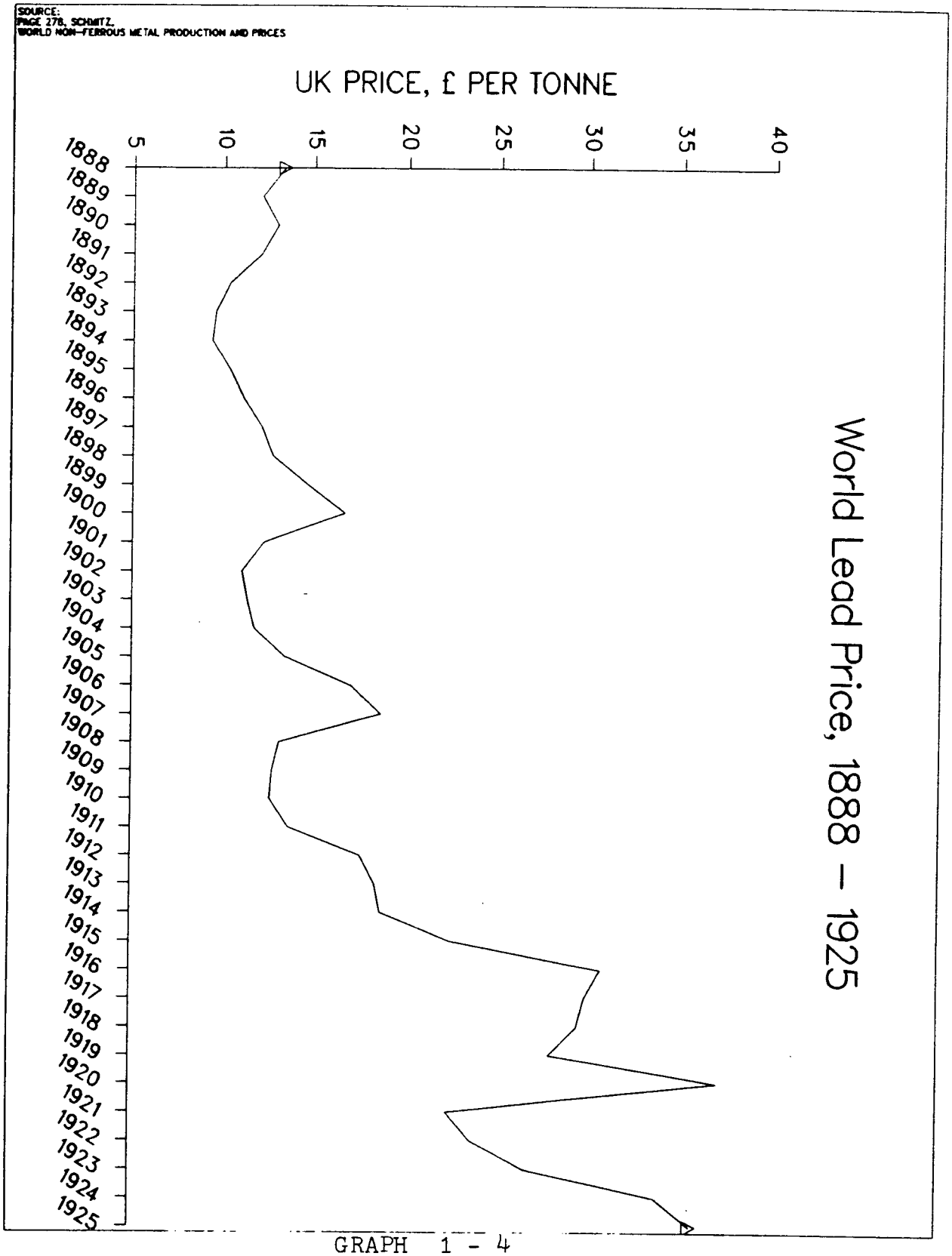
World Copper Price, 1888 – 1925

GRAPH 1 - 3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WORLD NON-FERROUS METAL PRODUCTION AND PRICES
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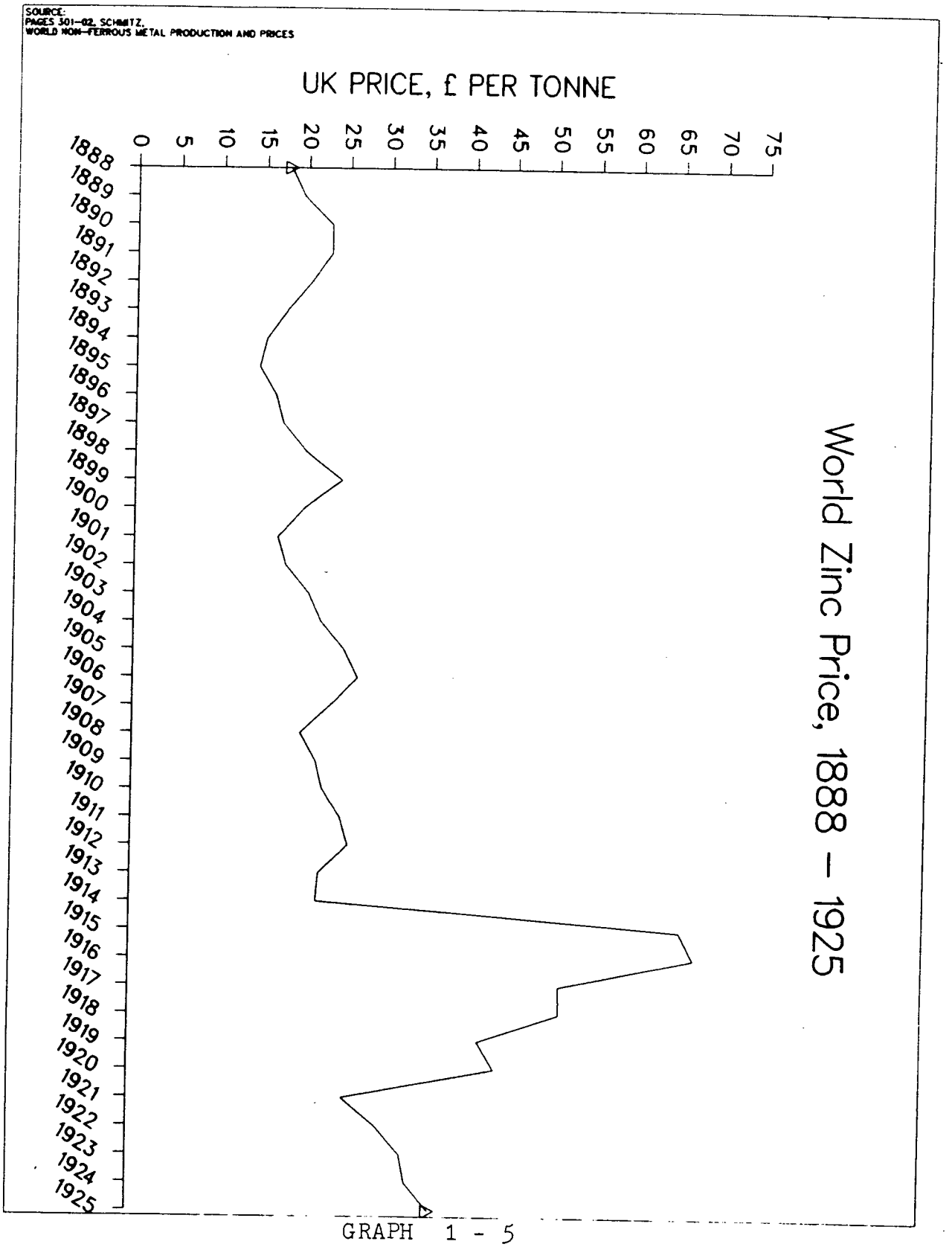
World Lead Price, 1888 – 1925

GRAPH 1 - 4


SOURCE:
PAGES 301-02. SCHMITZ.
WORLD NON-FERROUS METAL PRODUCTION AND PRICES
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World Zinc Price, 1888 – 1925

GRAPH 1 - 5

Endnotes

1 Two thoughtful discussions of comparative history are George M. Fredrickson's "Comparative History," pp. 457-73, Michael Kammen (ed.), The Past Before Us Contemporary Historical Writing in the United States, Ithaca, 1980, and Raymond Grew, "The Case for Comparing Histories," American Historical Review, 85(1980): 761-778. Note also the comments of Leonard Thompson and Howard Lamar, pp. 5-7, Howard Lamar and Leonard Thompson (eds.), The Frontier in History North America and South Africa Compared (New Haven, 1981) and Gordon T. Stewart, pp. 4-8, The Origins of Canadian Politics A Comparative Approach (Vancouver, 1986). Articles discussing the comparison of European expansion include Donald Denoon, "Understanding Settler Societies," Historical Studies, 18(1978-79): 511-527; John P. Fogarty, "The Comparative Method and the Nineteenth Century Regions of Recent Settlement," Historical Studies, 19(1981): 412-429; R. Cole Harris, "The Simplification of Europe Overseas," Annals of the Association of American Geographers, 67(1977): 469-83; Graeme Wynn, "Settler Societies in Geographical Focus," Historical Studies, 20(1983): 353-66. The general theme of European expansion is discussed by A. Y. Youngson, "The Opening Up of New Territories," pp. 139-211, in H. J. Habakkuk and M. Postan (eds.), The Cambridge Economic History of Europe, Volume VI, Cambridge, 1965.

2 The Cambridge History of the British Empire (Cambridge, 1929-1963) confidently attempted to chart the progress of Empire, in eight volumes. Although it remains useful as a reference work, many of its assumptions are out of favour. James Morris's trilogy is possibly the most suggestive overview, despite its concentration on the rulers rather than the ruled and its restricted time period, dealing only with the 19th & 20th centuries (Heaven's Command, 1973; Pax Britannica, 1968; & Farewell the Trumpets, 1978). The best guide to the wider body of literature is Robin Winks (ed.), The Historiography of the British Empire-Commonwealth: Trends, Interpretations and Resources, Durham, 1966. Winks has recently contributed a further overview: "Problem Child of British History: The British Empire-Commonwealth," pp. 451-92, Richard Schlatter, (ed.) Recent Views on British History Essays on Historical Writing Since 1966, New Brunswick, 1984. Note also the speculative review/prospectus by David Fieldhouse, "Can Humpty-Dumpty be put together again? Imperial History in the 1980s," The Journal of Imperial and Commonwealth History, 12(1984): 9-23. This journal (1972 to date) is a useful guide to current interests and reviews the more important publications in the field.

3 Overseeing the diverse possessions that comprised the Empire did generate a certain administrative uniformity but it is difficult to assess just how much conscious planning accompanied the acquisition and operation of Empire. The first imperial historian declared in a famous phrase that "We seem, as it were, to have conquered and peopled half the world in a fit of absence of mind." (p. 8, J. R. Seeley, The Expansion of England, London: Macmillan & Co., 1884.) The words may be memorable but are scarcely accurate; for a brilliant if brief dismissal of such disingenuous claims, see Donald Creighton's "The Victorians and the Empire," Canadian Historical Review, 19(1938): 138-53.

4 Britain's motives in establishing the colony has been the subject of considerable debate within Australian historiography. For an introduction to this controversy see the collection edited by Ged Martin, The founding of Australia, Sydney, 1978.

5 Rollo Arnold, "Some Australasian aspects of New Zealand life, 1890-1913," New Zealand Journal of History, 4 (1970): 54-75. I suspect most New Zealanders would insist that they have never aspired to emulate the skiting Aussies.

6 See H. P. Johns, "British Columbia's Campaign for Better Terms, 1871-1907," MA thesis, University of British Columbia, 1935. New Zealand went through the process in reverse, enjoying a provincial system in the mid-1800s, and then abolishing it in 1876.

7 P. 43, J. H. Curle, This World of Ours, New York, 1921. Curle was referring particularly to the years 1886 - 1906.

8 For the evolution of mining technology & its impact, see Otis E. Young, Jr., with Robert Lenon, Western Mining An Informal Account of Precious-Metals Prospecting, Placering, Lode Mining, and Milling on the American Frontier From Spanish Times to 1893, Norman, Oklahoma, 1970; pp. 97-157, Harold Barger and Sam H. Schurr, The Mining Industries, 1899-1939 A Study of Output, Employment and Productivity, New York, 1944; Clark C. Spence, Mining Engineers & the American West The Lace-Boot Brigade, 1849-1933, New Haven, 1970; & pp. 1-50, Logan W. Hovis, "Technological Change and Mining Labour: Copper Mining and Milling Operations at the Britannia Mines, British Columbia, 1898 - 1937," MA, University of British Columbia, 1986. For data on the increased production, see Christopher J. Schmitz, World Non-Ferrous Metal Production and Prices, 1700-1976, London, 1979, and Elmer J. Pehrson, "Seventy-five Years of Progress in the Mineral Industry - the Statistical Record," pp. 353-75, A. B. Parsons, (ed.), Seventy-five Years of Progress in the Mineral Industry 1871 - 1946, New York, 1947. On the speculative activity in mining shares, see inter alia, pp. 166-75, Francis W. Hirst, The Stock Exchange A Short Study of Investment and Speculation, London, ca. 1911; pp. 21-37, Robert V. Kubicek, Economic Imperialism in Theory and Practice The Case of South African Gold Mining Finance 1886-1914, Durham, N.C., 1979; Clark C. Spence, British Investments and the American Mining Frontier 1860-1901, Ithica, N. Y., 1958, passim; pp. 111-14, 132-33, & 176-85, A.R. Hall, The London capital market and Australia 1870-1914, Canberra, 1963; & A. R. Hall, "Introduction," in A. R. Hall, ed., The Export of Capital from Britain, 1870-1914, London, 1968.

9 P. 567, T. A. Rickard, "The Great Gold Mines," Mining and Scientific Press, 4 May, 1907. Cf, Rickard's rueful comments nine years later: pp. 332-36, "The Great Gold Mines," ibid., 2 Sept., 1916, & pp. 654-56, "The Greatest Gold Mine," ibid., 4 Nov., 1916.

10 P. 275, J. H. Curle, The Gold Mines of the World Containing Concise and Practical Advice for Investors Gathered From a Personal Inspection of the Mines of the Transvaal, India, West Australia, Queensland, New Zealand, British Columbia and Rhodesia, London, 1899. Curle also described the Waihi as "undoubtedly one of the greatest gold mines of the world." (p. 248) Curle was later to revise his estimate of Rossland's mines: see p. 57, This World of Ours,

11 For example, "among the famous ore deposits of the world," p. 528, Mining and Scientific Press, 22 Oct., 1910; "one of the finest metal-bearing lodes in

the world," p. 1231, The Economist, 29 July, 1905.

12 On Whitaker Wright, see pp. 347-54, Parliamentary Debates, House of Commons, Great Britain, Vol. 118, 19 Feb., 1903; pp. 52-65, Aylmer Vallance, Very Private Enterprise An Anatomy of Fraud and High Finance, London, 1955; pp. 19-21, J. W. McCarty, "British Investment in Western Australian Gold Mining, 1894-1914," University Studies in History, Vo. IV, No. 1, 1961-62; & pp. 48-51, Denis Judd, Lord Reading, Rufus Isaacs, First Marguess of Reading, Lord Chief Justice and Viceroy of India, 1860 - 1935, London, 1982. On Broken Hill and the price of metals on the London market, see p. 52, Engineering and Mining Journal, Vol. 118, 9 Jan., 1909. On the influence of Waihi on the New Zealand labour movement, see pp. 59-77, Barry Gustafson, Labour's Path to Political Independence The Origins and Establishment of the New Zealand Labour Party 1900-19, Auckland, 1980.

13 The Californian gold rush has been much studied. Rodman Wilson Paul's California Gold The Beginning of Mining in the Far West, 2nd ed., Lincoln, Nebraska, 1964, is a reliable standard history. J. S. Holliday has written an evocative social history, The World Rushed In, The California Gold Rush Experience, New York, 1981, which includes a comprehensive bibliography. For an introduction to the Australian gold rushes, see Geoffrey Blainey's The Rush that Never Ended A History of Australian Mining, Melbourne, 1963; Geoffrey Serle, The Golden Age A history of the colony of Victoria 1851-1861, Melbourne, 1963; and G. R. Quaife's (ed.) Gold and Colonial Society, 1851-1870, Melbourne, 1975. There is no adequate history of the B.C. gold rushes although Cole Harris provides a useful overview, pp. 296-306, R. Cole Harris and John Warkentin, Canada Before Confederation, New York, 1974. Of the more extensive treatments, one of the first studies remains the best: William Joseph Trimble, The Mining Advance into the Inland Empire: a Comparative Study of the Beginnings of the Mining Industry in Idaho and Montana, Eastern Washington and Oregon, and the Southern Interior of British Columbia; and of Institutions and Laws Based Upon that Industry, his published PhD thesis from the University of Wisconsin, 1909. It appeared originally as Bulletin of the University of Wisconsin, no. 638, History Series, v. 3, no. 2, 1914, and was reprinted in 1972, with an Introduction by Rodman Paul. Unfortunately the most illuminating case studies are in unpublished form: John Willis Christian, "The Kootenay Gold Rush: Placer Decade, 1863-1872," Washington State University, PhD, 1967; Robert Michael Galois, "Gold Mining and its Effects on Landscapes of the Cariboo," University of Calgary, MA, 1970; Patricia Elizabeth Vaughan, "Cooperation and Resistance: Indian-European Relations on the Mining Frontier in British Columbia, 1835-1858," UBC, MA, 1978; and Morley Arthur Underwood, "Governor Douglas and the Miners, 1858-1859." UBC, BA, 1974. The New Zealand rushes have been discussed by J. H. M. Salmon in A History of Goldmining in New Zealand, Wellington, 1963, although Philip Ross May's The West Coast Gold Rushes, 2nd ed., Christchurch, 1967, and Murray McCaskill's "The South Island Goldfields in the 1860s: Some Geographical Aspects," pp. 143-169, Land and Livelihood Geographical Essays in Honour of George Jobberns, edited by Murray McCaskill, Christchurch, 1962, are both more specific and more accurate. Vincent Pyke's History of the Early Gold Discoveries in Otago, Dunedin, 1887, also remains useful. Comparative perspectives on the gold rushes include by W. P. Morrell's The Gold Rushes, 2nd ed., London, 1968; Philip Ross May's "Gold Rushes of the Pacific Borderlands: A Comparative Survey," pp. 91-105, Provincial Perspectives, edited by Len Richardson and W. David McIntyre, Christchurch, 1980; Ronald Genini's

"The Fraser-Cariboo Gold Rushes: Comparisons and Contrasts with the California Gold Rush," Journal of the West, XI(1972): 470-487; Rodman Wilson Paul's "Mining Frontiers in the Americas and the British Commonwealth," pp. 17-28, Conference Proceedings, The Westward Movement and Historical Involvement of the Americas in the Pacific Basin, San Jose, California, 1966; and Paul's "'Old Californians' in British Gold Fields," Huntington Library Quarterly XVII(1954): 161-172.

14 See Randall E. Rohe's "Hydraulicking in the American West The Development and Diffusion of a Mining Technique," Montana The Magazine of Western History, 35(1985): 18-35. For a sketch of the adoption of hydraulicking in British Columbia, see Jill Wade's "Pre-1885 Cariboo Mining Methods," unpublished paper prepared for the Heritage Conservation Branch, Victoria, 1981.

15 This process of education is covered by Rodman Paul's Mining Frontiers of the Far West, 1848-1880, New York, 1963; Richard E. Lingenfelter's The Hardrock Miners: A History of the Mining Labor Movement in the American West, 1863-1893, Berkeley, 1974; and Otis Young's two books, both written with the technical assistance of Robert Lenon, Western Mining: an informal account of precious metals prospecting, placering, lode mining, and milling on the American frontier from Spanish times to 1893, Norman, Oklahoma, 1970, and Black powder and hand steel: miners and machines in the Old Western frontier, Norman, Oklahoma, 1976.

16 As a youthful Marx observed, "Social relations of production are closely bound up with productive forces.... The handmill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist." (p. 109, Karl Marx, The Poverty of Philosophy, Moscow, n.d. First published in Paris, 1847, when Marx was 29.)

17 P. 1, H-3, Appendices to the Journals of the House of Representatives Wellington, 1876.

18 Henry Lawson's ballads - printed in the labour press of Australia throughout the 1890s - are memorable examples of nostalgia for the earlier period, especially "The Roaring Days" and "When the World Was Wide." See also Robert Service's "The Prospector."

19 See Melvyn Dubofsky's "The Origins of Western Working-Class Radicalism, 1890-1905," Labor History, 7(1966): 131-154, and Mark Wyman's Hard Rock Epic: Western Miners and the Industrial Revolution, 1860-1910, Berkeley, 1979, for more on the context of this process.

20 P. 415, John P. Fogarty, "The Comparative Method and the Nineteenth Century Regions of Recent Settlement," Historical Studies, 19(1981): 412-429. The phrase "regions of recent settlement" is from the pioneering work, The Network of World Trade, Geneva, 1942, written by the League of Nations' Economic Intelligence Service. These ideas were refined and expanded by Ragnar Nurkse, especially in his essay, "Contrasting Trends in Nineteenth and Twentieth Century World Trade," pp. 282-304, Equilibrium and Growth in the World Economy, Gottfried Haberler and Robert M. Stern (eds.), Cambridge, Mass., 1961. I am grateful to Keith Ralston who brought these works to my attention, and indebted to Professor Fogarty for forcing me to clarify my own ideas on comparative history and the comparative method.

21 Fogarty, ibid.

22 P. 259, Blainey The Rush that Never Ended.

23 7 April, 1916, B. C. Federationist, editorial on "The Situation in B.C." The writer, however, went on to argue that the radicalism of the mining districts had been tamed "Through a process of careful weeding out of all the more dangerous and outspoken radicals and a close scrutiny of newcomers.... Although some of the mining camps are still presumed to be organized, it is an open secret that because of the treatment that has been accorded them and their fellows during these recent years, the miners are in a mood so chastened as to strongly resemble a veritable bulwark of strength to the economic interests of their capitalist masters."

24 Graphs illustrating the trend in world metal prices, 1888-1925, are appended to this chapter.

25 P. viii, John Pengwerne Matthews, Tradition in Exile A Comparative Study of Social Influences on the Development of Australian and Canadian Poetry in the Nineteenth Century, Toronto, 1962.

26 Turner's thesis first appeared as "The Significance of the Frontier in American History," pp. 199-207, Annual Report of the American Historical Association, 1893.

27 For discussions of Canadian historians' use of Turner's idea, see inter alia G. F. G. Stanley, "Western Canada and the Frontier Thesis," Canadian Historical Association Report, 1940: 105-14; J. M. S. Careless, "Frontierism, Metropolitanism, and Canadian History," Canadian Historical Review, 35(1954): 1-21; pp. 118-121 & 174-178, Carl Berger, The Writing of Canadian History aspects of English-Canadian historical writing: 1900 to 1970, Toronto, 1976; & Michael S. Cross (ed.), The Frontier Thesis and the Canadas: The Debate on the Impact of the Canadian Environment, Toronto, 1970. Peter J. Coleman speculated on the applicability of Turner's thesis to New Zealand history in his article "The New Zealand Frontier and the Turner Thesis," Pacific Historical Review, XXVII(1958): 221-237. W. K. Hancock applied both Turner's prose and his ideas to the Australian experience, pp. 4-6, Survey of British Commonwealth Affairs, Volume 2, Problems of Economic Policy 1918-1939 Part 1 (London, 1940). N. D. Harper is also in broad agreement with Turner in his article "Turner the Historian: 'Hypothesis' or 'Process'? With Special Reference to Frontier Society in Australia," The University of Kansas City Review, XVIII(1951): 76-86. See also Russel Ward's final chapter in The Australian Legend, Melbourne, 1966, second edition; H. C. Allen, Bush and Backwoods A Comparison of the Frontier in Australia and the United States, Michigan, 1959; and Fred Alexander, Moving Frontiers: An American Theme and its Application to Australian History, Melbourne, 1947.

Comparative treatments include Herbert Heaton, "The Development of New Countries - Some Comparisons," Minnesota History A Quarterly Magazine, 10(1929): 3-25, and the same author's "Other Wests than Ours," Journal of Economic History, VI (Supplement)(1946): 50-62; Paul Sharp, "Three Frontiers: Some Comparative Studies of Canadian, American, and Australian Settlement," Pacific Historical Review, 24(1955): 369-377; A. L. Burt, "If Turner Had Looked

at Canada, Australia, and New Zealand When He Wrote about the West," pp. 59-77, Walker D. Wyman & Clifton B. Kroeber, The Frontier in Perspective, Madison, 1957; and the review article by Marvin W. Mikesell, "Comparative Studies in Frontier History," Annals of the Association of American Geographers, 50(1960): 62-74. Note also Robin W. Winks' dissenting view, The Myth of the American Frontier Its Relevance to America, Canada and Australia, Leicester, 1971. Although it does not treat Australia, Canada or New Zealand directly, the volume edited by Howard Lamar and Leonard Thompson, The Frontier in History North America and South Africa Compared (New Haven, 1981), includes insightful discussion of the problems of comparative history. Two earlier compilations with a comparative focus are less useful: David Harry Miller and Jerome O. Steffen (eds.), The Frontier Comparative Studies, Norman, 1977, and William W. Savage, Jr., and Stephen I. Thompson (eds.), The Frontier Comparative Studies, Volume Two, Norman, 1979. Despite its jocular tone and American focus, W. Turrentine Jackson's "A Brief Message for the Young and/or Ambitious: Comparative Frontiers as a Field for Investigation" (Western Historical Quarterly, 9(1978): 5-18) provides some valuable suggestions for would-be comparative historians. The work and controversy on Turner's idea continues: see, for example, Jackson K. Putnam, "The Turner Thesis and the Westward Movement: A Reappraisal," Western Historical Quarterly, 7(1976): 377-404, and Thomas C. McLintock, "The Turner Thesis: After Ninety Years It Still Lives On," Journal of the West, 25(1986): 75-82.

28 For a penetrating critique of Turner emphasizing this point, see pp. 142-165, David M. Potter, People of Plenty Economic Abundance and the American Character, Chicago, 1954.

29 See his The Founding of New Societies Studies in the History of the United States, Latin America, South Africa, Canada, and Australia, With contributions by Kenneth D. McRae, Richard M. Morse, Richard N. Rosecrance, Leonard M. Thompson, New York, 1964, and the earlier The Liberal Tradition in America, New York, 1955.

30 For balanced reviews which ultimately reject Hartz's approach, see A.W. Martin, "Australia and the Hartz 'Fragment' Thesis," Australian Economic History Review, 13(1973): 131-147; S. F. Wise, "Liberal Consensus or Ideological Battlefield, Some reflections on the Hartz thesis," Historical Papers, 1974, 1-14; and James Holt's "Louis Hartz's Fragment Thesis," New Zealand Journal of History, 7(1973): 3-11. See also Cole Harris's tentative rejection of Hartz, in "The extension of France into rural Canada," pp. 27-45, James R. Gibson (ed.), European Settlement and Development in North America Essays on Geographical Change in Honour and Memory of Andrew Hill Clark, Toronto, 1978, and Kenneth McNaught's more emphatic critique, pp. 345-56, in John H. M. Laslett & Seymour Martin Lipset (eds.) Failure of a Dream? Essays in the History of American Socialism, revised edition, Berkeley, 1984. Note, however, the approving remarks of J. B. Hirst, "Keeping Colonial History Colonial: The Hartz Thesis Revisited," Historical Studies, 21(1984): 85-104; Gordon T. Stewart, pp. 4-5, The Origins of Canadian Politics A Comparative Approach, Vancouver, 1986; and the enthusiastic endorsement of Gad Horowitz, in Canadian Labour in Politics, Toronto, 1968, especially pp. 3-57.

31 P. 1, Alexander Brady, Democracy in the Dominions A Comparative Study in Institutions, Toronto, 1952 (second edition).

32 Imperial Federationists featured prominently in this self-congratulatory school: for discussions of their work, see Peter Burroughs, "John Robert Seeley and British Imperial History," The Journal of Imperial and Commonwealth History, Vol. 1, No. 2 (January, 1973): 191-211; J. G. Greenlee, "'A Succession of Seeleys': The 'Old School' Re-examined," ibid., Vol. 4, No. 3 (May, 1976): 266-82; J. G. Greenlee, "Imperial Studies and the Unity of the Empire," ibid., Vol. 7, No. 3 (May, 1979): 321-35; Luke Trainor, "Historians as Imperialists, Some Roots of British Imperial History 1880-1900," New Zealand Journal of History, Vol. 15, No. 1, (April, 1981): 35-48. For Careless's remarks, see his frequently re-printed "Frontierism, Metropolitanism, and Canadian History," which originally appeared in Canadian Historical Review, 35 (1954): 1-21.

33 John Kendle's The Round Table Movement and Imperial Union, Toronto, 1975, is an able representative of the genre. A number of related studies examine colonial imperialism; for a critical assessment of these works, see Douglas Cole's insightful article, "The Problem of 'Nationalism' and 'Imperialism' in British Settlement Colonies," The Journal of British Studies, X(1971): 160-182. Political scientists have also produced substantial comparative work, focussing chiefly on the diffusion to the colonies of British constitutional and parliamentary devices. A. Barriedale Keith wrote numerous volumes, too many to list here; other authors include Herbert Vere Evatt, The King and His Dominion Governors A Study of the Reserve Powers of the Crown in Great Britain and the Dominions London, 1936; Eugene A. Forsey, The Royal Power of Dissolution of Parliament in the British Commonwealth Toronto, 1943; R. M. Dawson, The Development of Dominion Status, 1900-1936, London, 1937; and Alexander Brady, Democracy in the Dominions... A contemporary author working in the same field is Henry Albinski; see, for example, his Canadian and Australian politics in comparative perspective, New York, 1973.

34 Only one area - race relations - has produced substantial comparative research based on a social theme. While not providing any material directly relevant to this study, these works certainly reinforce the notion that the comparative endeavour is both possible and worthwhile. See, for example, George M. Fredrickson, White Supremacy A Comparative Study in American and South African History, New York, 1981; Andrew Markus, Fear and hatred: purifying Australia and California, 1850-1901, 1979; Charles A. Price, The Great White Walls are Built: Restrictive Immigration to North America and Australasia, 1836-1888, Canberra, 1974; and Robert A. Huttenback, Racism and Empire White Settlers and Coloured Immigrants in the British Self-Governing Colonies, 1830-1910, Ithaca, N. Y., 1976.

35 A point made by Leonard Thompson and Howard Lamar, p. 6, "Comparative Frontier History," in Lamar and Thompson (eds.), The Frontier in History, & Graeme Wynn, p. 353, "Settler Societies in Geographical Focus," Historical Studies, 20, 1983.

36 The quoted phrase is from p. 366, Wynn, op. cit., citing Geertz.

37 The phrase is from Marc Bloch's "Towards a Comparative History of European Societies," pp. 494-521, Enterprise and Secular Change, F. C. Lane and J. C. Riemersma (eds.), London, 1953. Bloch indicates that only "societies ... subject to the same over-all causes" can be profitably compared.(p. 498)

38 Geoffrey Blainey, The Peaks of Lyell, Melbourne, 1954; Geoffrey Blainey, Mines in the Spinifex: the Story of Mount Isa Mines, Sydney, 1960; Geoffrey Blainey (ed.), If I Remember Rightly The Memoirs of W. S. Robinson 1876-1963, Melbourne, 1963; Geoffrey Blainey, The Rush That Never Ended A History of Australian Mining, Melbourne, 1963; Geoffrey Blainey, The Rise of Broken Hill, Melbourne, 1968; Geoffrey Blainey, The Steel Master A Life of Essington Lewis, Melbourne, 1971.

39 For brief descriptions of Blainey's career, see pp. 27-32, R. M. Crawford, Manning Clark & Geoffrey Blainey, Making History, Fitzroy, Victoria, 1985, & pp. 128-33, Rob Pascoe, The Manufacture of Australian History, Melbourne, 1979. In March 1984, Blainey suggested publicly that the level of Asian immigration into Australia could not be sustained without having a serious impact on Australian society. Much controversy followed this pronouncement: see especially Geoffrey Blainey, All for Australia, North Ryde, 1984, and Andrew Markus and M. C. Ricklefs (eds.), Surrender Australia? Essays in the study and uses of history Geoffrey Blainey & Asian Immigration, Sydney, 1985.

40 "A Special Correspondent," The Barrier Silver and Tin Fields in 1888, Adelaide, 1888, and reprinted in 1970; Leonard Samuel Curtis, The History of Broken Hill Its Rise and Progress, Adelaide, 1908, reprinted in 1968.

41 George Dale, The Industrial History of Broken Hill, Melbourne, 1918, reprinted in 1965; Roy Bridges, From Silver to Steel The Romance of the Broken Hill Proprietary, Melbourne, 1920; E. C. Andrews, The Geology of Broken Hill, Sydney, 1922.

42 O. H. Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry, Sydney, 1952; second edition, edited by K. P. W. Parsons, 1965. The Preface to the second edition noted that "The greater part of the material in this volume was first presented in 1940 by Mr. Woodward in his Presidential Address to the [Australasian] Institute [of Mining and Metallurgy]." (p. v) There is a particularly useful bibliography of the technical literature on Broken Hill appended to the text, pp. 491-512.

43 A copy of Wetherell's typescript, "Industrial History of the "Stormy" Years of 1910-1921," survives in the Charles Rasp Memorial Library, Broken Hill. Wetherell was most concerned to preserve the memory of labour martyr Percy Brookfield (p. 3). The typescript is undated, but was probably written in 1968: a reference is made in the text to 1967 (p. 174), and Wetherell himself died in early 1969.

44 Wetherell arrived in Broken Hill when he was 18 and worked as a miner for six years, when he began working for the town's labour paper. His father and elder brother were also miners, although both had died in mining accidents when Wetherell was a young teenager. For details of Wetherell's career, see the entry in Heather Radi, Peter Spearritt and Elizabeth Hinton, Biographical Register of the New South Wales Parliament 1901-1970, Canberra, 1979.

45 A photocopy of Hodder's typescript, dated 1965, is held by the Charles Rasp Memorial Library, Broken Hill.

46 Kenneth F. Walker, Industrial Relations in Australia, Cambridge, Mass., 1956, especially Chapter IV, "The Metal Mining Industry of Broken Hill." Theses most

concerned with Broken Hill's labour relations are Julian Mark Howard, "A Study of Industrial Relations in the Broken Hill Mining Industry, 1903-1925," MA, University of Sydney, 1955; Bruce John Pennay, "Industrial Disputes at Broken Hill up to 1909," MA, University of Sydney, 1968; G. R. LeDuff, "Factions in the Labour Movement in Broken Hill 1914-1919: With Particular Reference to the Conscription Issue," BA (Hons.), Flinders University, 1969; & Barbara Hammond, "The Origins and Course of the Broken Hill Strike 1919-20, 'The Spuds and Onions Strike,'" BA (Hons.), University of Melbourne, 1970.

47 R. H. B. Kearns, Broken Hill A Pictorial History, Hawthorndene, S. A., 1982; Brian Kennedy, Silver, Sin, and Sixpenny Ale A Social History of Broken Hill, 1883-1921, Melbourne, 1978; Edward Stokes, United We Stand Impressions of Broken Hill 1908-1910 Recollections and photographs from the period, Canterbury, 1983.

48 Kennedy's book has been deservedly well-received; for example, see the favourable review in Historical Studies, Vol. 19, No. 76 (April, 1981): 477-79. Note that this review is also virtually a belated review of Blainey's The Rise of Broken Hill.

49 The book was first published by The Maoriland Worker in Wellington, in 1913. A facsimile edition was brought out in 1975. F. E. O'Flynn ("Ballot Box") offers a brief glimpse of the book's genesis, in a hand written booklet preserved in the Henry E. Holland Papers, P 5 - 7/28, Archives of Business and Labour, Australian National University, Canberra; see especially pp. 8-12. At the time the book was written, Ross was the editor of The Maoriland Worker, athough he had earlier edited several Broken Hill newspapers. Holland, too, had been active in Broken Hill, and was imprisoned for sedition after he gave a rousing speech there during the 1909 strike. The Waihi Miners' Union invited him to New Zealand in 1912, before the strike had begun. On Holland's involvement at Broken Hill and his invitation to New Zealand, see pp. 33-41 & 50-52, P. J. O'Farrell, Harry Holland militant socialist, Canberra, 1964.

50 Stanley Roche, The Red and the Gold An Informal Account of the Waihi Strike, 1912, Auckland, 1982.

51 Labour historians were mixed in their reviews: Libby Plumridge, in the N.Z. Listener, gave qualifed approval while Erik Olssen was quite critical. (New Zealand Journal of History, Vol. 17, No. 2, (October, 1983): 199-200.) Note, however, Roche's spirited rebuttal, New Zealand Journal of History, Vol. 19, No. 1, (April, 1985): 95-97. Olssen himself has recently completed a book on the "Red Feds," the militant unionists who took on the New Zealand state, 1908-1913. Waihi's strikers in 1912 were members of this group. Unfortunately, Olssen's book has not yet appeared in print, although some of his conclusions may be gleaned from his article, "Some Reflections about the Origins of the 'Red' Federation of Labour, 1909-1913," pp. 27-41, Eric Fry (ed.), Common Cause Essays in Australian and New Zealand Labour History, Sydney & Wellington, 1986. Olssen has also written a brief popular account of the Waihi strike, "Trouble in Waihi," pp. 1989-92, New Zealand's Heritage, Part 72, Auckland, 1973.

52 C. G. Sleeman, "Gold Town: The Influence of Goldmining Upon Waihi, 1890-1953," MA, University of Auckland, 1958; Philip Rainer, "Company Town an industrial history of the Waihi Gold Miining Company Limited, 1887-1912,"

MA, University of Auckland, 1976; James Mackintosh Bell and Colin Fraser, The Geology of the Waihi-Tairua Subdivision, Hauraki Division, Wellington, 1912; P. G. Morgan, The Geology and Mines of the Waihi District, Hauraki Goldfield, New Zealand, Wellington, 1924. Colin Fraser subsequently became a key figure in the Collins House group which controlled much of Broken Hill's mining after BHP's decline (see pp. 66-69, Robinson, If I Remember Rightly, & pp. 76-78, Peter Cochrane, Industrialization and Dependence Australia's Road to Economic Development, 1870-1939, St. Lucia, Queensland, 1980.)

53 J. B. McAra, Gold Mining at Waihi 1878-1952, Waihi, 1978. McAra was born near Waihi, where he was educated and later worked underground. He later served as the area's Inspector of Mines.

54 J. H. M. Salmon, A History of Goldmining in New Zealand, Wellington, 1963; R. C. J. Stone, Makers of Fortune A Colonial Business Community and its Fall, Auckland, 1973, especially pp. 172-90.

55 Staple industries, Innis argued, were crucial to the establishment and maintenance of colonial economies. The most explicit statement of his approach is the conclusion to his masterpiece, The Fur Trade in Canada An Introduction to Canadian Economic History, Toronto, 1970, revised edition (first published, 1930). See also M. H. Watkins, "A Staple Theory of Economic Growth," Canadian Journal of Economics and Political Science, Vol. XXIX, No. 2 (May 1963): 141-58; pp. 85-111, Carl Berger, The Writing of Canadian History Aspects of English Canadian Historical Writing: 1900-1970, Toronto, 1976; & pp. 10-18, William L. Marr and Donald G. Paterson, Canada: An Economic History, Toronto, 1980.

56 Harold A. Innis, Settlement and the Mining Frontier, Toronto, 1936, Vol. IX, "Canadian Frontiers of Settlement" series, W. A. Mackintosh and W. L. G. Joerg, eds. "H. A. Innis's worst book," p. 317, Cole Harris, "Industry and the Good Life around Idaho Peak," Canadian Historical Review, Vol. LXVI, No. 3, September, 1985. Note also the comments in Berger, pp. 107-08, The Writing of Canadian History,

57 Charles Wales Drysdale, Geology and Ore Deposits of Rossland, British Columbia, Ottawa, 1915.

58 Lance H. Whittaker, "All is not Gold," 287 page typescript. A copy has been deposited at the Provincial Archives of British Columbia; it is subtitled "A Story of the Discovery, Production and Processing of the Mineral, Chemical and Power Resources of the Kootenay District of the Province of British Columbia and of the Lives of the Men Who Developed and Exploited Those Resources." Whittaker wrote in his "Acknowledgements" that "This volume was originally commissioned by Mr. S. G. Blaylock [Cominco's General Manager]". The published account is entitled Rossland The Golden City A story of the first half-century of progress and development in the Trail Creek area of West Kootenay, Rossland, 1949. Perhaps because of his reliance on backfiles of the Rossland Miner, Whittaker only claimed editorship of the volume.

59 Elsie G. Turnbull, Topping's Trail, Vancouver, 1964.

60 Merle Wells, "Miners Unions in British Columbia and North Idaho, 1898-1902," Idaho Historical Society, 1984; Gerald R. Boucher, "The 1901

Rossland Miners Strike: The Western Federation of Miners Responds to Industrial Capitalism," BA, University of Victoria, 1986; John Spencer Church, "Mining Companies in the West Kootenay and Boundary Regions of British Columbia, 1890-1900, - Capital Formation and Financial Operations, MA, University of British Columbia, 1961.

61 In addition to works by Wells and Boucher referred to in the preceding footnote, see A. Ross McCormack, Reformers, Rebels, and Revolutionaries: The Western Canadian Radical Movement 1899-1919, Toronto, 1977; Paul Craven, 'An Impartial Umpire' Industrial Relations and the Canadian State 1900-1911, Toronto, 1980; David J. Bercuson, Fools and Wise Men The Rise and Fall of the One Big Union, Toronto, 1978; & Carlos A. Schwantes, Radical Heritage Labor, Socialism, and Reform in Washington and British Columbia, 1885-1917, Vancouver, 1979.

62 John Fahey, Inland Empire D. C. Corbin and Spokane, Seattle, 1965; especially pp. 90-191.

63 That, at any rate, was certainly the view of mine managers: see the comments of the manager of the War Eagle/Centre Star mine, quoted in footnote 94, p. 121, chapter three, below. The miners' union went to considerable lengths to organise the various ethnic groups in Rossland and the Trail smelter: see, for example, the report of the District 6 organiser to the 1907 WFM convention, p. 169, Proceedings of the 15th Annual Convention of the Western Federation of Miners, 1907. In 1911, the Rossland union urged the annual WFM convention "to make L'Unione newspaper the official newspaper of the Western Federation of Miners for the Italian speaking members" (p. 271, Proceedings of the 19th Annual Convention of the Western Federation of Miners, 1911); in 1916 the Trail WFM local urged that union rules be printed "in different languages" (6 April, 1916, Miners' Magazine); & in 1917 an Italian-speaking WFM organiser was in Rossland and Trail at the request of the B.C. unions (May & October, 1917, Miners Magazine.) The Chinese, however, continued to meet uncompromising hostility in the Kootenays: see, for example, p. 308, Proceedings of the 13th Annual Convention of the Western Federation of Miners, 1905 & note the comments of Harris, p. 322, "Industry and the Good Life around Idaho Peak." In addition, Yanco Terzich's moving speech to the annual convention of the WFM in 1909 suggests that ethnic prejudice remained strong in at least some union locals (pp. 325-26, Proceedings of the 17th Annual Convention of the Western Federation of Miners, 1909.). Questions of ethnicity were also raised at Broken Hill, although the issue was never of the same direct relevance as it was in British Columbia. (The Royal Commisision on the mining industry at Broken Hill, in 1914, discussed the employment of non English-speaking miners; note also the reminiscences of Edgar Ross, pp. 39-42, Of Storm and Struggle Pages from Labour History, Sydney, 1982.) Australian managers, however, never had the control over immigration policy that their counterparts enjoyed in Canada. For example, see the discussion in Donald Avery, "Canadian Immigration Policy and the "Foreign" Navvy, 1896-1914," Canadian Historical Association, Historical Papers, (1972): 135-56.

64 E.g., p. 64, Pennay, "Industrial Disputes at Broken Hill up to 1909;" pp. 20-21, P. H. Hickey, "Red" Fed, Memoirs, Wellington, 1925; reprinted, 1980.

65 P. 150, Blainey, The Rise of Broken Hill,

66 This was the controversial H. H. Stevens, who broke with Prime Minister R. B. Bennett and quit the Conservative Party in 1935 to launch the Reconstruction Party. Stevens described his time in the Kootenays in a fascinating interview, a transcript of which survives in the Colleen Toppings Bourke Collection, University of British Columbia Library, Special Collections Division; see also pp. 10-11, Richard Wilbur, H. H. Stevens 1878-1973, Toronto, 1977. Other WFM members who pursued upwardly mobile careers include Frank Woodside, secretary of the Rossland local during the 1901-02 strike; he ended his working days managing the B. C. Chamber of Mines, an employers' organization. Charles McKay, president of a WFM local, was sent east by the union during the 1899-1900 Sandon strike in order to dissuade eastern workers from travelling to the Slocan to scab; he took advantage of the trip to sell a mining property (p. 22, Memoirs of the life of Chales Angus MacKay, by himself, Victoria, 1930). And Ed Boyce, leader of the WFM during the early years of its militancy, died a millionaire hotel proprietor (pp. 27-30, John Fahey, "Ed Boyce and the Western Federation of Miners," Idaho Yesterdays, Vol. 25, No. 3, Fall, 1981). See also the perceptive comments of Harris, pp. 332-34, "Industry and the Good Life around Idaho Peak."

67 This is obvious from a number of sources. For example, various entries in the Minute Books of the Executive Board of the Western Federation of Miners (in the Western Federation of Miners Collection held in the Western Historical Collections, University of Colorado, Boulder) refer to correspondence with the Rossland Women's Auxilary (p. 354, 22 May, 1906, Vol. 1; p. 61, 10 July, 1908, Vol. 2; p. 6, 8 July, 1909, Vol. 3; p. 15, 5 Aug., 1909, Vol. 3; pp. 79-80, 11 July, 1912, Vol. 3). That the Executive Board was not at first particularly enthusiastic about Women's Auxiliaries is plain from earlier entries: pp. 31-33, 1-3 Dec., 1902, Vol. 1 & pp. 122-23, 10 Dec., 1903, Vol. 1. In a city famous for its banquets, the Women's Auxilary provided delegates to the WFM's District 6 Annual Convention in 1907 with "the most sumptuous feast ever prepared in the city of Rossland." (p. 11, 21 March, 1907, Miners' Magazine.)

68 The quotation is from p. 1, The Tragic Story of the Waihi Strike. For women's role during a Broken Hill dispute, see pp. 193-94 & 224 (#71) below; also p. 25, Dale, Industrial History of Broken Hill. For visual evidence of women's presence in the communities of Waihi and Broken Hill, see Roche's The Red and the Gold and Stokes' United We Stand, passim.

69 For an excellent account of women in a North American mining communitiy, see Elizabeth Jameson, "Imperfect Unions: Class and Gender in Cripple Creek, 1894-1904," pp. 166-202, in Milton Cantor and Bruce Laurie, eds., Class, Sex, and the Woman Worker, Westport, Conn., 1977.

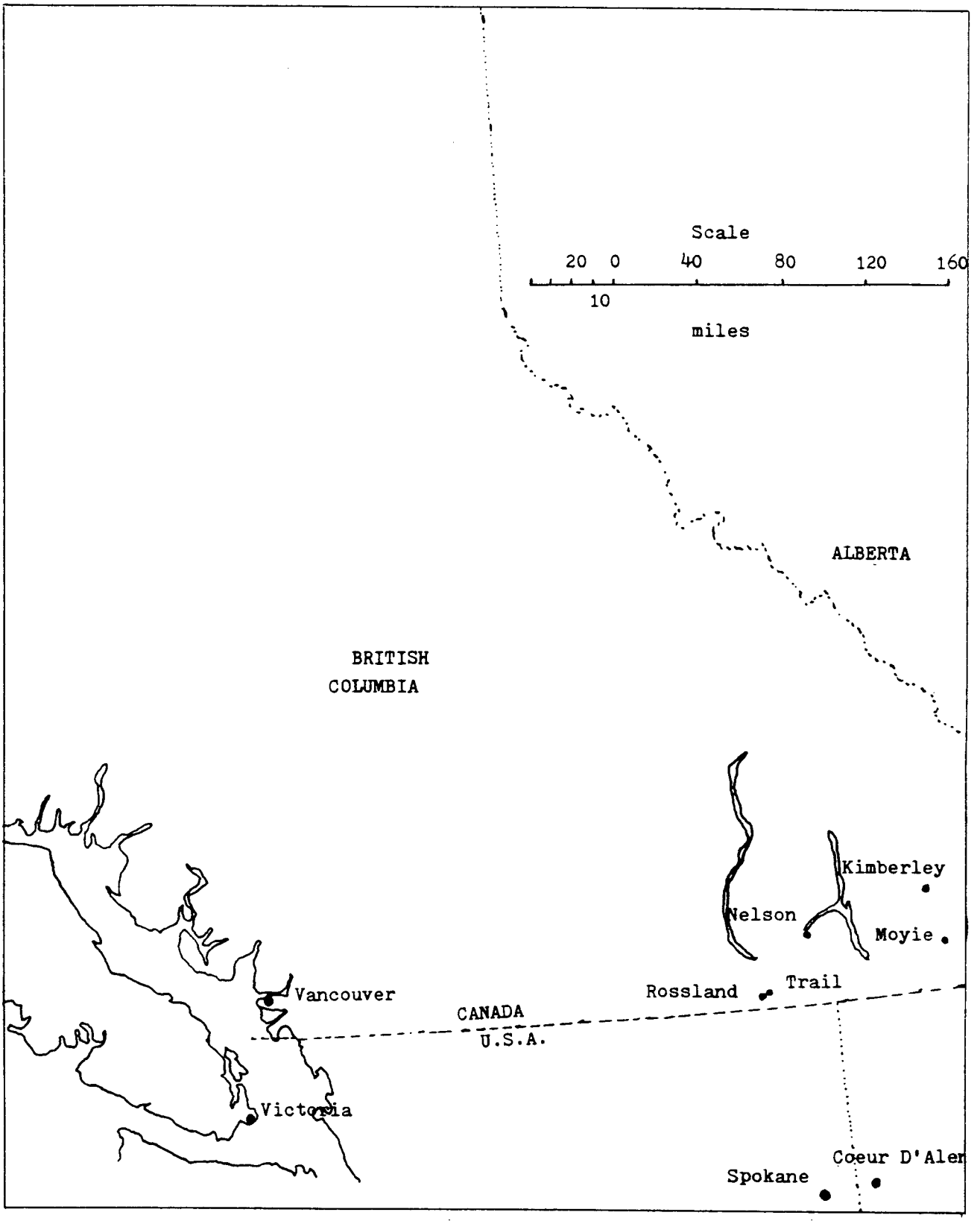
II

Rossland's Early Years

They laughed in our face in the cities - the fat smug cities back east -
Thought we were both of us loony, somethin' half man, half beast.
Cities! my God, we build 'em. Do you mind how Rossland rose?
Do you mind the first log shanty we built among the snows?[1]

Rossland is situated in the south eastern interior of British Columbia, a location which had a profound influence on the town's early development. It lies in the valley of a minor tributary of the Columbia River, and is surrounded by mountains of the Monashee range. This range is one of several north-south mountain chains which separate British Columbia from the rest of Canada. Although some two hundred and fifty miles from the Pacific coast and the provincial metropolis of Vancouver, Rossland is less than ten miles from the forty-ninth parallel that marks the Canada - U.S. border. Due to both distance and terrain, access to Rossland is much easier via the north-south route from Washington state than from an east-west route originating either on the Pacific coast or Alberta. A number of important early developments in Rossland were a consequence of the natural north-south flow of traffic.

Mining began in the Kootenays during the 1860s, when placer gold was found in Wild Horse Creek, a tributary of the Kootenay River.[2] The bulk of the miners who rushed the area came from the United States, a result of the ready means of access from south of the border. The government in New Westminster was anxious to compensate for this "Americanization" of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Trail
CANADA
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Victoria
Coeur D'Alen
Spokane

its distant eastern frontier, desirous of maintaining political sovereignty and garnering any revenue from the gold rush. Merchants, too, were keen to encourage traffic from the Fraser River port into the area. Following the example of the Cariboo Road, the Hope - Princeton trail was extended in 1865 to link the new goldfield with the coast, at a cost of nearly $80,000.

The Dewdney trail, as it was called, took off in a south-easterly direction from Princeton to Keremeos, and then continued due east to Rock Creek and Kettle River. From Kettle River the trail passed south of the Arrow Lakes, crossing the Monashee Range to meet the Columbia River at the present site of Trail. Just before reaching the Columbia, the trail dropped down into one of the river's minor tributaries, Trail Creek.[3] In doing so, it passed through what was to become the southern portion of the city of Rossland. Directly north, on the other side of Trail Creek valley, rose Red Mountain, the site of Rossland's richest mines. By the time the trail was completed, the Kootenay's richest placer deposits were exhausted and miners were moving on; the anticipated east-west traffic failed to materialise. However, while the trail may have proved something of a disappointment in the short term, it did provide access from the coast into the Kootenay region and offered clear evidence of Rossland's mineral wealth to the observant traveller.

Despite Red Mountain's tell-tale signs of mineralization and its proximity to the Dewdney Trail, no serious prospecting was done in the area until the 1880s, two decades after the trail's construction. This inactivity reflected the problems of transportation: a number of people were aware of low grade ore deposits throughout the Kootenays but exploitation demanded a means of getting that ore to distant smelters. In 1888, George Mercer Dawson, the well-known Canadian geologist, reflected on the reasons why "development of

metalliferous mining in its more permanent forms has been slow," despite B.C.'s early career as gold producer. "...[O]ne of the chief drawbacks [he concluded] has always been the want of proper means of transport for heavy machinery and for ores."[4] This problem seemed surmountable by the mid-1880s, when two transcontinental railways commenced operations through the region.

The first of these transcontinentals, the Northern Pacific Railway, started running in 1883, passing south of the border from Minnesota to Portland, via Sandpoint, Idaho, and Spokane, Washington.[5] In 1885 the Canadian Pacific Railway was completed, connecting Montreal to Port Moody via Golden and Revelstoke. In addition to the two railways, by the late 1880s steamboats operated on a regular basis on the three north-south water routes of the Kootenays (the Purcell, Selkirk and Rocky Mountain Trenches), providing limited connections with both the CPR and the Northern Pacific. The improved transportation network stimulated prospecting: most of the famous Kootenay mines were first staked during the 1880s and early 1890s.

The lead deposits around Kootenay Lake had been brought to the attention of Europeans in the early 1840s. Samples were sent to England by the Hudson's Bay Company Chief Factor, John McLoughlin, who pointed out in a covering letter that "It is not probable that mining operations could be carried on to advantage at [Kootenay] Lake, the distance being about 600 miles from the sea coast, and the water navigation, so difficult, and dangerous, that the metal would have to be transported with pack horses, more than half the distance by land..."[6] Some fifteen years later, H. Bauerman reported the existence of rich galena around Kootenay Lake; like McLoughlin, he added a qualification: "The locality is, however, practically inaccessible, the

only means of approach being the Kootenaie River, which is barred by falls and rapids near the mouth and can only be navigated by light canoes."[7] Despite the fact that their existence had been known for some four decades, the Blue Bell and the neighouring Ainsworth claims were not formally staked until the spring of 1882, when construction of the Northern Pacific stimulated a flurry of prospecting in the hitherto inaccessible region.[8] Four years later, in 1886, the Silver King Mine was located not far from the present city of Nelson, and in 1887 some 500 miners were at work in the area.[9]

The two finds heightened interest in south eastern British Columbia, and prospectors and miners began to explore the area with some care. For example, in his 1888 report Dawson noted that the Kootenay district had "attracted much notice during the summer [of 1888] ... a large number of prospectors and miners have been at work there, with most encouraging results."[10] It was within this context of increased mining activity that the outcrop destined to become Rossland's first mine was located on Deer Park Mountain in July 1887. Two prospectors worked the claim throughout the summer, but abandoned it when they believed they had worked out all the ore. Two years later the mine was re-located by Oliver Bordeau and Newlin Hoover, who named it the Lily May. In the spring of 1890 Bordeau hired Joe Moris, a French Canadian, to help do the assessment work on the Lily May, the minimum amount of annual work that, under provincial mining law, had to be carried out to hold the claim. Moris was impressed by the area around the Lily May and staked a claim of his own. He and Bordeau set off for Nelson in April, so that Bordeau could pay Moris. It turned out that Bordeau did not have the money, a familiar tale on the mining frontier. Moris started work at Nelson's Silver King mine and soon had saved enough to embark on a prospecting trip to the area around the Lily May. He set out in the early

summer, meeting up with Joe Bourgeois. On 2 July, 1890, Moris and Bourgeois staked five claims on Red Mountain, on the northern side of the valley from the Lily May.[11] Three of the claims were on the same lead, but mining regulations only allowed one claim per miner per lead. As a result, Bourgeois and Moris ended up selling one to the Nelson mining recorder. The recorder, a forty-six year old New York state native named Eugene Sayre Topping, checked the assay results from the Centre Star, Idaho and LeRoi, the three claims on the same lead. The LeRoi showed the highest values and so he purchased it for the modest sum of $12.50, the cost of registering Bourgeois and Moris's claims. Eight years later the LeRoi was to sell for over three million dollars.[12]

Topping's first move was to visit the site of his new acquisition. Impressed by the area, he and a partner pre-empted three hundred acres on the banks of the Columbia, at the mouth of Trail Creek. River steamers were active on the Columbia; should any mining activity take place in Rossland, their spot would be the natural link between the mines and the river. Topping also moved to ensure that Rossland mines were developed: in the autumn of 1890 he took specimens and assay reports from the LeRoi to the nearest major centre, Spokane, Washington. A group of businessmen formed a partnership to carry out exploratory work on Topping's claim, which he eventually parted with for thirty thousand dollars. In early 1891 the Spokane syndicate shipped out the first batch of Rossland ore.

Even in the summer of 1890, however, activity around Rossland increased. As Harold Kingsmill recorded seven years later, Moris and Bourgeois' discoveries attracted the attention of other miners and prospectors: "The news of the strike spreading around Nelson caused a regular stampede to the new

Eldorado, and a small army of prospectors were [sic] soon in the camp..."[13] This stampede was facilitated by a new transportation network. In July, the Columbia and Kootenay Steam Navigation Company launched a new sternwheeler, the Lytton, to provide service along the Arrow Lakes - Columbia River system. Built at Revelstoke on the Canadian Pacific Railway line, the Lytton would work the waters between there and Little Dalles, Washington. D. C. Corbin had recently completed a railway connecting Little Dalles with Spokane, through which town the American transcontinental, the Northern Pacific, passed. Corbin visited Victoria early in the summer, and the three services, Corbin's Spokane Falls and Northern Railway, the Columbia and Kootenay Steam Navigation Company and the Canadian Pacific Railway, worked out a twice-weekly service. Thus Trail Landing, seven miles from the Rossland claims, was part of the new transcontinental system virtually from its founding. On 15 August, 1890, the first day of the new service between Revelstoke and Little Dalles, the Lytton was delayed by the number of miners and prospectors rushing to Trail Landing.[14] The Kootenays' inaccessibility, which had discouraged development in the past, was over and the spectacular rise of Rossland had begun.

At Rossland, the LeRoi shaft was soon down thirty-five feet. In 1891, ten tons of hand-picked ore from the shaft were packed the seven miles down Trail Creek to the Columbia. From there the ore was loaded on to a Washington-bound river steamer, and thence by rail to a Butte, Montana smelter. The ore returned $84.40 a ton, stimulating further development work on the Le Roi as well as the War Eagle and the Centre Star. Like Topping, Moris and Bourgeois had sold their properties and all three claims, destined to become the largest of the Rossland mines, were controlled by American businessmen. As a result, and in spite of the Revelstoke-Trail steamer

"Canadian" connection, the links between the new camp and Spokane were the most frequently travelled.

In 1892, a wagon road was built between Rossland and Northport, Washington, the new terminus of Corbin's Spokane Falls and Northern Railway. A second wagon road was completed in 1893, connecting Rossland with Trail Landing and the steamer services operating on the Columbia River. Work on the mines had slowed during 1893, however, as a consequence of that year's financial panic.[15] Although lack of capital forced the Le Roi's owners to suspend mining activities in 1893, they took advantage of the new road to Trail Landing to ship out a stockpile of 700 tons of ore. The move proved successful, according to the Provincial Mineralogist, who reported two and a half years later that

> this [ore shipment] netting a good profit, active mining operations were begun ... bringing handsome returns to those who had pluckily stuck to this claim, [and] the Le Roi was fairly launched upon its successful career as a rich dividend paying mine.[16]

Ore shipments and exploratory work continued during 1894. In March, Patsy Clark, "a Montana and Idaho mining man of much experience,"[17] began further exploratory work on the War Eagle and discovered that earlier developers had lost sight of the ore. Re-directing the tunnel, he struck the ore after driving for seventy feet. "Then the War Eagle was a mine."[18] In the December, 1894 Clark took up his option on the War Eagle and signed a large ore contract with the East Helena Montana Smelting Company, guaranteeing to supply a thousand tons a month.

> Such an immense contract, let by such a practical man as Mr. Clark, was the means of at once starting a "stampede" for the new Eldorado, and in a short time operators from the neighbouring States of Washington, Idaho and Montana had tied up any showings of merit on all the prospects of the camp.[19]

The War Eagle began paying dividends on 1 February, 1895, and the flow of prospectors and miners into Rossland continued to increase, its population rising from three hundred to three thousand.

In explaining Rossland's dramatic growth in 1895, several early accounts cite generally depressed mining conditions elsewhere; as a consequence the town and its mines attracted the attention of wealthy developers seeking new outlets for their energy and capital. For example, in his 1895 pamphlet on the Kootenay mines Charles St. Barbe explained how "...mining matters in the Western States and throughout British Columbia being flat[,] the wave of public attention rolled towards Trail Creek..."[20] In early 1896, in an article in a Toronto newspaper, Harold Kingsmill offered a more detailed explanation of what he called "The Awakening:"

> The closing of the Indian mints to the coinage of silver, the repeal of the silver purchasing clause of the Sherman act by the United States Congress, and the consequent slump in the price of the white metal, had rendered silver mining so unprofitable and hazardous an investment that it actually compelled money usually used in this industry to seek the only other alternative - gold mining for ores, from which it could be profitably extracted, no matter how small the margin. These were the indirect causes of Trail Creek's present prosperity and fame. Patsy Clark bonding and making a mine of the War Eagle claim is the direct cause.[21]

Twenty-seven year old F. Augustus Heinze, the young copper magnate of Butte, Montana, was among those turning their attention to Rossland. In the summer of 1895 he sent two men up to Rossland to check on the area's prospects. Heinze was impressed by the men's account and in the autumn he signed a deal with the Le Roi's owners which guaranteed him 75,000 tons of ore, an agreement later described as "[w]ithout a doubt the greatest and most important event of the year..."[22] With an ore contract in hand, Heinze quickly built a smelter at Trail Landing, on a terrace above the Columbia River. Trail's

first smelter was blown in on February 1, 1896. To facilitate the supply of ore from Rossland to his smelter, Heinze built a narrow gauge railway, which was running by June. For his smelter to function at capacity, Heinze had to treat virtually the entire output of the Rossland mines. Although no other smelters were built in the vicinity, Heinze's monopoly of Rossland ore soon came to an end.

In December, 1896, Daniel Corbin completed his Columbia and Red Mountain Railway, which linked up with his other railway, the Spokane Falls and Northern. The Columbia and Red Mountain ran from Rossland to Northport, Washington, and provided the mining community with a direct connection to the two American transcontinentals running through Spokane, the Northern Pacific and (from 1892) the Great Northern.[23] As a Spokane newspaper proclaimed, "The construction of the Red Mountain railroad .... has made Spokane the virtual headquarters of Rossland's mining men, and the acknowledged trade center of the entire Trail Creek region."[24] This was particularly bad news for Heinze: soon Rossland ore was among the freight going south on the Columbia and Red Mountain Railway, calling into question the viability of his smelter at Trail.

The Le Roi was Rossland's major producing mine and its ore had to go to Heinze's smelter if it was to function economically. The Spokane businessmen who owned the Le Roi, however, decided to utilise Corbin's railway to ship their ore across the border. They built their own smelter in Northport, Washington during 1897, which was finished and blown in on January 1st, 1898.[25] Heinze purchased The Rossland Miner and had its editor attack his opponents in an attempt to rally public opinion in British Columbia around him. He lobbied hard in Victoria and Ottawa for further railway grants

and a duty on exported ore, hoping somehow to regain his monopoly of Rossland ore. However, when he received word that the manager of his Butte properties had gone over to his competitors, he decided to give up the struggle. On 11 February, 1898 he sold his smelter and railway to the CPR and returned to Butte.[26]

The years 1896 and 1897 were dramatic ones in Rossland. The town expanded with tremendous speed, becoming a city in the spring of 1897. Churches, school, improved sanitary facilities: gradually the niceties of late Victorian society appeared, along with railways, electric light and world attention. Mining companies formed at a breathless rate; soon Rossland even had its own stock exchange. Writing in February, 1898, the Annual Report of the Minister of Mines explained that

> Prices for all kinds of mining claims in this vicinity [Rossland] became for a time abnormally high .... Many companies were formed....
> As in every other mining centre of prominence, Rossland had to suffer for a time from the selfish machinations of the "wild-catter" and unprincipled boomster, the public at large swallowing nearly everything that was offered them for a while, the phenomenal rise in value of the "Le Roi" stock from a few cents a share to dollars proving an irresistible [sic] bait. The reaction speedily came, and most of this bubble speculation disappeared. The result was a sudden rebound from feverish activity and speculation to quietness....[27]

Rossland was not going to remain quiet for very long.

Kootenay publicists such as Charles St. Barbe and Harold Kingsmill worked hard to encourage Canadian and British capital to invest in the region but, despite the floating of literally hundreds of mining companies during Rossland's speculative frenzy of 1896-97, the ownership of its productive shipping mines remained American.[28] As the boom in company formation and flotation died away and the Klondike gold rush diverted attention from

Rossland, the leading mines of Rossland began to sell out to British and Canadian syndicates. In late 1897, the War Eagle was sold to the Gooderham-Blackstock liquor interests of Toronto; in late 1898, they added the Centre Star to their group. The British America Corporation was the other purchaser of leading Rossland properties. Throughout 1898 it bought up claims, culminating in December with the purchase of the LeRoi.[29] Ironically, while the "repatriation" of the mines' ownership was frequently applauded, its impact was detrimental. Regardless of the nationality of either vendor or purchaser, the sorry truth was that the mines were changing hands at ludicrously inflated prices. The consequences of this were to be very far-reaching indeed. Few cared to consider the fact that the only way such over-valued properties could operate successfully would be by making drastic efforts to reduce costs. The Kootenays were returning to the British-Canadian fold and that, it was felt, was enough.

Through the mid 1890s, a number of observers had noted the predominance of American capital and initiative in the Kootenays, a topic which has continued to interest historians. Contemporary writers tended to blame the diffidence of Canadians for their failure to seize opportunities in the Kootenays. This was frequently accompanied by a grudging admission that the energetic enthusiasm of American entrepreneurs had been well rewarded.[30] Historians, on the other hand, have generally accepted the "railroad thesis,"[31] linking the construction of the CPR's Crowsnest Pass route in 1898 with the subsequent domination of the Kootenay mining industry by Canadian and British capital. Working backwards, it is argued that the absence before 1898 of a Canadian transcontinental railway through the Kootenays meant that American interests were able to dominate the region since their more favourable geographical location allowed them better access to the mines. While this

simplifies too much, the argument remains difficult to refute. Geographical proximity certainly favoured Eastern Washington businessmen: where else could Topping have gone in 1890, with his samples from the Le Roi? However, few writers acknowledge the powerful stimulus of prior experience.

The completion of the Northern Pacific several years prior to the CPR's construction helped to sustain a mining boom in northern Idaho. This earlier boom involved the business group based in Spokane which later was to dominate Rossland. Corbin's first railway, for example, was a branch line into the Coeur D'Alene mining district, before he began laying track north from Spokane, first to Nelson and then to Rossland. Men with capital and expertise were only a few miles from the Kootenays when developments there suggested that good money could be made north of the border. American ownership of the premier mines of Rossland, the Le Roi, the War Eagle, and the Centre Star, was a consequence of prior experience and shrewd entrepreneurship as well as propinquity.

In 1898 Rossland appeared to be entering a new era. The CPR now owned Heinze's smelter and his railway concessions, and had pushed through their own line east from Calgary, through the Crow's Nest Pass. Their steel rails connected Rossland to central Canada and, perhaps just as importantly, provided ready access to the coal resources of the Crow's Nest Pass, thus ensuring a handy fuel supply for the CPR's new smelter. Canadian or British investors now owned the leading mines, dovetailing nicely with the patriotic tone of the closing years of the century. Rossland became a city with a growing sense of attachment to British Columbia and Canada, no longer a northern extension of the western American mining frontier. Its city status was a reminder that the days of the rough camp were at an end, and in fact the

need for civic improvements, especially reliable water supply and drainage systems, had prompted incorporation.[32] The first service held by a Presbyterian student minister in Rossland, in May, 1895, shared its venue with a public bar; in the Canada-wide referendum on prohibition in September, 1898, Rossland voted dry by a majority of fifteen.[33]

The city's growth was accompanied by an increasing sense of stability. While crude justice and muscular Christianity found their expression in Rossland's folk heroes, Jack Kirkup, a larger-than-life policeman, and Father Pat, a compassionate Anglican priest who was good with his fists,[34] Kootenay society was inexorably growing more complex and sophisticated.

Rossland had its share of bars, in common with most mining communities, but by 1898 there were other meeting places and other reason to meet, from organised recreational pursuits such as curling and skiing to more serious affairs such as political meetings or even formal gatherings of learned societies. Familiar social institutions began to take root in Rossland: fraternal organisations, churches, and unions. Miners were active in all three, especially their union. In 1898 they built a union hall, a large and handsome wooden structure which soon became the focus for much of Rossland's social activities.[35] Established for three years, by 1898 the Rossland miners' union, like the city itself, was showing signs of maturity; the hall served as a symbol of its growth and permanence.

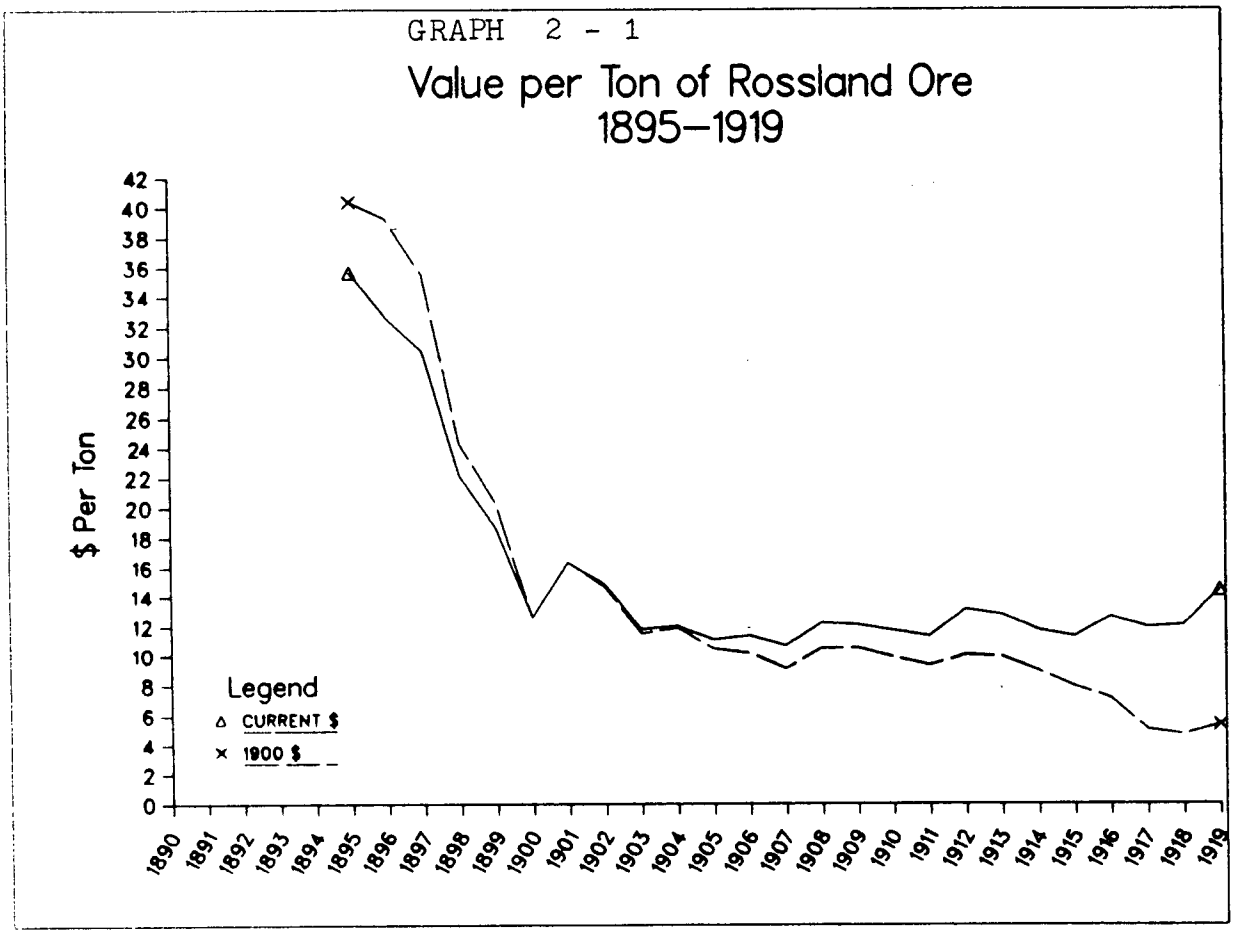
By 1898 the mines too were places of considerable sophistication, already having gone through "the transition period from the slow, old-fashioned method of hand-drilling, manual windlass work, and mule-packing, to compressed air-drills, concentrators, steam hoists and elevated rope tramways."[36] The LeRoi is a good example: at the end of the year its plant

included a 40-drill air compressor and a 300 horse power steam hoist. On average the mine employed two hundred and fifty men, working at depths underground of up to eight hundred and fifty feet.[37] To oversee its complexities, the mine's new owners employed a Mining Engineer-in-charge, William Carlyle. He had come to the job after serving as B.C.'s inaugural Provincial Mineralogist (appointed in 1895), in which capacity he wrote the first full-length report on Rossland. Earlier he had lectured in mining and metallurgy at McGill University and worked in silver-lead mines in the Western United States.[38] The LeRoi was the leading Rossland mine, but others were quickly following its example. In his summary of developments at the end of 1898, Rossland's Gold Commissioner reflected with understandable satisfaction that "This section of the Province seems to have entered on a career of great progress, and the phenomenal growth of the mining industry in this Division is especially worthy of note."[39]

By 1898, then, Rossland had matured in a number of important ways. It had changed from being a frontier community to a fully-fledged city; it enjoyed direct transportation and communication links with the rest of Canada and the United States; it was taking part in the political life of both the province and the country; and its mines were producing ever-increasing amounts of ore, on which the econony of the region rested. The mining industry was maturing, as the prospector's and developer's lucky strikes and gambles gave way to board-room decision-making based on the professional advice of engineers and other experts. Already, however, evidence was beginning to suggest that the ore itself was changing. That change, a drop in value per ton produced as the ore's mineral content declined, was to have a profound impact on the community, its mining industry and its workers.

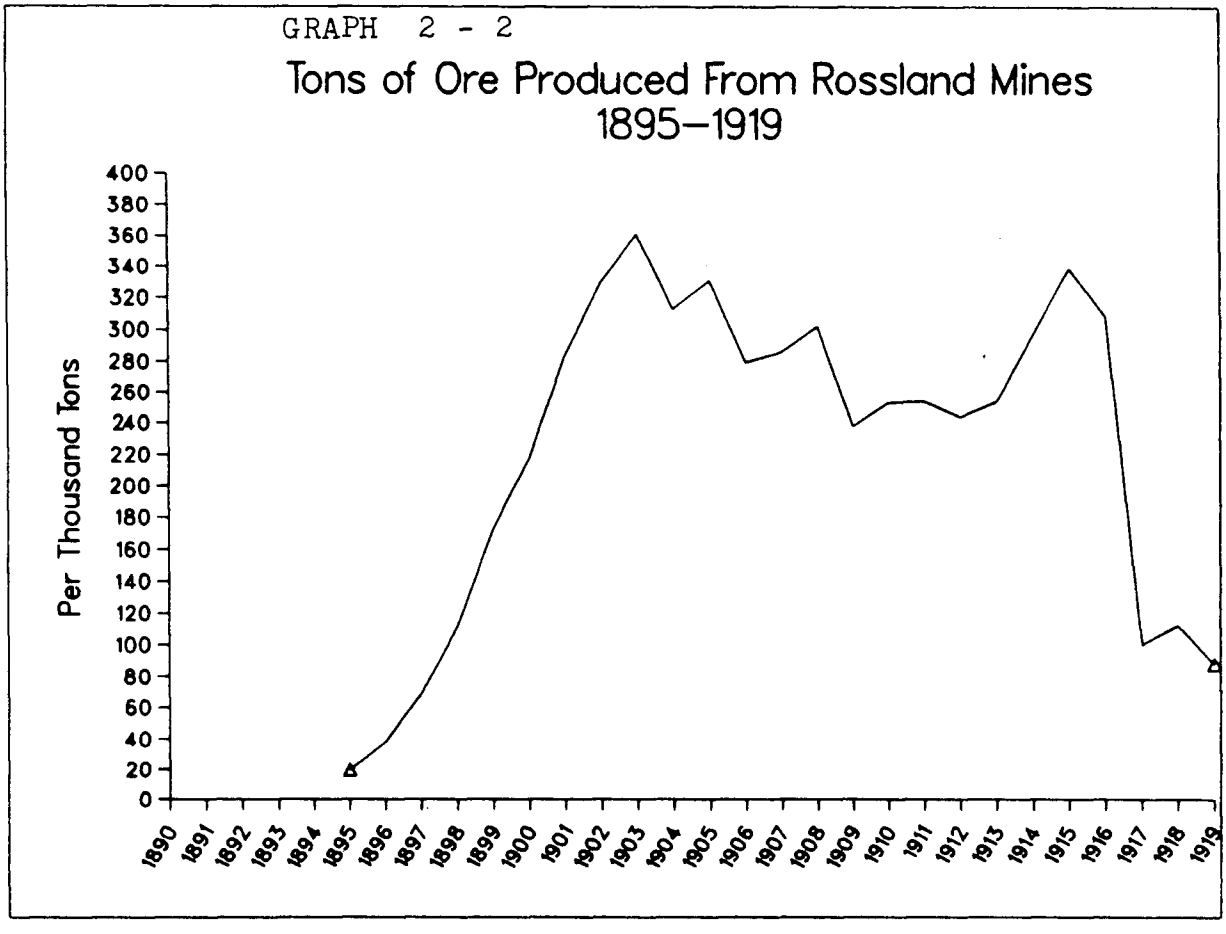
The position in 1898 becomes clearer if the statistical information on Rossland, available in the published Annual Reports of British Columbia's Minister of Mines, is plotted on graphs. The graph overleaf shows the average value of a ton of Rossland ore, from the first year for which reliable statistics are available to 1919.

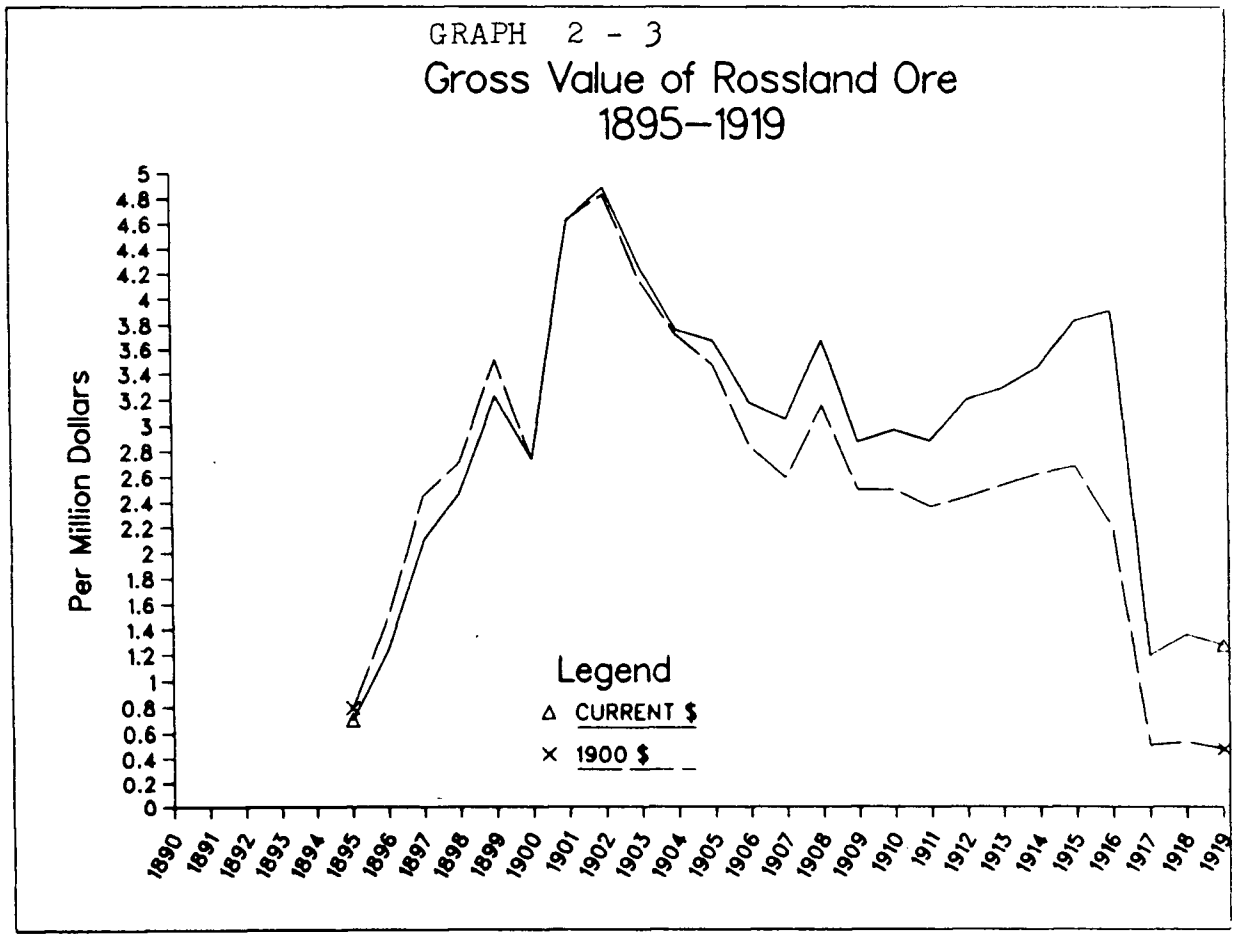
GRAPH 2 - 1



Over the four years 1895 - 1898, the promising initial returns quickly slipped towards $12 per ton, the steady norm of the next two decades. However, the implications of this precipitous decline may well have been masked by the information displayed in the following two graphs, which show Rossland's annual ore production by tonnage and by total value. Both indicate dramatic increases: tonnage rose with greater mechanization, and the total value of production followed suit.

GRAPH 2 - 2





While the information in the latter two graphs might well have encouraged the optimistic investor, it would not have hidden the truth of the first graph from any one with even a rudimentary grasp of the mining industry. It certainly did not fool The Economist of London. The journal published a series of articles in late 1898 on "The Mines of British Columbia," written by "Our Special Mining Commissioner."[40] British investment in colonial mining ventures during the mid-1890s had not been particularly rewarding and The Economist's comments suggest a scepticism born of bitter experience:

> The statement is generally made that the Rossland reefs get richer in depth, and, as a similar hypothesis, that those mines which have not now rich ore on the surface, have only to sink several hundred feet to find all they can desire. All this, of course, is purely fallacious. It is a time-worn "chestnut" among ignorant mining circles, but is a useful excuse, and is frequently used all over the world. [41]

The series concluded with some sobering advice to the London share market:

> ...English investors, before deciding to embark in British Columbian ventures, either on their own account or by taking shares in new flotations, must most cautiously and carefully ascertain facts and figures from admittedly reliable sources, or they will have cause to express a regret which will be as bitter as it will be unavailing.[42]

British investors chose to ignore such advice. However, despite their marked enthusiasm for Rossland's shares - a town "as well known in London as Johannesburg or Hannan's" in 1898[43] - they never received an adequate return on their investment. Within three years the value of shares in Rossland's mining companies had fallen dramatically, forcing profound changes within the industry. The immediate consequences of this new mood of retrenchment were most apparent in Rossland's labour relations.

Endnotes

1 Clive Phillipps-Wolley, "The Kootenay Prospector," pp. 69-70, E. L. Chicanot (ed.), Rhymes of the Miner,

2 The most thorough discussion of the rush is John Willis Christian's PhD thesis, "The Kootenay Gold Rush: The Placer Decade, 1863-1872," Seattle: Washington State University, 1967. See also pp. 56-59, William Joseph Trimble, The Mining Advance into the Inland Empire: A Comparative Sudy of the Beginnings of the Mining Industry in Idaho and Montana, Eastern Washington and Oregon, and the Southern Interior of British Columbia: and of Institutions and Laws Based Upon that Industry, Madison, Wisconsin, 1914; pp. 24-39, Isabel Bescoby, "Some Aspects of the American Mining Advance into Cariboo and Kootenay," University of British Columbia, 1935; and pp. 98-110, Mollie E. Cottingham, "A History of the West Kootenay District in British Columbia," MA thesis, University of British Columbia, 1947.

3 A map of the trail is included in Cole Harris's article, "Moving Amid the Mountains," BC Studies, 58(1983): 3-39, on p. 6.

4 G. M. Dawson, p. 65 A, Summary Reports of the Operations of the Geological Survey For the Years 1887 and 1888, Montreal, 1889. In a monograph written the following year, Dawson repeated this analysis: see especially pp. 14-15, 55, 59, George M. Dawson, The Mineral Wealth of British Columbia, Montreal, 1889, published with the Annual Report, (New Series) Vol.3, Part 2, 1887-88, of the Geological Survey.

5 The impact of railway development on the Kootenays is described by Ronald Howard Meyer, "The Evolution of Railways in the Kootenays," Vancouver: the University of British Columbia, Unpublished MA thesis, 1970, and George A. Tripp, "Transportation and Lead Smelters in the Kootenays; A Reconsideration," Vancouver: the University of British Columbia, Unpublished BA essay, 1970. Tripp also discusses the role of water transportation, an important adjunct to the Kootenay railways; see also Edward Lloyd Affleck, Sternwheelers, Sandbars and Switchbacks A Chronicle of Steam Transportation in the British Columbia Waterways of the Columbia River System 1865 to 1965, 2nd edition, Vancouver, 1973. Cole Harris, "Moving Amid the Mountains," provides a succinct overview of the province's transportation networks.

6 McLoughlin to Archibald Barclay (London secretary of the Hudson's Bay Company), 23 November, 1844, p. 62, The Letters of John McLoughlin From Fort Vancouver to the Governor and Committee Third Series, 1844-46, edited by E.E. Rich, London, 1944.

7 P. 38 B, H. Bauerman, Report on the Geology of the Country near the Forty-Ninth Parallel of North Latitude West of the Rocky Mountains, From Observations Made 1859 - 1861, Montreal, 1884. (published with the Report of Progress 1882-83-84 of the Geological Survey (Montreal, 1885).

8 Two groups claimed the Blue Bell in 1882; their competing claims eventually led to litigation and bitterness, culminating in the murder of Hammill by Sproule. For details of the mine's early history, see pp. 110-117, Cottingham, "A History of the West Kootenay..." and pp. 76-80, B. Richard (Dick) Atkins, "A History of the Kootenay District in the 19th Century," in E. L. Affleck (ed.),

Columbia River Chronicles, Vancouver, 1977. In his discussion of the Ainsworth claim, Atkins notes how the prospecting party had set out "to stake out promising camps which had been discovered in previous decades but heretofore discarded on the grounds of inaccessibility." (p.76) Atkins' history was originally serialised in the Vancouver Daily Province in 1922.

9 P. 263, Annual Report of the Minister of Mines for the Year Ending 31st December, 1887 ... in the Province of British Columbia, [Hereafter Annual Report, Mines, B.C., with date.]

10 P. 65 A, Dawson, op. cit.

11 There are a number of versions of the first discovery of the Rossland mines. This account is drawn from two early sources: Harold Kingsmill's First History of Rossland..., (Rossland, 1897) and Joe Moris's article, dated January, 1900, published in the Rossland Miner Historical Edition, 11 October, 1938. Moris's account is re-printed in Lance Whittaker (ed.), Rossland, The Golden City A Story of the First Half-Century of Progress and Development in the Trail Creek Area of West Kootenay, Rossland, 1949.

12 For Topping and his purchase of the LeRoi, see pp. 1 & 24, Kingsmill, op. cit., and Elsie G. Turnbull, Topping's Trail, Vancouver, 1964.

13 P. 1, Kingsmill, First History of Rossland...

14 See pp. 114-118, John Fahey, Inland Empire D.C. Corbin and Spokane, Seattle, 1965, and pp. 18-19 & 33, Affleck, Sternwheelers, Sandbars and Switchbacks...

15 See pp. 15-16, William A. Carlyle, "Report on the Trail Creek Mining District," Bulletin No. 2, Provincial Bureau of Mines, Victoria, 1896; pp. 76-77, E. Jacobs, "Notes on the early history of Rossland Camp," Transactions of the Canadian Mining Institute, XVI(1913): 76-78; and pp. 6-8, Charles Wales Drysdale, Geology and Ore Deposits of Rossland, British Columbia, Memoir 77, Geological Survey, Ottawa, 1915.

16 Carlyle, "Report..." (Report dated August 8, 1896.)

17 Harold Kingsmill, "Gold Regions of the West," The Saturday Globe, Toronto, 8 Feb., 1896. Kingsmill's account was written in late 1895, and like Charles St. Barbe's pamphlet, The Kootenay Mines A Sketch of the Their Progress and Condition Today (Nelson, 1895), attempted to persuade eastern investors to pour capital into the Kootenay mines.

18 P. 2, Harold Kingsmill, First History of Rossland...

19 Harold Kingsmill, "Gold Regions of the West." For other accounts of this event, see p. 11, St. Barbe, The Kootenay Mines...; p. 2, Kingsmill, First History of Rossland...; and p. 16, William A. Carlyle, "Report on the Trail Creek Mining District."

20 P. 11, The Kootenay Mines...

21 "Gold Regions of the West." Both Kingsmill and St. Barbe offer intriguing

glimpses of Rossland at the the height of its boom. J.W. McCarty's "British Investment in Overseas Mining, 1890-1914," (PhD thesis, Cambridge, 1961) discusses the relationship between the collapse of silver in the early 1890s and the subsequent stimulus to gold mining; see especially pp. 31-32.

22 P. 2, Kingsmill, First History of Rossland,,

23 The Columbia River, however, was not bridged until October, 1897. Prior to its construction, trains crossed the river at Northport by ferry. Corbin had extended his Spokane Falls and Northern Railway to Nelson in December, 1893, as the Nelson and Fort Sheppard Railway. See pp. 161-165 & 123-141, Fahey, Inland Empire,,

24 The Spokesman-Review, (no date given) quoted on pp. 50-51, John R. Fahey, "The Retirement of Daniel Corbin," The Pacific Northwesterner, Vol.7, #4(Fall 1963).

25 For details of the Northport smelter, see p. 539, B.C. Mines Annual Report, 1897; p. 28, Canadian Mining Journal, 16(1897); Sessional Papers British Columbia, 1902; and Russell D. Bowers, "The LeRoi Mine and Smelter," The Pacific Northwesterner, 7(1963): 43-48.

26 For details of the struggle between Heinze and Corbin, see pp. 157-183, Fahey, Inland Empire,, and pp. 23-28, Sarah McNelis, Copper King At War The Biography of F. Augustus Heinze, Montana, 1968.

27 P. 536, B.C. Mines Annual Report, 1897. The Canadian Mining Journal echoes these sentiments in an article on "A Year's Progress at Rossland" (V. 16, 1897: 306-7). Note also the comments on speculative mining companies on pp. 460-61, ibid., written, most likely, with the Rossland boom in mind. John Spencer Church's MA thesis, "Mining Companies in the West Kootenay and Boundary Regions of British Columbia, 1890-1900, - Capital Formation and Financial Operations," UBC, 1961, explores the Rossland mining boom in considerable detail and supplies the reader with a wealth of statistical detail. For a discussion of the stock exchanges [sic!] of Rossland, see the 21 page typescript by Gordon T. German, "The Stock Exchanges of Rossland, 1897 - 1905," Add. Mss. 475, Provincial Archives of British Columbia [hereafter PABC]. German, a local historian, wrote several lively studies on Rossland's early history, available in typescript form at the PABC.

28 Despite its exhaustive research for which later historians must always remain grateful, Church's thesis ("Mining Companies in the West Kootenay...") overlooks this simple yet crucial fact. To understand what was happening in the Rossland mining industry - as opposed to what was going on in terms of share market speculation - one must ignore Church's voluminous statistics and look only at the shipping mines.

29 The purchase of the LeRoi by the British America Corporation has been described by a number of historians; the most accurate and detailed account is by Gordon T. German, "A Million Dollar Cheque," a nine page typescript, n.d., Add. Mss. 465, in the PABC. See also Elsie G. Turnbull's "Rossland Camp," in The Pacific Northwesterner, 6(1962): 9-14 (reprinted on pp. 96-104, Dickson M. Falconer (ed.), British Columbia: Patterns in Economic, Political and Cultural Development, Victoria, 1982.) On the buy out generally, see pp. 116-153 &

441-445, Church, "Mining Companies in the West Kootenay...,"

30 See, for example, p. 100, The Canadian Mining Review, XIV (June, 1895); letter of Clarence King, reprinted in Nelson Miner, 13 July, 1895; Kingsmill, "Gold Regions of the West"; pp. 3, 15, 21, St. Barbe, The Kootenay Mines...; pp. 4-7, Frances Macnab, British Columbia for Settlers Its Mines, Trade, and Agriculture, London, 1898; Horace F. Evans to Laurier, 25 Nov., 1901, Lower Nicola, B.C., #60198-99, Laurier Papers, MG 26, G, Vol. 213, Public Archives of Canada.

31 The phrase is from Tripp, "Transportation and Lead Smelters..." where a very good review of the literature on the topic can be found, pp. 1-10.

32 Gordon T. German's typescript, "So They Incorporated," describes the motives which led to Rossland's incorporation. Add. Mss. 465, PABC.

33 For details of the Presbyterian service, see "St. Andrew's United Church 60th Anniversary," 26 May, 1955, Rossland Miner, Results of the referendum are from p. 128, Harold Tuttle Allen, Forty Years' Journey The Temperance Movement in British Columbia to 1900, (n.p., 1981.) However, it is worth noting that the referendum vote in the province attracted less than half of the eligible voters; indeed, the Rossland result could well have reflected the disenfranchisement of a signficant proportion of its citizens.

34 For details of Jack Kirkup, see pp. 218-219, Clara Graham, This Was the Kootenay, Vancouver, 1963; p. 88, Isabel Bescoby, "Some Social Aspects of the American Advance...;" p. 230, Mollie Cottingham, "A History of the West Kootenay..." On Father Pat (Henry Irwin), see pp. 232-233B, Cottingham; pp. 177-79, Fred J. Smyth, Tales of the Kootenays, Cranbrook, 1942, 2nd edition; "Fighting Irish Priest Won Place in Hearts of Miners," 26 Jan., 1956, Rossland Miner,

35 For example, members of the Canadian Mining Institute met at the Hall in September, 1899 (described in The Journal of the Canadian Mining Institute, Vol III(1900): 163-165); an enormous commemorative service took place there after Queen Victoria's death; and on numerous occasions Rossland's working people came to listen to union leaders from across the continent. The building has survived both fires and years of neglect; it still stands on the western end of Columbia Avenue and has undergone considerable renovation. A photograph and some historical notes on the hall can be found on p. 27, Mike Solski and John Smaller, Mine Mill The History of the International Union of Mine, Mill and Smelter Workers in Canada Since 1895, Ottawa, 1984.

36 P. 1080, Annual Report, B.C. Mines, 1898. The reference was to the Ainsworth mines, but Rossland's transition was identical.

37 P. 1092, ibid,

38 The B.C. Minister of Mines reported Carlyle's apppintment as Provincial Mineralogist in a letter dated 10 March, 1896 (p. 643, Annual Report, B.C. Mines, 1895. The Canadian Mining Review hinted at his appointment in its June 1895 issue, p. 100 (Vol. XIV). Carlyle left Rossland to take charge of the Rio Tinto mines in Spain (p. 164, The Journal of the Canadian Mining Institute, Vol III, 1900) and later took up the Chair of Metallurgy at the Royal School of

Mines. (p. 323, Transactions of the Institution of Mining and Metallurgy, Vol. XVIII, 1908-09).

39 P. 1092, Annual Report, Mines, B.C., 1898.

40 The series ran from 17 December, 1898, to 7 January, 1899; see pp. 1807-1809, 1851-1852, 1891-1892, (1898) and p.6 (1899). The "Special Commissioner" was in fact J. H. Curle.

41 P. 1851, 24 Dec., 1898. For details of the English investor with other colonial mining ventures, see A. R. Hall, The London Capital Market and Australia, Canberra, 1963, passim; J. W. McCarty, "British Investment in Western Australian Gold Mining, 1894-1914," University Studies in History, Vol. IV, No. 1, (1961-1962): 7-23; John Bastin, "The West Australian Gold Fields, 1892-1900: The Investors and their Grievances," Historical Studies Australia and New Zealand, Vol. 6, #23, (November, 1954): 282-89; H. J. Hanham, "New Zealand Promoters and British Investors, 1860-1895," pp. 56-77, Robert Chapman & Keith Sinclair, (eds.), Studies of a Small Democracy Essays in Honour of Willis Airey, Auckland, 1963; and pp. 21-37 & passim, Robert V. Kubicek, Economic Imperialism in Theory and Practice The Case of South African Gold Mining Finance 1886-1914, Durham, N.C., 1979. For the British investor and U.S. mining investments during the same period, see pp. 139-210, W. Turrentine Jackson, The Enterprising Scot Investors in the American West after 1873, Edinburgh, 1968; Clark C. Spence, British Investments and the American Mining Frontier 1860-1901, Ithaca, N.Y., 1958. Robert Kubicek provides a comparative overview in "International Investment in Mining in South Africa, Canada and Australia 1890-1914," unpublished paper presented to the International Mining History Conference, Melbourne, August, 1985.

42 P.6, 7 Jan., 1899.

43 According to the "London Letter" of the Canadian Mining Review (p. 169, Vol. 17, No. 6, June 1898.

III

The Western Federation of Miners in the Kootenays, 1899-1905

In 1898, Rossland appeared to have an assured future, to be facing a period of steady growth. The years around the turn of the century, however, were not as prosperous as many had anticipated. Contemporaries blamed two factors for threatening the mines' profitable operation: government regulation and the miners' union. This chapter investigates the justice of this charge by examining the interaction of unions, companies and the state, noting especially the role played by the miners' unions in British Columbia and their influence upon Rossland at the turn of the century. The essential starting point for this chronicle is the wider provincial context.

The provincial election of 1898 marked the beginning of five tumultuous years for British Columbia. The political dynasty which had dominated the Legislature since 1883 collapsed with John Turner's defeat in 1898; five years and four premiers intervened before stability returned with the appearance of "party lines" and Premier Richard McBride in 1903. Lobby groups competed for attention as coalitions were formed and new parties emerged. Recalling the interregnum, a Conservative writer in 1913 acknowledged that

> ...the events referred to appear highly kaleidoscopic in their rapidity of succession and changing complexions and combinations. There is nothing quite analogous in recent political annals. Conditions were in a state of ferment, of unrest...[1]

A number of observers felt that the role assumed by organised labour would become decisive in provincial politics. The crucial question was which party would be able to secure and hold working class support. Thus a Liberal writing in late 1900 warned that "The Labor vote is a rapidly increasing factor (in this Province) and its alliance with the Liberals is absolutely necessary to insure success."[2] The following year a New Westminster lawyer, a Liberal stalwart who kept Prime Minister Laurier abreast of the provincial scene, offered this analysis:

> In addition to the attempt on the part of Eberts, McBride and several other Conservatives to create a solid Conservative Provincial party, there is also a movement (far more reprehensible in my opinion, and more dangerous) on the part of the Labor people to "Laborize" if I may use the term, British Columbia. This is a consumation which is not to be desired.... Already they claim [the federal constituencies of] Vancouver and Nanaimo. If they in Provincial matters could succeed in putting up a Labor-Liberal Candidate in New Westminster ... then the thick edge of the wedge would indeed be inserted in this constituency, which up to the present time, is entirely free from any Labor element or influence...[3]

By 1903 B.C. Liberals were calling for a Liberal Labour alliance;[4] the Conservatives, too, were conscious of Labour's electoral significance. One correspondent urged the newly-elected McBride to "endeavor ... before all things ... to secure if possible the Labor vote." The premier agreed: "I fully appreciate your suggestions regarding a fusion of the Conservative and labour parties."[5] However, not all of McBride's correspondents were as enthusiastic about forging links with labour, especially with Kootenay miners.

T. Mayne Daly wrote to congratulate McBride on his 1903 electoral victory. A former federal Conservative cabinet minister, Daly had been active as a lawyer and mining promoter in Rossland following his fall from office with the Liberal victory of 1896.[6] Daly indulged in some rhetorical

hand-wringing in his letter over the province's recent turbulent past ("Unhappy British Columbia! What a turmoil things have been in since 1897!") and then offered McBride some advice:

> There are three things you want in my opinion especially to avoid.
> 1. Any 'entanglement' with Dunsmuir.
> 2. " " " WFM or its allies.
> 3. " " " any railway interests.
> I consider Dunsmuir to blame for thwarting our efforts for party govt. & the other two have been the disturbing factors in B.C. politics...[7]

By 1903 industrial unrest seemed to have become endemic in the province. For five years running, major and prolonged strikes or lockouts had occurred in one or the other of British Columbia's two major industries, fishing and mining. Many observers, such as Daly, believed that the responsibility for these conflicts lay with the Western Federation of Miners (WFM), an American-based union which represented hard-rock miners from Mexico to Alaska.

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The Western Federation of Miners was organized in Butte, Montana in 1893, the outcome of a convention there of various miners' unions. The immediate catalyst for the convention in Butte was the decisive defeat of union miners the year before in the Couer D'Alenes, Idaho.[8] A hundred miles south of British Columbia, the Couer D'Alenes was to become notorious for the bitterness of its industrial relations.[9] The lockout of 1892 was an attempt by mine owners to force down wages and it soon turned bitter: men on both sides took to arming themselves. After several violent incidents, martial law was declared. Union men were rounded up and held in an improvised prison, the "bullpen." In this ignominious position, workers discussed the need for a

new industrial strategy: it seemed that the powers of the state and of capital were arraigned against them. The WFM was the result of the miners' search for a more powerful organization to protect themselves. A certain belligerence - born of self-respect, craft pride and a siege mentality, a determination not to become the accommodating victims of industrialization - marked off the WFM from its contemporaries. The union's own paper defined the WFM as "the product that has grown out of the industrial conditions that have arisen in the Rocky Mountains and Pacific slope..."[10]

As the previous chapter indicated, Spokane, Washington was responsible for much of Rossland's early growth. In addition, many of the Kootenays' first prospectors and miners were American.[11] Thus when Ed Boyce, former inmate of the Coeur D'Alenes' bullpen and now WFM president, visited Spokane in the summer of 1895, it was logical that his next destination should be Rossland. The first Canadian local of the WFM was formed there on July 16, 1895, following an address by Boyce from a hotel balcony to a crowd of miners in the street.[12] Rossland's miners remained a part of the WFM, as local #38, until the end of the First World War.

The early years of this Rossland local were ones of growth and consolidation. In 1897, for example, the union's founding was celebrated in fine style, despite heavy rain:

> Rossland Miners' Union was very emphatic yesterday on the occasion of its annual picnic. The rain came down straight, as it never had rained before. A procession started from the Masonic hall at 11 a.m. headed by the Rossland brass band and a couple of carriages containing Mayor Scott and some of the leading officials of the different unions. The societies represented were the Typographical Union, No. 335; Cigarmakers' Union, No. 400; Tailors' Union, No. 252; and No. 38, Miners' Union. The procession was a long one, reaching several blocks...[13]

As the presence of several other "international" unions suggests, Rossland was becoming the focus of considerable working class organization. In April, 1897 a local Trades and Labor Council was organized in the city, with the WFM delegate as president. In 1898 its influence began to spread further afield, when Rossland delegate James Wilks was elected a vice-president of the Trades and Labor Congress of Canada [TLCC]. The TLCC vice-presidents acted as provincial heads: thus B.C.'s organized workers were now represented by a Rossland miner.[14] The new president of the TLCC was another B.C. miner, Nanaimo's Ralph Smith.

The 1898 gathering of the TLCC in Winnipeg emphasized the importance of political activism and stressed the goal of the eight hour day. In keeping with this theme, Wilks introduced a motion calling for an eight hour day in "the Metalliferous Mines of British Columbia and Ontario."[15] Wilks worked hard to attain the goal upon his return to British Columbia. He was aided in his efforts by the political situation in the province.

Following the defeat of Turner's Ministry in the election of 1898, Charles Semlin became Premier, his hold on office maintained with the help of Labour/Reform support in the Legislature. A contemporary political analysis, sent by a Rossland mine manager to one of the owners of his mine, observed that "at the present time with a weak party on either side of the house, the Labour Party can and is dictating terms without qualification."[16] Prominent Labour supporters included Ralph Smith, Wilks' fellow officer on the TLCC executive; Robert Macpherson, a Vancouver carpenter; Francis Carter-Cotton, editor of the Vancouver newspaper, The Daily News-Advertiser; and "Fighting Joe" Martin, formerly of Manitoba but now B.C.'s Attorney General. The Rossland miners' union noted approvingly in the summer of 1899

that Semlin and his colleagues in Victoria "proved by their noble acts that they are the friends of the masses and not the classes.[17]

After the 1898 election Semlin chose Fred Hume, the member from Nelson, to be his Minister of Mines. As a result of his elevation to Cabinet rank, Hume had to seek re-election. During this bye-election Wilks contacted him and secured a promise that he would enact an eight hour law for underground workers.[18] In return for the pledge, Wilks joined Hume on the platform, urging working class support for his candidacy. When Hume returned to Victoria after a successful campaign, he added an eight hour amendment to a mining bill before the Legislature, on February 24, 1899.[19] The accounts of the Legislative debates published in The Victoria Daily Times suggest that the eight hour law for the Kootenay mines was enacted with little or no debate: evidently few members were aware of the implications of the clause that was added on to the Metalliferous Mines Inspection Act.[20]

The statutory eight hour day for hard rock miners was one of several pieces of legislation passed to placate an articulate and assertive labour group in the Legislature. Despite evidence of a growing labour vote province-wide, substantial measures would probably not have been passed had it not been for the fluid political situation in which labour votes became a deciding factor, both in constituencies throughout the province and on the floor of the Legislature. Both Hume and Semlin needed Labour/Reform support to hold office. Wilks was well aware of this state of affairs and publicly threatened to bring down the government if it failed to enforce the eight hour law.[21] Political expediency, in addition to effective lobbying, determined actions in Victoria. In a circular fashion, these in turn shaped events in the Kootenays.

The mine owners of south eastern British Columbia were aghast at the prospect of miners working an eight hour day. They launched a storm of protest, petitioning the Legislature, placing advertisements in newspapers, and writing letters to Fred Hume. The substance of their criticism was that the shorter day had not been sought by miners; it would be impractical, inefficient, and expensive; and its enactment would sour relations between miners and owners. They hastened to make clear their position on wages for a shorter work-day: they would pay miners proportionately less. Opposition to the law was particularly vehement in the silver lead mines of the Slocan, centred in Sandon. Seventeen owners from the area pointed out in a petition to Hume that the Slocan had been free of "conflict of opinion between employers and employees ... but the enforcement of [the eight hour law] will work unavoidable disaster..."[22] The member for Kaslo suggested to Hume that penalties for non-compliance with the law be waived, as the bill was "creating a good deal of excitement throughout the Slocan.... The owners here threaten to cut wages to meet the situation ... which will, in my opinion, result in a strike."[23] His forecast was an accurate one.

The miners' unions did not allow opposition to the eight hour law to go unchallenged: they too lobbied Hume. In Rossland, for example, the mines adopted the eight hour rule without cutting wages, enabling Wilks to telegraph the minister that "Eight hour law thoroughly enforced; perfect harmony; never mind Slocan kickers..."[24] Miners had noted the owners' frequent boasts concerning their mines' wealth, and read in local newspapers of the numerous dividends that had been paid out to lucky shareholders. It seemed only right to these men that they too should enjoy some of the benefits of this abundance. The WFM locals of the Kootenays sent Macpherson, a Vancouver carpenter-turned-MLA, a statement to be read on their behalf in the

Legislature. It is a proud assertion of their right to leisure time:

> If miners are to be considered in the same category as so much machinery or some kind of animal that lives on black bread and hog fat, needs no books, can live in a rude hut, or sleep in a mining company bunk house without being dissatisfied, then there is no cause for quarrel over how many hours he shall or shall not work. Conceding him to be a human being, a modern man able to read, think and appreciate the good things of life as others do, then we contend that eight hours are sufficient for men to work underground. [25]

Perhaps bewildered by conflicting reports about the eight hour day, the provincial government hesitated, finally resolving to enforce the law after two months of indecision and ambiguity.[26] When the law was brought into effect on June 12, 1899, the Slocan mines shut: the first major industrial dispute in the Kootenays had begun. It was fought between two organizations, over a clearly defined issue. The owners insisted that they would only pay $3 for an eight hour day; they were formally represented by the Silver Lead Mine Owners' Association, created in May, 1899, to oppose the eight hour law. The miners demanded the $3.50 that they had been used to for a ten hour shift. Earlier, in December, 1898, these men had chartered the province's second WFM local.[27] The miners began the strike with some confidence: after all, their organization had successfully lobbied for and upheld the eight hour law for underground labour in the months just prior to the strike. Through Wilks and Smith they had the ear of the provincial Cabinet and Labour men held the balance of power in the Legislature.

The strike involved only Slocan mines, notably the high-grade silver lead properties around Sandon. However it set the tone for subsequent relations between the WFM and mine owners throughout the Kootenays and since it was the first significant strike involving hard rock miners and their union, it attracted a degree of public and official attention that later strikes

did not. Provincial Police reports and the Attorney-General's correspondence files provide a vivid glimpse of strike-bound mining towns, a snapshot unavailable for later disputes. In addition, the strike led directly to the expansion of the WFM within B.C. and the creation of a province-wide organization. This body, District 6 of the WFM, functioned as an intermediate level of authority between the U.S.-based Executive Board of the union and the Local in each mining community.[28] To understand subsequent developments throughout the Kootenays as well as in Rossland, particularly in labour relations, a brief discussion of the strike is necessary.

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On the afternoon of Saturday, 29 April, 1899, less than two months before the Sandon strike began, Idaho miners dynamited the buildings of the Bunker Hill mine outside of Wardner.[29] Although it had no direct connection with the dispute in the Slocan, the explosion became a key event in the Canadian strike. B.C.'s mine owners seized on it as an example of union lawlessness. They were quick to point out that the WFM had committed the act of violence, the same union that represented Sandon miners, and they predicted a similar situation developing in the Slocan. Their newspapers issued strident warnings about "the leadership of ruffians from the Coeur D'Alenes and other desperadoes", deplored the baneful influence of the foreign agitator, and raised questions about the maintenance of law and order in the province.[30] Commissioner Clute, a reasonably impartial observer who spent the month of December 1899 in the Kootenays, devoted a section of his report to these "Feelings of Insecurity." He pointed out that although the strike was then some months' old, no one had been convicted of any offence relating to the dispute and observed dryly that "this feeling of insecurity was not generally

shared outside the management .... At the time of my visit to Sandon there was only one police constable, and he, I was assured, had nothing to do."[31]

While the mine owners' frequent and noisy assertions that a WFM strike inevitably meant murder and mayhem may have been sincere, their underlying concern was to keep the mines operating as cheaply as possible. Their portrayal of the WFM as a potentially violent group of men controlled by foreign agitators was meant to spur the provincial government into action. Since local miners were determined to strike for what amounted to a wage increase, Slocan mine owners knew they would have to bring in their own supply of labour. To prevent strikers from interfering with the importation and work of strike-breakers, the mine owners wanted a substantial police presence in the Kootenays. Demands for greater police protection soon landed on the desks of the Superintendent of Police and the Attorney-General.

The strike carried on uneventfully through the summer, as both sides seemed content to wait the other out. Trouble, such as it was, first occurred at the Emily Edith Mine in Silverton. The mine had been opened in 1897 and was still being developed when the strike began. Underground work came to a halt when the strike began in June, but still went on above ground. "...[I]n September underground work was continued by contract."[32] Union men began to visit the mine to dissuade the contract miners from working. Whenever this happened, the manager would call the New Denver policeman who would then come down to the mine and warn off the union representatives. On October 24th this arrangement failed, when about forty strikers showed up at the Emily Edith. The manager phoned Lestock Forbes, the New Denver Constable, urging him to come out immediately. Unfortunately, Forbes later explained to his Superintendent,

> ...owing to my not having a horse, I had to wait for an hour till there was one to be had at the stable, consequently the mischief was done before I had time to get there. [33]

With Forbes absent the union men persuaded the strike-breakers to quit work, travel into town, and join the union. The mine owner and his manager watched in anger as their men trudged away, particularly indignant at the loss of their cook. They demanded to know why he had to go; after all he was not a miner. The union president curtly replied, "Because he is a working man and he must join the cause of unionism."[34] An angry and possibly hungry Charles Hope sat down the next day to write the Attorney-General. He described the course of events at his mine:

> A riot was only averted by the greatest tact & forbearance, & I am absolutely certain that if this business is not put down with a very stern hand that we shall have bloodshed without a shadow of a doubt before the year is out...[35]

Somewhat incongruously, Hope concluded that the trouble would probably have been avoided if Forbes had been able to get a horse.

The Attorney-General contacted the Superintendent of Police, who dispatched two more policemen to Silverton to investigate. First to report was Constable Christie of Slocan City, who found that "The whole town of Silverton is in sympathy with the union.... Silverton is managing things in her own way & some check should be put on the people there."[36] He recommended that one or two policemen be stationed in the town while the strike continued. Chief Constable Bullock-Webster of Nelson also visited the mine and submitted a lengthy analysis of the affair. He was particularly concerned to discover if prosecutions could be brought against any of the union men:

> I interviewed two of the miners who went to Silverton on 24th October and who joined the Union, with a view of

> obtaining from them information which might furnish grounds for a prosecution for intimidation. These men were emphatic in their denial that any threats were made to them.... it is apparent that the mere fact of the probability of their being called "Scabs", is sufficient inducement to them to become Union members.[37]

The Chief Constable concluded that the only charge tenable was one of unlawful assembly, though he added that "In the event of a prosecution being instituted, the local Justices should not be called upon to act..."[38] Both reports underline the widespread community support that the miners' unions enjoyed in the Kootenays, notwithstanding their relatively recent appearance. The Superintendent of Police was not happy with the situation and recommended to the Attorney-General that Christie's suggestion of a police presence in Silverton be adopted. To add weight to the request, he enclosed a newspaper clipping from Spokane describing the "Coeur D'Alene Insurrection".[39]

In the weeks following the forced closure of the Emily Edith Mine, the Attorney-General was subject to much advice on how to deal with the situation in the Kootenays. For example, the head of the Pinkerton Agency in Portland warned him of the presence there of Coeur D'Alene fugitives:

> We need not say to you that these men are of the most dangerous character and are a menace to any community. Backed by the Union they will commit any crime and terrorize peaceful men and through their agitation will demoralize their fellow workers...[40]

Alarmed at the possibility of violence in the Slocan, the Attorney-General sent a Pinkerton agent into the Interior to investigate. This man's report is revealing, if a little bad-tempered: "...had I known one half of what I now do I should have strongly objected to coming at all.... There is no necessity for a secret man in the 'Slocan' and no place for one at either New Denver, Silverton or Sandon."[41] Despite the forebodings of mine owners and the

concern of the Attorney-General, the southeast corner of British Columbia remained relatively calm.

Not long after the Emily Edith shut down the Payne Mine in Sandon decided to challenge the union and brought in strike-breakers to begin production. Police protection for its new labour force was pre-arranged with the Superintendent of Police.[42] The Payne mine and its workers were guarded by special constables. The striking miners reacted by bringing political pressure to bear on the Attorney-General: the provincial member for the Slocan began writing letters to him demanding the removal of the specials.[43] The government was under pressure from both sides and was aware of its own vulnerability. Filtering down to Forbes, the sole policeman in New Denver, came the question, were the specials really necessary at the Payne Mine? "The government", explained the Police Superintendent, "does not wish to retain the services of these men at the mine unless you consider their presence actually necessary to preserve order..."[44] Forbes reply was unequivocal:

> ...In the matter of having Specials placed at the Mines in order to give the mine owners protection, I have since the very start maintained,... that it was not necessary. I consider that I am quite capable of looking after my own District without the help of men who do not know their work and who, I think, really cause antagonism by their presence rather than respect.... I have no doubt that what I have written will not suit Mr Hand [the manager of the Payne Mine], but I have written without hesitation as you requested...[45]

Both Forbes and the Pinkerton agent insisted that law and order were adequately maintained in the Slocan, as did Commissioner Clute in his Report on the strike. The real issue remained the control of the labour supply, and both sides in the dispute recognised that this control rested ultimately with the government.

In early November, 1899, as the manager of the Payne Mine was arranging with the provincial authorities to obtain the protection of special constables, the Sandon Union appealed to Laurier for the enforcement of the Alien Labour Act, a recent law forbidding the recruitment of labour outside of Canada. If applied, the law would stop mining companies from importing American strike-breakers.[46] At the time the Silver Lead Mine Owners' Association was trying to recruit strike-breakers south of the border, with unionists close behind warning miners that a strike was on in the Slocan.[47] The federal government's interpretation of the Alien Labour Act would be crucial in deciding the outcome of the strike, for the decision to enforce (or not) would determine who controlled the labour supply. Acting within a long-standing Canadian tradition, Laurier opted for a third choice: he appointed a Commissioner, Roger Clute. Laurier recalled later that

> ...we received complaints from some miners in British Columbia to the effect that the alien labour law was being violated and asking the interference of the government in the matter. We asked for some explanation, and the explanation given convinced us that the troubles were far deeper than simply a violation of the Alien Labour Act....The state of things was alarming....We thought it advisable, under the circumstances, to send an experienced commissioner...to investigate the matter... [48]

Clute was to investigate "Unrest and Discontent Among Miners and Mine Owners the Province of Briitish Columbia". He arrived on the 2nd of December and immediately set to work to reconcile the two sides. The strike was nearly six months old and a settlement seemed as far away as ever.

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During his four weeks in the province Clute heard a good deal of evidence and subsequently submitted a four hundred page report to Laurier. He emphasised the need for improved industrial relations, particularly the need for

a conciliator in such disputes. Clute felt that

> ...the true solution of the labour troubles could be found only in a recognition by both employers and employed of the changed conditions consequent upon the introduction of the 8 Hour law.[49]

He managed to get a dialogue started between the miners and the owners and a settlement seemed in sight. However, the negotiations collapsed when neither union nor management would compromise further over the wages for hand drillers engaged in development work.[50] Frustrated in his efforts, Clute left the area at the end of December, reporting to the government that "Negotiations having thus, for the time being, failed, without further effort to renew the same, the Silver Lead Mines Association renewed its efforts to procure miners to come in from the U.S."[51]

The Payne Mine was the richest of the Slocan mines and here the Silver Lead Mine Owners' Association decided to force the issue. Strike-breakers were brought in to get the mine working again. It was, reported the Sandon newspaper, "The first serious move on the part of the Association in their efforts to break the strike..."[52] Twenty-five "Finnish Swedes" had arrived on January 16th, 1900. The union men attempted to make contact with the strike-breakers but were unsuccessful:

> ...manager Hand hustled his importation into the ore house and locking the door, refused to allow any conference. Some lively talk ensued...and the compliments of the season were passed in the most forceful phraseology, after which the strikers dispersed and the Swedes were sent up the tram to the mine.[53]

More strike-breakers continued to arrive: plainly the federal government had decided to ignore what seemed to the striking miners glaring violations of the Alien Labour Act. They were bitter when Clute dismissed their accusations:

> The Dominion government's commissioner reports that [the

> strike-breakers] were not brought into the country either under contract or promise of work, yet they come in bunches of thirty or forty. They travel on special steamers and special trains, and are billed straight through for the Payne mine, with provincial constables furnished in order that they may not lose their way. The members of the Miners' Union think the aliens are induced to come to the Payne by promises of employment - but they must be mistaken because Commissioner Clute says they are not.[54]

The Paystreak commented sourly that

> The Slocan was badly cold-decked when the federal government sent Commissioner Clute out here "to investigate". The failure of the Laurier government to enforce the alien labour act will cost Hewitt Bostock his seat at the next election.[55]

For the miners, the failure to have the act implemented signalled the failure of the strike: "...were it not for the weakness of the government in allowing aliens to come in we could and would stand out indefinitely & win a glorious victory in the end."[56] They finally accepted the owners' compromise offer of $3.25 a day for an eight hour shift on February 16th, 1900.[57]

The strike was essentially a dispute over wages between employers and employed, but the observance of two laws was central to its timing and ultimate outcome. The enactment of the eight hour law in the provincial legislature had led directly to the argument over the wage scale, the basic issue of the strike. Once the dispute had begun, the observance of the Alien Labour Act forbidding the importation of strike breakers under contract became critical to the success of the union's cause. The crucial role these two laws played in the Sandon strike underlined the importance of political influence and persuasive lobbying, a lesson miners' unions were quick to appreciate. They proceeded to marshall their forces and exert pressure to ensure that subsequent strikes would not be handicapped in the same way, with employers successfully defying the Alien Labour Act and importing strike-breakers. This

was the first job of the newly-created provincial organisation of the WFM, District 6.

The miners' fight for the eight hour day and the lengthy Sandon strike acted as a catalyst to encourage further WFM organization in B.C.

When the eight hour law was passed in February, 1899, WFM locals had been formed only in Rossland and Sandon. By the end of the year another eleven locals had been organised. In December, WFM delegates from the various unions met in Rossland to form a District Association of the WFM. As one delegate explained, "a very unsatisfactory state of affairs ... existed among the different unions of the WFM in Canada, on account of a lack of united and concentrated effort and un-uniform conditions..."[58] At a subsequent meeting in March, 1900, the new District adopted resolutions urging amendments to, and enforcement of, the Alien Labour Act. The miners were concerned to prevent any repetition of the strike-breaking which had led to their recent defeat. Wilks, president of the district and general organizer for the province, lost no time in mounting a write-in campaign intended to force the federal government to tighten up the Alien Labour Act. The District's March resolutions on the topic were printed in quantity and circulated among other unions. These forms, duly endorsed, soon began to arrive on Laurier's desk. Predictably, they came from such B.C. mining communities as Fernie, Greenwood, Phoenix, and Ymir, but also from Vancouver, Winnipeg, London, and Quebec.[59] Presumably through Wilks, and perhaps TLCC president Ralph Smith as well, the WFM locals in B.C. were linked to other affiliates of the Canadian Trades and Labor Congress. The write-in campaign illustrates their ability and readiness to utilise this network, and demonstrates their faith in traditional lobbying tactics. For example, when the president of the Nelson

Miners' Union forwarded his copy of the March resolutions to Laurier, he confided to the Prime Minister that it was in the Liberals' best interest to act in the matter:

> Depend upon it my dear Sir Wilfrid this question is of supreme importance to the working classes of British Columbia.... your complying with our request...will be a service to us for which we shall ever remain grateful. [60]

This, one suspects, was language that Laurier could understand, especially in an election year.

One of the last measures enacted by Laurier's government before the General Election of 1900 was the Conciliation Act, a piece of legislation which was at least partly a consequence of the Sandon strike. The House was reassured that the "Act to aid in the prevention and settlement of trade disputes..." was not original; it was in fact virtually identical to the one earlier adopted by Britain. However, to illustrate the efficacy of conciliation, William Mulock (the Postmaster-General in Laurier's cabinet, and later Minister of Labour) referred several times to Clute's activity in the Kootenays and frankly admitted that Clute had played a role in the drafting of the act.[61] For a moment it seemed that the Toronto lawyer was going to become the government's authority on labour.[62] In 1900, however, Kootenay miners were little concerned with Ottawa's dabbling in the new field of industrial relations; their chief concern was to see the Alien Labour Act improved. This had to wait until Ralph Smith's election to Parliament in November. Returned as the member for Vancouver, Smith soon pressed for modifications of the Act; Laurier responded by moving amendments to the Act himself, a fortnight later, on March 7, 1901.[63]

The Kootenay miners undoubtedly retained some faith in their ability to lobby effectively in Ottawa, especially after the election of Smith to the House. The eight hour law, the dispute over Specials, Clute's Commission, the Conciliation Act and changes in the Alien Labour Act all demonstrated that the miners could make their presence felt in Victoria and Ottawa. But whatever their lobbying power in the Legislature and in Parliament, back in Rossland the Miners' Union was under attack.

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On the evening of 20 June, 1899, just over a week after the eight hour day had become law and the Slocan strike had begun, a public banquet was held in Rossland in honour of C. H. Mackintosh. He had done much to promote Kootenay interests in Britain; for example, he had first interested Whittaker Wright in the region and, as the "man on the spot," had played a key role in the purchases of the British America Corporation, especially that of the LeRoi mine.[64] Among the speech makers at the banquet that night was another formerly prominent Conservative MP, T. Mayne Daly. He too was now resident in Rossland and involved in mining matters. In his speech, Daly referred to earlier illustrious Canadian politicians but included only members of his own party. Such implicit partisanship did not sit well with the following speaker, provincial Attorney-General Joseph Martin.[65] Martin spoke at length, and after an hour the assembled notables grew restless; hecklers began to call out "Eight hour Joe," an obvious reference to his support for the law which had come into force the week before. Martin responded by threatening to cancel plans for a new court house for Rossland and told his audience they were "well dressed hoboes." Then an attempt was made to expell him, at which stage the banquet turned into a brawl. Only the arrival of the police

put an end to the fighting.[66]

Martin's conduct was the last straw for his colleagues. They had not found him a very congenial associate, and seized on the Rossland debacle as a convenient excuse to expell him from the cabinet. Martin returned the favour by helping to bring down Semlin's government.[67]

Rossland's mine managers probably derived some satisfaction from the dismissal of Martin and the troubles which subsequently overtook the provincial government. The Rossland Miner, a mine owners' journal, followed the events in Victoria with interest and derided the conduct of Martin. The Rossland Miners' Union, on the other hand,

> believe[d] the Hon. Joseph Martin ... was grossly insulted by a certain element who attended the said public banquet, because of his friendly attitude towards the eight hour law passed for the benefit of metalliferous miners in this Province. And we further believe such a course was carefully planned by a vast majority of those who attended ... and the motive for such is easily understood by this union. [68]

The incident and its aftermath suggest that Rossland's calm during the Sandon strike was more apparent than real.

In September, 1899 the Canadian Mining Institute gathered in Rossland for its summer meeting. After attending a reception held in their honour at the Miners' Union Hall, members settled down to business, listening to papers on mining topics and discussing the problems that confronted the industry. They heartily condemned the eight hour law and passed a resolution of "strong disapproval" which they forwarded to the Minister of Mines.[69] Reflecting on "The Mining Industry of British Columbia in 1899," the secretary described for the benefit of the easterners present the circumstances surrounding the three month old Sandon strike and then, in a happier tone,

moved on to Rossland. The city, he declared,

> has done herself proud.... this year she mined 180,300 tons, ... an increase of 62 per cent in production. Rossland has held her head so high, she has been above the fog of the "Labour Troubles," but she has had to stand on her tip toes to do it. Whether she will get tired of this unnatural pose remains to be seen...[70]

The economic pressures that were building made Rossland's "unnatural pose" increasingly difficult to maintain.

Rossland mine managers resented the new eight hour law, which they regarded as gross interference into the running of their mines. They were anxious, however, to keep their mines shipping ore and earning money; unlike the Slocan, where mines had enjoyed some windfall profits and could afford the luxury of a prolonged shut-down, the Rossland properties were in poor financial shape. The mines had recently changed hands at very high prices indeed, and this over-capitalization created a myriad of problems for their managers. The underlying difficulty was simply profitable operation, that is, not only balancing the accounts of the mines but also providing some return on capital, in the form of dividends, to shareholders. This task was not made any easier by the eight hour law, the effect of which was to increase labour costs substantially.

By the winter of 1899-1900, rumours of a possible Rossland shut-down were circulating in the Kootenays.[71] In mid-January, 1900, the Rossland managers petitioned the provincial government for a repeal of the eight hour law. They complained that its enactment had frightened away potential investors and thus was hampering mining development. Their main point, however, was that they could not profitably continue to operate the Rossland mines under the eight hour law:

> ...the expense of carrying on the work in the mines that are at present being operated is so great that the same has become burdensome and un-remunerative. The necessary alteration will be a reduction of wages, and upon such reduction ... your petitioners are afraid consequences will ensue...[72]

The government was not about to go back on its commitment to the miners, however, and the law remained on the statute books. The Rossland managers decided to take a different approach to the problem of high operating costs. On February 6th, 1900 the War Eagle/Centre Star shut down, followed soon after by the LeRoi.

The mines closed ostensibly for repairs but before re-opening, managers demanded that returning workers accept the contract system, "to mitigate the worst effects of the eight hour law," a move the British Columbia Mining Record described as a "radical change in the system of work..."[73] Instead of receiving a fixed daily wage, as miners had in the past, they would now be paid either by the lineal feet excavated or by the amount of drilling they completed.[74] However, the editor of the British Columbia Mining Record pointed out that

> To say that the trouble in Rossland was caused by the desire of the companies to introduce the contract system is pretty much the same thing as saying that a flood is caused by a superabundance of water. It is true but it is insufficient either for a proper understanding of the trouble or a proper appreciation of the results of the settlement.[75]

His own analysis of the situation in Rossland was that "The first cause of the strained relations between labour and capital [at Rossland] was unquestionably the eight hour law." The introduction of contracting, it is clear, was only one part of a broader attempt to bring down overall costs.

Bernard MacDonald described the financial difficulties confronting Rossland mine managers in a paper published in 1902 in The Journal of the Canadian Mining Institute. Although his topic was "Hoisting and Haulage in Mining Operations. A Description of the Plant on the Le Roi Mine," MacDonald explained that "many incidental circumstances, apparently extraneous to the subject matter proper of this paper, will have to be narrated, in order to give a comprehensive grasp of the economic exigencies which created the necessity for this plant."[76] MacDonald stated that he had been hired as general manager of the LeRoi company in December, 1899, after William Carlyle had left the job to manage the Rio Tinto mine in Spain. The London directors confessed that the mine had not turned a profit in its first fourteen months as a British company; they wanted MacDonald to investigate the mine carefully "and report as to what would be the probable result of future operation."[77]

MacDonald carefully assembled the LeRoi's production figures, ore values, costs and so on. He discovered that for the last three months of 1899 the mine had been running at a loss of $2.64 a ton: ore values had dropped to $12.50 a ton while costs, even without depreciation, stood at $15.14 a ton. According to his estimate, the eight hour law had added $.72 a ton to mining costs. MacDonald concluded that

> ...it was quite apparent that no profit could be earned unless the conditions under which operations were carried on were modified....
> Could existing conditions be modified so as to make operations profitable?...
> [Could] the costs of realization, now $15.14 [a ton], be so reduced as to leave profit on the $12.50 ore...?[78]

MacDonald decided that costs could be brought down to around $8.00 a ton, but only if four conditions were met. The first of these was

> Freedom of the company from the dictation of the Miners' Union so that, by the re-establishment of the contract

> system, the company could contract its work to the best workmen, and would have to pay only for the work actually done, instead of the time spent in doing it. [79]

The Rossland union had voted six months earlier to ban contracting and had reiterated its opposition during Clute's visit in December, 1899. The president of the union explained to the Commissioner that "...the principle among miners is usually to condemn a competitive system of that kind because it has a tendency to put men in competition with their fellow workers."[80] Rossland mine managers were well aware of the opposition to contracting, having complained to Clute about the union ban in December, 1899. For his part, Clute could not understand the union's objections. In his first report, written before the Rossland mines shut, he observed that "asssuming that [contracting] could be adopted without unfairness to the men, it would afford a means of greatly lessening the friction arising from the dispute occasioned by the introduction of the 8 hour law."[81] Perhaps taking Clute's support for granted, the managers of Rossland's War Eagle/Centre Star and LeRoi mines requested his presence to help settle the contracting issue.

On the same day that Rossland mine managers demanded that their employees accept contracting, on the 12 March, 1900, Clute submitted his first report to the federal government. The following week, he received a telegram from the Rossland employers:

> The undersigned companies have found it impossible to remedy the existing evil of the wages system here, and have therefore been obliged to adopt the contract system. The mines were closed temporarily to prepare for the change... [the miners] referred the matter to their Union.... If [their response is] unfavourable a disastrous conflict is inevitable.... we respectfully inquire if it would be possible for you to come here immediately....[82]

Clute passed the message on to the federal Minister of Justice, who agreed

that Clute had better return to the Kootenays. He arrived back in Rossland on the 27th of March and, with the help of Ralph Smith, managed to end the lockout within a week, largely because of the union's unwillingness to engage in a protracted fight. The Rossland local realised that it was hardly a propitious time for a second labour battle, with the lengthy Slocan dispute only just settled. Aware of scant public support and under pressure from both federal and provincial governments to give the new system a trial, Rossland miners grudgingly accepted the mine owners' terms.[83] The only redeeming feature of the agreement that Clute and Smith negotiated between the companies and the men was the clause protecting union membership: "The fact of an employee being a member of the union will be no bar to his employment, nor will the companies place any obstacle in the way of non union men becoming members of a union."[84]

In his second report, Clute pontificated on the virtues of conciliation and complimented both managers and men on their attitudes during the negotiations in Rossland during late March and early April. The reality was less reassuring. For example, the editor of the British Columbia Mining Record noted that during the dispute "Wild rumours flew about of dynamite, destruction and violence." And in a letter written six weeks before Clute's arrival, the manager of the War Eagle/Centre Star declared that Rossland miners harboured "a feeling of bitter hatred toward the Companies;" their union he described as a "body of aliens controlled by the anarchistic element ... driven out of the United States for crime ... men who for the past year have kept this community trembling in fear of disaster." He explained that the political situation in the province was such that no police protection for the mines could be expected from Victoria, but estimated that to protect life and property

> We need twenty-five (25) mounted police at Rossland.... As explained above we cannot get Provl. police and must therefore ask [the federal government] for mounted police to furnish this deterrent effect. It is worth every possible effort to have this force here in time....
> I ... advise that every effort be made to secure the mounted police promptly.... If these efforts fail we will have to accept the consequences and after the strike has begun and some lives have been lost, we may be able to secure the desired assistance.[85]

While Rossland employers might have been unable to convince the provincial government of the need for special police protection, they had more success at the local level. Using the police chief as a recruiter, Kirby and MacDonald managed to obtain a corps of special constables through city hall. The specials were armed with revolvers; their job was to guard the idle mines. The sergeant of these men later described the extraordinary lengths to which the employers were prepared to go:

> ...during my term of office as sergeant of the force belonging to the BAC Center Star & War Eagle Mines their was shipped in 36 Winchester reapating riffles 44 Calibre with about 100 pounds of amunition for the same also about 18 Reapeating shot guns with about 50 Boxes of Amunition for same we also had furnished for us a box of Cartradges 41 Calabre for each revolver of which we had 18. I had orders from Mr. Kirby to unpack clean and load those Riffles and shot Guns and place them in a Cabinet prepaired for the purpose by Mr. Kirby.[86]

Kirby's paranoia is difficult to understand. After all, no violence occurred in the Kootenays, during any of the miners' strikes of this period; the Canadian District leadership of the WFM exhorted its members to remain calm and law-abiding; and the very few arrests ever made in the course of disputes stemmed from relatively minor infractions.[87] The only serious injury sustained by any person during the course of the numerous labour disputes in B.C. at the turn of the century was the (fatal) shooting of Frank Rogers by CPR agents, on a Vancouver picket line in the spring of 1902.

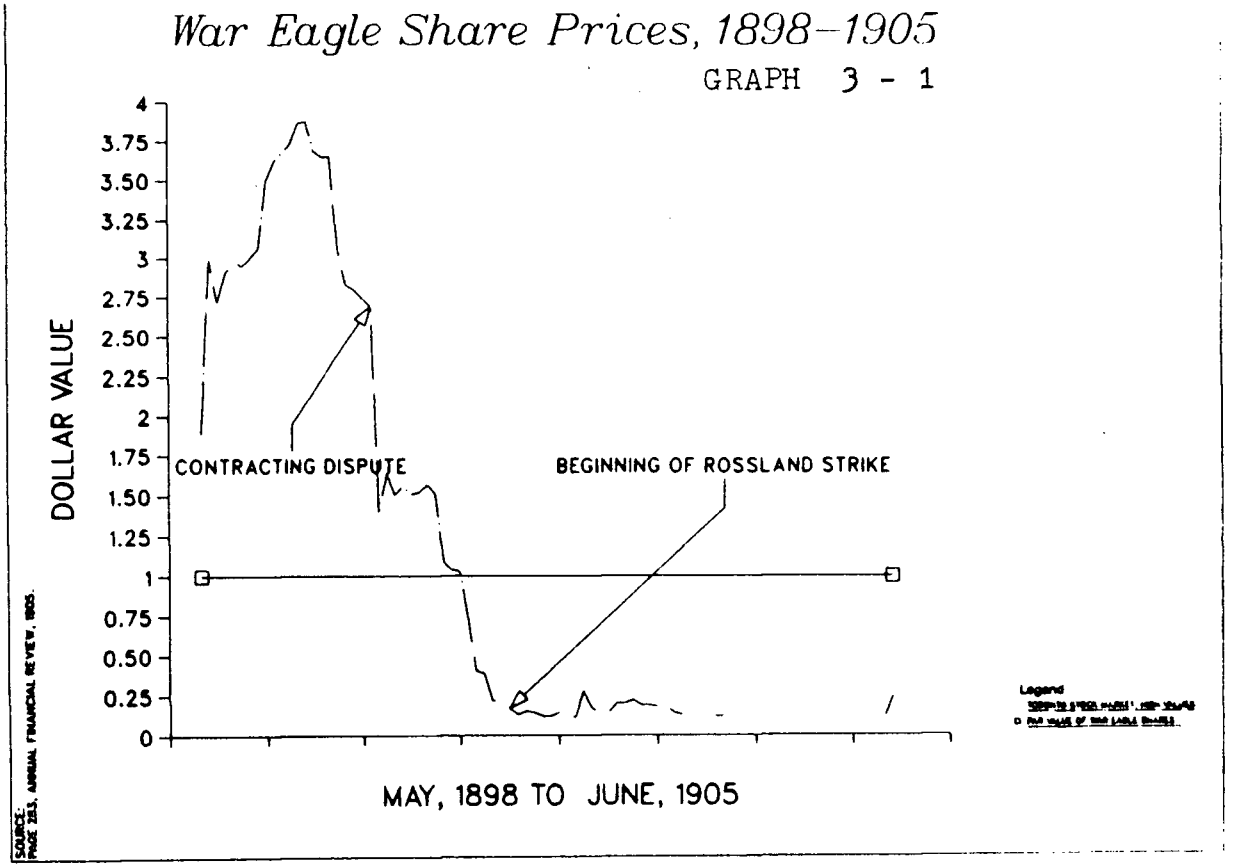
The War Eagle, the Centre Star, the LeRoi and the other properties of the British America Corporation were all purchased at highly inflated prices from American developers in the wake of the speculative boom of the mid-1890s. Shareholders grew anxious to obtain some return on their investment as the months and years passed and share prices began to slip. Investors in the LeRoi, for example, were still waiting for a substantial dividend in the spring of 1901. The Economist remarked sarcastically that

> Once more the hopes entertained by the shareholders in "the celebrated Le Roi Mine" have been disappointed by the "passing" of the quarterly interim dividend promised them at the close of last year. The shareholders ... have by this time had plenty of opportunities to appreciate the oft-repeated phrase: "Man never is, but always to be, blest." .... the only wonder is that Le Roi shares are still kept up at a premium of about 30 per cent. on their nominal value...[88]

Unfortunately for managers Kirby and MacDonald the secular trend of ore values was declining, making profits more and more difficult to earn.[89] The following graph suggests the relationship between share prices and industrial relations at Rossland.

War Eagle Share Prices, 1898–1905

GRAPH 3 - 1



Even with the introduction of contracting, mining costs still had to be further reduced. To this end the two managers began a determined drive against the WFM, despite the clause protecting union membership in the April, 1900 agreement. This anti-union initiative culminated in the lengthy Rossland strike, which began in July, 1901. However, as the executive of the Rossland union pointed out in August of that year

> ...an intelligent account of the labor troubles ... must cover nearly two years of time.... The strike now in force at this point is but the result of a secret warfare waged against unionism in this vicinity for the past two years. [90]

The union executive's "History of the Rossland Trouble" accused Kirby and MacDonald of practising extensive victimisation, employing labour spies and generally attempting to weaken and destroy the union.[91] Given the frankly anti-union pronouncements of both mine managers, little doubt need be entertained as to the truth of these charges, although proof confirming them is difficult to assemble. One incident which justifies the executive's indictment came, ironically, on Valentine's Day, 1901.

The agreement Clute and Ralph Smith had negotiated between the union and the managers of the LeRoi and the War Eagle/Centre Star in the spring of 1900 included an understanding that a union representative, the walking delegate, would be allowed access to the mines. In the days before employers obliged unions by deducting dues from pay cheques, such visits could be critical for a union to function adequately. Without a visible presence, the identifiable face of some one known to be immune from victimisation, union membership could quickly drop. On Feb. 14, 1901, Kirby and MacDonald "issued their famous order to the Union that no representatives of the Miners' Union would be allowed to enter any place on their property at any time."[92] The union got in touch with Ralph Smith, in order to discover precisely what had

transpired at the negotiations the year before. Smith recalled that

> Re the walking delegates on premises of Company, I remember discussing the importance of the union secretary having the liberty to go onto Company property to post notices for Meetings and also to influence Miners to become Members of the union and I did not understand that there was any objection raised at all, but that Mr Macdonald especially said that he would encourage men to join the union. I do not understand how this cannot be done without creating a stink, unless the man who goes on their premises to do your work is a fool. This is my recollection of the matter... [93]

Soon newspapers in the Kootenays sympathetic to labour were reporting another of MacDonald and Kirby's moves against the Rossland union. They had begun to import European workers from the United States to work in the mines. Early in January, 1901 a former WFM official, now employed by the Department of Labour, informed Laurier that "...I may need some power to deport some aliens from Rossland very soon. There is quite a number being imported over the Great Northern..."[94] The introduction of ethnic minorities provoked racist outbursts in the Kootenays. The Paystreak, for example, described how the two mine managers

> adopted a system of hostilities toward the [Western] Federation which, if played to a finish, will smash the Rossland union. They are importing cheap foreigners from the Minnesota iron ranges to displace union miners.... Kirby and Macdonald have it figured out that if they can run in Dagoes at the rate of about two a day they will soon have the union locoed.... If [they] can get enuf [sic] of them in, wages can be cut to a whisper and Rossland mapped as a colony of Italy. Already about 35 per cent of the Rossland pay-roll is Dogo [sic] and the mine owners are pretty nearly ready to give the union notice to get off the earth. [95]

A "Slocanite," writing in a Vancouver labour newspaper, concluded that "It would appear that Mr. Kirby and Mr. Macdonnell [sic] are bent on forcing the miners' union of Rossland to strike."[96]

In early April, 1901, the Rossland Union took a strike vote, which was narrowly lost. The union executive later explained the rank and file's decision by pointing out that a large number of men on contract voted against striking since a dispute would have jeopardized substantial payments owed them by the companies.[97] One of Laurier's B.C. correspondents described for the prime minister's benefit the circumstances around the vote, concluding that:

> The real proposition here is: Can the mines be made [to] pay by the management, out of the ore - stock jobbing and artificial manipulation being a thing of the past - especially with the collapse of the London and Globe Finance Corporation. The gross value per ton of Rossland ore was $40.96 in 1895. Last year it was between $10.00 and $15.00. The values are certainly declining - that is of Rossland ores.... the Red mountain mines are "petering," and this fact is clearly dawning on the investor.[98]

Chris Foley, formerly active in the WFM in Rossland, put the matter more succinctly: "Promised dividends not materializing, labor troubles became very useful."[99] However, Kirby and MacDonald only succeeded in strengthening the resolve of the Rossland union. It now appeared that a show-down between the managers and the WFM local was inevitable.

The confrontation finally came south of the border, in Northport, Washington, site of the LeRoi's smelter. Rossland men helped to organize a WFM union there in the spring "...and immediately the company took action against the union and issued an ultimatum, that no employees of the company would be permitted to become members..."[100] The smelter shut briefly, and when it re-opened on May 24, only non-union men were accepted back. The union responded by declaring a strike.[101]

The Northport strike put Rossland miners in a difficult situation: should they strike in sympathy, since their ore would now be going south to a strike-bound smelter? The Rossland executive described their response to the

smelter dispute:

> As the paying end of the property is at Northport, the miners of Rossland believed it would put management further in the hole to work the mines with the smelter shut down, as every dollar paid out with no returns would lower the paying capacity of the property.... However, this could not continue long, and as the matter finally came up, it was moved that a strike take place at Rossland... [102]

Rossland Miners' Union organised a second strike vote in early July, 1901 and despite the ballot's alleged unconstitutionality, a strike began on July 11, 1901.[103] The Rossland miners had finally decided to respond to the attacks of management; they were ready to fight for their union's survival.

According to the resolutions which forced the vote, the crucial issues were a raise in muckers' wages to $3.00, an end to discrimination against unionists, and the need for a sympathy strike on behalf of the Northport union. These issues were forcefully set out in the miners' "Plain Statement" of 12 July, 1901.[104] John McKane, a Rossland businessman and Conservative politician, admonished people to look beyond the demands of the strikers, insisting that

> The present strike in the Rossland camp is due largely to the desire of the men managing over-capitalized properties to make the labour unions the scapegoats for their own sins. This is a phase of the difficulty which should be fully understood before anyone attempts to pass upon the respective merits of the two parties to the labor dispute in the Rossland camp. It is not solely a question of wages... [105]

As McKane suggests, the strike reflected the determination of the managers of the two dominant properties in Rossland to re-arrange labour relations at the mines. The miners' union had faith in its ability to resist any such initiatives. When the inevitable confrontation came, the superior economic and political power of the companies ensured their victory. As with the earlier Sandon strike, the mood of the union at first was optimistic, but the dispute became

a lengthy, acrimonious and ultimately unsuccessful struggle.[106]

The files of the Western Federation of Miners reveal that the Executive in Denver, Colorado, while supporting the locals at Northport and Rossland, played a negligible role in directing events. The accusations of "foreign domination" constantly levelled at the Rossland union, and other WFM locals in British Columbia, were groundless. For example, senior WFM officials, notably the Denver-based attorney John Murphy, made a number of attempts to settle the dispute, but the Rossland strike committee rejected these overtures. While Rossland's refusal to come to terms with the employers "incensed" WFM president Ed Boyce, he still did not interfere with the conduct of the strike.[107] The Denver Executive's crucial role was to channel $20,000 in strike funds to the Rossland local, although Boyce pointed out to the union that a million dollars would be insufficient if the management could get strike-breakers.[108]

The strike's success hinged upon the ability of the Rossland union to ensure that the recently-amended Alien Labour Act would protect their monopoly on mine labour. Overseeing the act was one of the duties of the new federal Department of Labour, created by the Conciliation Act of 1900. However, amendments to the Alien Labour Act in May, 1901 had shifted responsibilty for enforcement to local initiatives.[109] Labour organizations had pressed for these amendments in order to facilitate the act's application but, although one case was successfully prosecuted in September, the changed act was no more effective in the Rossland strike than the original one had been in the Slocan.[110] A Labour Department official appeared briefly in Rossland and confirmed the violations of the act; in addition, numerous letters beseeched Laurier to enforce the law. But strike breakers moved into Rossland in growing numbers throughout the autumn.[111]

While restricting labour's power, the judicial system worked smoothly for the Le Roi company. A couple of men who jeered at a strike breaker in Rossland, for example, were each given two months hard labour. Prosecuting for the crown was T. Mayne Daly, the LeRoi Company's lawyer.[112] Daly advised the Attorney-General of events in Rossland and was not averse to suggesting what charges might be laid against particular union officials. His efforts in this direction moved H. F. Evans to observe, in a letter to Laurier, that "Mr Daly has of late been carrying on a most despicable war against a handful of workingmen in Rossland[,] issuing writ after writ against individual workingmen with a view of intimidating them into compliance..."[113] The ability of the union to dissuade strike breakers from going on to the mine as they disembarked from the train was particularly irksome to Daly. On October 25th, 1901, Daly won an injunction ordering the union to stop "besetting" the train station.[114] This was an important victory for the employers and effectively reduced the power of the union: "the injunction not only prevented union men from approaching strike-breakers, but made it illegal for the union to undertake any action to further the strike."[115] Perhaps sensing defeat, the union responded to the injunction by telegraphing Ottawa for help, requesting MacKenzie King's presence in Rossland "to act under Conciliation Act, 1900, to investigate and adjust strike here at the mines."[116] The Deputy Minister of Labour arrived in Rossland ten days later.

*

In mid-September, 1901, a youthful Mackenzie King noted in his Ottawa diary that

> There appears to be the most evident kind of open violation of the [Alien Labour] Act [in B.C.], and the workingmen in Rossland are right in protesting as they do at the inadequacy of the means to remedy a violation....[117]

A few days later a Bank of Montreal official dropped by King's office "to speak about the enforcement of the Alien Labour Act at Rossland". The man suggested that "the gov't should be lenient in the matter of its enforcement," an attitude possibly influenced by the size of the Le Roi's debt to the Bank.[118] However, Mackenzie King was not to be moved by such pleading:

> I explained to him that in this case it were better for the men to have the mines close altogether than the town flooded with foreigners and themselves locked out, that the law wd. probably be rigorously enforced, & that the best thing for the Co. to do was to come to terms with the men & effect a settlement.[119]

Over the following weeks various cabinet ministers spent some time deliberating what action, if any, to take in the Rossland strike. Ominously for the union, King recorded that "the govt. does not wish to enforce any such law [as the Alien Labour Act]".[120] When at the end of October the request came for King's presence in Rossland, he was delighted:

> I am most in earnest about the settlement of this strike. My last words to Harper tonight were, I believe it can be settled, I believe it will be, and it will be, he added it will be, read a few lines from Emerson's "Over Soul" - the power which will triumph is there. I believe in three weeks & less all will be settled.[121]

King arrived in Rossland in early November, 1901. He remained for over a week, meeting with both the union executive and mine managers. At the end of his stay, he analysed the strike in a lengthy letter to William Mulock, Postmaster-General and the cabinet minister responsible for the new Department of Labour. King explained that "For some time past the employers have been seeking to so arrange matters as to make unnecessary, recognition of the local union, and through it, recognition of the Western Federation of Miners.... the strike ... has afforded them the means of achieving this end."[122] King went on to describe the July strike vote, which he regarded as "One of

the worst features of the whole affair." The strike, he was convinced, "was not declared at the wish or by the vote of the workers in the Rossland mines themselves, but was ... forced upon them by subterfuge and a great deal of crooked work on the part of the executive committee..." The fact that he was not allowed to present his views to the membership of the union was further proof of the perfidy of the Western Federation of Miners. King concluded that

> ...it is only the officers of the excecutive of the local and district unions who are responsible for having brought on the strike at the outset, and for refusing to allow even those who are affected by it, to vote in regard to declaring it off. For the Government to make any concessions under such circunstances, or to do anything which would strengthen the hands of these men, would to my mind, be unrighteous and disastrous.[123]

He had clearly lost whatever sympathy he brought to Rossland for the union and was convinced that the miners' "cause is gone & they know it, & the sooner they are made to feel it, the better, for their present strike has been a most unjust affair throughout."[124] Advising the union to abandon the fight, King departed.

King's experience in Rossland was quite unlike those of earlier disputes where he had acted as a conciliator.[125] He found the issues objectionable and the union intransigent. Indeed, King thought that the larger political situation in British Columbia was full of "the dangers of labour democracy," a democratic ethos that frightened him largely because of the consequences for capital investment.[126] Despite such disquieting revelations, King described his trip to the province as "full of interest, the experience educative in every way, & my life made richer, my knowledge clearer, & actions stronger in consequence."[127] He confided to his close friend Bert Harper that

> I have obtained a new point of view in regard to trade

> unionism. The situation [in Rossland] is one of the grossest tyranny of a labour organization, and the dealings of those who have manipulated the affair are as crooked as they can be. I would never have been able to explain conditions in British Columbia rightly, much less comprehend the present situation, unless I had come here...[128]

Although alienated by the attitude and actions of the miners' union, King found the company of the mine managers quite congenial. For example, he and Edmund Kirby ("a strong single taxer"), manager of the War Eagle/Centre Star mines, had an amicable debate on political economy before getting down to business. Frank Woodside, the union secretary, stated bluntly that "the people here are not impressed with [King's] sincerity. After he visited Barney MacDonald [manager of the LeRoi] and T. M. Daly [LeRoi solicitor] he was of the opinion that we should give in and let our cause go..." [129]

The Rossland secretary carefully went through King's account of the strike published in the Labour Gazette and refuted the analysis point by point, remarking that "we have ... reason to believe that his judgement has been warped by the exaggerated statements given him by the mine managers..."[130] Rossland miners had no time for the hectoring of a pompous bureaucrat and were conspicuously lacking in deference: one Kootenay newspaper sarcastically referred to King as "a cultured dub with a university education, a picturesque name and a thrilling ignorance of labor as a concrete sociological force..."[131] The union had requested his presence in Rossland in order to enhance its chances of victory. If King would agree to enforce the Alien Labour Act or act as a Commissioner as Clute had in the earlier dispute, perhaps the companies would come to terms with the miners. When King refused to cooperate, the union executive wanted nothing more to do with him:

> We did not ask him to come to Rossland to call off the strike....
> We asked him to come to Rossland to investigate and adjust.

> He would not adjust.... nothing remained for us but to continue the struggle until we were successful or hopelessly defeated.[132]

As was becoming obvious, the latter was to be the outcome of the strike.

At the end of November, three members of the WFM's Denver Executive Board arrived in Rossland. The strike was proving to be a very expensive one; the finances of the entire organisation were being diverted to Rossland and Northport. The Executive Board wanted to discover if any economies were possible or if any settlement was in sight.[133] The three were not encouraged by their investigation and they left James Baker, the WFM Executive Board member for District 6 (B.C.), to oversee the conduct of the strike. Baker tried to reduce strike expenses and worked to secure a settlement of the dispute. He conferred with WFM president Ed Boyce and arranged for John Murphy, the WFM's American attorney, to visit Rossland. Ed Boyce waited in Spokane for news from Baker of the strike's progress. He had wanted to visit Northport and Rossland himself but both locals advised him to stay away. On 23 Jan., 1902, a discouraged Boyce wrote in his diary:

> This is a gloomy night for me;.... The W. F. M. is without money and the strike at Northport and Rossland is lagging.... Life as president of the W. F. M. is not worth living. I hope I will live to see the day when I will be free of it. Foes within and without. Foes everywhere and no money or men with sufficient determination to banish them. It is sad indeed.[134]

With WFM funds reduced to a meagre three hundred dollars, Boyce had to economise. He suspended the WFM's organizers and cut relief to Rossland and Northport.

Aware of the WFM's waning support and with no hope left of affecting the labour supply of the Rossland mines, the local union reached an agreement

with the manager of the LeRoi. The secretary wrote at the end of January that

> ...the settlement was made last friday, Northport concluded that we would be of no further Benefit to them by staying out and gave us permission to go ahead and settel [sic] if we could get a chance, well we got a chance such as it is, I do not like it but then it is the very best conditions we could get from the company and we submitted it to the Union and they accepted it; you could not blame the men if they accepted less as we have had to cut them down to almost starvation...[135]

The strike had come to its sorry conclusion.

The WFM's annual convention in Denver at the end of May, 1902 spent considerable time discussing the Rossland strike. It was not a happy tale. "The strike at Rossland was a complete failure," Boyce told the delegates in his opening remarks, ".... and I trust you will realize ... that strikes and lockouts conducted in this manner are a detriment to the Federation."[136] Three other senior officials in the WFM also described their involvement in the Rossland dispute and expressed much the same view as Boyce: they all felt that the Rossland local had relied too much on relief funds from the WFM instead of negotiating seriously with employers.[137] The Executive Board's report to the convention summed up the common opinion, describing tactics such as those adopted by the Rossland local as "the policy of feeding hundreds of hungry mouths in a vain endeavor to starve a few millionaires into subjection. We are firmly convinced that where men are supported at the expense of the Federation they are less liable to seek for a proper and effectual remedy for their grievances..."[138] James Wilks, out-going vice-president of the WFM and *ex officio* board member, had not signed the Executive Board report, although he said he refused to sign in response to the report's recommendation that the WFM endorse socialism and not because of its references to Rossland.

The defeat at Rossland brought dissension to District 6, recriminations which continued intermittently for a number of years.[139] Much of this rancour was directed towards the WFM executive in Denver. Wilks claimed that more could have been done to help Rossland win the strike, which led Big Bill Haywood to issue a circular to all WFM locals denying the charge.[140] When Board member Kelly was in Rossland during the strike, he "noticed a persistent rumour in favor of forming a Canadian Federation and withdrawing from the W.F.M.," and this secessionist mood persisted after the strike.[141] The Lardeau union, for example, contacted other WFM locals in the Kootenays to suggest withdrawal from the WFM, and when District 6 met at Kamloops for its annual convention in April, 1902, opting out of the WFM was on the agenda.[142]

Although the strike was settled at the end of January, 1902 the two Gooderham Blackstock mining companies, the War Eagle and the Centre Star, continued their court battle against the Rossland miners' union.[143] The action stemmed from the injunction of October, 1901 and was based on the Taff Vale case in Great Britain.[144] The company alleged that unlawful activities by striking Rossland miners had caused it financial loss. The case did not go to trial until the summer of 1904. The verdict went against the union; the jury found it guilty of unlawfully causing a $12,500 loss to the company.[145] The War Eagle court case was settled the following spring, adding another $1,000 to the union's indebtedness.[146] Encumbered by substantial legal bills and fines, the miners' union watched its assets evaporate following the trials; even the miners' hall was lost and eventually the union itself went into receivership.[147] At the time of the strike, the Rossland local was at the centre of the hard rock miners' labour movement in the province. It never regained its former prominence.

Actions in Victoria underlined the Rossland miners' loss of prestige. In May, 1902 Smith Curtis, Rossland's MLA, introduced a bill designed to extricate the union from impending legal action for damages.[148] The Attorney-General vehemently opposed Curtis's bill. Its aim, he told the house,

> was to protect a foreign labor organization from the United States, the Western Federation of Miners, which had done so much mischief at Rossland. Mr. Curtis was acting in the interest of that body.... The bill was the worst ever present to a legislature.... he [the Attorney-General] would not be a party to such outrageous legislation.... He would consider the House and the province disgraced if the bill were made law.[149]

The political climate which had allowed labour to win advantages three years before had plainly changed.

B.C. miners had in the past mounted effective lobbying campaigns and capitalized on favourable political opportunities. The defeat at Rossland, however, called such strategies into question. When James Baker described his role in the Rossland strike to the WFM Denver convention, he noted that "the Vice President [Wilks] ... advocated the thorough peace policy and seemed to place implicit reliance in the effectiveness of the Dominion Alien Labor Act..."[150] However, the provincial and federal governments had not responded to miners' pleas; the Alien Labour Act had not prevented the Le Roi mine from hiring strike breakers; and neither the new Department of Labour nor its Deputy Minister, Mackenzie King, had proved to be particularly helpful to the miners' cause. Working within the system had been discredited; a more successful strategy had to be found.

Some miners argued for the adoption of a more radical policy and suggested that the WFM District convention scheduled for April, 1902 be followed by a political convention. They also wanted socialists and other

non-miners to be permitted to attend this second meeting. After an initial defeat, the plan for a political convention was endorsed, although Wilks noted that the idea of inviting other labour and socialist groups to the meeting "did not seem to be taken up with much enthusiasm [by WFM locals] .... Slocan City Union seems to be the only one of our unions that is enthusiastically in favor of the idea at the present time..."[151]

At the "Kamloops convention" which followed the annual gathering of the Canadian WFM locals, a new political group - the Provincial Progressive Party - was founded, drawing its leadership from the executive of WFM District 6. The moderate reformist platform that was finally adopted was a disappointment to the socialists but indicates the political attitudes of the majority of WFM officials in the province. The Fernie Free Press claimed that "[t]hroughout most of the labor organizations represented at the Kamloops convention there are marked Liberal leanings, and it is by no means improbable that when the decks are cleared for the next provincial campaign we will see something in the way of a Liberal-Labor alliance..."[152] The B.C. locals of the WFM maintained considerable faith in the inevitabilty of gradualism. This optimistic view contrasted with the dominant attitude of the WFM, as the annual convention in Denver several months later made plain.

James Wilks stepped down as president of District 6 at the 1902 Kamloops convention but since he remained vice-president of the WFM he also attended the annual convention in Denver two months later. At this meeting the assembled delegates voted to endorse the platform of the Socialist Party of America.[153] Wilks opposed the move, arguing that "it would be a great mistake to ally ourselves with the Socialist party at this time; a more conservative policy must be adopted."[154] William Davidson from Sandon

spoke in a similar vein, making it plain that

> ...he opposed ... endorsing the platform of any party. He was here to represent unionism and not any other ism.... He did not believe we could dictate to any one how he should vote.[155]

A number of delegates at the convention challenged the policy of aligning the WFM with a specific party and despite the convention's recommendation of support for the Socialist Party of America, the Canadian District continued its efforts to forge a labour reform coalition. This was in the face of pressure from Americans to adopt a more unequivocal stand: both Boyce and Debs came up to British Columbia in the summer of 1902 to speak in favour of socialism and against the PPP. After losing a federal bye-election in early 1903, the PPP apparently collapsed.[156] Socialism slowly gained some support in the Kootenays although District 6 did not poll its members on affiliating with the Socialist Party until after the 1905 convention.[157]

The Western Federation of Miners was soon fighting both employers and governments throughout the western half of the continent. Colorado was the site of the most brutal battles, but struggles took place wherever the union tried to organize.[158] In British Columbia, coal miners in both the Crows Nest Pass and on Vancouver Island joined the WFM in 1902-03 and almost immediately were out on strike. At the same time a WFM affiliate, the United Brotherhood of Railway Employees, launched an organizing drive in Vancouver that also culminated in a strike.[159] The crescendo of industrial unrest in the province, linked to a union with headquarters outside the country, led to a good deal of public discussion about industrial relations. Chris Foley addressed this controversy in a letter to a Vancouver paper:

> I desire to contradict in toto the statement that labor organizations here are dominated from the other side.... as a member of the executive board of the Western Federation of Miners during the greater part of the Kootenay labor

> troubles, and being familiar with the inner workings of that body, of which I am not now a member, I would say that in no single instance did the parent use its influence to bring on a strike in this country.... this cry of alien dictation - raised by that tyrant of industry, Dunsmuir, and heralded abroad by pinheaded scribblers, brainless and characterless sycophants, parasites, incapable of making an honest living and ready to sell their services at any time for a money consideration to besmirch the character of any individual or organization concerned in this struggle between humanity and greed - presupposes the people of British Columbia to be fools.... the motive behind this insidious appeal to national prejudice has evidently two purposes in view, namely, first, to prejudice the public mind against organized labor, and, second, to create a division in labor's ranks... [160]

With other moderates, Foley had tried hard to establish the WFM in British Columbia as an organization much like older, craft-dominated unions.[161] By the spring of 1903 it was clear that this initiative, both on the political level with the PPP and on the industrial level with the WFM, had failed. The letter demonstrates Foley's subsequent frustration.

Far from being composed of irreconcilable malcontents dedicated to strike and revolution, as many believed, the WFM in British Columbia proved on a number of occasions to be willing to act in concert with employers. Perhaps the most surprising initiative was the WFM's efforts to arbitrate the 1903 Fernie strike, together with several mine managers. The group succeeded where the Deputy Minister of Labour, Mackenzie King, had failed. The employers' journal, the British Columbia Mining Record, acknowledged grudgingly that

> Many of us, on what we believe to be very proper grounds, strongly disapprove of the Federation as an alien institution whose acts are largely beyond the control of provincial authority; but it must certainly be admitted that as yet the Federation has exerted an influence altogether in the direction of good, by discouraging rather than by encouraging strikes, and by the moderation of its councils... [162]

However, the efforts of the WFM to establish itself as an organization

representing reasonable working men who sought only fair treatment from employers failed in the charged atmosphere of 1903. The report of the Royal Commission on Industrial Disputes in British Columbia endorsed the view that unrest was fostered by foreign union affiliations, although the evidence that it heard scarcely supported such a view.[163] Coal baron and former premier James Dunsmuir announced flatly that he would never recognise the Western Federation of Miners.[164] The CPR was even more direct. Its agents gunned down a leading Vancouver unionist in the course of the 1903 UBRE strike. Such actions proved the truth of the socialists' assertions: the class struggle was alive and well and being fought in British Columbia. Their strikes lost and their policies discredited, the moderates within the WFM were replaced by more militant and radical leaders.

The WFM occupied the limelight again in 1906-07, during the long drawn-out court case of Haywood, Moyer and Pettibone for the murder of former Idaho Governor Steunenberg. The three were senior WFM officials and once more the organization's alleged penchant for violence was brought before the public. Many working people regarded the trial as a blatant mockery of justice: demonstrations of support were held in British Columbia and across the continent.[165] A year after the three men had been acquitted, Parm Pettipiece, Vancouver unionist and then president of the Trades and Labor Congress of Canada, toured the Kootenays. In keeping with the public mood, he described the WFM during his visit to Rossland as "this militant band of Labor's bravest champions."[166] But Rossland miners were no longer at the fighting edge of militancy. The aftermath of the 1901/02 strike had been a difficult time; their union had only barely survived. While other WFM locals in B.C. adopted radical postures, the Rossland union embraced moderation. In 1903, for example, the manager of the LeRoi was presented with "a gold mounted

ebony cane ... in appreciation of his friendly relations towards the members of the Western Federation of Miners."[167] Later, when the major Rossland mines raised muckers' and labourers' wages to $3 a day, the Rossland union was effusive in its thanks. In a public letter, the union's executive assured management that

> ...you are held in the highest esteem by the entire body of men working in the camp.
>
> ...it is not the intention of the Rossland Miners' Union to try to impose upon men who have shown such a friendly and fair spirit in dealing with the union and its members; but, on the contrary, [we] will endeavour to at all times prove that we are conscious of the fact that all things have a limit, and that we realize that the members of a labour organization must use their best judgement in the transaction of their business the same as do the managements of the mines... [168]

The wage rise reflected prevailing economic conditions as well as the employers' perceived generosity: mining had taken a profitable turn.[169]

The price of copper climbed throughout 1906 and 1907. By early summer, miners had also received a pay rise. In the autumn, however, copper dropped in price, following the panic brought on by Heinze's disastrous foray onto the New York stock exchange with his United Copper Company.[170] Slumping metal prices encouraged mining companies to demand wage rollbacks from their workers. Since the federal government had enacted the Industrial Disputes Investigation Act earlier in 1907, the arguments between miners and companies would be conducted within the framework of this new law.[171]

The "St. Eugene arbitration," as it became known, was one of the first hearings held under the new act. The process began in September, 1907 when the Moyie local of the WFM applied for a Conciliation Board after it failed to reach an agreement on wages with the employer, the Consolidated Mining and

Smelting Company of Canada, Ltd. [Cominco].[172] Both miners and management recognised that the wage settlement of the Board would have implications far beyond the St. Eugene mine at Moyie.[173] The first sittings were held in early October and hearings dragged on fitfully through the autumn. Just before Christmas the Board submitted its report, which was published in the January, 1908 issue of the Labour Gazette. It unanimously recommended a sliding scale of wages: one based on high ("abnormally favourable") metal prices, one on "normally favourable" prices, and one based on low ("abnormally unfavourable") prices.[174] Copper miners in Butte, Montana had accepted a similar sliding scale in early 1907, and this was probably the basis for the Board's recommendation.[175] The St. Eugene local rejected the Board's proposal by a vote of 234 to 9. W. H. Aldridge, Cominco's Managing Director, made another offer similar to the Board's, which the Union also rejected. A little unsure of the mechanics of the Industrial Disputes Investigation Act, Aldridge checked with the Deputy Minister of Labour to make sure that he was permitted to close down the mine. Being assured that this was legal, Aldridge laid his plans. As he explained to a correspondent, "In my opinion we have at the St. Eugene a few gentlemen who would be better in Goldfield [Nevada] than in British Columbia, and this [shutdown] would certainly give us an opportunity of getting rid of them once for all."[176] Aldridge told the miners at the St. Eugene that his offer was final: either they accepted it or the mine closed down. On 12 January, 1908 union miners voted 156 to 85 to accept the offer, a wage reduction.[177] At the 1908 Convention of District 6, bitter miners denounced the federal labour legislation on principle ("we ... recognise in this Act another instrument in the hands of the Employing class for the subjugation of the working class"), and condemned the report of the St. Eugene Board in particular.[178]

Cominco's miners and smelterworkers at Rossland and Trail had taken a different approach in trying to come to terms with management demands. During the autumn of 1907 they had watched the Board's activities with some nervousness. In November, the miners' union in Rossland approached Cominco management to discover if the rumours of a shutdown were true.[179] The union wished to know if the mines could be kept open if members voted to accept a wage rollback. Apparently receiving an affirmative answer, the union voted 359 to 116 to agree to a voluntary reduction in wages.[180] Unionised workers at the Trail smelter also voted in favour of accepting such a reduction. The actions suggest that there was little cooperation among the WFM locals, or at least between the Moyie union and those at Rossland and Trail, despite the fact that they shared a common employer. While the St. Eugene miners were prepared to try out the federal government's new industrial relations machinery, workers in Rossland and Trail opted for a policy of concessions in exchange for security of employment.

The reasons for the different strategies are found in the differences in the social structures of the two areas. Trail and Rossland were by now reasonably settled communities. Miners frequently owned their own homes, lived with their families and had a considerable stake in the community. Life at the St. Eugene mine was different: Moyie was a single man's camp.[181] Cominco's managing director acknowledged as much when he wrote B.C.'s Attorney General in 1908, to see if something could not be done "in the way of straightening matters out at Moyie:"

> I am ashamed to confess that at our St. Eugene Mine, Moyie, we have always had a great deal of difficulty in getting a steady lot of men, as is the case in Rossland, due perhaps very largely to the fact that there are only a limited number of miners' residences....
> On a great many occasion, our operations have been seriously interfered with, due to the fact that the night before there

> had been in the town a most disorderly general drunk. These affairs are more or less impromptu, but are in my judgement largely due to the bad influence of the numerous bars.... We have used every effort to put a stop to this by freely discharging men not reporting to work ... but this does not seem to remedy the matter. [182]

Aldridge hoped that Bowser would oversee a more strict enforcement of the Liquor Traffic Regulation Act, and perhaps cancel a few licenses in the town. Unionists in Rossland exerted their energies on more placid pursuits: the union founded a cooperative store, for example, based on the Rochdale plan.[183] The high percentage of married men at work in the Rossland mines may also explain why the first Women's Auxilary of the WFM was chartered there.[184] Workers at Rossland and Trail formed a different constituency from that of many of the other mining camps of the province, although they were equally dedicated to union ideals. Their unique concerns, however, could lead to conflicts with the other WFM locals of District 6.

Tension between District 6 and the Rossland local was apparent again in 1912. For five years wages had been based on the St. Eugene arbitration. When Butte miners received an increase in June, 1912, District 6 miners decided to press for a similar rise. In August, a special convention was called to consider the question and B.C. locals agreed to demand a district wage scale, organising a campaign to coordinate their efforts, which would follow the procedures of the Industrial Disputes Investigation Act.[185] However, both Rossland and Trail declined to participate in the province-wide drive and, as in 1907, concluded their own agreements with Cominco. The Rossland local served notice to District 6 that it would no longer continue to pay its per capita taxes.[186] The August convention was held the following week and resolved, with specific reference to Rossland, that "no Local Union shall enter into any Agreement or Contract without the consent and advice of the District [6]

Executive Board."[187] Shortly afterwards, Rossland wrote to the Denver Executive Board of the WFM, to ask if it had to maintain membership in the District organization.[188] One may conclude that while Rossland miners remained loyal to their union, they were not willing to sacrifice their own interests for those of the miners of the rest of the province.

The clashes between workers at Rossland and Trail, District 6 and the WFM Executive Board in Denver reached a crescendo in 1916-18. The war had complicated the situation: the Trail smelter now occupied a position of considerable strategic importance in the national war effort. Many employees joined the armed forces and the subsequent shortage of skilled workers forced Cominco to make a number of concessions to its workers. Cominco's Managing Director wrote indignantly to the chairman of the Imperial Munitions Board,

> The patriotism I find among the labor men is so thick and so numerous that it ought to be remarked about. We have three arbitrations pending, and my mentioning of the fact that we are making munitions of war only provokes a smile.
> We have had to provide a garage at the Sullivan Mine to take care of the Ford cars owned by our own employees. The Moving Picture shows are open every night. Extravagance is prevalent everywhere, and they want more money.[189]

By the autumn of 1917, Cominco management had had enough and refused to make any further concessions. Its officials pointed out that the WFM had signed contracts which ran until 1919, and they rejected workers' demands for an eight hour day. A short, disastrous strike followed which collapsed when it was denounced by senior WFM officials. Two Executive Board members arrived in Trail and insisted that the men abide by their signed contracts. The smelter workers, they complained, "went on strike ... ignoring the provisions of article 8 of our International constitution, violating their agreement with the employing company, and in defiance of the laws of Canada."[190]

Eighteen months later, WFM locals across the province experienced a wave of desertions as their members flocked to the One Big Union [OBU].[191] The WFM (now Mine Mill) lost whatever legitimacy it had enjoyed with Cominco management. The company made it clear that it would not, under any circumstances, recognise the OBU.[192] A company union took the place of the once proud WFM and a miners' union did not regain a foothold in Rossland or Trail until the closing years of the Second World War, when government legislation outlawed both company unions and victimisation of workers determined to organise.

Endnotes

1 R.E. Gosnell & E.O.S. Scholefield, A History of British Columbia, Part 2, (by Gosnell) p. 149. Vancouver & Victoria, 1913.

2 Smith Curtis to Paterson, Rossland, 26 Oct., 1900, #50142, Laurier Papers.

3 Aulay Morrison to Laurier, New Westminster, 7 Sept., 1901, #58746, Laurier Papers. Emphasis in the original. Morrison's characterization of the Nanaimo and Vancouver MPs as Labour men is perhaps exaggerated. One of them, Ralph Smith, earnestly informed Laurier that "Although I am interested in independent labor representation I can assure you Sir that next to the above is the liberal cause for which I have strong sympathy..." - Smith to Laurier, 30 June, 1900, #46960, Laurier Papers. Further evidence of labour's political strength in B.C., and the consternation this caused, is cited below: see notes #16, "Political Situation in B.C." & #126, quotation from MacKenzie King's diary, 23 November, 1901.

4 See, for example, The Independent, 20 June, 1903.

5 D. F. Jelly to McBride, 1 July, 1903, Trail, & McBride to Jelly, 6 July, 1903, Letter 134, File 3, Box 76, Correspondence Inward (Private), 1903, Premiers Papers, GR 441, PABC. Evidently McBride was successful in co-opting much of the province's Labour vote: see the analysis in the letter of 8 October, 1910, #175540-175541, Laurier Papers.

6 See John Spencer Church, "Mining Companies in the West Kootenay and Boundary Regions of British Columbia 1890-1900, - Capital Formation and Financial Operations," MA thesis, UBC, 1961, p. 124 et seq, Church notes the presence of a surprising number of political figures, especially Conservatives, in Rossland during the latter 1890s. Gordon Stewart's argument about patronage and the professional classes suggests that diminished job opportunities in central Canada following the Liberal victory in 1896 may have been partly responsible for the presence of these ex-politicians in the West; see his article, "Political Patronage under Macdonald and Laurier 1878-1911," American Review of Canadian Studies, X(1980): 3-26.

7 Daly to McBride, June 3, 1903, Winnipeg. Letter 68, File 2, Box 76, Correspondence Inward (Private), 1903, Premiers Papers, GR 441, PABC. Emphasis in the original. McBride remained premier for a dozen years, retiring undefeated to London in 1915: clearly he successfully avoided any discreditable 'entanglements'.

8 See pp. 110-114, Robert Wayne Smith, The Coeur d'Alene Mining War of 1892 A Case Study of an Industrial Dispute, (Corvallis, 1961); pp. 28-37 & 54-55, Vernon H. Jensen, Heritage of Conflict Labor Relations in the Nonferrous Metals Industry up to 1930, (Ithaca, 1950); and pp. 196-228, Richard E. Lingenfelter, The Hardrock Miners A History of the Mining Labor Movement in the American West 1863-93, (Berkeley, 1974).

9 On this topic see pp. 68-95, John Fahey, The Ballyhoo Bonanza Charles Sweeny and the Idaho Mines, (Seattle, 1971), in addition to the sources cited in the preceding footnote.

10 Page 1, The Miners' Magazine, July, 1903. Dubofsky advances a similar thesis in his article "The Origins of Western Working Class Radicalism, 1890-1905," Labor History, #7, 1966, pp. 131-154.

11 The 1899 "Commission Relating to Unrest and Discontent among Miners and Mine Owners in the Province of British Columbia" was directed, among other things, to find out the nationality of Kootenay miners. Commissioner Clute estimated that just over half were Americans (see pp. 15-16, 318-319.) At the LeRoi mine, Clute counted 250 "British" miners, 248 Americans and 27 Europeans. At the War Eagle mine, he found 265 British, 281 American and 23 Europeans. Clute noted that "a considerable number of [Americans] are not native born." (p. 319) The manager of the War Eagle, however, disputed the figures, claiming that "It was openly acknowledged afterwards by a number of men that they claimed [British citizenship] falsely, fearing that it might affect their positions." (Kirby to Gooderham, 6 Feb., 1900, Rossland, #42040, Laurier Papers) Kirby estimated that only about 15% of his employees were British. Since he was writing to Gooderham during a lock-out, Kirby himself possibly exaggerated the number of American miners - he certainly exaggerated the threat of violence - to add weight to the letter's request for police protection.

12 See the Rossland Miner, 20 & 27 July, 1895; Nelson Miner, 1 June, 6 & 27 July, 1895; and the brief history of the union published in the Industrial World, (Rossland) 14 July, 1900.

13 Page 8, The Paystreak, (Sandon) July 24, 1897. The article was dated July 17. The Union's anniversary was celebrated annually; see also 17 July, 1899, The Rossland Evening Record,

14 The authority of such vice-presidents was probably nominal. Until the emergence of the B.C. Federation of Labor in 1910, coordinated provincial organization on behalf of all unionists is hard to detect. Province-wide organizations of specific groups of workers, on the other hand, could wield some power. The WFM's provincial organization, District 6, is a good example. From 1899, Wilks was resident in Nelson. His name was spelled both Wilks and Wilkes, although he signed his name "Wilks."

15 Page 35, Proceedings of the Fourteenth Annual Session of the Trades and Labor Congress of Canada, (Toronto, 1898.) In justifying the motion, Wilks referred to the British example.

16 #42043, from "The Political Situation," dated 31 January, 1900, #42041-42047, Laurier Papers, M.G. 26, G, Vol. 140, Public Archives of Canada [hereafter Laurier Papers, PAC]. The account was enclosed in a letter, Edmund B. Kirby to George Gooderham, 6 Feb., 1900, Rossland. Kirby did not write the analysis himself, but assured Gooderham that "It was obtained for our private information, is from sources which are absolutely reliable and shows clearly the situation from the inside." (p. 4, # 42039, ibid.) For a more reliable analysis see George F. G. Stanley's "A 'Constitutional Crisis' in British Columbia," The Canadian Journal of Economics and Political Science, XXI(1955): 281-292.

17 21 July, 1899, Golden Era,

18 For a description of these negotiations, see The Nelson Daily Miner, May 14, 1899.

19 Hume was not the only Semlin supporter to endorse the eight hour day: James Martin, the Rossland MLA, declared himself in favour of the shorter work day during the provincial elections six months earlier. (See The Daily News Advertiser, June 25 & June 30, 1898.) An earlier study of Rossland miners, Merle Wells' "Miners Unions in British Columbia and North Idaho, 1898-1902," Idaho Historical Society, 1984, asserts that the enactment of eight hour legislation in B.C. was the result of American efforts (p. 4). Wells' source is a mine owners' newspaper. Such journals always rejected the idea that Kootenay miners wanted to improve their condition. It followed that any desire for change must therefore be an import, the result of "agitators." The argument here is precisely the opposite. I have found no evidence to support Wells' (and the mine owners') idea of American influence leading to the eight hour law. The miners themselves on a number of occasions insisted that the demand was theirs alone, and pointed to the Winnipeg Convention as the catalyst. See, for example, p. 480, Sessional Papers, British Columbia, 1900. Wilks, the crucial actor in the lobby, was born in British Columbia and later helped American workers in Butte, Montana win the eight hour day. See his letter to Bulmer, 23 May, 1906, in File 4, Box 150, International Union of Mine, Mill and Smelter Workers Collection, Special Collections Division, University of British Columbia Library [hereafter Mine Mill Papers].

20 See pages 57, 66, 101, & 105, Journal of the Legislative Assembly, Vol. 29, 1899; also The Nelson Daily Miner, editorial of May 26, 1899, and The Victoria Daily Times, 17 & 21 February, 1899. For a discussion of the law, see Harold F. Underhill, "Labor Legislation in British Columbia", unpublished PhD thesis, University of California, 1936, and pp. 193 - 198, Church, "Mining Companies in the West Kootenay..."

21 See The Ledge, (New Denver), p. 1, 20 April, 1899.

22 Page 464, Sessional Papers British Columbia, 1900. The petition was dated 14 March, 1899.

23 Ibid., p. 463, dated 16 March, 1899.

24 Ibid., p. 465, dated 29 March, 1899.

25 Reprinted some months later in the first issue of the Lardeau Eagle, Feb. 14, 1900.

26 This indecisiveness can be detected in the replies of the Minister of Mines to the various letters and petitions. See pp. 463-482, Sessional Papers British Columbia, 1900.

27 See 19 November & 3 December, 1898, The Paystreak, Sandon. For a brief history of the Silver Lead Mine Owners' Association, see The Ledge, (New Denver), June 8, 1899.

28 Each WFM district elected an Executive Board member. There were three other members of the board, the president, vice-president and secretary treasurer of the WFM, who were elected annually at the WFM convention.

29 Fahey (pp. 86-95, The Ballyhoo Bonanza,) provides a useful (and non-partisan) account of the explosion and its consequences.

30 The quotation is from the British Columbia Mining Record, VII, 4, 1900: 102. For similar views see the Nelson Economist, May 3 & May 10, 1899; the Nelson Daily Miner, May 21, 1899; & the Grand Forks Miner, October 7, 1899. Cf, the bitter memory of these reports by a WFM officer, Chris Foley, in the "Minutes of Evidence of the Royal Commission on Industrial Disputes in the Province of British Columbia", p 680, Sessional Papers Canada, 1904, XXXVIII, 13.

31 Pp. 149 & 151, Clute, "Commission."

32 Bullock-Webster (Chief Constable at Nelson) to Hussey (Superintendent of Police, Victoria) 7 November, 1899, GR 353, PABC. For detail on the Emily Edith see p. 71, C. Cliffe, The Slocan District, British Columbia Its Resources and Opportunities for Investment (Sandon, 1899); Church, op. cit., p. 433; & Sessional Papers British Columbia, 1899, p. 688.

33 Forbes to Hussey, 4 November, 1899, File 2, Box 5, GR 429, PABC.

34 Quoted in Bullock-Webster to Hussey, 7 November, 1899, GR 353, PABC.

35 Hope to Attorney-General, 25 October, 1899, File 2, Box 5, GR 429, PABC. This is likely the same Charles E. Hope who later "made the White Canada Association a retirement hobby." [p. 88, Patricia Roy, "The Illusion of Toleration: White Opinion of Asians in British Columbia, 1929-37", in K. Victor Ujimoto & Gordon Hirabayashi (eds.), Visible Minorities and Multiculturalism: Asians in Canada, (Toronto, 1980).]

36 Christie to Hussey, 3 November, 1899, Box 5, File 2, GR 429, PABC.

37 Bullock-Webster to Hussey, 7 November, 1899, GR 353, PABC.

38 Ibid,

39 Hussey to AG, 8 November, 1899, letter 473, GR 64, Vol. I, PABC. This report was much circulated and usually accompanied the numerous requests for police protection. See, for example, Kirby to Gooderham, 6 Feb., 1900, Laurier Papers. Even Clute could not resist the temptation, and appended a copy to his "Commission Relating to Unrest..."

40 Nevins to AG, 3 November, 1899, Box 5, File 3, GR 429, PABC. In justice to the men from Idaho it should be pointed out that these supposed desperadoes were economic refugees seeking work. They had been blacklisted by their former employers, by means of the recently-introduced rustling card or "permit." (For details, see pp. 93-5, Fahey, The Ballyhoo Bonanza,) Nevins' letter could have been simply an attempt to drum up business for the detective agency. A book written by a former Pinkerton clerk insisted that much of the antipathy towards the WFM had been deliberately generated by the Pinkerton Agency for precisely this reason. (See pp. 21-23, Morris Friedman, The Pinkerton Labor Spy, New York, 1907; also pp. 158-159, Frank Morn, "The Eye that Never Sleeps" A History of the PINKERTON National

Detective Agency, Bloomington, 1982.)

41 Sayers to Hussey, 19 November, 1899, GR 353, PABC.

42 Hand (manager of the Payne mine) to Hussey, 10 November, 1899, GR 353, and Hussey to AG, 10 November, 1899, GR 64, Volume I, PABC.

43 See Green to AG, 29 November, 1899, Box 5, File 4, GR 429, & Green to AG, 9 December, 1899, Box 5, File 2, GR 429, PABC.

44 Hussey to Forbes, 8 December, 1899, Box 5, File 2, GR 429, PABC.

45 Forbes to Hussey, 11 December, 1899, letter 538, GR 64, Volume I, PABC. It was all too much for Forbes: three weeks later he left to fight in the Boer War.

46 Sandon Union to Laurier, 3 November, 1899, #38622, LP. The act, passed into law by the federal government two years earlier, was an attempt to end the importation of contract labour into Canada. See the discussion of the act on pp. 7-48, William David Atkinson, "Organised Labour and the Laurier Administration: The fortunes of a pressure group", MA thesis, Carleton, 1957; pp. 238-93, James J. Atherton, "The Department of Labour and Industrial Relations, 1900-1911", MA thesis, Carleton, 1972; the article, "The Alien Labour Act", in the Labour Gazette, I, 1901: 552-55; and the Annual Report of the Department of Labour for the Year Ended June 30, 1901, CANADA Sessional Papers, XXXVI, 13, 1902, pp. 59-62.

47 See "Commission Relating to Unrest and Discontent Among Miners and Mine Owners in the Province of British Columbia", unpublished typescript, 1900, pp.101-111; Sandon Miners' Union Minute Book, August 12 & 19, 1899; and the Memoirs of the life of Charles Angus MacKay by himself, Victoria, 1930, p. 22. (MacKay was one of those sent east by the WFM.)

48 CANADA Debates, 1900, LIII, p. 8146. Clute, a Toronto lawyer, had been in the area the year before when he headed the "Commission to Inquire into the grievances of the Workmen on the Crow's Nest Pass Railway..."

49 "Commission Relating to Unrest...", p. 354.

50 The union was in a difficult position since some of its members were at work on properties where the union demand for $3.50 (the old ten hour daily wage) had already been met. If the union accepted the compromise of $3.25, it would result in an instant wage reduction for these men. Thus the union agreed that production miners would work for $3.25, the compromise rate (owners originally had offered $3.00), but insisted that development miners receive $3.50. For these negotiations, and the union's and mine owners' positions, see pp. 136-43 & 355-64, "Commission Relating to Unrest..."

51 Ibid., p. 365.

52 The Paystreak, 20 January, 1900.

53 Ibid. See also Kelly to Hussey, 19 January, 1900, GR 353, PABC.

54 The Paystreak, 3 February, 1900; the paper was quoting John Houston, presumably from his newspaper, the Nelson Tribune. In fact, Clute tended to agree with Houston's analysis: see his "Second Report."

55 Ibid., 17 February, 1900. In fact, Bostock decided against contesting the next election, although the Liberal candidate was successful.

56 Sandon Miners' Union Minute Book, entry for February 10, 1900.

57 P. 2, "Commission Relating to Unrest..." Two other accounts of this strike conclude that it ended in a stalemate (p. 10, Wells, "Miners Unions in British Columbia..." and p. 29, Gerald R. Boucher, "The 1901 Rossland Miners Strike: The Western Federation of Miners Responds to Industrial Capitalism," BA thesis, University of Victoria, 1986). However, Wells' and Boucher's assertions that the strike hinged on the eight hour day are incorrect: that battle had been fought out in the spring of 1899, and won by the miners. Thus the fact that the eight hour day survived the strike was no victory for the union, as Wells and Boucher imply; it had not been an issue, as Clute's account makes clear. The issue was one of wages, as both union officials and managers admitted. (For the union, see p. 96, "Commission Relating to Unrest...," and for managers, p.183, Journal of the Canadian Mining Institute, 3(1900).) On that issue the miners lost: the scale they finally accepted in February they had earlier emphatically rejected (see, for example, the Sandon Miners' Union Minute Book entries for 16 Oct. & 6 Dec., 1899). The British Columbia Mining Record, an employers' journal, judged the outcome a loss for the union: see p. 153, Vol. VII, May, 1900. One can argue that the employers' victory was a hollow one; certainly the Slocan never regained its pre-strike position as a bonanza region.

58 "Convention of Unions of the Western Federation of Miners, District No. 6, Held at Rossland, B.C. December 18th, 1899." A photocopy of the (printed) convention proceedings is held in File 4, Box 33 of the McInnis Collection, Special Collections Division, University of British Columbia Library. At a District 6 convention twelve years later, a WFM official told delegates that "Your own District, if you will recall, was originally organized almost exclusively for political purposes, because at the time of the eight hour agitation those in charge of the fight complained bitterly about the lack of cohesion amongst our forces and the great need for a central organization that would sift and marshall the demands and resources of the individual locals." (P. 4, 6 Jan., 1912, B.C. Federationist.)

59 See Laurier Papers, March, 1900, passim.

60 Prittie to Laurier, 26 March, 1900, #43068, LP.

61 CANADA Debates LIV, 1900: 9373-74, 9379; Statutes of Canada, 1900: 183-86; Jay Atherton, "The British Columbia Origins of the Federal Department of Labour", BC Studies, #32, 1976-77: 93-105; & H.D. Woods and Sylvia Ostry, Labour Policy and Labour Economics in Canada, Toronto, 1962, pp. 39-46. The new act created a Department of Labour, a new journal (the Labour Gazette) and a job for the youthful labour expert, Mackenzie King. See Paul Craven, "An Impartial Umpire" Industrial Relations and the Canadian State 1900 - 1911, Toronto, 1980, pp. 208-40, & passim.)

62 Craven's masterly account of the genesis of the federal Department of Labour devalues the role of Clute. King's control over the new department was not as inevitable as Craven's whiggish narrative implies. (See, for example, pp.209-215, Craven, "An Impartial Umpire"...)

63 CANADA Debates LIV, 1901: 199 & 1066. Puttee (Labour member for a Winnipeg constituency) presented the request on Smith's behalf.

64 Prior to his activities as a mining promoter, Mackintosh had served as a Conservative MP for eight years, and then as Lieutenant Governor of the Northwest Territories, from 1893 to 1898. For his role in Rossland with the B.A.C., see p. 3, German, "A Million Dollar Cheque..."

65 Martin had cut his political teeth in Manitoba, where he had been at the centre of the Manitoba Schools issue. Himself a Liberal, he was beaten by Daly in the 1891 election for Brandon, which might account for his ill humour in Rossland. See Peter Brock, Fighting Joe Martin Founder of the Liberal Party in the West (Toronto & Vancouver, 1981) and George F. G. Stanley, "A 'Constitutional Crisis'..."

66 The bizarre incident is mentioned by both Margaret Ormsby (p. 321, British Columbia: a History, Vancouver, 1958) and Martin Robin (p. 71, The Rush for Spoils The Company Province 1871-1933, Toronto, 1972), although neither get the story quite right. The Rossland Miner, their source, is unreliable. For a more trustworthy account, see the Inland Sentinel, 27 June, 1899.

67 Martin was forced out of the cabinet at the end of July, 1899; the Semlin government fell in February, 1900, to be replaced briefly by Martin. Martin's government did not last long, and Martin subsequently lost the June, 1900 election. Dunsmuir then assumed office. For an unravelling of the comings and goings in Victoria, see George F. G. Stanley, "A 'Constitutional Crisis'..." and John Tupper Saywell, "The McInnes Incident in British Columbia," British Columbia Historical Quarterly, XIV(1950): 141-166.

68 From the resolutions of the Rossland Miners' Union on the affair, reprinted in the Golden Era, 21 July, 1899.

69 P. 172, The Journal of the Canadian Mining Institute, III (1900).

70 Pp. 185-186, ibid,

71 See, for example, 30 Dec., 1899, Grand Forks Miner,

72 Petition dated 17 January; reported in the Inland Sentinel, (Kamloops) 23 January, 1900.

73 The first quotation is from p. 108, British Columbia Mining Record, VII, 4, 1900; the second, p. 155, op. cit., VII, 5, 1900.

74 For a detailed account of the type of contracting that management envisaged at Rossland, see "The Operation of the 'Hole-Contract' System in the Centre Star and War Eagle Mines, Rossland, B.C.," Transactions of the American Institute of Mining Engineers, XXXI(1901): 628-634, written by Carl Davis, the mine superintendent. See also pp. 154-5, British Columbia Mining

Record, VII, 5, 1900, and p. 367, R. B. Brinsmade, "Mining Practice at Rossland, British Columbia..." Mines and Minerals, March, 1901. For a discussion of the drawbacks of the "hole-contract" system, see the comments of A. Richardson, on pp. 244-45, "The Incidence of Methods of Payment on the Efficiency of Miners," The Journal of The Chemical, Metallurgical and Mining Society of South Africa, VIII, February, 1908, and Frank H. Probert's comments on Davis's paper, pp. 1006-07, Transactions of the American Institute of Mining Engineers, XXXI, 1901.

75 P. 153, British Columbia Mining Record, VII, 5, 1900.

76 P. 310, "Hoisting and Haulage in Mining Operations. A Description of the Plant on the Le Roi Mine, Rossland, B.C.," The Journal of the Canadian Mining Institute, V(1902).

77 P. 312, ibid,

78 Pp. 314 & 322, ibid,

79 P. 322, ibid, Kirby gave Toronto shareholders of the War Eagle company a very similar analysis in his annual report of 31 Dec., 1900; he came to the same conclusion as MacDonald: "to introduce the contract system." The report is quoted in the Rossland Miner, 5 April, 1901.

80 P. 40, "Commission Relating to Unrest..." The vote to ban contracting had been taken on 1 Aug., 1899. At the first meeting of WFM District 6 in December, 1899, the Rossland representative moved "that the contract system is injurious to labor and should be abolished..." By contrast, the Nelson Miners' Union accepted the system: the union executive "look[ed] upon the adoption of the contract system as an indication on the part of the companies of a desire to bridge present difficulties [over the eight hour law], and will place no obstacles in the way..." (The Daily News-Advertiser, 21 June, 1899, p. 7).

81 P. 33, "Commission Relating to Unrest..." Clute's enthusiastic endorsement of contracting at this stage, that is, before the Rossland mines had even shut, is somewhat difficult to account for. One possible explanation is his admiration for the labour relations of the New Vancouver Coal Company at Nanaimo. He interviewed the mine's union leader Ralph Smith (also MP and president of the TLCC) as well as its long time manager, Samuel Robins. Contracting was a standard work practice amongst coal miners and perhaps Clute concluded that the congenial labour relations of the coal commpany owed something to the contract system. Ralph Smith probably played a role too; he had little sympathy for the hard rock miners' objections to contracting.

82 Bernard MacDonald (manager, LeRoi) & Edmund Kirby (manager, War Eagle/Centre Star) to Clute, 19 March, 1900, Rossland, reprinted in "Second Report of the Commissioner in Relation to mines and mining in British Columbia," 3 May, 1900. This 12 page report, with 5 appendices, is attached to the far lengthier "Commission Relating to Unrest..."

83 See the accounts of the settlement given by Chris Foley (in "Royal Commission...", p. 676, Sessional Papers, Canada, 1904, and Frank Woodside (in The Miners' Magazine, September, 1901: 33.) Both were officers of the WFM. "Very little work is performed on contract." (p. 343, Ralph S. G. Stokes, Mines

and Minerals of the British Empire, London, 1908); "... the contract system ... has proven unsatisfactory in these mines owing to the difficulty of measuring exactly the volumes of ore broken in the very irregular stopes - the pay shoot being very irregular in outline..." (p. 265, Walter R. Crane, Ore Mining Methods, New York, 1917, 2nd edition); comments of Purcell, superintendent of Cominco's Rossland mines, to the B.C. Commission on Labour, 1912-1914, pp. 279-80, RG 684, Box 2, File 7, PABC. See also Clute's "Second Report..."

84 The British Columbia Mining Record, VII, 5, 1900: 155. The entire signed agreement is reprinted here, and also in Clute's "Second Report..."

85 Pp. 3-4, Edmund Kirby to George Gooderham (president of the War Eagle/Centre Star company) 6 Feb., 1900, Rossland, M.G. 26, G, Volume 140, Laurier Papers, Public Archives of Canada. The letter borders on the hysterical, and gives a very misleading impression of the Rossland situation. Kirby warned repeatedly of the consequences of a strike, which he insisted was imminent, but mentioned only in passing that he in fact had just locked out his miners.

86 Pp. 4-5, sworn statement of Edward Irving, notarised by C. O. Lalonde, the mayor of Rossland, 29 July, 1901, in File 2, Box 150, Mine Mill Papers. All spelling mistakes in the original. Irving's statement is corroborated by the sworn statement of Edward Pavier, ibid. Both Irving and Pavier recalled how this arsenal was moved and carefully hidden in a cupboard in the superintendent's house, when Kirby anticipated a visit from Smith Curtis, Rossland's MLA and at the time Minister of Mines in the brief Martin ministry.

87 Hagler, for example, secretary of the Sandon local, was charged with unlawful assembly following a shouting match at the Payne Mine in early 1900, when strike-breakers were being brought in; during the Rossland strike of late 1901, two strikers were charged with taunting a strike breaker. I have not found evidence of any other criminal charges laid against Kootenay miners during the labour disputes, 1899-1902, apart from the Taff Vale style injunction served on the Rossland Miners' Union in October, 1901. For examples of the WFM cautioning its members "to be very careful in their language .... strict obedience to the laws...," see Sandon Miners' Union Minute Book, entries for 27 Jan., 1899 & 10 Feb., 1900. The only serious defiance of authority that I am aware of during this time occurred in the Crow's Nest Pass, following a mine explosion in Fernie in 1902, a tragedy which claimed the lives of some one hundred and thirty miners. When a local police officer remarked that he thought it a pity that more were not killed, an out-raged and grieving mob stormed the police station and ran him out of town. (See Armstrong to Attorney-General, 27 May, 1902, File 5, Box 8, GR 429, PABC, and The Fernie Free Press, 26 May, 1902.)

88 The Economist, (London), April 6, 1901, p. 518.

89 See the graph appended to the preceding chapter, "Average Value of Rossland Ore," and p. 1041, "Statement showing values and smelting charges per ton to Dec. 31, 1901", Sessional Papers British Columbia, 1901.

90 P. 31, "History of the Rossland Trouble," 20 Aug., 1901, pp. 31-39, The Miners' Magazine, September, 1901. The article is signed "the Executive

Committee," but was probably written by Frank Woodside, at the insistence of Haywood. See the photocopied typescript preserved in File 8, Box 34, Angus McInnis Collection, UBC, and W. D. Haywood to Woodside, 13 Aug., 1901, Denver, File 2, Box 150, Mine Mill Papers.

91 Pp. 33-36, ibid.

92 P. 35, ibid. See also "The Rossland Trouble," p. 1, The Independent, 6 April, 1901, and Horace F. Evans to Laurier, p. 10, 25 Nov., 1901, Lower Nicola, B.C., #60195, Laurier Papers, M.G. 26, G, Vol. 213, PAC.

93 Ralph Smith to Chris Foley, 26 Feb., 1901, Ottawa, File 2, Box 150, Mine Mill Papers. The letter was also reprinted in the account of "The Rossland Trouble," p. 1, The Independent, 6 April, 1901.

94 E.P. Bremner to Laurier, 3 Jan., 1901, #52154, Laurier Papers. This was the context of Kirby's often quoted phrase about the need for "a mixture of races.... the strength of an employer, and the weakness of the Union. How to head off a strike of muckers or laborers for higher wages without the aid of the Italian labor which is offered so plentifully here, I do not know." Kirby to T. G. Blackstock, 31 Jan., 1901, Rossland, #53085, Laurier Papers, PAC.

95 The Paystreak, 13 April, 1901. See also 20 April & 1 June, 1901, ibid.; 3 May, 1901, Lardeau Eagle; and 4 May, 1901, The Independent. The Rossland executive described the influx of European labour in its "History of the Rossland Trouble," but considered it a failure, as "An Austrian or an Italian takes to unionism when he has an opportunity like a newly hatched duck to a pond of water.... Not only this, but they exposed the whole scheme to flood an overcrowded labor market..." pp. 35-36, 20 Aug., 1901, The Miners' Magazine, September, 1901.

96 4 May, 1901, The Independent.

97 Pp. 36-37, The Miners' Magazine, September, 1901. A 75% majority was required.

98 Evans to Laurier, 12 April, 1901, Rossland, #55305, Laurier Papers. Evans included with his letter a clipping from the Rossland Miner, giving Kirby and MacDonald's views on the strike vote. Evans was the British Columbia correspondent for a London mining journal, The Mining World and Engineering Record. The London Globe and Finance Corporation to which Evans refers had spawned the British America Corporation, which in turn was the parent company of the LeRoi and several other Rossland mines.

99 10 Aug., 1901, The Independent.

100 "Supplementary Report," by WFM president Edward Boyce, p. 15, Proceedings of the Tenth Annual Convention of the Western Federation of Miners, 27 May, 1902, Denver, Colorado.

101 For information on the strike, see p. 37, "History of the Rossland Trouble," The Miners' Magazine, September, 1901; pp. 28-31, The Miners' Magazine, December, 1901; p. 362, "The Rossland Situation," Labour Gazette, December, 1901; pp. 16 & 18, Merle Wells, "Miners Unions in British

Columbia..."; and pp. 46-48 & 57-59, Boucher, "The 1901 Rossland Miners Strike..."

102 P. 37, "History of the Rossland Trouble," The Miners' Magazine, September, 1901.

103 The unconstitutionality centred on the length of time between notice of strike vote and when the ballot was actually held; also the length of time from the ballot to the strike. See Mackenzie King's report, Labour Gazette, 1901: 362-64, but note the response of the Rossland union, in The Miners' Magazine, February, 1902: 21-24.

104 A copy of the statement survives in File 15, Box 150, Mine Mill Papers; see also the hand-written strike resolutions of 3 July, 1901, File 2, Box 150, ibid. The same issues are cited in the "History of the Rossland Trouble," p. 37, The Miners' Magazine, September, 1901.

105 Lardeau Eagle, 1 August, 1901.

106 See the letters of Woodside and Wilks to the Sandon Union secretary, Box 152, passim, Mine Mill Papers. For a narrative account of the strike drawn from careful reserach in local newspapers, see pp. 51-81, Boucher, "The 1901 Rossland Miners Strike..."

107 P. 9, John H. Murphy to Archie F. Berry, 6 July, 1906, Denver, File 4, Box 150, Mine Mill Papers. Note also the comments of Boyce in his "Supplementary Report," pp. 15-16, Proceedings of the Tenth Annual Convention of the Western Federation of Miners, 27 May, 1902, Denver.

108 Boyce to Woodside, 14 October, 1901, File 7, Box 152, Mine Mill Papers.

109 See the article, "The Alien Labour Act", Labour Gazette, 1901: 552-55; the exchange between Chris Foley and Mackenzie King during the 1903 Royal Commission, pp. 667-74, Sessional Papers, Canada, 1904, XXXVIII, 13; and Laurier to Woodside, 4 September, 1901, #58468, Laurier Papers.

110 For the role of the labour lobby in having the act amended see Laurier to Parr, November, 1901, #59846, Laurier Papers, & CANADA Debates, LIV, 1901, pp. 2705-06. For the September prosecution, see p. 60, Boucher, "The 1901 Rossland Miners Strike..."

111 The War Eagle/Centre Star mine chose to remain shut from July to December, 1901. By November, the Le Roi mine claimed it had an adequate labour supply to maintain production, although the miners' union denied this (see p. 364, Labour Gazette, 1901, and p. 22, The Miners' Magazine, February, 1902). For the pleas to Laurier to have the Alien Labour Act enforced, see August to November, 1901, passim, Laurier Papers. For the presence of the Dept. of Labour official, see p. 61, Boucher, "The 1901 Rossland Miners Strike..."

112 Daly to Eberts (the Attorney-General), 4 October, 1901, File 5, Box 7, GR 429, PABC. For an account of the incident see the Rossland Miner, 11 August, 1901.

113 P. 6, H. F. Evans to Laurier, 25 Nov., 1901, Lower Nicola, B.C., #60191, M.G. 26, G, Vol. 213, Laurier Papers, PAC. See also Daly to Eberts, 4 October, 1901, File 5, Box 7, GR 429, PABC.

114 A copy of the injunction remains in the WFM files: File 15, Box 150, Mine Mill Papers. See also Woodside to Shilland, 25 October, 1901, File 7, Box 152, Mine Mill Papers, and p. 340, A. W. R. Carrothers, "A Legislative History of the B.C. Trade-unions Act: The Rossland Miners' Case," University of British Columbia Legal Notes, Vol. II, March, 1956.

115 P. 66, Boucher, "The 1901 Rossland Miners Strike..." Boucher notes that the Judge heard the case in Greenwood rather than Nelson, remaining only briefly before returning to the coast (p. 67, op. cit.)

116 F. E. Woodside to W. L. M. King, 30 Oct., 1901, Rossland, reprinted on p. 362, Labour Gazette, December, 1901.

117 MacKenzie King Diary, 18 September, 1901.

118 On 4 Dec., 1901, the Le Roi Mining Company's auditors recorded loans of $616,290 to the Bank of Montreal. (P. 26, The Miners' Magazine, February, 1902.) John H. Mackenzie, the man who replaced MacDonald as manager of the LeRoi, referred several times in the course of an interview to the importance of the bank debt in the company's history. (Pp. 321-22, T. A. Rickard, Interviews with Mining Engineers, San Francisco, 1922.) See also The Economist, April 6, 1901, p. 518, & p. 8, H. F. Evans to Laurier, 25 Nov., 1901, #60193, M.G. 26, G, Vol. 213, Laurier Papers, PAC.

119 MacKenzie King Diary, 28 September, 1901. The quotation in the text is also from this entry.

120 MacKenzie King Diary, 2 October, 1901.

121 MacKenzie King Diary, 31 October, 1901. Cf. 23 & 29 October, 1901, MacKenzie King Diary.

122 King to Mulock, 18 Nov., 1901. M.G. 26, J 1, Vol. 3, PAC. This letter, marked "Confidential," provides the best account of King's view of the strike but see also his official report, published in the subsequent issue of the Labour Gazette (pp. 362-65, December, 1901).

123 King to Mulock, 18 Nov., 1901.

124 MK-D, 19 November, 1901.

125 See Craven, pp. 233-34 & 244-45, "An Impartial Umpire"...; also Joy E. Esberey, Knight of the Holy Spirit A Study of William Lyon Mackenzie King, (Toronto, 1980), p. 109.

126 MK-D, 19 November, 1901. For example, after speaking with some labour men in Victoria King recorded in his diary that "...they hinted or sd. directly they were trying to fill the legislature of B.C. with labour men. I feel that labour has to learn, be shewn in a frank, kindly, or other way, the real function of capital & educat'n or it will run amuck." (23 November, 1901).

127 MK-D, 19 November, 1901.

128 King to Harper, 18 November, 1901, M.G. 26, J 1, Vol. 3, PAC. See also the comments of Craven, pp. 244-45, "An Impartial Umpire"... According to H. S. Ferns and B. Ostry (pp. 57-8, The Age of Mackenzie King The Rise of the Leader, Toronto, 1955), King's trip to B.C., and the conclusions he drew from it, "precipitated a conflict ... between himself and his friend Harper." If correct, it was a short-lived conflict, since Harper died on 6 Dec., before King returned to Ottawa. King quotes in full the last two letters he received from Harper in his book The Secret of Heroism, A Memoir of Henry Albert Harper (Toronto, 1906) and neither suggest any rift between the two men.

129 In a letter to Horace Evans, quoted in Evans to Laurier, 29 Dec., 1901, #61083-84, Laurier Papers.

130 Frank Woodside, 2 Jan., 1902, on p. 22, The Miners' Magazine, February, 1902. King's letter to Mulock, 18 Nov., shows clear evidence that he had, consciously or not, accepted the mine managers' analysis of the strike.

131 The Paystreak, (Sandon) 13 July, 1901.

132 Frank Woodside, 2 Jan., 1902, on p. 24, The Miners' Magazine, February, 1902. Years later, Woodside recalled that when King advised the union executive to call off the strike, "We told him that if that was his decision after all the evidence we had produced of the violation of our Canadian Law, that he had better go back home before the striking miners who were waiting for some action found out his attitude. He left that night." (The Rossland Miner, 11 October, 1938, Historical Edition, "Inside Story of Rossland Strike," by Frank Woodside).

133 Pp. 15-16, 142, & 165-67, the Proceedings of the 1902 Convention of the Western Federation of Miners. Over a third of the WFM's entire budget for 1901/02 went on the Rossland-Northport strike, $34,241.69 of $87,013.32; see pp. 52-53 & 59, 1902 Proceedings.

134 Boyce's diary entry, quoted on p. 27, John Fahey, "Ed Boyce and the Western Federation of Miners," Idaho Yesterdays, Vol. 25, Fall, 1981. Boyce quit the W.F.M. four months later, at the 1902 Annual Convention. In his farewell speech he urged the WFM to endorse socialism, in his opinion the only way that miners could hope to achieve real progress and improved conditions. Boyce himself became a wealthy hotel proprietor in Portland, Oregon and died a millionaire. See p. 30, ibid,

135 Woodside to Parr, 29 January, 1902, Box 152, File 10, Mine Mill Papers. Notice of the settlement was published in The Miners' Magazine, pp. 33-34, March, 1902; see also James Baker's report on the strike in the Proceedings of the 1902 Convention of the Western Federation of Miners, pp. 167-71, which includes the signed agreement which ended the LeRoi strike.

136 P. 16, Proceedings of the 1902 Convention of the Western Federation of Miners.

137 James Baker, Executive Board Member for District 6 (B.C.), pp. 142 &

167-71, Proceedings of the 1902 Annual Convention of the Western Federation of Miners; WFM attorney, J. H. Murphy, pp. 151-53, ibid.; & John Kelly, Executive Board Member for District 2, pp. 165-66, ibid.

138 Pp. 97-98, ibid. The convention accepted the Board's report although the delegates from Rossland and Sandon insisted that their names "be recorded as voting against the adoption of the report" (p. 100, ibid.)

139 See, for example, the correspondence generated by Bulmer in 1906, where a union election led to a re-creation of some of the events surrounding the strike. Box 150, File 4, Mine Mill Papers.

140 Haywood to Shilland, 11 March, 1902; Haywood to all locals and all members of the WFM, 24 March, 1902; both in Box 153, File 1, Mine Mill Papers. The Butte delegate at the 1902 convention "referred to statements made by Vice President Wilks that the Federation was giving no assistance to speak of to either Northport or Rossland" (p. 172, Proceedings of the 1902 Annual Convention of the Western Federation of Miners).

141 P. 166, Proceedings of the 1902 Annual Convention of the Western Federation of Miners. The secessionist mood, Kelly reported, "appears to be only skin deep." Boyce, however, also felt "that certain members of the Federation in British Columbia were anxious to find some excuse to withdraw all unions in the province from the Federation...," p. 15, ibid.

142 See the entry for 15 March, 1902, Kaslo Miners' Union Minute Book, microfilm 812 A, PABC; Towns to Shilland, 27 March, 1902, Box 153, File 1, Mine Mill Papers. For the agenda of the District 6 convention, see Box 153, File 2. The move to withdraw from the WFM was unsuccessful.

143 The Centre Star proceeded with the action; the War Eagle intended to press its case following the Centre Star judgement.

144 The Taff Vale railway company successfully sued for damages the union that represented its striking employees. The initial judgement in the Taff Vale case came down in January, 1901 although the final judgement was not until 1903. For details on the case, see pp. 55-72, Frank Bealey and Henry Pelling, Labour and Politics 1900-1906, London, 1958.

145 The Victoria Daily Colonist followed the trial closely and summarised each day's proceedings; see especially 14 July (p. 5), 15 July (p. 9), 16 July (p. 2) & 17 July (p. 6). This last contains the judge's charge to the jury and its verdict. See also the commentary in the Labour Gazette, Vol.V (Sept. & Oct., 1904, pp. 303-06 & 432-33; and Jan. & May, 1905, pp. 731 & 1215), and the account in A. W. R. Carrothers in "A Legislative History..."

146 13 April, 1905, Victoria Daily Colonist.

147 See Box 150, Files 2 & 3, Mine Mill Papers, for the subsequent financial embarassment of the Rossland local; also pp. 345-46, A. W. R. Carrothers, "A Legislative History...;" & pp. 79-80, Boucher, "The 1901 Rossland Miners Strike."

148 See pp. 341-43, A. W. R. Carrothers in "A Legislative History..."

149 P. 3, 20 May, 1902, Victoria Daily Colonist, Vancouver Island coal magnate James Dunsmuir had become premier in June, 1900, and held office until late 1902, when Prior took over briefly until June, 1903. The Attorney-General in both cabinets was D. M. Eberts, a Victoria lawyer. He had held the same post in the Turner ministry, 1895-98.

150 P. 170, Proceedings of the 1902 Annual Convention of the Western Federation of Miners.

151 Wilks to Shilland, 6 March, 1902, Box 153, File 1, Mine Mill Papers. There are several secondary accounts of this convention. Ross Johnson's treatment (pp. 135-50, "No Compromise - No Political Trading: The Marxian Socialist Tradition in British Columbia," PhD thesis, UBC, 1975) is particularly useful, but see also pp. 154-72, Thomas Robert Loosmore, "The British Columbia Labor Movement and Political Action: 1879-1906", MA thesis, UBC, 1954. Other accounts include pp. 56-61, Martin Robin, Radical Politics and Canadian Labour 1880-1930, Kingston, 1968; pp. 130-31, Carlos A. Schwantes, Radical Heritage Labor, Socialism, and Reform in Washington and British Columbia, 1885-1917, Vancouver, 1979; & pp. 28-9, A. Ross McCormack, Reformers, Rebels, and Revolutionaries: The Western Canadian Radical Movement 1899-1919, Toronto, 1977.

152 The Fernie Free Press, 26 April, 1902.

153 See pp. 94-96, Proceedings of the 1902 Annual Convention of the Western Federation of Miners. Although both the president and the Executive Board recommended unequivocally embracing the socialist platform, this was amended by a motion from the floor simply to "advise and recommend the adoption of the platform of the Socialist Party..." (p. 94). For a discussion of the Denver convention, see pp. 255-59, John H.M. Laslett, Labor and the Left A Study of Socialist and Radical Influences in the American Labor Movement, 1881-1924, New York, 1970. Pp. 64-71, Melvyn Dubofsky, We Shall Be All A History of the Industrial Workers of the World, (Chicago, 1969) provides a brief but lucid background to the convention and Boyce's motives.

154 P. 69, Proceedings of the 1902 Annual Convention of the Western Federation of Miners. Wilks was active in the recently-formed (and non-socialist) PPP in British Columbia and did not seek re-election to the WFM executive at Denver; the Canadian Socialist, (20 June, 1902) reported that Wilks' "place on the Executive Board is taken by James A. Baker, Slocan City, B.C., who is a pronounced advocate of Socialism." A Denver newspaper claimed that Wilks was considering running for the presidency of the American parent, but Wilks denied this and later turned down the nomination (pp. 88 & 173, Proceedings of the 1902 Annual Convention of the Western Federation of Miners).

155 P. 67, ibid, Ironically, Davidson was the only successful labour candidate from the Kootenays in the 1903 provincial election. (Three other WFM officials ran: Ernest Mills in Greenwood, losing by only 9 votes in a three way contest; Alfred Parr in Ymir; and John Riordan in Grand Forks, who also came in second in three way race.) In addition to Davidson's victory in Slocan, the Nanaimo district returned two socialists to the Legislature.

156 The contest was an embarassment for the party: its honourary president,

former Lt. Governor McInnes, ran against the official PPP candidate and former Rossland miner, Chris Foley, creating a three way race with the Liberal candidate, Robert Macpherson. Macpherson won the seat with a plurality of 223 over Foley; McInnes came a very distant third. The successful Liberal candidate was an Ontario-born druggist, not the same Robert Macpherson who had sat as an MLA in Victoria after 1894.

157 For Boyce and Debs' visit, see pp. 59-60, Robin, Radical Politics,, & p. 29, McCormack, Reformers, Rebels, and Revolutionaries,, For the vote on socialism, 8 April, 1905, Western Clarion, (This contradicts Paul Phillips' claim that the WFM in B.C. endorsed the Socialist Party in 1904 (p. 38, No Power Greater: A Century of Labour in B.C., Vancouver, 1967.) In early 1903 a Socialist Party was founded in the Kootenays (pp. 38-40, Miners' Magazine, June, 1903) and by 1907 the Phoenix WFM local had the confident motto, "Socialism In Our Time" printed on its letterhead.

158 For this phase of the WFM's career south of the border, see pp. 118-59, Vernon H. Jensen, Heritage of Conflict Labor Relations in the Nonferrous Metals Industry up to 1930, Ithaca, 1950, and George G. Suggs, Jr., Colorado's War on Militant Unionism James H. Peabody and the Western Federation of Miners, Detroit, 1972, *passim.* For a fascinating statistical exploration of the WFM's militancy, see James C. Foster's two articles, "Quantification and the Western Federation of Miners", Historical Methods Newsletter, 10, 1977: 141-148 & "An Inquiry into the Fall of the WFM, and Summary of the WFM Codebook," pp. 33-45, James C. Foster (ed.), American Labor in the Southwest The First One Hundred Years, Tucson, 1983.

159 The strike is described by J. H. Tuck, "The United Brotherhood of Railway Employees in Western Canada, 1898 - 1905," Labour/Le Travailleur, 11 (1983): 63-88.

160 18 April, 1903, The Independent, The letter featured prominently on the front page, under the heading "Labor Situation in This Province."

161 For example, the locals had secret rituals, with passwords and appropriate ceremonies for particular occasions. Membership could be restricted to those aware of the responsibilities involved: the Sandon local rejected Harry Calhoun's application for membership, pointing out "that while we appreciate his idea and spirit we consider him too young to understand the obligations imposed on a member of this Union." (Sandon Miners' Union Minute Book, 24 March, 1900.) Foley subsequently became embroiled in a vituperative debate with radical unionists over tactics and strategy: see for example the editorial in The Western Clarion, 11 Sept., 1903, & Foley's reply, p. 4, 10 Oct., 1903, The Independent,

162 P. 603, British Columbia Mining Record, April, 1903. The Executive Board of the WFM in Denver, on the other hand, censured the action of the B.C. officials: see p. 56, 23 May, 1903, Executive Board Minutes, Vol. 1, Western Federation of Miners Manuscript Collection, Western Historical Collections, University of Colorado, Boulder. Another example of a joint effort was the participation of District 6 with employers' associations to lobby the federal government for the lead bounty. A year after the settlement of the Sandon strike, WFM locals in the province agreed to cooperate with the Silver Lead Mine Owners' Association in sending a joint delegation to Ottawa. See the

letters of 18 March, 20 March, & 4 April, 1901, File 15, Box 151, Mine Mill Papers.

163 See Allan Donald Orr's "The Western Federation of Miners and the Royal Commission on Industrial Disputes in 1903 with Special Reference to the Vancouver Island Coal Miners' Strike," unpublished MA thesis, UBC, 1968. Even the Trades and Labor Congress of Canada, which had been decidedly lukewarm in its support of the 1903 strikes in B.C., rejected the findings of Commission: see p. 66, Report of Proceedings of the Nineteenth Annual Convention of the Trades and Labor Congress of Canada, Ottawa, 1903.

164 James Dunsmuir to (provincial cabinet minister) W. W. B. McInnes, 30 April, 1903, Vol. 118, Add. Mss. 436, Buckham Collection, PABC.

165 Steunenberg was murdered by Harry Orchard on 30 Dec., 1905. After Orchard implicated Haywood, Moyer and Pettibone in his "confession" to a Pinkerton detective, "legal" proceedings began against the trio, in mid-February, 1906. They were kidnapped by law officers in Colorado and sent north to Idaho. The trial was not held until the summer of 1907, one of the most famous, and most publicized, ever held in the United States. They were acquitted. There are numerous accounts of the trial; pp. 86-135 of Peter Carlson's biography, Roughneck The Life and Times of Big Bill Haywood, New York, 1983, provide an excellent recent treatment. According to one source, Frank Heslewood, prominent in both the Industrial Workers of the World and the WFM, "In Canada ... armed several hundred men and was ready to march on Boise to free the prisoners..." (p. 67, Patrick Renshaw, The Wobblies, New York, 1968).

166 20 Nov., 1908, The Voice, (Winnipeg).

167 P. 38, Miners' Magazine, May, 1903. The $3 day for muckers had been one of the three strike issues in 1901.

168 Executive Board, Rossland Miners' Union, to "Managers of the Different Mining Companies...," 18 April, 1907, quoted on p. 133, The British Columbia Mining Record, April, 1907.

169 An additional motive for the wage rise was uniformity: the managing director of the Consolidated Mining and Smelting Company of Canada, Ltd. [Cominco], W. H. Aldridge, explained to the company's president that "The muckers in Rossland are asking $3.00 for eight hours work in place of $2.75. As the LeRoi are inclined to consider these wages, which are standard in the Boundary, at the St. Eugene [a Cominco property] and in Butte, I have decided to raise no objections." Aldridge to W. D. Matthews, 8 April, 1907, File 2, Vol. 8, Cominco Papers, Add. Mss. 15, PABC.

170 Pp. 299-305, C. B. Glasscock, The War of the Copper Kings Builders of Butte and Wolves of Wall Street, New York, 1935.

171 The Act was proclaimed 22 March, 1907; for a discussion of its provisions, intent and much else, see pp. 271-317, Craven, 'An Impartial Umpire...'

172 P. 792, Labour Gazette, January, 1908.

173 As the Report of the Board acknowledged: "it has been made to appear by all parties to the dispute that we are expected to fix a scale of wages that would apply to practically all the mining districts of Kootenay and Yale...," p. 794, Labour Gazette, January, 1908. During the hearings, Cominco's general manager told the Board's Chairman that he felt that the Board's "decision will be one of the most important ever given in the West and one which is likely to stand for a great many years to come...," Aldridge to Judge P. E. Wilson, 14 Nov., 1907, File 2, Vol. 8, Cominco Papers, Add. Mss. 15, PABC. Cf, Aldridge to Stockett, 1 Oct., 1907, ibid,

174 P. 796, Labour Gazette, January, 1908.

175 Pp. 302-05, Jensen, Heritage of Conflict; as Jensen notes, the Butte agreement led to considerable argument within the WFM. At Cominco, Aldridge went to a good deal of trouble to investigate the wages and conditions in other mining camps, and even sent a senior official down to Butte on a fact-finding mission, to prepare for the St. Eugene hearing. (See Memo for S. G. Blaylock, 10 Oct., 1907, & Aldridge to George Casey, 10 Oct., 1907, File 2, Vol. 8, Add. Mss. 15, Cominco Papers, PABC.) For the St. Eugene arbitration as well as for subsequent wage negotiations, Cominco management drew up large blueprints comparing the wages paid in all western mining camps; e.g., Files 4 & 8, Vol. 8, & File 1, Vol. 9, Add. Mss. 15, Cominco Papers, PABC. This forced the WFM to respond in kind, to gather similar statistical data with which to plead its case. At Board hearings, the secretary of District 6 explained to U.S. locals, "the employers['] representative is invariably supplied with a vast amount of statistical information, gathered all over the Continent, and sorted over with the intention of featuring such information as will be most useful to him in the conduct of his case." (blank circular of Shilland to WFM locals in the U.S., 2 Aug., 1912, "Sandon - Historical," File 20, Rossland Historical Museum). Shilland wanted the U.S. locals to send him data on wages & cost of living. After the St. Eugene arbitration, "Statistical Information Blanks" were printed by District 6 and distributed to member locals to fill in every three months (blank circular of Shilland to District 6 locals, 3 Aug., 1912, "Sandon - Historical," File 20, Rossland Historical Museum.) Although Shilland complained that few locals had done this adequately, a number of completed forms survive in the Rossland Historical Museum archives.

176 Aldridge to J. A. Harvey, 11 Jan., 1908, File 4, Vol. 8, Add. Mss. 15, Cominco Papers, PABC. Goldfield, Nevada was the scene of bitter factional fighting between the Industrial Workers of the World & the WFM, 1906-07 (pp. 219-35, Jensen, Heritage of Conflict). Aldridge also wired B.C.'s Attorney General, requesting 24 hour police protection for the plant at Moyie: "Have reason believe there are a few radicals who would be inclined destroy works if opportunity offered. Have no intention bringing in outside men or attempting resume operations." Aldridge to Bowser, 10 Jan., 1908, File 4, Vol. 8, Add. Mss. 15, Cominco Papers, PABC.

177 See "Summary of a Dispute Over Wages, St. Eugene Mine, December 1907- January 1908," File 81, Box 11, Collection 3, Cominco Archives, Vancouver; File 4, Vol. 8, Add. Mss. 15, Cominco Papers, PABC, passim,

178 A copy of the resolution condemning the IDI Act survives in File 14, Box 159, Mine Mill Papers, UBC. For a summary of the convention's busines, see p.

969, Labour Gazette, February, 1908.

179 "Memorandum of Talk to Trail Miners' Union, Wednesday, November 27 [1907]," File 81, Box 11, Collection 3, Cominco Archives, Vancouver, B.C. I am grateful to Mr. Filipelli for allowing me to consult Cominco's archives.

180 Ibid, The author of the memorandum noted that the resolution to poll union members "was introduced by one of the socialists," and that the resolution to accept the wage reduction "was introduced by another prominent socialist."

181 In 1913 another Board of Conciliation and Investigation heard evidence in the Kootenays, although as in 1907 Rossland and Trail were not parties to the dispute. Managers claimed, and the unions did not dispute, that at least 80% of the workforce lived in boarding houses. (P. 2, Certified copy of Report and Findings of the Board of Conciliation and Investigation, Majority Report, 27 Jan., 1913, copy held in "Sandon - Historical," File 20, Rossland Historical Museum.)

182 Aldridge to W. J. Bowser, 17 Dec., 1908, File 1, Box 16, GR 429, PABC.

183 See p. 811, Labour Gazette, February, 1909; p. 975, ibid., March, 1909; & pp. 355-56, Proceedings of the Sixteenth Annual Convention of the Western Federation of Miners, 1908.

184 See, for example, p. 354, 22 May, 1906, & p. 402, 11 Dec., 1906, Executive Board Minutes, Vol. 1, WFM Collection, Boulder.

185 For details, see the 1912 correspondence of the WFM, held in "Sandon - Historical," File 20, Rossland Historical Museum. The file also contains a typescript copy of the proceedings of the August convention.

186 H. Varcoe, Secretary, Local # 38, to A. Shilland, Secretary, District 6, 16 Aug., 1912, "Sandon - Historical," File 20, Rossland Historical Museum, Rossland.

187 P. 3, "Proceedings of Special District Convention Held in Nelson, B.C., on Friday, August 23rd, 1912," "Sandon - Historical," File 20, Rossland Historical Museum.

188 P. 121, 15 Jan., 1913, Executive Board Minutes, Vol. 3, WFM Collection, Boulder. Three years later the Rossland local unilaterally declared itself "no longer a part of the above named District Association [# 6]..." (George Dingwall, Chairman, Board of Trustees, Rossland Miners' Union, to W. J. Ferguson, Sandon, 1 Aug., 1916, "Local 480 - Mine Mill, Miscellaneous Correspondence," File 38, Rossland Historical Museum.)

189 James J. Warren to J. W. Flavelle, 1 July, 1916, Consolidated Mining & Smelting, 1916, 1919, Flavelle Papers, MG 30, A 16, Vol. 3, file 22, Public Archives of Canada. Warren made much the same point the following year in letters to Flavelle and White, the Minister of Finance, both dated 27 March, 1917 and held in File 81, Box 11, Collection 3, Cominco Archives, Vancouver.

190 P. 110, 31 Jan. 1918, Executive Board Minutes, Vol. 4, WFM Collection,

Boulder. The Executive Board referred to "the asininity of the Trail local" (p. 92, 22 Jan., 1918, ibid.) and described the dispute as an "illegal and unwise strike" (p. 110, 31 Jan. 1918, ibid.) Stanley Scott deals with the strike in his article, "A Profusion of Issues: Immigrant Labour, the World War, and the Cominco Strike of 1917," Labour/Le Travailleur, 1977, pp. 54-78. Unfortunately, Scott's sympathy for the workers obscures his understanding of the complex issues involved.

191 "We lost all our Locals in B. C. when the O.B.U. movement was launched," confessed one Executive Board Member in a letter (H. S. McCluskey to F. J. K. McBride, 28 June, 1920, Folder 3, Box 3, Henry Stanley McCluskey Collection, Arizona Collection, Arizona State University, Tempe.) For a description of this process, see pp. 143-45 & 189-96, David J. Bercuson, Fools and Wise Men The Rise and Fall of the One Big Union, Toronto, 1978. In late 1916 the WFM decided to change its name to the International Union of Mine Mill and Smelterworkers.

192 In early 1920, James J. Warren, now Cominco president, assured a group of union men that "The angel Gabriel couldn't act between this Company and the O.B.U. either directly or indirectly, we will have nothing to do with them in any manner, shape or form of the word." (G. C. Marshall to Moyer, 18 Feb., 1920, Folder 5, Box 2, McCluskey Collection.) See also pp. 190-91, Bercuson, Fools and Wise Men.

IV

The Emergence and Growth of Cominco, 1898-1920.

In 1901, Mortimer Lamb, a mining journalist then based in Victoria, included the following excerpt from the Nelson Tribune in his weekly "Mines and Mining" feature in The Victoria Daily Colonist:

> A Montreal magnate recently at Rossland was making a lament to a local bank manager. The Montreal magnate said: "Capitalists like myself have lost millions in mining in British Columbia."
> The local manager replied:
> "Oh, come off the perch, you people make me dead tired. The whole outfit of you from Montreal to Toronto have dug up less than three millions for mining in British Columbia. You have purchased shares in mining companies from each other and lost money, but you have not lost a dollar through purchasing and working mines. You have allowed sharp Americans to cold deck you at a game that you did not understand, and now you come out here whining about the millions that the mines of British Columbia owe you when, as a matter of fact, you haven't the nerve to take hold of a piece of property and take chances of making a mine of it." [1]

The late 1890s had indeed been unrewarding for those eastern Canadians and Britons who had made substantial investments in the province's mining industry. To make matters worse, the Rossland strike was just underway when the Montreal capitalist and the Rossland bank manager spoke. But despite the industry's poor performance in the past and its apparently bleak future, "The whole oufit ... from Montreal to Toronto," at least those of them willing to stay the course, did eventually earn very substantial dividends on their

investment. This chapter explores the progress of their initiatives to make the Rossland mines pay, initiatives which led eventually to the emergence of the Consolidated Mining and Smelting Company of Canada [Cominco] in early 1906.[2] The subsequent career of the company is also examined, although in less detail.

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The complaint of the "Montreal magnate" was typical: similar statements were made by a number of investors in the Kootenay mines generally and Rossland mines in particular. Much had been invested and very little had been returned. Beginning in 1901, attempts were underway both to diagnose and to remedy the situation. The mining industry's problems, observers agreed, included high labour costs; high government taxation and generally unfavourable provincial legislation; difficulties in recovering full assay values from ore, particularly from the low grade ores; and high transportation and smelter charges. As a result of the Rossland strike, labour relations frequently dominated these early discussions of the mining industry's ills.

The drive to subdue the power of the Rossland union was only a part of the managers' policy, as the analysis of Bernard MacDonald discussed in the preceding chapter makes clear.[3] And however successful the subjugation of organised labour, it did not follow that profits would suddenly appear as a consequence, for the defeat of the miners' union simply disposed of a convenient scapegoat. The anti-union rhetoric of mine managers like Edmund Kirby and MacDonald, while no doubt sincerely felt, originated in their economic problems: ore values in both the LeRoi and the Centre Star/War Eagle were falling, a decline which steadily eroded the margin of profit. This was exacerbated by high company capitalizations, the legacy of the Rossland

boom. Given the magnitude of the difficulties facing the companies in Rossland it is scarcely surprising that the defeat of the Western Federation of Miners brought little relief.[4]

The significance of labour costs in the mining industry's difficulties was greatly exaggerated by Rossland's managers. The British Columbia Mining Record carefully analysed the "Unsatisfactory Condition of the Mining Industry and the Causes" in its July, 1901 issue. After considering the alleged "Abnormally high cost of production from inefficiency of labour" (one of eight "hypothetical reasons for the bad odour in which British Columbia stands," reasons studied "with the view ... of discovering those which are valid and those which are not"), the journal concluded that "In well-managed mines the cost of production in British Columbia appears to compare favourably with the same classes of mines in other countries."[5] The real trouble, the journal decided,

> ...seems to be mainly traceable to exaggerated anticipations on the part of investors; extravagance and incompetence on the part of the representatives of investors; overtaxation and injurious incidence of taxation, and extensive swindling on the part of company promoters.[6]

Of these problems, taxation was the only one that could be easily or quickly changed. Just as this issue of the British Columbia Mining Record appeared, B.C. mine owners and managers demanded that the provincial government ease its "restrictive" mining legislation.

The week before the Rossland strike began, the British Columbia Mining Association met at Nelson and adopted a "Memorial," allegedly written by Kirby and MacDonald.[7] This was a list of grievances whose two main complaints were over-taxation and "oppressive legislation." Addressed to the Governor-General in Council, the memorial requested that the federal

government appoint a royal commission to investigate B.C.'s lagging mining industry.

The memorial caused quite a sensation when it was made public. The Victoria Daily Colonist editorialised that "The language of the memorial appears needlessly extravagant," and agreed with the provincial Minister of Mines that "the complaints made by the Association in regard to recent legislation are utterly unfounded."[8] Both Richard McBride, the Minister of Mines, and John Turner, the provincial Minister of Finance, gave press interviews in order to answer the charges made against the provincial government. McBride emphatically rejected the Memorial's argument that the responsibility for the mining industry's difficulties could be laid at Victoria's door:

> The causes for any depression that may exist in the mining industry in British Columbia ... are not attributable to legislative enactments or restrictions, but to a condition of things brought about by over-booming, over-speculation and over-capitalization of companies.[9]

The Rossland strike, however, diverted attention from the memorial, and its request for a royal commission to investigate the difficulties of the mining industry was ignored by the federal government.

Mine managers and owners claimed that a veritable host of problems threatened the industry's successful development. Most frequently cited in this litany of excuses and accusations were high labour costs and/or unwise government regulation, although evidence suggests that these charges were unjustified. Other problems included exorbitant smelter and transportation charges, difficulties in treating refractory ores and the growing monopolistic power of American smelters. The ultimate solution to these vicissitudes, real and perceived, confronting the Kootenay mining industry was amalgamation of the Gooderham/Blackstock mining interests (the St. Eugene mining properties in

Moyie, the War Eagle/Centre Star and the Rossland Power Company) with the CPR's Trail smelter, the Canadian Smelting Works. This large merger brought a vertical integration of railway lines, smelter and a diverse stable of mines. The London-based LeRoi Mining Company was conspicuously absent from the new company, although strenuous efforts were made to include it. More lay behind the genesis of Cominco than simply company amalgmation, however, and following sections will explore the context of the company's birth.

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The CPR dominated the merger that created Cominco in 1905-06. Its interest in the Kootenay mining region had begun almost as soon as regular transcontinental traffic was underway. In 1889, for example, company shareholders were notified that the CPR had control of the Columbia and Kootenay Railway.[10] Throughout the 1890s the railway continued to improve and expand its Kootenay connections. Major acquisitions came in the period 1896 - 1898, beginning with the purchase of the Columbia and Kootenay Steam Navigation Company, the major group of river boats providing the vital connections between various rail lines of the area. Then came the construction of a railway into the Kootenays from Alberta through the Crows Nest Pass route. And in early 1898, the company bought F. A. Heinze's railway, the Columbia and Western, as well as his smelter at Trail. CPR shareholders were told that all this would stimulate further mining development in southern British Columbia "and is certain to add largely to the earnings of the Company."[11] If anything threatened this anticipated prosperity, it was competition from the rail lines south of the border.

D. C. Corbin's Columbia and Red Mountain Railway was Rossland's other major transportation route. It connected the mines to a second smelter in

Northport, Washington as well as linking the city to the American transcontinentals through Spokane. Not long after Heinze abandoned his "Canadian interlude" and returned to do battle at Butte, Corbin also sold the Columbia and Red Mountain. By July 1, 1898, J. J. Hill's Great Northern Railway controlled Corbin's Spokane-Rossland line.[12] Ore shipments offered railways regular and lucrative business, and intense competition began between the two systems, Hill's Great Northern group and the CPR, capable of handling the traffic.[13]

Railway competition in southeastern British Columbia was more wide-ranging than simply rivalry for ore traffic or supplying the province's smelters with coal and coke. At stake was which rail network would assume the dominant position in the Canadian west, especially in the area between the CPR's main line and the U.S. border. Both the Great Northern and the CPR went to considerable efforts to ensure victory. The construction of two separate and distinct transportation systems within the Kootenays was one consequence of this battle.[14] Another was the CPR's commitment to vertical integration: to re-furbish and extend Heinze's smelter. The company re-organized the Trail plant as the Canadian Smelting Works, and placed it in the hands of an energetic and ambitious American, W. H. Aldridge.

Like Kootenay railways, the region's smelters needed considerable quantities of ore to achieve profitable operations. The LeRoi's Northport smelter was a serious threat to the Canadian Smelting Works, since it siphoned off a substantial percentage of Rossland's production. Aldridge's response was to diversify. After he took over the works on 1 March, 1898, the plant closed for improvements and expansion. These changes allowed the smelter to treat the silver lead ores of the Slocan and East Kootenay, in

addition to Rossland's copper gold ores. Despite the capital outlay required to construct the lead furnaces and roasters, the capacity to treat silver lead ores provided the smelter's owners with a greater range of potential customers. The CPR had several connections between Trail and the Slocan mines, while the CPR's Crows Nest Pass railway and its Kootenay Lake steamers between them could bring the Moyie area's silver lead ore to Trail.[15] Despite these advantages, however, the new smelter was not an immediate success.

In 1901, Aldridge faced two difficulties. The miners' strike brought a prolonged shutdown of his main Rossland producers, while a steep drop in the price of lead closed a number of the province's silver lead mines.[16] Sir Thomas Shaughnessy, CPR president, called him to Montreal to discuss the problems, and then outlined the company's difficulties in a long and candid letter to Sir Richard Cartwright, the Minister of Trade and Commerce. Shaughnessy admitted to Cartwright that

> With the large investment that we have made in railways to serve these mining districts, amounting to about $15,000,000. in the last four years, we are, of course, very much disturbed by the conditions that prevail [in British Columbia]. Practically, all of the ore now produced in the Rossland camp goes to the Northport Smelter, because the Le Roi and Josie Mines have their own smelter at that point. We ... made them a proposition to do the work at Trail at much lower figures. They declined, because, no doubt, the abandonment of their Northport smelter might injuriously affect some of their stock operations in London.
> We have left no stone unturned to encourage the opening and operation of mines, because, of course, we must depend upon them for the support of our railway lines in the mining districts.[17]

Shaughnessy was irritated that so many B.C. mining companies publicly blamed railway and smelting charges for their financial problems which, as he pointed out to Cartwright, stemmed from low metal prices and high capitalization.

While Shaughnessy resented such attacks on the CPR, the company and Kootenay mine owners plainly shared an over-riding concern in the health of the province's mining industry. Thus, when a serious and unexpected threat arose in 1901, the two responded in unison. The American smelter conglomerate, American Smelting and Refining Company [Asarco], was establishing monopoly control over the ore treatment industry in the United States.[18] Asarco's success was such that by 1901 Canadian ores were no longer in demand south of the border. With the lucrative U.S. lead market in the hands of Asarco, B.C.'s silver lead mines had nowhere to ship their ores for treatment. The province's mine owners responded by initiating "A very active agitation for Government assistance in the development of lead mining and smelting...."[19]

During the spring of 1901, meetings were held throughout the Kootenays, often under the auspices of local Boards of Trade. As a consequence, "on April 15 a large deputation from the Kootenay district, generally, waited upon the members of the Government at Ottawa with the object of securing a bounty towards establishing the lead refining industry in Canada."[20] Within six weeks the government responded to the pressure by introducing the called-for lead bounty.[21]

The legislation, to take effect in 1902, involved an initial payment of $5 for each ton of lead produced at a Canadian refinery, with the proviso that the lead had also to have been mined and smelted in Canada.[22] The program had a five year limit, and no more than $100,000 would be paid out during any one year. The tonnage bonus was to reduce annually, that is, it would be $5 a ton for 1902, $4 in 1903 and so on. For this apparent abandonment of free trade principles, Sir Wilfrid Laurier, William Fielding (Minister of Finance

and the bill's sponsor) and Cartwright had to endure the sarcastic congratulations of the Conservative opposition. "I will not discuss the theoretical question of whether this is in line with protection or not," Laurier responded wearily, ".... The only point that seems to be apparent is that everybody wants a bounty for himself." His colleagues insisted that the bonus was a special case, "...a means taken by this country as a whole to meet the combine of lead refiners and smelters of the United States."[23] By December, 1901, Aldridge and Shaughnessy had agreed to build a refinery at the Trail works,[24] thereby guaranteeing that B.C.'s lead would be assured of treatment.

The CPR had earlier contemplated selling the smelter, but once the lead bounty was in place the company apparently renewed its commitment to Trail's expansion.[25] The lead refinery was installed in 1902, utilising new technology, the Betts process of electrolytic refining. This first ever commercial application of the new technology proved to be a resounding success.[26] The capacity of the original refinery was a modest eight tons a day. In 1904 this was doubled and by 1906 it had reached 70 tons a day.[27] The Huntington-Heberlein roasting process, a recent advance in lead smelting, was also incorporated into the Trail plant in 1906. This was an important innovation for the plant's lead smelting, since it not only "resulted in a great reduction in smelting costs"[28] but also allowed the plant to operate much more efficiently with the locally available silver lead ores. As an earlier researcher has pointed out, the process provided significant advantages, "advantages [which] were particularly important in areas where the lead industry depended on only a few mines producing the same type of ore, and where mix-smelting was unprofitable."[29] Mix smelting involved blending a wide range of ores in order to maintain self-fluxing or neutral charges for the furnaces; such a process was well suited to the American "valley smelters" of

Colorado and Montana, since they could tap a diverse group of mines (and ores). The Huntington-Heberlein process freed the Trail smelter from its competitive disadvantage as a mix smelter, allowing it to develop a custom process closely tailored to the East Kootenay ores.[30] Under Aldridge's management, and with the active encouragement of both the federal government and senior CPR management, the Trail smelter adopted the latest technological advances and diversified its capacity, moving from being a somewhat primitive copper smelter almost totally reliant on the Rossland ores to its position as a modern plant able to treat virtually all the ores then mined in south-eastern British Columbia.

The construction of the lead refinery and the adoption of the Huntington Heberlein process established the Trail smelter as one of the most advanced on the continent; "probably the largest and most complete of its kind in America," pronounced R. W. Brock, the director of the Geological Survey.[31] When the Canadian Mining Institute organised an international "excursion to the mineral districts of Canada" in the late summer of 1908, the visiting experts were much impressed by the Trail smelter and indeed with the Kootenay region generally. Describing the experience later, a member of the British contingent confessed that "the visitors, who had been referred to by the local press in such flattering terms as "eminent experts," "big fellows," and the "top notchers" of their profession, were all very ready to admit they had learnt a great deal from their genial professional Canadian brethren."[32] These overseas mining men were particularly struck by "the courage exhibited in attacking low grade ores, and the technical and administrative skill which have established sound industrial concerns upon low grade ore bodies..."[33] For Rossland managers, this was a case of necessity being the mother of invention.[34]

The advances at the Trail smelter in 1902-1906 chiefly affected its lead treatment processes. In Rossland, new technology was also imported in order to meet the challenge of treating the mines' increasingly low-grade copper gold ores. It was becoming obvious that if a means was not soon found to process these ores, Rossland's future as a mining centre would be in jeopardy. By 1903 the problem was receiving much attention; at the end of the year Rossland's Gold Commissioner reported that

> some experiments ... have been conducted for the better reduction of Rossland's ores.... In consequence of this, several plants, of varying nature, have been completed, or are under way, and the years to come will probably see a revolution in the treatment of ores of this camp, the initial stages of which have been witnessed in 1903.[35]

Five concentrating mills were built in the vicinity of the mines in the hope of lowering smelter costs. The aim was to put the ore through an initial stage of treatment at these mills. Their product, material of substantially higher grade, would then be shipped to the smelter.[36] The most innovative of these experiments involved what was known as the "Elmore Oil Process." A fore-runner of the flotation process, it was installed at two Rossland mines (the LeRoi No. 2 and the White Bear) in 1903-1904, but ultimately proved to be a failure.[37] The other mills around Rossland were no more successful than those using the Elmore process; these failures suggested the need for other approaches to achieve "the chief end and object of mining, viz: - the earning of a profit."[38]

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In January, 1905, the British Columbia Mining Record reflected on the past year's progress at Rossland, concluding that "operations... have not proved as satisfactory as it was earlier anticipated."[39] The failed attempts to

concentrate Rossland's ore were central to the journal's account; it was clear that Rossland's mines had yet to be placed on a secure and profitable basis. These unsuccessful efforts to turn a profit on the lower grade deposits contrasted with the expansive growth of the Trail smelter. A new approach was necessary to make the mines pay.

In mid 1904 the London-based directors of the LeRoi concluded that an amalgamation of the various mines was necessary to achieve economies of scale and thus profitable operation. They employed R. W. Brock, a member of the Geological Survey of Canada, to report on the condition of the various Rossland mines and to provide them with an impartial valuation of the several properties under consideration.[40] Aldridge met one of the LeRoi directors in November, 1904 and found him an enthusiastic supporter of amalgamation. "He is anxious to make a large consolidation of Rossland and Boundary interests," he reported to Shaughnessy, "...and I told him that such a consolidation would certainly receive the encouragement of the [Canadian Pacific] Railway so long as they [sic] were sure that they would receive the haulage."[41] The proposal to unite the LeRoi with other Rossland mines received considerable attention at the Le Roi Mining Company's annual general meeting at the end of January, 1905. Despite the initiatives of the Le Roi's directors, however, the company was not included in the "consolidated" company formed in early January of 1906.

By the spring of 1905, local and national journals as well as the international mining press were discussing the efforts then underway to merge the various Rossland properties.[42] A series of meetings in Rossland considered the mechanics of the proposed merger, and the key players made optimistic public statements. The War Eagle/Centre Star's new manager was hopeful; the

LeRoi's managing director saw no obstacles ahead; George Waterlow, the LeRoi director with whom Aldridge had met the previous November, "stated with considerable emphasis that the proposed merger of the big mines and smelters of the Trail Creek district is practically an assured fact."[43] The leading figures in all the companies involved were scheduled to assemble in Rossland in May. However, the death of George Gooderham on May 1 and the continuing ill health of T. G. Blackstock forced a change in this plan. In mid-May, the conference venue was changed to Winnipeg. R. W. Brock, the government geologist cum university professor, was there to give the managers his estimate of the relative worth of their properties. Three men represented the LeRoi in Winnipeg: Waterlow, J. W. Astley (the superintendent) and A. J. MacMillan, the managing director. James Cronin represented the three Gooderham-Blackstock properties; he had managed the St. Eugene mine for some time and since January had been managing the War Eagle/Centre Star. Aldridge was also present, on behalf of the Canadian Smelting Works and the CPR interests.

The Winnipeg meeting did not go as planned and the earlier unanimous support for the amalgamation came to an end. The Daily Colonist reported that the "proposed consolidation ... is off for the present owing to a disagreement in the estimates of the figures at which some of the properties were to be rated."[44] MacMillan, the LeRoi's managing director, objected to Brock's valuations although Waterlow's faith in the plan was unshaken.[45] Despite MacMillan's opposition, however, plans for the merger went ahead.[46] He returned to Rossland, but Waterlow, Aldridge and Cronin continued travelling east, to meet with the CPR board in Montreal and the Gooderham/Blackstock group in Toronto. The most dramatic developments took place in Toronto: on the first of June, the "Aldridge Syndicate" secured an option on the

Gooderham-Blackstock group's majority holdings in the War Eagle/Centre Star, the Rossland Power Company and the St. Eugene Consolidated. Despite Blackstock's reluctance, the purchase went through in late June, for $825,000.[47]

The Gooderham-Blackstock group's decision to divest apparently came after the death of George Gooderham on 1 May, 1905. Blackstock, Gooderham's son-in-law and the partner most interested in the mining investments, had not been well himself since contracting typhoid fever during a visit to the syndicate's mining properties in 1901. "Notwithstanding his ill-health," The Globe reported,

> Mr. Blackstock worked hard to bring the mining enterprises to a paying basis, and in that work he really jeopardized his own life....
> After Mr. Gooderham's death, the burden of looking after the large interests he had in hand fell largely upon Mr. Blackstock, and, although his health was broken, he manfully stayed with the task as long as he could. [48]

The size of Gooderham's estate, worth some nine million dollars according to The Gazette, perhaps was an additional factor in dissuading the family (also the beneficiaries) from pursuing the less than successful mining investments.[49]

More research is required before final conclusions may be reached about the CPR's decision to expand its mining holdings in June, 1905. On the basis of available evidence, two things appear crucial. The first was the company's perception that if it did not step in to buy the Rossland mines, they would end up in the hands of the Great Northern. In the event that the CPR's competitor controlled the ore of the War Eagle/Centre Star and the St. Eugene as well as the LeRoi, the CPR's smelter would be doomed: it would simply not have enough ore to continue operating. Thus the CPR had either to increase its mining and smelting investments, or bow out altogether. This would mean writing off the CPR's substantial investment in the Trail plant and

experiencing a dramatic decline in its rail traffic throughout the region. The other factor in the Gooderham–Blackstock purchase was the railway's financial position: the CPR's operations at the time were extremely profitable. In October 1905, for example, Shaughnessy told shareholders at the annual general meeting of "the strong and satisfactory position of the company.... business conditions throughout Canada are at the moment more favorable than at any other time in the history of the company, and there would appear to be no reason for apprehending a change in the near future...."[50] While the CPR's decision to invest further in mining was perhaps risky, given the history of eastern Canadian investment in the Kootenays, the year's profits may have inclined the directors to indulge in a little gambling. Whatever prompted the purchase, the event was an important one: an informal consolidation had taken place. Now the outstanding issue was whether or not the LeRoi, the original advocate of consolidation, would still agree to participate.

In late August, 1905, Aldridge met with the LeRoi's directors in London to persuade them to come in on the merger and to allow Trail to treat the LeRoi's ore. The CPR's purchase of the War Eagle/Centre Star and the St. Eugene two months earlier had changed the position of the LeRoi in the much anticipated merger. The LeRoi would now be a partner, and probably a junior one, rather than the leader in any new company. MacMillan, the managing director, was convinced that this would mean the end of the Northport smelter, although his concerns were dismissed by the other LeRoi directors. At the August meeting of the Board, MacMillan declared his objections to the LeRoi's participation in the amalgamation. As a result, he was forced off the Board.[51]

A shareholders' meeting was called for early December, 1905 to vote on the "Amalgamation Scheme" which the other directors had endorsed. This meeting, like many of the events in the LeRoi's history, did not turn out as planned: the shareholders voted down the scheme and proceeded to replace Waterlow, the director who was the staunchest advocate of amalgamation, with MacMillan.[52] After several weeks of legal in-fighting, a new anti-amalgamation directorate dominated by MacMillan replaced the old one, although the actual transfer of power was not completed until a High Court judge granted an injunction to MacMillan, preventing the old directors from conducting a second ballot. Aldridge, who had been in London for the December shareholders' meeting, wrote that

> The Great Northern, through McMillan, spent large sums of money in purchasing LeRoi stock and perfecting an organization throughout England in collecting proxies. The meeting ... was packed, but of course we knew when we went into [it] that the proxies stood 85,000 for McMillan and 45,000 for the present Board. The Board was frightfully weak in every particular. We were not so much interested in the actual amalgamation as to be able to defeat McMillan, but McMillan had practically won out a couple of months before we arrived in England through the agitation in the papers and his many circulars.
> We are going right ahead to form our Canadian Company comprising Centre Star, War Eagle, St. Eugene and the Trail Smelter. The mines are all looking well, and we are earning at about the rate of one million per year.... [53]

The new organization, as Aldridge indicated, was going to be a "Canadian Company," its ownership based firmly in the Toronto and Montreal financial communities. After the Le Roi's English shareholders made their objections to amalgamation clear, Aldridge quickly returned to eastern Canada where he orchestrated the formal creation of Cominco from the heretofore separate properties controlled by the CPR. In January, 1906, a series of meetings of the participating companies approved both the creation of one

large enterprise and the following distribution of stock in the new company:

St. Eugene	49.8%
War Eagle & Centre Star	33.2%
Trail Smelter	15.8%
Rossland Power Co.	1.2%[54]

The St. Eugene's high value is noteworthy since the mine was nearing depletion and was practically abandoned five years later. Apparently Cronin, the St. Eugene's manager, deliberately increased production and shipped high grade ore in order to run up the value of St. Eugene stock; the high value assigned the mine in the amalgamation reflects this flurry of activity.[55]

On 26 February Cominco issued its first report to shareholders and Aldridge, its managing director, declared that

> The Consolidated Mining & Smelting Co. of Canada, Ltd., is not dependent upon any single mine, nor upon any single mining district; but its interests and business, besides being to an extent industrial, will also be so diversifed as to minimise, so far as possible, the speculative element. [56]

Not only was the new company going to be a more business-like concern but also, observers agreed, it would be Rossland's salvation. The town, declared Mortimer Lamb, "was never in a better condition;" Cominco was "Possibly the best thing that ever happened in Rossland's interests.... As a result of this consolidation, ... the mistakes and vicissitudes of the past are being forgotten in the successes of the present and in the bright promise of the future."[57] George Ohren, writing in The Canadian Mining Journal, concurred; he felt that "The advent of [Cominco] into Rossland has been an important step towards establishing a prosperous future for this district."[58] The optimistic reports of Aldridge, Lamb and Ohren emphasised a common theme: mining was becoming more business-like. They saw Cominco's birth as reflecting a new maturity, a

sign of the shift from an earlier form of mining venture, often marked by recklessness and stock market manipulation, to modern industrial organizations structured much like any other business.

In a contemporary article in the San Francisco-based Mining and Scientific Press, J. R. Finlay described the "Requirements of Modern Mining." He argued that no one person could now master all the skills and knowledge of the industry for it had become too complex: "... pretension to know the whole mining business can be nothing but a fraud." His point was that in order to manage the modern mining industry, its senior personnel needed to be business men rather than mining men. He emphasised that

> the men who now control the greatest [mining] enterprises are not mining engineers; they did not even begin as mine owners; they were business men whose business was refining oil and selling it, or financing smelting enterprises; they were men whose wits were sharpened by competition...[59]

The men on Cominco's Board of Directors are good examples of the trend that Finlay described.[60]

A list of Cominco's first directors reveals the company's intimate association with the Canadian business elite.[61] The president of the Board was Wilmot Matthews, a Toronto businessman who had taken over his father's grain company and later founded, with Lionel Clarke, the Canada Malting Company.[62] He was also a CPR director, vice-president of the Dominion Bank and a past president of the Toronto Board of Trade. "Few, if any, men in the Dominion had wider associations with Canadian finance, industry and commerce," ran his obituary column, "... Financial publications credited him with being a millionaire and one of the twenty three men who were at the head of Canadian finance." George Sumner was Cominco's first vice president, an English-born Montreal merchant with earlier mining investments in the

Kootenays.[63] A director of the St. Eugene Consolidated prior to the CPR purchase in 1905, Sumner was also interested in the Canadian Gold Fields Syndicate; he apparently came to the Cominco Board as a representative of the St. Eugene shareholders.[64] A second Montreal businessmen on the Board, C. R. Hosmer, had made a name for himself as manager of various telegraph systems, retiring in his late forties "to devote himself to other fields of endeavour."[65] Hosmer's business interests were impressive: as well as a director of Cominco, he was on the board of such firms as the Bank of Montreal, the Royal Trust Company, CPR, Sun Life Assurance and Dominion Textile. Like Matthews, he was alleged to be one of the twenty three men "at the basis of Canadian finance..."[66] The fourth board member, E. B. Osler, was a Toronto stock broker with equally solid business connections.[67] He was president of the Dominion bank, a past-president of the Toronto Stock Exchange and a Conservative Member of Parliament for Toronto from 1896 to 1917. With Matthews, Osler figured prominently in a number of lucrative CPR-related enterprises.[68] Sons of both Osler and Matthews also sat on Cominco's Board. The seventh and last of the original directors was Aldridge, the Managing Director of the new company.[69] Hosmer and Sumner had earlier connections with Kootenay investments, but only Aldridge possessed any professional mining expertise.[70] But the Cominco directors were not "guinea pigs," the derogatory term used to describe the titled persons who adorned the Boards of so many speculative British mining ventures;[71] these men were part of the movement Finlay had described, the financiers of "Modern Mining."

The composition of Cominco's first Board of Directors suggests a similarity in the company's development with that of other leading mining companies of the day. Does the company's creation indicate this same congruency; after all, it coincided with numerous other large mergers and

consolidations across the continent.[72] Perhaps the best way to approach this question is to compare the specific causes of the Cominco amalgamation, already described in this chapter, with the various reasons that have been suggested to explain "the great merger movement" that occurred around the turn of the century.

Cominco's birth accomplished several things for the CPR, the company which acted as both parent and mid-wife. It solved the problem of uncertain ore supply for the Trail smelter, guaranteed a certain volume of traffic on its Kootenay rail lines and created a closed system of mines, smelter and railway which would effectively deny further opportunities to the CPR's main competitor in the area, the Great Northern. Aldridge also claimed that Cominco's diversification would put the company on a more business-like basis than its predecessors. The CPR was able to amalgamate Kootenay mines with its smelter following the decision of the Gooderham/Blackstock syndicate to sell off its considerable investments, a decision likely affected by the death of George Gooderham and the increasing disability of T. G. Blackstock. The failure of the syndicate's subsidary, the Rossland Power Company, to concentrate Rossland ores in 1903-04, as well as the rather dismal performance of the War Eagle and Centre Star mines over time provided further reasons to divest. On the other hand, the CPR's prosperity gave that company a positive incentive to expand its already considerable holdings and provided the wherewithal to do so when the opportunity arose. Developments south of the border, in particular the emergence of the Asarco with its dominant position in the lead mining and smelting industy, also stimulated the creation of a Canadian counterpart and explains why both the federal government and British Columbia's smaller mining interests were prepared to countenance, and even encourage, Cominco's formation. These last two factors,

the CPR's buoyant position and the example of Asarco, indicate a causal relationship between the larger economic context and the emergence of Cominco.

The sharp increase in mergers and consolidations in North America around the turn of the century has attracted the attention of a number of scholars.[73] While no single explanation receives unanimous support, common causes and pre-conditions are typically cited, with varying degrees of emphasis. Those assigned the most importance are: the depression of the mid-1890s and a general retardation of economic growth; the creation of new transcontinental markets with a subsequent dramatic increase in competition; the development of a large capital market with greater opportunities for both investors and promoters; and a desire to achieve monopoly control, especially over prices, within various industries.[74]

Clearly these factors are inter-related, making it difficult to determine their relative importance to the emergence of Cominco. It is unlikely, however, that either winning greater market control or reducing price competition were prominent motives in the company's formation. The international metals market based in London controlled prices and Trail's market share was insignificant in world terms. On the other hand, the American-based lead and copper consolidations, notably Asarco and Amalgamated Copper, did have precisely these aims and inasmuch as Cominco was a reaction to these companies, it is possible to argue that a relationship exists between them. That connection was largely a defensive one, however, and should not be over-emphasised. The tariff protection of the National Policy was intended to encourage industrialization not monopoly; in any event, Cominco's production at this stage was too small for it seriously to harbour any grandiose plans of market

control or monopoly.[75] Resource-based industries shared a particular incentive to rationalise productive capacity: the spectre of diminishing returns and ultimate depletion. Here was a powerful stimulant to economies of scale and both vertical and horizontal integration, one largely absent from other industries but especially prominent in mining.[76]

Rossland's decline demonstrates the impact of resource depletion. The original push for amalgamation came from the town's mining companies, not from the CPR. A number of factors were responsible for the latter's dominance within the new company; it seems likely that of these the two most important were the CPR's fear of competition from the Great Northern and its prosperity, which fortuitously provided ample disposable capital. And although Rossland's mining companies were unable to escape the consequences of their resource base, this should not deflect attention from such local imperatives as the decision of the Gooderham-Blackstock Syndicate to sell and Aldridge's determination that such an opportunity should be seized by the CPR. In summary, Cominco's emergence reflects a complex of local variables, the mining industry's tendency towards depletion and reduced yields, and the continental context of a dramatic increase in mergers and consolidations.

*

Cominco's creation was intended to put eastern Canadian investment in B.C.'s mining industry on a sounder basis. The new company would function much like any other large business; that, at any rate, was Cominco's *raison d'être*. Despite the many optimistic pronouncements which accompanied Cominco's formation, the history of hard rock mining in the province, a past marked by bonanza strikes, speculative frenzies and sudden collapse, suggested that the company's prospects were not too promising. Indeed the CPR's mining

and smelting conglomerate did not gain a dominant position in the Western Canadian mining industry until the 1920s, after several necessary conditions had been met.[77] The most important of these was a guaranteed ore supply.

None of the mines that formed part of the new company in 1906 was able to maintain consistent production of payable ore. The St. Eugene's future, for example, was plainly limited and by 1908 Cominco's senior management was searching for another silver lead property. The property that they purchased, and the one upon which the success of the company ultimately rested, was the Sullivan mine at Kimberley, some 35 miles north of the St. Eugene. Both the Sullivan and the St. Eugene, like Rossland, owed their development to energetic American mining men who moved north during the 1890s.[78] The Sullivan was located by four American prospectors in the summer of 1892, part of the wave of exploration and discovery that had swept over south eastern British Columbia, beginning in the late 1880s. In 1896 the mine was sold to several Spokane mining men who were also part owners in the LeRoi. They formed the Sullivan Group Mining Company and began to develop the mine in earnest, installing "a good air compressor and boiler, small hoists, &c., and ... bunk and cook houses, office and laboratory buildings, and two or three small houses for the foreman and staff."[79] However the low grade ore ("a 'lead-silver' ore, in contradistinction to those of the Slocan, which are 'silver-lead' ores"[80]) was scarcely worth mining after the price of lead began to fall in 1900.

Despite the poor economic picture the company decided to erect a smelter, and went into debt to pay for its construction. The smelter did not turn out well and apparently was very poorly designed. According to one source, "By an odd mischance, they hired the brother of the engineer they

intended to retain, and the smelter construction was bungled."[81] In 1904, with affairs in some disarray, a controlling interest in the company passed into the hands of an Asarco subsidary based in Spokane, the Federal Mining Company. The smelter was "so completely remodelled as really to amount to a completely new construction," but even an improved treatment plant could not handle the Sullivan's low grade ore at a profit.[82]

The ore's high zinc content made full recovery of the silver and lead values difficult and the methods then current for smelting "zincky" ore were cumbersome, time-consuming and inefficient. "The [Sullivan] ore," recalled Asarco's president years later, "was a complicated mixture of lead and zinc; too much zinc for a lead smelter and too much lead for a zinc smelter, under the primitive metallurgical processes known at that time..."[83] Modern technology was brought to bear, but even the new Huntington-Heberlein process proved of little assistance.[84] By the autumn of 1907, a drop in metal prices and the metallurgical problems forced the mine to shut down. Creditors and unpaid miners demanded money, and following foreclosure, the mine was offered at a sheriff's sale in July, 1909. The Federal Mining Company and sundry other creditors formed a new company to purchase the property, in hopes of obtaining some return on their invested capital.[85] The Fort Steele Mining and Smelting Company, like the now-defunct Sullivan Group Mining Company, was controlled by Federal who held some 60% of the shares issued.

Cominco had tried to lease the Sullivan the year before, in early 1908. The company's mining engineer, continually watching available ore supplies, felt that "it had become obvious that the St. Eugene was in for trouble. I suggested the Sullivan..."[86] However, the financial problems of the Sullivan Group Mining Company and the subsequent foreclosure prevented Cominco from

securing a lease. Following the re-organization, Aldridge tried again to arrange a two year lease with Federal, on the same terms as had been earlier arranged, that is, a 20% royalty with a $.50 per ton minimum. Aldridge's initiative ultimately led to Cominco's purchase of the Sullivan.

The mine was to become remarkably valuable and no doubt those who made the decision to sell to Cominco later regretted the move. Francis Brownell, the man most responsible for the sale, justified it by pointing out that

> Before accepting [Aldridge's] offer [to lease the Sullivan], Federal sent its General Manager, W. Clayton Miller, its Asst. Manager, Frederick Burbidge, and Chief Mining Engineer, Rush White, to examine the property. They reported a large body of ore but had no suggestions for its metallurgical treatment. The best metallurgical experts of the American Smelting and Refining Company were called ... to try and solve the smelting problem but were unable to do so.... As a result of these investigations, the Federal Company decided to cash in rather than to hold the property for the long future..."[87]

In addition, Federal was experiencing some financial difficulty: it needed money and Cominco's offer of $116,280 for the Fort Steele stock was timely. Another of its mines faced similar metallurgical problems with lead-zinc ore and holding onto the Sullivan seemed only to duplicate these difficulties. The Sullivan was a drain on the Federal's strained resources, and its sale to Cominco was an opportunity to exit with minimal losses.[88] Negotiations between Cominco and Federal took place in Spokane during December, 1909. Aldridge negotiated a two year lease with an option to purchase Federal's majority share-holdings in the Fort Steele Mining and Smelting Company at $.20 a share. As a later Cominco official reported,

> The mine responded fairly well to development and late in 1910 the decision was made to complete the option to purchase. By this purchase Consolidated acquired about a 60% interest, and by closing with two other large shareholders on

> about the same terms they increased their interest to about 75%. Other shareholders were approached and shares were purchased mainly for $.20 but for somewhat higher prices in a few cases. In all complete ownership was purchased for close to $200,000.[89]

The Sullivan ore deposit was immense. Sensing its vast potential, Cominco quickly staked the adjoining properties.[90] The company had secured its ore supply but this led directly to a second problem: discovering a successful means to treat that ore. Asarco had judged the Sullivan's ore to be unprofitable; Cominco had to prove the experts wrong. A dozen years and a world war came and went before Cominco's research staff hit upon an economical means of treating the Sullivan ore. The solution involved two processes, the application of selective flotation at the mine itself and the development of electrolytic refining at Trail.

As the St. Eugene's output declined, lead ore had to be found to keep the Trail smelter operating. Even with its relatively high zinc content, the Sullivan ore could at least accomplish this. Nor was the Sullivan the only lead mine in the province with "zincky" ore: many of the Slocan mines were similarly handicapped with high zinc values. The presence of zinc could severely limit a mine's margin of profit; for example, if ore contained more than 10% zinc, smelters levied a zinc penalty for its treatment. As a government official explained,

> More and more the situation as regards lead mining in British Columbia becomes involved with the question of the disposal of the zinc content of the ores.... In the furnace, zinc is the most volatile of metals, going off in vapour at a temperature lower than necessary for the fluxing of the other contents of the ore. In its premature departure from the stack it forcibly carries off the silver and lead contents of the charge. Hence the presence of zinc in lead is penalized.... an ore assaying 20 per cent of zinc will pay a treatment charge of say $8 per ton, plus zinc penalty of $5, or a total of $13 per ton.[91]

As early as 1904, efforts were underway to overcome the difficulties associated with treating zinc ores.[92] The following year an American metallurgist who was an authority on the treatment of zinc was commissioned by the federal government "to investigate the zinc resources of British Columbia and the conditions affecting their exploitation." His report, published by the Mines Branch in 1906, was not particularly optimistic: he admitted that zinc smelting in Canada "is feasible commercially," but qualified his judgement by pointing out that

> this conclusion is based on a plant of high efficiency, in thorough running order (manned competently), and on an estimate for labour that is doubtful.... to anyone contemplating zinc smelting in the Canadian West I would emphasize again the necessity for being content with disappointing results for a considerable period while a sufficiently skilled working force is being secured.[93]

Ingalls' assessment of the difficulties of zinc smelting was underlined by the failure of Canada's first zinc smelter, built in Frank, Alberta in the Crows Nest Pass, a failure blamed on "the high cost of skilled labour and supplies, the poor quality of the coal and the limited amount and poor quality of the available ores."[94] This failure did not discourage others from experimenting and in 1908 a second zinc smelter was built, this time in Nelson, British Columbia. Backed by provincial government funds, the plant attempted a new "electro-thermic smelting process," but with no more success than the Frank smelter. The experimental process turned out to be unsatisfactory and the building passed into the hands of the government.[95] Electric smelting was immediately taken up by several other groups hoping to discover a commercial method of treating B.C.'s zinc ores. The Dominion government was prodded into action: in 1910 it sponsored a series of experiments at McGill University, which were moved to Nelson's now-empty smelter in 1913.[96] A. Gordon French, a Scottish researcher, also moved to Nelson to work on zinc smelting. He set

up shop in the city's old power station and built a small experimental plant, "with the object of separating and saving the zinc occurring in the Slocan ores in conjunction with silver-lead and iron."[97] In 1911 French claimed to have discovered a commercially-feasible process for treating zinc ore. This was exciting news and received much publicity; it also attracted the attention of Cominco.[98]

Cominco had been conducting experiments for some time on the Sullivan ore, experiments that had proved both expensive and unsuccessful. A trial mill was built at the St. Eugene, but "Several months work and the expenditure of a great many thousand dollars proved beyond a doubt that no known method of mechanical concentration would give the desired result..."[99] Other methods were then explored, one forcing the Managing Director to visit Britain to investigate a new process, but none seemed to promise success. French's apparent breakthrough in zinc treatment was welcome news indeed for the Cominco staff. The company took an option on the patented process and French's son supervised the construction of a experimental treatment plant at Trail. In the meantime, the federally-sponsored effort at Nelson to smelt zinc was abandoned.[100]

The French process was a controversial one. After considerable experimentation, Cominco allowed its option on the process to lapse.[101] After the company abandoned the French process, it returned to the methods that Letrange and Ashcroft had pioneered for the treatment of zinc, although with no great degree of success.[102]

The war changed everything. The price of zinc sky-rocketed and consequently methods of treatment which had earlier been rejected as too costly were now competitive. The incredible demand for munitions and

especially brass meant that zinc was now a metal of considerable strategic as well as commercial value. Since Germany's metallurgical prowess far surpassed current North American and British practices, attempting to unlock the secrets of zinc treatment became an extension of the war. When asked in 1918 to give a speech detailing Cominco's contribution to the war effort, Cominco's assistant general manager began by stating that "Probably no better illustration of the work done for the Empire by our Company can be made than by giving a rough outline of the history of the Zinc Industry."[103]

In early 1915 the Canadian government realised that the country had no refineries capable of producing either copper or zinc. These were the two constituent metals of brass, the material with which shell casings were made. Canada's munitions factories had to rely on refined copper and zinc from the United States to meet the contracts of the British War Office. Given war-time conditions generally and the American desire to maintain a neutral stance in particular, this supply was too vulnerable for government planners:

> The uncertainty which existed in February, 1915, as to what action might be taken by the United States regarding the export of zinc and copper from that country to Canada and the necessity for taking no risks in the matter, led to the conclusion that it was desirable to investigate the feasibility of refining copper and producing metallic zinc in Canada.[104]

A committee of three men was duly formed to look into all aspects of the problem, consisting of David Carnegie, the Ordnance Adviser to the Shell Committee; A. W. G. Wilson, an expert on smelters from the federal Mines Branch; and A. Stansfield, Professor of Metallurgy at McGill who had been involved in the earlier federally-sponsored zinc experiments there. For six months they travelled, interviewed and investigated; finally they produced a three hundred page "Record of the Investigation, Report and Subsequent Action

of the Committee," which was later published by the Imperial Munitions Board.[105] The committee decided that Cominco's smelter at Trail was probably best situated to produce zinc and copper. It was Canadian-owned, close to both ore supplies and hydro-electric power, and unencumbered by any binding contracts; it also possessed an efficient staff.[106] In June, 1915, the committee recommended to the federal cabinet that Cominco "be asked to enlarge their plant to produce 25 tons of metallic zinc per day.... The amount of money for such extension to be advanced either by the Shell Committee or the Canadian Government..."[107] The government was reluctant to make such outright capital advances but apparently decided that war-time conditions justified the move.[108] Ironically, some Cominco officials were equally reluctant to accept the money.

At the beginning of the war, traditional zinc metallurgy relied on the principle of distillation.[109] Zinc ore was roasted and as the zinc evaporated off, it was "caught" and saved by virtue of the furnace design. This method, commonly referred to as the Belgian process, was unsuitable as a means to treat the low grade complex ores of British Columbia. Cominco's metallurgists concluded that roasting, leaching and electrolysis was the best treatment for the Sullivan ore. However, this process had not really gone beyond the experimental stage when the war began. As S. G. Blaylock, Cominco's assistant general manager, put it,

> ...a stage was reached where the plant turned out about 1000 pounds of zinc per day. Experiments were at this stage when the War broke out. We were making about one-half a ton of zinc when everything went well and nothing when things did not go well. The trouble was that we could not tell why things went well or why they went wrong... [110]

While the war had increased the price of zinc dramatically, it had not provided any solutions for Cominco's puzzled research engineers. The idea that the company should accept government money to construct a zinc refinery capable

of producing so many tons of zinc a day made these men uneasy. A worried Blaylock wrote to the General Manager, Pat Stewart:

> Referring to the proposition of building a zinc plant to make twenty to twenty-five tons of metallic zinc per day, - I have been going into this matter pretty fully since you left here and it seems to me there is only about one chance in a hundred of our being able to make twenty tons of zinc a day at the end of six months....
> Excepting for the possible urgent need for zinc, a lot more work should be done before commencing operations on a large scale.... I don't think we ought to promise to produce any stated tonnage in any stated time.[111]

Stewart was in eastern Canada for a meeting of the Cominco Board of Directors, and he found these men anxious that everything humanly possible should be done to help in the war effort. They wanted a twenty-five ton zinc plant built at Trail. J. J. Warren, Cominco's managing director, was particularly adamant that more and more zinc should be produced.[112] To Stewart's dismay, Warren signed a number of contracts which committed Cominco to large scale zinc production by the autumn of 1917. By the summer of 1916 Stewart found the situation intolerable and resigned.[113]

The zinc plant was built, a testament to Warren's determination. Like the earlier lead refinery at Trail, it was a world first, although it shared the honour with an Anaconda plant in Montana.[114] In contrast to the lead plant, however, the refinery was not an unqualified success. Once production began in the summer of 1916, "Several difficulties of a serious nature were immediately encountered." As one of Cominco's leading researchers later recalled,

> ...the troubles referred to made [the refinery's] position untenable except with very high zinc prices ... with falling prices in prospect the only way to save the situation was by the rapid development and use of milling methods which would improve the Zinc Plant feed... [115]

Clearly only war-time conditions allowed production to continue at the refinery. As Diamond points out, the key to future success lay with treating the Sullivan ore in a way that would allow it to arrive at Trail in a purer state.

The biggest advance in ore separation had come a dozen years earlier in Broken Hill, Australia, with the discovery of the flotation process. Hitherto intractable ores could now be concentrated.[116] Following this Australian breakthrough, metallurgists around the world began to learn and apply the new process. The staff at Cominco was no exception. Flotation offered a solution to the problem of treating the Sullivan ore: it would permit the crude ore to be concentrated before being shipped to the refinery. In 1917 Blaylock persuaded R. W. Diamond, a Canadian with considerable experience in flotation then working for the Anaconda Copper Mining Company, to come to Trail to help Cominco find a way to mill the Sullivan ore. After a series of experiments, Diamond developed a process of selective flotation, capable of treating the mine's low-grade deposits.[117] These trials took some years, however, and the Sullivan concentrator at Kimberley did not go into operation until 24 August, 1923. The plant was the outcome of investigations by Diamond and his co-researchers, and was designed and manufactured by Cominco staff at Trail.[118]

The Sullivan concentrator and the research it embodied were vital for Cominco's future. Having mastered the necessary technology, the company was now poised to exploit fully the massive reserves of Sullivan ore. Eighteen years after its formation, Cominco had achieved the requisite conditions for its long-term development. The company had by now out-grown its original function as a local smelting company dependent on Rossland's copper gold

ores; indeed it was emerging as a world leader in both lead zinc technology and production.

Blaylock, Cominco's third general manager, was fiercely loyal to the company and very proud of what it had accomplished. In his opinion, Cominco's innovative research and willingness to experiment had received too little recognition from the North American mining community. In the autumn of 1922 a mining journalist sent Blaylock a draft copy of a laudatory article on Cominco's development and asked for his comments. Blaylock was not very impressed, but it did spur him to write to Cominco's managing director:

> For some time back I have thought that we should publish a general article on the achievements of the Company. Practically the whole world thinks that Anaconda should have the entire credit for developing the Electrolytic Zinc Process, although as a matter of fact, Trail should have the larger proportion of the credit. It is only natural that the men who have developed the Process should feel a little irritated at somebody else getting practically all the credit for the work they have done. The next thing is that it appears our Concentrating Process is being published far and wide by the M[ineral] S[eparation] people with no, or practically no credit, being given to the Trail Metallurgists beyond the casual statement that among others, Trail is using this process.... The upshot of the whole thing is that although Trail has developed a great deal, the Yanks. are getting the credit throughout the world for practically everything developed at Trail; and it seems to me that it might be a good scheme if we prepared a fairly complete article on the C. M. & S. Co.[119]

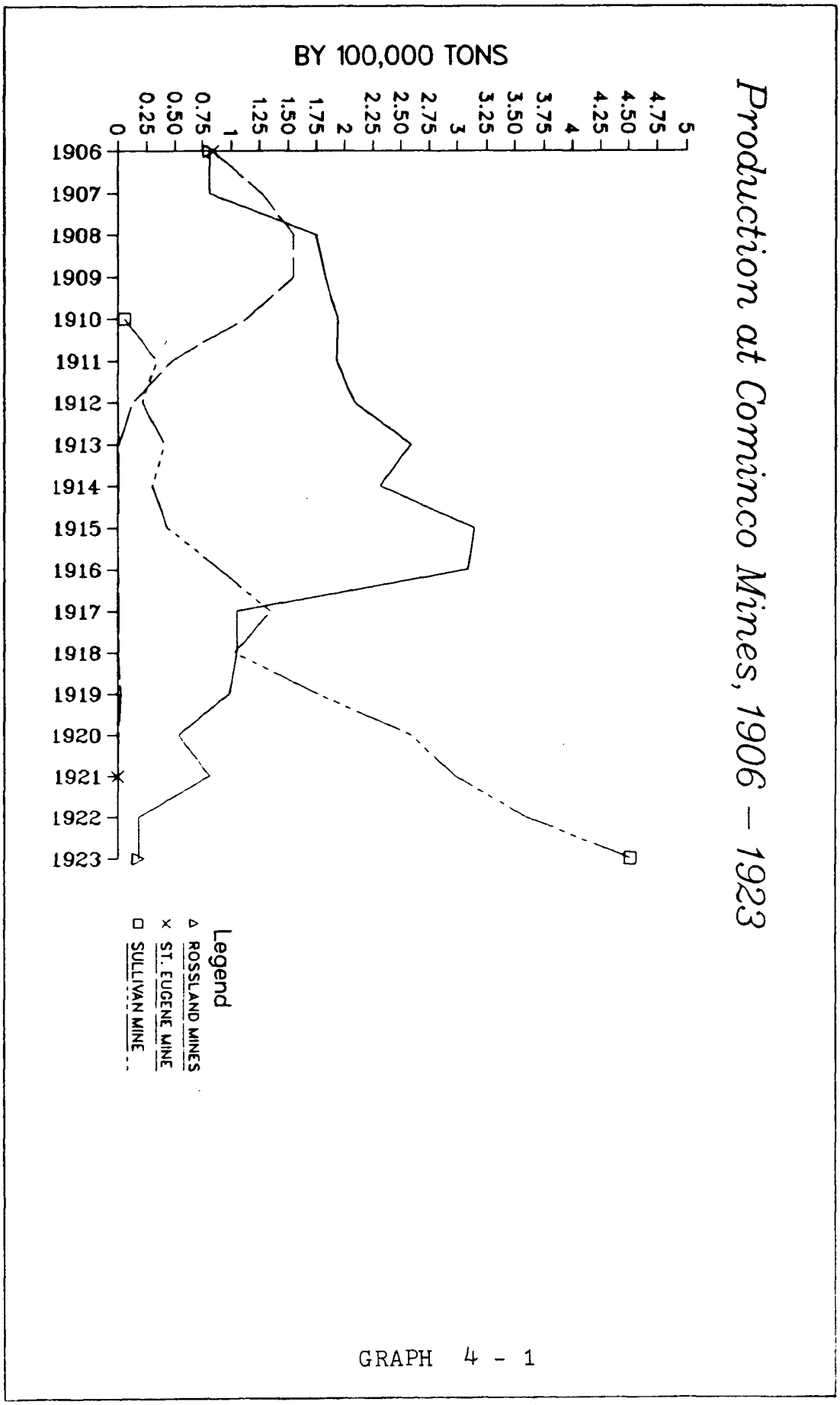
Within two years, "the Staff of The Consolidated Mining and Smelting Company of Canada, Limited" published an exhaustive account of "The Development of the Sullivan Mine and Processes for the Treatment of its Ores" in the Transactions of the Canadian Institute of Mining and Metallurgy. In 1928 Blaylock received the James Douglas Medal for Metallurgy from the American Institute of Mining and Metallurgy, and both he and Diamond received (separately) the McCharles Prize for outstanding work in Canadian

metallurgy from the University of Toronto.

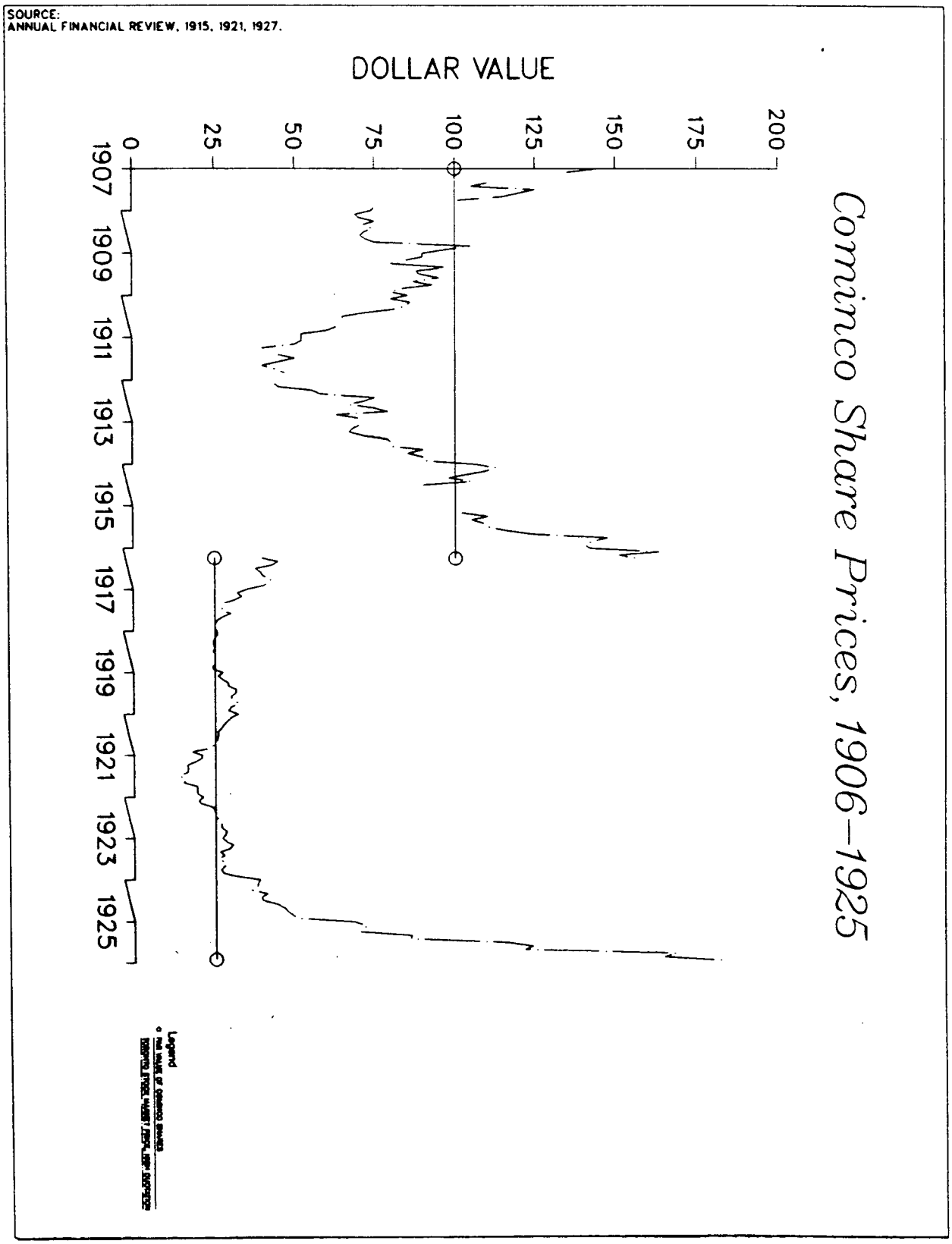
By the end of the war, Cominco's future had become inextricably linked with the Sullivan mine. The successful company of the mid 1920s was a far cry from that which had emerged in 1906. This chapter began by quoting the complaint of a wealthy Montreal investor, a refrain heard frequently in British Columbia at the turn of the century. The man's disillusionment was a typical reaction to the collapse of the reckless speculation in mining stocks which had marked the closing years of the nineteenth century. These pages have attempted to chronicle the period of adjustment which began in 1900-01, as mine owners and managers first diagnosed, and then tried various ways to improve, the industry's poor performance. This was an on-going process of trial and error rather than a sudden change; Cominco emerged as the end result of a period of evolution, not as a dramatic new creation.

A number of things account for the mining and smelting company's ultimate success. Certainly the claims Aldridge made in his first report as general manager remained largely unfulfilled: Cominco did not diversify significantly and the company rose to dominate western Canadian mining largely on the basis of the Sullivan ore body. Other factors, in addition to the fortuitous acquisition of the Sullivan, explain Cominco's growth and success. For example, the company was quick to adopt and adapt new technology and placed considerable faith in the role that research played in solving the many practical problems it faced. It seized business opportunities when offered, and its close ties with the nation's industrial elite ensured that the company had sufficient capital resources to take advantage of such opportunites as they arose. In addition, the war encouraged the company to extend its operations into fields which under normal conditions the company might not have entered.

The sense of urgency and the sudden strategic importance of base metals, as well as the keen demand and high prices they attained, all played a role. A good example of this forced growth is Cominco's purchase of West Kootenay Power and Light in 1916, in order to have complete control over its source of hydroelectric power. This in turn was a consequence of the war-induced decision to construct an electrolytic zinc refinery. However, as well as the fortuitous and the particular, Cominco can be seen as part of a larger process of resource development, one specific to the regions of recent settlement. To explore the meaning of this assertion, it is necessary to chart the growth of mining communities and companies in similar regions.


Production at Cominco Mines, 1906 – 1923
BY 100,000 TONS
0
0.25
0.50
0.75
1
1.25
1.50
1.75
2
2.25
2.50
2.75
3
3.25
3.50
3.75
4
4.25
4.50
4.75
5
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
Legend
ROSSLAND MINES
ST. EUGENE MINE
SULLIVAN MINE

GRAPH 4 - 1


SOURCE:
ANNUAL FINANCIAL REVIEW, 1915, 1921, 1927.
DOLLAR VALUE
0
25
50
75
100
125
150
175
200
1907
1909
1911
1913
1915
1917
1919
1921
1923
1925
Cominco Share Prices, 1906–1925
Legend

GRAPH 4 - 2

Endnotes

1 P. 10, 28 July, 1901, The Victoria Daily Colonist.

2 Cominco's original name, the Canadian Consolidated Mines, Ltd., was almost immediately altered to the Consolidated Mining and Smelting Company of Canada, Limited, when the importance of the smelter was drawn to the Directors' attention. Cominco, the company's cable address, became the official name in 1966.

3 The analysis is contained in Bernard MacDonald, "Hoisting and Hauling in Mining Operations. A Description of the Plant on the Le Roi Mine, Rossland, B.C.," Journal of the Canadian Mining INstitute, V (1902): 309-42; see the discussion in the previous chapter.

4 Rossland's managers were also restricted in their ability to make the most of their victory. The western cordillera's numerous mining camps not only provided strike breakers; they also acted as powerful magnets, attracting skilled workers once their own district's wages dropped substantially below the industry's norm. Thus the companies' labour bill could not be drastically reduced without driving away the cream of the work force.

5 Pp. 210-11, British Columbia Mining Record, VIII, 1901. The journal repeated this claim two years later when a visiting British investor "expressed himself of the opinion that the reason the Rossland mines had not paid dividends was not so much due to the fact that the companies were over-capitalized, as the costs were unduly great." The editor "unhesitatingly asserted that so far as mining costs go, the cost of mining Rossland ores compare[s] most favourably with the cost of mining similar ores under similar conditions in any other country in the world." He went on to suggest that "if the investment of British capital in our mines is dependent on the lowering of wages as now paid, or on the employment of "cheap labour" in the mines, it is easy enough to predict that British Columbia will not be developed by British capital." (p. 804, op. cit., X, 1903.) It should be noted that the journal generally reflected the views of managers and tended to be critical of both labour and much provincial mining legislation.

6 Pp. 211-12, ibid., VIII, 1901. Note the similarity of this analysis to that of the provincial Minister of Mines, cited overleaf.

7 P. 58, Morang's Annual Register of Canadian Affairs, 1901. (Subsequent issues of this journal were entitled The Canadian Annual Review of Public Affairs.) Kirby presented a paper on "The Influence of Government upon Mining," in September, 1902, published by The Journal of the Canadian Mining Institute, Vol. VI(1903): 355-371. In the (printed) discussion which followed the paper's presentation, Kirby and MacDonald were identified as the authors of the Memorial (p. 369). Kirby's paper is a classic example of the mine-owners' critique of government action, but see also pp. 319-20, MacDonald, "Hoisting and Hauling in Mining Operations...," as well as contemporary issues of the British Columbia Mining Record (Victoria) and The British Columbia Review (London).

8 P. 4, 1 Aug., & p. 4, 3 Aug., 1901, Victoria Daily Colonist, The British Columbia Mining Record concurred: "We regret exceedingly that a representative

body like the Mining Association should have weakened its case in reference to questions where criticism was just, by such extravagance of statement..." (p. 282, September, 1901.) Even the British press reported the Memorial: see, for example, The Economist, 17 Aug., 1901, p. 1247.

9 P. 4, 3 Aug., 1901, Victoria Daily Colonist.

10 Pp. 27-28, George A. Tripp, "Transportation and Lead Smelters in the Kootenays; a Reconsideration," BA, UBC, 1970, and pp. 109-110, Ronald Howard Meyer, "The Evolution of Railways in the Kootenays," unpublished MA thesis, University of British Columbia, 1970.

11 P. 6, Annual Report of the Canadian Pacific Railway Company, For the Fiscal Year Ending December 31st, 1897.

12 See pp. 188-189, John Fahey, Inland Empire D. C. Corbin and Spokane, Seattle: University of Washington Press, 1965.

13 Meyer's thesis, "The Evolution of Railways...," provides an excellent account of this competition; indeed his central argument is that inter-company rivalry rather than the international boundary was responsible for railway development in the Kootenays (pp. 115-120). As he points out, the rivalry between the two lines was an historical one, dating from the CPR's decision to build north of Lake Superior instead of opting for a southern route through the U.S., using Hill's railway (p. 105). Barrie Sanford's McCulloch's Wonder The Story of the Kettle Valley Railway (Vancouver, 1977) also chronicles the rivalry in British Columbia between the two companies. Ironically, this competition was between a Canadian's American railway and two Americans who headed the CPR, an incongruity which reached its apogee during the 1911 reciprocity controversy, when "one of the more interesting minor dramas ... was the spectacle of the Canadian-born railroader James J. Hill championing reciprocity in the United States and the American-born W. C. Van Horne of the Canadian Pacific leading the fight to 'bust the damn thing.'" (p. 92, Stephen Scheinberg, "Invitation to Empire: Tariffs and American Economic Expansion in Canada," in Glenn Porter & Robert D. Cuff, eds., Enterprise and National Development, Toronto, 1973.)

14 Meyer, in "The Evolution of Railways...," points out that "the railnet of the Kootenays should not be considered a single network, but rather two separate treelike networks each with its own system of flows .... [with] a minimum of overlap..." (pp. 70-71)

15 The CPR controlled the Nakusp and Slocan Railway which linked Sandon to the Upper Arrow Lake and the CPR's steamers. The CPR's Columbia and Kootenay and Heinze's Columbia and Western between them connected Slocan City with Trail. For details of these connections, see Tripp, "Transportation and Lead Smelters in the Kootenays...," passim, Turnbull's Topping's Trail gives a description of the inaugural run of the Crows Nest Pass line, pp. 42-43; this route did not become an all-rail route until the 1930s.

16 The Annual Report of the Minister of Mines, 1901, describes the inactivity at Trail: "The copper furnaces ... were only operated to any extent during the first six months of the year.... Only one lead furnace was run (there are three) during most of the year...." (p. 1049, Sessional Papers, British Columbia, 1901.)

17 Pp. 2-3 (#353-354), Shaughnessy to Sir Richard Cartwright, 12 December, 1901, MG 28, III, 20, microfilm reel M-3042, CPR Records, Public Achives of Canada.

18 For a description of the rise of Asarco, see pp. 221-254, James E. Fell, Jr., Ores to Metals The Rocky Mountain Smelting Industry, Lincoln, 1979, and Isaac F. Marcosson, Metal Magic The Story of the American Smelting & Refining Company, New York, 1949, passim, Christopher Schmitz's "The Rise of Big Business in the World Copper Industry 1870-1930" (Economic History Review, 2nd Series, XXXIX, 3 (1986): 392-410) is a more wide-ranging but far superior account of the consolidations within the mining and metallurgical industries.

19 P. 55, Morang's Annual Register of Canadian Affairs, 1901. Years later, Aldridge claimed that he was responsible for the bounty: see p. 5 of a typescript interview of Aldridge by Howard Bayley (Cominco's Supervisor of Publicity), May 1954. Copy of interview held in Cominco files, Rossland Historical Museum.

20 P. 56, ibid, See also p. 175, British Columbia Mining Record Vol. VIII, June 1901, and T. G. Blackstock to Laurier, 11 April, 1901, Toronto. #55277, MG 26, G, Vol. 193, Laurier Papers, PAC.

21 CANADA Debates, 1901, Vol. II, pp. 5716-5729, 21 May, 1901.

22 The previous Conservative government had also provided a bonus system to encourage the B.C.'s lead industry, offering incentives for smelting silver-lead ores (CANADA Debates, 1895, Vol. II, pp. 3925-28, & 4763-67, 5 & 18 July, 1895). According to O. Mary Hill (pp. 32-33, Canada's Salesman to the World The Department of Trade and Commerce, 1892-1939, Montreal, 1977), this was the first Canadian bounty.

23 Ibid., pp. 5723-25. In introducing the bill, Fielding referred several times to Asarco's market control, commenting that "of late the Americans have taken it into their heads not to deal very liberally with Canada." (p. 5718) Asarco's activities also provoked comment from the editior of the British Columbia Mining Record: see p.176, Vol. VIII, June 1901.

24 Shaughnessy to Sir Richard Cartwright, 24 Dec., 1901, MG 28, III, 20, microfilm reel M-3042, Shaughnessy Letterbooks, CPR Records, Public Achives of Canada.

25 Rumours of the smelter's sale to the Gooderham/Blackstock group were occasionally reported: see, for example, 19 Aug., 1899, Grand Forks Miner, and pp. 169-70, British Columbia Mining Record Vol. VIII, May, 1901. As late as 1903, however, Aldridge was writing to Shaughnessy on the "Advantages of Trail Smelter to Railway." (Aldridge to Shaughnessy, 6 Dec., 1903, Cominco Historical Files, Microfilm #8, PABC.)

26 The process is explained by its inventor, Anson G. Betts, in "Electrolytic Lead-Refining," Transactions of the American Institute of Mining Engineers, Vol. XXXIV, (1904): 175-184; and A. G. Wolf, "The Betts Process at Trail, B. C.," Mines and Minerals, August, 1907, pp. 11-15. It is described in the context of traditional lead refining by Henry F. Collins, pp. 452-56, The Metallurgy of

Lead, London, 1910, second edition. Both smelter and refinery processes are described by A. J. McNab, "Lead Smelting and Refining Practice at Trail, B.C.," Journal of the Canadian Mining Institute, Vol. XII (1909): 424-436, and in a form more intelligible to the non-expert, with pictures, by J. M. Turnbull, in "Trail Smelter and Lead Refinery," Mines and Minerals, September, 1910, pp. 121-125. Turnbull, McNab and Betts all worked for the Canadian Smelting Works, although Betts' tenure was brief. He supervised the installation and early operation of the refinery. As Alexander Dow points out (p. 215, "Prometheus in Canada, The Expansion of Metal Mining, 1900-1950," in Duncan Cameron, ed., Explorations in Canadian Economic History Essays in Honour of Irene M. Spry, Ottawa, 1985), few historians or economists have appreciated the extent of innovation undertaken by Cominco and its antecedent company.

27 P. 11, Wolf, "The Betts Process...;" p. 424, McNab, "Lead Smelting and Refining Practice at Trail..."

28 P. 172, Quarterly Bulletin of the Canadian Mining Institute, (Souvenir Number, Summer Excursion) January, 1909.

29 P. 84, Tripp, "Transportation and Lead Smelters in the Kootenays..."

30 Tripp (pp. 51-58) provides a cogent description of mix smelting, as well as an excellent account of the Huntington-Heberlein process (pp. 82-85). The Daily Colonist provided an eye witness account of the first application of the "Heberlein Process of Ore Roasting," 3 June, 1905. (This was at the Marysville smelter.) See also pp. 59-61, W. H. Dennis, A Hundred Years of Metallurgy, Chicago, 1964.

31 P. 29, Geological Survey of Canada, Summary Report, 1909.

32 P. 190, R. E. Commans, "Notes on Plant in the Mining Districts of Canada," Transactions of the Institution of Mining and Metallurgy, (London) Vol. XVIII, 1908-1909. See also William Frecheville and Hugh F. Marriott, "A Visit to the Mineral Districts of Canada," pp. 158-78, ibid,

33 Sam Mavor, p. 306, Quarterly Bulletin of the Canadian Mining Institue, (Souvenir Number, Summer Excursion) January, 1909. Mavor added that "Some of the ... social arrangements in the Western towns gave a shock to Presbyterian members of the party..." (p. 309.)

34 See, for example, Kirby's remarks to Centre Star shareholders (in his 1903 Annual Report), where he acknowledges that the mine was undergoing "the transition from the occurrence of high grade bonanza ore bodies ... to masses of lower grade..." (Quoted in p. H 16, Annual Report of the Minister of Mines, 1903.)

35 P. H 151, Annual Report of the Minister of Mines, 1903. See also p. H 166, ibid., 1902.

36 For descriptions of the various mills, see pp. H 151-55, Annual Report of the Minister of Mines, 1903, and R. W. Brock's comments, pp. 234-37, "Preliminary Report on the Rossland Mining District," British Columbia Mining Record, Vol. 13, June, 1906.

37 See H. H. Claudet, "A Pioneer Flotation Process," Western Miner and Oil Review, Vol. 27, (May, 1954): 35-37; pp. H 151-53, Annual Report of the Minister of Mines, 1903; and British Columbia Mining Record, Vol. 10-11, 1903-04, passim, The latter journal reported the discontinuing of the process, p. 25, Vol. 12, January, 1905. I am grateful to my friend Logan Hovis for sharing with me his references on the Elmore process.

38 P. H 15, Annual Report of the Minister of Mines, 1903.

39 P. 24, British Columbia Mining Record, January, 1905. The year-end review was followed by an article on "Milling and Concentration in Rossland Camp," pp. 26-27, ibid,

40 P. 128, British Columbia Mining Record, April, 1905, quoting the fifth ordinary general meeting of the company, held in London, 31 January, 1905. See also p. 217, Morris Zaslow, Reading the Rocks The Story of the Geological Survey of Canada 1842-1972, Ottawa, 1975.

41 Aldridge to Sir Thomas Shaughnessy, 1 Nov., 1904, Cominco Historical Files, Microfilm Reel #8, PABC. In Aldridge's opinion, the general manager of the LeRoi, A. J. MacMillan, was antagonistic to the CPR and an advocate for Great Northern interests, which railway carried LeRoi ore from Rossland to Northport. As a consequence Aldridge felt that any amalgamation would be difficult to achieve.

42 For example: 21 & 28 April, 7, 10 & 18 May, 1905, The Daily Colonist; pp. 128-30 (April), p. 165 (May) & pp. 208-09 (June), 1905, British Columbia Mining Record; p. 5, 22 May, 1905, The Gazette (Montreal); p. 1758, 30 June, 1905, The Monetary Times (Toronto); pp. 571-72, 23 March, & p. 1017, 25 May, 1905, The Engineering and Mining Journal (New York); & pp. 309-10, 13 May, 1905, Mining and Scientific Press, (San Francisco).

43 P. 2, 10 May, 1905, The Daily Colonist; cf, 21 & 28 April, 7, 18, & 19 May. The Engineering and Mining Journal (p. 1017, 25 May, 1905) described the proposed amalgamation as "his [i.e., Waterlow's] amalgamation scheme."

44 P. 1, 19 May, 1905, The Daily Colonist,

45 P. 1, 18 May, 1905, The Daily Colonist, Brock's assessment of the relative values of the properties was as follows:

LeRoi	24%
St. Eugene	34.7%
War Eagle & Centre Star	23.3%
Trail Smelter	18%

(p. 67, Directors' Minutebook, St. Eugene Consolidated Mining Co., Ltd., held in French's Complex Ore Reduction Co. Papers, PABC.) For a sympathetic discussion of MacMillan's position, see p. 329, British Columbia Mining Record, September, 1905.

46 See, for example, p. 5, "The Mine Merger," 22 May, 1905, The Gazette,

47 Blackstock's "largest interest was mining," according to his obituary, and he was probably loath to abandon it. Details on his disinclination to sell, and the purchase generally, are from the 9 Aug., 1906 memorandum by Hal Osler, the

lawyer who negotiated the sale on behalf of the CPR interests. A copy of this document is preserved in the Cominco Historical Files, Microfilm Reel #8, PABC. The War Eagle/Centre Star had been run as one property, with identical managers and directors, since 1898; the two mines were formally consolidated into one company in November, 1905. The Rossland Power Company was the unsuccessful concentrator intended to treat War Eagle/Centre Star ore. The St. Eugene was a silver lead property in Moyie, East Kootenay, on the Crows Nest Pass rail line. The collective paper capitalization of the three companies was some nine million dollars, considerably higher than the $825,000 purchase price. (p. 84, 15 July, 1905, The Engineering and Mining Journal,)

48 P. 1, 25 July, 1906, The Globe, This was Blackstock's obituary column. The Monetary Times said that "he died ... a victim of overwork." (p. 125, 27 July, 1905.)

49 For details of Gooderham's will, see p. 1, 17 May, 1905, The Gazette,

50 P. 8, 5 Oct., 1905, The Gazette, Montreal.

51 Pp. 329-330, British Columbia Mining Record, September, 1905, and p. 454, November, 1906. At their August meeting, Aldridge not only convinced the LeRoi's directors of the wisdom of consolidation with CPR interests, but he also persuaded them to ship their mine's ore to Trail instead of Northport. MacMillan objected to this, insisting that the smelter's dis-use would quickly lead to its deterioration, and thus waste a valuable asset.

52 P. 454, British Columbia Mining Record, November, 1906.

53 Aldridge to C. A. Molson, 4 Jan., 1906, Cominco Historical Files, Microfilm Reel #8, PABC.

54 P. 72, Directors' Minutebook, St. Eugene Consolidated Mining Co., Ltd., held in French's Complex Ore Reduction Co. Papers, PABC; see also, p. 5, January, 1906, British Columbia Mining Record,

55 P. 83, John M. Turnbull, "Rossland, Trail, and Early Railroad Competition," Western Miner & Oil Review, 36 (March, 1963): 75-84. "Smart operation," concluded Turnbull, "is important in mine valuation." Turnbull was a mining engineer with Aldridge at Trail from 1902 to 1915 and subsequently Professor of Mining at the University of British Columbia. The Mining and Scientific Press provides some evidence to support Turnbull's charge: it reported that both muckers and the St. Eugene company were charged in the spring of 1905 with violating the eight hour underground law (p. 309, 13 May, 1905). The Daily Colonist (28 June, 1905) reported that "Much St. Eugene stock [was] held in Spokane:" evidently canny Americans successfully slipped another fast one past Canadian investors.

56 P. 119, British Columbia Mining Record, March, 1906.

57 Pp. 428-29, British Columbia Mining Record, November, 1907. Get original from Mines and Minerals,

58 P. 117, The Canadian Mining Journal, Vol. 28, 1907. Ohren noted that "one laudable feature" accomplished by the creation of Cominco was "the straining

off of a considerable quantity of "water" from the capital of the combined interests..." Cominco's initial capitalization was just under five million, whereas the value of the companies which formed Cominco had been over ten million.

59 Quoted on pp. 139-140, The Canadian Mining Journal, Vol. 28, 1907.

60 In the eighty year history of Cominco, it has not had any women on its Board or in senior management.

61 Five of Cominco's first ten directors (Matthews, Osler, Hosmer, Buck and Hodgson) figure in T. W. Acheson's list of 231 representatives of Canada's 1910 elite. Of the other five, two (Cronin and Aldridge) were ineligible, being Americans, and two more (Matthews, jr. & Osler, jr.) were children of the five listed. See Appendix, Thomas William Acheson, "The Social Origins of Canadian Industrialism: A Study in the Structure of Entrepreneurship," PhD thesis, University of Toronto, 1971.

62 Details on Matthews' life are from his obituary on p. 9, 26 May, 1919, The Globe; p. 152, The Canadian Who's Who, London: The Times Publishing Company, Toronto: The Musson Book Company, 1910; and pp. 192-93, Jesse Edgar Middleton and W. Scott Downs, eds., National Encyclopedia of Canadian Biography, Toronto: Dominion Publishing Company, 1935. (This entry is on his son, but also includes detail of Matthews senior.) Matthews' co-founder in the Canada Malting Co., Lionel Clarke, was later Lieutenant Governor of Ontario.

63 P. 1076, Henry James Morgan, ed., The Canadian Men and Women of the Time A Hand-book of Canadian Biography of Living Characters, Toronto: William Briggs, 1912, 2nd edition. Sumner was not included in Acheson's list, cited above, and receives scant mention in the various biographical compilations of the day. His firm of Hodgson, Sumner & Co., however, was alleged to be "one of the most important in Canada" (p. 4, The Gazette, 26 Sept., 1921) and he was president of the Montreal Board of Trade in 1920.

64 See letter of 15 Jan., 1906, from Canadian Gold Fields Syndicate, Ltd., a major shareholder in St. Eugene Consolidated, held in Cominco Historical Files, Microfilm #8, PABC. The letter provides a list of names from which Cominco is to pick directors; Sumner was president of Canadian Gold Fields.

65 P. 548, Canadian Men and Women of the Time,... Toronto, 1912. Details on Hosmer are from this source as well as pp. 109-10, The Canadian Who's Who, 1910 & pp. 270-71, Charles G. D. Roberts and Arthur L. Tunnell, eds., A Standard Dictionary of Canadian Biography The Canadian Who Was Who, Toronto: Trans-Canada Press, 1934, Vol. 1.

66 P. 548, Canadian Men and Women of the Time,... Toronto, 1912. West Kootenay Power & Light connection: Hosmer was on original Board in 1898; evidence of earlier Kootenay mining interests?

67 Details from p. 176, The Canadian Who's Who, 1910; p. 634, The MacMillan Dictionary of Canadian Biography, fourth edition, Toronto, 1978; and pp. 874-75, Canadian Men and Women of the Time,... Toronto, 1912.

68 For example, the Canada North West Land Co. and Canadian General Electric. See pp. 10, 61, 189, & 259, Tom Naylor, The History of Canadian

Business 1867-1914, Vol. II, Toronto, 1975. Osler was, like Matthews, a CPR director; the two men were also related by marriage, Matthews' son having married Osler's daughter. For further evidence of Osler's business activities, see pp. 15-6, 34-7, 87 & 97-8, R. G. MacBeth, Sir Augustus Nanton A Biography, Toronto, 1931.

69 The number of directors was subsequently raised to nine at the first annual general meeting in September, 1906. James Cronin, a Spokane mining man who had been involved in the Kootenays since the early 1890s, was briefly a Director in the autumn of 1906. The new positions were filled by two Quebec business men: J. C. Hodgson, a colleague of Sumner's, and F. P. Buck. Buck was replaced by another Quebec business man, William Farwell, in 1911. The personnel did not alter until the end of the war, except for Aldridge's replacement by Warren in 1914.

70 Aldridge graduated from the Columbia School of Mines in 1887, where he first met Heinze, then a fellow student. For details on Aldridge's career, see his biography, included as a supplement to the John Fritz Medal Book, New York, 1950, the year in which Aldridge was awarded the medal. Cronin was also an experienced mining man, but was only briefly a Cominco director.

71 For a description of the "guinea pig" phenomenon, see p. 55, Aylmer Vallance, Very Private Enterprise An Anatomy of Fraud and High Finance, London, 1955.

72 For a tables showing the annual "Number and Volume of Consolidations..." for Canada, see p. 233, J. C. Weldon, "Consolidations in Canadian Industry, 1900-1948," in L. A. Skeoch, ed., Restrictive Trade Practices in Canada, Toronto, 1966. For similar statistics on the U.S., see p. 37, Ralph L. Nelson, Merger Movements in American Industry 1895-1956, Princeton, 1959.

73 Naomi R. Lamoreaux provides a recent analysis of the American case in The great merger movement in American business, 1895-1904, Cambridge, 1985; see also Alfred D. Chandler, Jr., The Visible Hand: The Managerial Revolution in American Business Cambridge, 1977, and Nelson, Merger Movements in American Industry,,, For Canada, see Weldon, "Consolidations in Canadian Industry....," pp. 228-79, and Michael Bliss, "Another Anti-Trust Tradition: Canadian Anti-Combines Policy, 1889-1910," pp. 39-50, in Glenn Porter & Robert D. Cuff, eds., Enterprise and National Development, Toronto, 1973. For a British Columbia case study, see David J. Reid's "Company Mergers in the Fraser River Salmon Canning Industry, 1885-1902," Canadian Historical Review, LVI, 3 (September, 1975): 282-302, and reprinted on pp. 306-27, W. Peter Ward and Robert A. J. McDonald, eds., British Columbia: Historical Readings, Vancouver, 1981.

74 See, for example, pp. 187-88, Lamoreaux, The great merger movement...; pp. 71-105, Nelson, Merger Movements...; pp. 234-38, Weldon, "Consolidations in Canadian Industry...;" and pp. 742-45, Alfred D. Chandler, Jr., & Richard S. Tedlow, The Coming of Managerial Capitalism A Casebook on the History of American Economic Institutions, Homewood, 1985.

75 When Laurier's government granted a lead bonus for the mining industry, it made both its motives and its reservations clear; see the discussion above. For evidence that other mergers (in Canada's protected industries) did aspire to

monopoly control, or at least were popularly perceived in that light, see pp. 255-60, Canadian Annual Review of Public Affairs, 1909 and Bliss, "Another Anti-Trust Tradition..."

76 See for example Schmitz, "The Rise of Big Business...," who maintains that "the standard models ... which emphasise the price-fixing and market allocation objective in business combination are inadequate," and fail to explain the dramatic copper consolidations of the late nineteenth and early twentieth centuries. Schmitz argues that "a combination of geological and technological factors, in conjunction with market pressures ... conspired to impel large mining and smelting companies to become even larger.... in order to be able to finance ... the scale of operations necessary to sustain the growth in the world's demand for [copper]." (p. 406).

77 Note, for example, the slumping share prices of the company in the graph appended to this chapter.

78 For the early history of the Sullivan, see "The Development of the Sullivan Mine and Processes for the Treatment of Its Ores, By the Staff of The Consolidated Mining and Smelting Company of Canada, Limited," Transactions of the Canadian Mining Institute, XXVII (1924): 306-369, and pp. 1022-23, 1898 & p. 520, 1896 Annual Reports of the Minister of Mines.

79 P. 74, 1903 Annual Report of the Minister of Mines

80 P. 104, 1904 Annual Report of the Minister of Mines.

81 P. 203, John Fahey, The Ballyhoo Bonanza Charles Sweeny and the Idaho Mines, Seattle: University of Washington Press, 1971. Note also the comments on p. 106, 1904 Annual Report of the Minister of Mines. This original smelter is described in some detail on pp. 75-76, 1903 Annual Report of the Minister of Mines.

82 The quotation is from p. 106, 1904 Annual Report of the Minister of Mines; for a description of the improved smelter, see pp. 67-72, Report of the Commission Appointed to Investigate the Zinc Resources of British Columbia,,, Mines Branch, Dept. of the Interior, Ottawa, 1906. See also p. 203, John Fahey, The Ballyhoo Bonanza,,

83 Francis H. Brownell to T. A. Rickard, 8 July, 1942, New York, copy on "Cominco Historical Microfilm," PABC.

84 The smelter introduced the process in 1905, the second smelter in North America to do so, according to pp. 67-68, Report of the Commission Appointed to Investigate the Zinc Resources of British Columbia,, A Mexican smelter had been the first on the continent to use it. The introduction of the Huntington Heberlein process at the smelter is described in some detail in The Daily Colonist, p. 2, 3 June, 1905.

85 The Federal had sold off its shares in the Sullivan Group Mining Company, but still had a quarter of a million dollar (par value) in bonds on the property when foreclosure occurred. Marcosson discusses the financial complexities on pp. 98-99, Metal Magic, as does the memo of B. E. Hurdle to R. W. Diamond, 9 April, 1948, "Cominco Historical Microfilm," PABC.

86 P. 38, J. M. Turnbull, "The Kimberley Story," Western Miner & Oil Review, 36, October, 1963. Pat Stewart, Cominco's mining superintendent, agreed: he wrote that "As to the purchase of the Sullivan.... The whole thing was led up to by lack of tonnage at St. Eugene..." (p. 27, R.H. Stewart, Appendix to the typescript by Lance Whittaker, "All is not Gold," copy held by PABC.)

87 Francis H. Brownell to T. A. Rickard, 8 July, 1942, New York, copy on "Cominco Historical Microfilm," PABC.

88 Pp. 102-04, Isaac F. Marcosson, Metal Magic.

89 Memo of B. E. Hurdle to R. W. Diamond, 9 April, 1948, "Cominco Historical Microfilm," PABC.

90 In the words of the company's mining engineer, "To protect the future, the company carried out a great mineral-claim-staking bee around the mine. All the Trail officials, even the stenographers, for a short time owned a miner's license and a piece of the Sullivan." (p. 42, J. M. Turnbull, "The Kimberley Story," Western Miner & Oil Review, 36, October, 1963).

91 Pp. 11-12, "Annual Report of Mr. G. O. Buchanan, Inspector of Lead Bounty Claims," 16 Jan., 1914, CANADA Sessional Papers, 1914, Vol. XLVIII, No. 7, 10c. See also the comments of A. S. Goodeve, MP for Kootenay, & William Templeman, Minister of Mines, pp. 5800-01 & 5937-38, CANADA Debates, Session 1909-10, Vol. III & IV.

92 P. 22, Annual Report of the Minister of Mines, 1904.

93 P. 55, Report of the Commission Appointed to Investigate the Zinc Resources of British Columbia,... Mines Branch, Dept. of the Interior, Ottawa, 1906 [hereafter the 1906 Zinc Commission]. The American expert was W. R. Ingalls, then editor of the New York-based Engineering and Mining Journal.

94 P. 187, A Record of the Investigation, Report and Subsequent Action of the Commission ... To investigate the feasibility of Refining Copper and Producing Metallic Zinc on a Commercial Scale in the Dominion of Canada, Imperial Munitions Board, Ottawa, 1916; [hereafter the 1916 Zinc Commission] see also pp. 205-06, ibid. The Frank smelter was described by Ingalls, pp. 63-64, 1906 Zinc Commission.

95 Pp. 173-75, Annual Report of the Minister of Mines, 1908; pp. 187 & 210, 1916 Zinc Commission.

96 Pp. 187 & 211, 1916 Zinc Commission; pp. 5794-5801 & 5934-41, CANADA Debates, Session 1909-10, Vol. III & IV; p. 25, Annual Report of the Minister of Mines, 1914; & W. R. Ingalls, "The Electric Smelting of Zinc Ore," Transactions of the Canadian Mining Institute, XV (1912): 101-14.

97 P. 162, Annual Report of the Minister of Mines, 1911.

98 T. A. Rickard, "Electrolytic Zinc at Trail," Mining and Scientific Press, 113 (30 Dec., 1916): 933-34; & the Cominco correspondence file in the French's Complex Ore Reduction Company papers, Add. Mss. 85-100, PABC.

99 From a speech given by S. G. Blaylock, then Cominco's assistant general manager, at a mining conference in Revelstoke, 11 July, 1918; typescript copy held in French's Complex Ore Reduction Company papers, PABC. See also pp. 189-90, Lance Whittaker, "All is not Gold," typescript history of Cominco, PABC.

100 P. 23, Annual Report of the Minister of Mines, 1914.

101 Pp. 3-4, typescript of speech by S. G. Blaylock, at Revelstoke mining conference, 11 July, 1918. A decade later Cominco became embroiled in a lengthy court battle over alleged patent infringement involving the French process. The transcripts of the trial as well as internal Cominco correspondence suggest that French's breakthrough was vastly over-rated: in fact, he was simply dressing up several older techniques with a few gratuitous additions. See the Cominco correspondence file in the French's Complex Ore Reduction Company papers, Add. Mss. 85-100, PABC, especially Graham Cruickshank to R. H. Stewart, 29 Jan., 1915, and S. G. Blaylock to James J. Warren, 14 Feb., 1917. See also the seven volumes of trial proceedings, French's Complex Ore Reduction Company of Canada Limited & Electrolytic Zinc Process Company, copy held in PABC, especially the judgement, pp. 1340-44, Vol. 7 (the judge endorsed Cominco's argument completely); pp. 196-97, Lance Whittaker, "All is not Gold," typescript history of Cominco, PABC; and the remarks of R. H. Stewart, pp. 28-29, appendix to "All is not Gold," PABC.

102 These did not differ materially from those of the French process, as Cominco was to insist in its lawsuit with the French's Complex Ore Reduction Company. Roasted zinc ore was put in a solution of sulphuric acid and the solution was then electrolysed. For a description of these processes, see pp. 170-71, W. H. Dennis, A Hundred Years of Metallurgy.

103 P. 1, typescript of speech by S. G. Blaylock at Revelstoke mining conference, 11 July, 1918.

104 P. 1, 1916 Zinc Commission.

105 The publication was possibly the result of Hughes' desire to vindicate the activities of the Shell Committee. He survived as nominal head of the Imperial Munitions Board, but Flavelle was the real power. The topic is covered by Michael Bliss, pp. 239-87, A Canadian Millionaire The Life and Business Times of Sir Joseph Flavelle, Bart, 1858-1939, Toronto, 1978, and in the briefer account by the same author, "War Business as Usual: Canadian Munitions Production, 1914-18," pp. 45-55, in N. F. Dreisziger, ed., Mobilization for Total War, Waterloo, 1981. See also the contemporary accounts in the Canadian Annual Review of Public Affairs, 1915 & 1916.

106 Pp. 6-8, 273 & 278-80, 1916 Zinc Commission.

107 P. 273, ibid.

108 For the government's misgivings, see the letter of Thomas White, Minister of Finance, to Carnegie, 7 July, 1915, pp. 275-76, ibid. Blaylock described the agreement reached with the government in his speech at the Revelstoke mining

conference, 11 July, 1918, especially pp. 4-6; see also the remarks of J. J. Warren, Managing Director, in the Cominco Annual Report of 1916.

109 See pp. 198-215, Walter Renton Ingalls, The Metallurgy of Zinc and Cadmium, New York, 1906, second edition.

110 P. 4, typescript of speech by S. G. Blaylock at Revelstoke mining conference, 11 July, 1918.

111 S. G. Blaylock to R. H. Stewart, 20 July, 1915, Trail, French's Complex Ore Reduction Company papers, PABC.

112 J. J. Warren was a Toronto lawyer. In 1905 he became manager of Trusts and Guarantee Company, much of whose money was tied up in the Kettle Valley Railway in southern B.C. He convinced the CPR to take over the railway and took on the job as the Kettle Valley Railway's president and general manager. He later replaced Aldridge in the Cominco hierarchy. Details of his career are from Barrie Sanford's McCulloch's Wonder, passim, & p. 1112, The Canadian Who's Who, 1936/37.

113 See pp. 200-02, Lance Whittaker, "All is not Gold," typescript copy in PABC. Pat Stewart read and annotated the typescipt with some care, although he made no comment on Whittaker's description of his resignation.

114 Pp. 21-22, 68-71, & 164-67, Oliver C. Ralston, Electrolytic Deposition and Hydrometallurgy of Zinc, New York, 1921; p. 172, Dennis, A Hundred Years of Metallurgy; & Frederick Laist, F. F. Frick, J. O. Elton, and R. B. Caples, "Electrolytic Zinc Plant of Anaconda Copper Mining Co., at Great Falls, Mont.," Transactions of the American Institute of Mining and Metallurgical Engineers, LXIV (1920): 699-763.

115 P. 521, R. W. Diamond, "The Development of the Treatment by Flotation of the Ore of the Sullivan Mine, Kimberley, B.C. 1917-1923," Quarterly of the Colorado School of Mines 56, July, 1961. This volume contains a number of historical papers, "Proceedings of the Symposium of the Fiftieth Anniversary of Froth Flotation in the U. S. A.," September, 1961, Denver, Colorado. Diamond, a Canadian, had worked for the American mining giant Anaconda in the early years of the war, and was hired by Cominco as a flotation expert in 1917. He took over the job of General Manager at Trail from Blaylock, following the latter's death at the end of the Second World War. Details of his career may be found in The Canadian Mining and Metallurgical Bulletin, 432 (April, 1948): 205-06.

116 The development of flotation at Broken Hill is discussed in the next chapter.

117 Diamond's article, "The Development of the Treatment by Flotation of the Ore of the Sullivan Mine, Kimberley, B.C. 1917-1923" provides a very good account of his research. See also the jointly-authored piece in the Transactions of the Canadian Institute of Mining and Metallurgy, XXVII (1924): 306-69, "The Development of the Sullivan Mine and Processes for the Treatment of its Ores."

118 Pp. 330-31, "The Development of the Sullivan Mine and Processes for the

Treatment of its Ores."

119 S. G. Blaylock to James J. Warren, 29 Dec., 1922, Trail. "Cominco Historical Microfilm," Reel #8, PABC. Aldridge had been Cominco's first general manager, serving from 1906 to 1911. Pat Stewart succeeded Aldridge, resigning in 1916. The war and perhaps Warren's personality complicated the situation in 1916; Blaylock apparently assumed the duties of general manager although not officially appointed to the position until 1919, when Warren became company president. Blaylock remained at the helm until his death at the end of the Second World War.

V

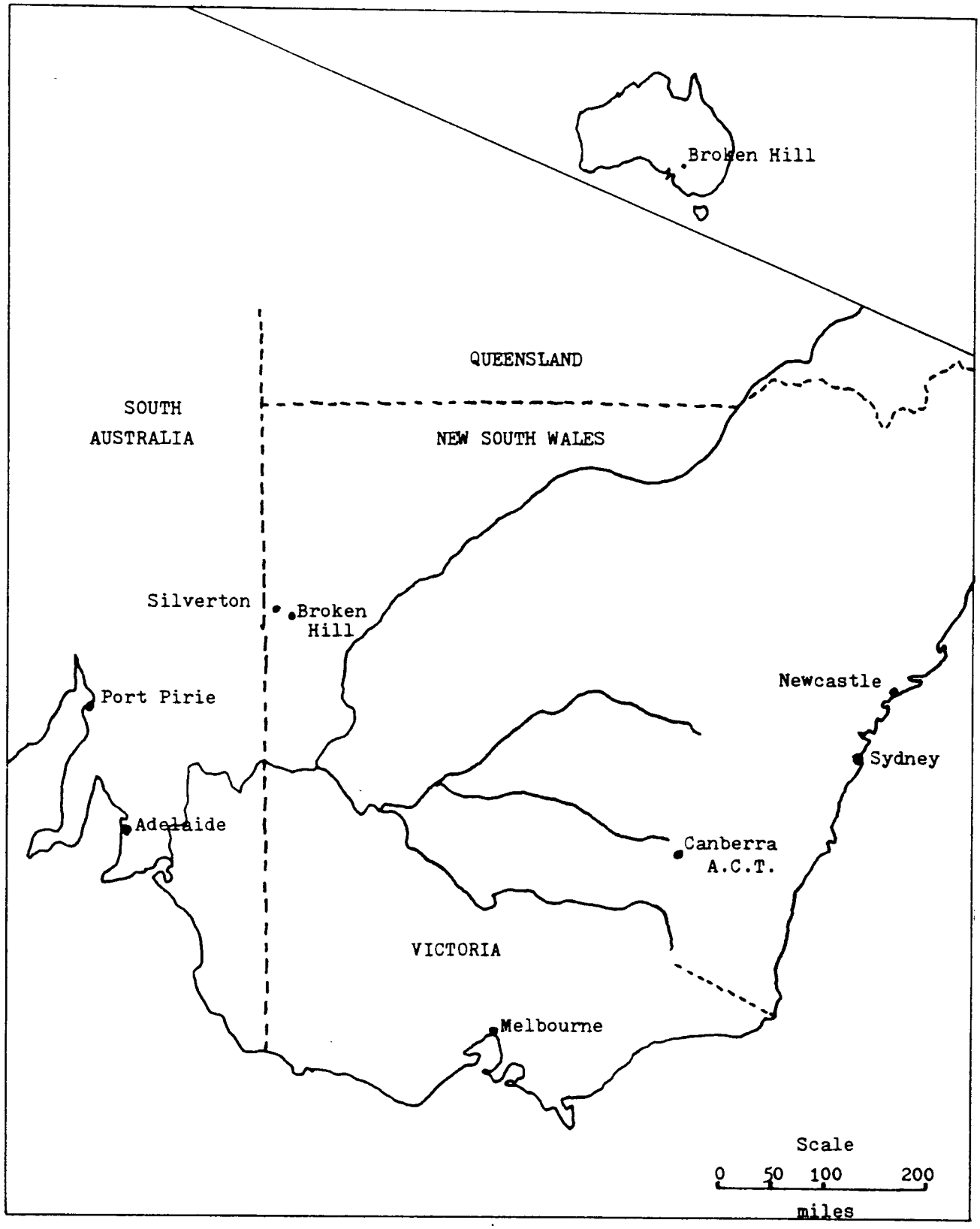
Early Years at Broken Hill

No hill in the continent so affected the life of Australia...[1]

Broken Hill is not just another mining town.... It is a town which has built a unique social structure on the foundation of a unique mineralization...[2]

On the farthest western edge of New South Wales, the mines of Broken Hill tap one of the world's largest known silver-lead-zinc deposits. Production has continued for over a century, an indication of the extent and wealth of the resource upon which the community is based. This chapter describes the establishment and growth of the mining industry at Broken Hill as well as the town's early development. This evolution parallels the events in the Kootenays described in the three preceding chapters.

Broken Hill's early rise was spectacular: ten years after the staking of the first mineral claim in 1883, the town had become one of the world's major silver producers. This dramatic growth came despite considerable obstacles. Its harsh climate, with temperatures frequently above 100 degrees Fahrenheit during the summer months, as well as its uncertain rainfall, averaging less than ten inches a year, did not make the area a promising one for European settlers; sparse, scrubby vegetation and a poor-looking red soil were further detractions in the minds of prospective pastoralists.[3] With a


Broken Hill
QUEENSLAND
SOUTH
AUSTRALIA
NEW SOUTH WALES
Silverton
Broken
Hill
Port Pirie
Newcastle
Sydney
Adelaide
Canberra
A.C.T.
VICTORIA
Melbourne
Scale
0 50 100 200
miles

whole continent apparently available for pre-emption in the first half of the nineteenth century, Australia's migrants could choose from numerous regions with greater appeal than the isolated and apparently infertile Barrier Ranges.[4]

Despite such disadvantages, by the 1830s explorers were moving closer to the area, following the water courses of the Darling and Murray Rivers. The establishment of South Australia in the mid-1830s created a need for an overland stock route between the more settled eastern coast and the new colony. Herds of cattle and sheep were driven westward along the Murray River to South Australia, although tensions with Aborigines culminated in a series of clashes during 1839-41.[5] In 1840 aboriginal guides took two explorers to the Menindee Lakes fifty miles south-east of Broken Hill and four years later one of these men, Charles Sturt, apparently stopped at Broken Hill itself.[6] Sturt was impressed enough by the evidence of the area's mineralization to collect some rock samples but later difficulties forced him to jettison them. However, other Europeans were to follow Sturt.

The late 1840s saw the establishment of large sheep runs bordering on the Darling and Murray Rivers. The gold rushes which began in 1851, although frequently a cause of desertions and subsequent labour shortages, were also a powerful stimulant for the rural economy: access to both credit and markets expanded as a result. In the early 1850s steamers began to work the river waters, bringing supplies to the stations and carrying away such bulky items as a run's wool clip. Gradually the runs extended their boundaries well beyond the river frontages, moving closer to the Barrier. Run holders began to register their land with the authorities, receiving fourteen year leases in exchange for annual payments. Settlements were established at Menindee, Wilcannia and other points along the Darling River to service the growing number of runs.

By the 1870s, the area west of the Darling was not populous, but transportation routes were established, both overland and along the river; a mail service operated; and the beginnings of educational, judicial and administrative structures were in place.[7] The decade also saw the first attempts to exploit the mineral wealth of the area.

The colonies of Victoria and New South Wales attracted the attention of the world during the early 1850s, as the extent of their rich placer gold deposits became known.[8] The Californian gold rush of 1848–49 inspired a similar burst of frenzied activity in the colonies of Australia. Early miners worked the abundant placer gold deposits of New South Wales and Victoria and were amply rewarded for their labours. It took some time, however, before this activity directly influenced events in the vicinity of Broken Hill.

Mining in Australia had begun prior to the feverish activity of the gold rushes. South Australia, for example, produced lead and copper from the early 1840s, "the earliest of the group of colonies in showing itself to be a metalliferous country," as Sir Henry Ayers reminded a meeting of the Australasian Institute of Mining Engineers in 1893.[9] By the early 1870s, following the discovery and development of the rich copper deposits of Wallaroo and Moonta on the Yorke Peninsula, South Australia's mineral production was impressive.[10] The European settlers who were opening up the West Darling had close links with South Australia. Perhaps inspired by that colony's successful base metal industry, they began to pay attention to the mineralization within their own district, which Sturt had observed thirty years before.

The first rush of miners into the Barrier came in 1867, after a worker at the Poolamacca sheep station, some thirty five miles north of Broken Hill,

falsely reported the presence of gold.[11] Eight years later a genuine discovery was made by two men digging a well at Thackaringa, twenty miles east of Broken Hill. In their search for water, Charles Nickel and a companion uncovered some silver-bearing ore. In 1876 a local publican and a Menindee store-keeper staked the property known as the Pioneer mine.[12] The mine's first ore was duly shipped overseas for treatment, but the ship's stormy passage led to it being consigned to the ocean rather than to a metallurgist. A second batch successfully reached its destination and the ore proved to be quite rich in silver and lead. By this time, however, a gold discovery one hundred and fifty miles due north diverted attention from Thackaringa's silver. During 1881 hundreds of men travelled through the Barrier and on to Milparinka, although the gold field was not a particularly rich one and the rush was short-lived. Things proceeded at a less hectic pace on the Barrier, but the discovery and gradual development of the Pioneer Mine had established beyond doubt the presence of rich silver ore. Several other mines operated in the area by the early 1880s, all within a twenty-five mile radius of Broken Hill. The township of Thackaringa soon grew up beside the Pioneer; by 1880 several other properties were also staked in the immediate vicinity. In 1881 a new mine was located at Umberumberka, north of Thackaringa. The following year the Daydream was staked, north again from Umberumberka. Each mine attracted a cluster of buildings: often a school, a post office, several boarding houses, and (invariably) hotels to cater to thirsty miners. Half a dozen of these small townships dotted the Barrrier Ranges before the discovery and settlement of Broken Hill.

The most substantial of these settlements was Silverton, a townsite established not far from the Umberumberka mine.[13] Its position was central, and it boasted both a flat site for construction and the promise of a

reasonable water supply. In his **History of Broken Hill** (1908), Curtis described the town in 1884 as *"the hub of the mining centre, for the discovery of silver-bearing ore had been extended over an area of some thirty miles north, south, east and west of that township."* By September of that year, Barrier mines had shipped 5,115 tons of silver ore, worth £116,590.[14] Five hundred people lived in Silverton in 1883; by the end of 1884 this number had swelled to 1,745.[15] Surveyed as a town in 1883, Silverton became the administrative centre of the Barrier. A policeman had been posted there in 1880 and he was joined in 1884 by a Mining Warden and Registrar. In the latter year the Silverton hospital and the town's first school began operating. Hotels soon opened, a newspaper began publication and the Barrier Progress Committee formed to function as a rudimentary regional and town council. Churches, too, and even a local Masonic lodge began to conduct business in 1884. Silverton's emergence as a growing and prosperous community, however, was soon eclipsed by the discovery of Broken Hill's vast mineral wealth.

"While the mines around Silverton were going ahead," claimed Curtis, *"...every man, no matter who or what he was, talked silver and silver only..."*[16] Such excitement was infectious. Charles Rasp, a recent German immigrant, worked as a boundary rider at the Mount Gipps sheep station, a dozen miles southeast of Silverton. Since staking claims could yield rich rewards, and successful prospecting seemed to require little more than a rudimentary knowledge of minerals, a roving eye and perhaps a good bit of luck, Rasp decided to try his hand at this lucrative pursuit. During a visit to Adelaide he bought a copy of the South Australian Mines Department publication, The Prospector's Guide, to help him understand the fundamentals of geology. And he began to look more closely at the rocks around him.

The fenced boundary that Rasp patrolled cut through the middle of what was known as "the broken hill." It was more a long and uneven ridge than a hill, but the name was to become famous. The hill's dark rocks suggested mineralization, although this tell-tale evidence had been dismissed as value-less by others. Rasp was not so sure; as he explained later in an interview,

> At the time of shearing, in 1883, some mines were started in the neighbourhood, particularly the Day-Dream. The whole country was in a simmer of excitement, and, knowing the peculiar outcrop on one corner of the Mount Gipps Run, now called Broken Hill, I thought it might be worth my while to go prospecting there. I had no idea of minerals, and was as green as could be. [17]

Rasp, with the aid of his prospector's guide, identified the outcrop as tin and became convinced that the hill promised wealth. He persuaded two men working nearby to join with him in a mining venture and in early September, 1883 the three men staked a forty acre mineral claim on Broken Hill.[18]

The man in charge of the Mount Gipps station, George McCulloch, was less than enthusiastic about mining. The industry frequently attracted his good men and in any event he was preoccupied with that year's severe drought. Rasp knew of his employer's antipathy towards mining and decided to hand in his notice in order to begin his new career. To his surprise, however, McCulloch suggested that they form a syndicate and stake the whole outcrop. Rasp, McCulloch, the two contractors whom Rasp had first interested in the venture, and three others agreed to pool their resources and develop the Hill. By 21 September, 1883 "the syndicate of seven" had pegged virtually the entire outcrop. Driving stakes into the ground and registering mining claims was straightforward; converting the property to a paying mine was a good deal more complicated and the ensuing months were difficult ones for the

novice mining men.[19]

The syndicate had hired miners to sink an exploratory shaft on to the lode, work which, while necessary, was an ongoing expense. The shaft revealed that the mine was located on an immense lead deposit, but no good silver ore was struck during the first months. In an attempt to spread the burden of development costs more widely, the syndicate's membership was doubled, to fourteen. Two of the original seven had opted to sell out rather than continue paying their share of the expenses of developing the property, but Rasp and the others doggedly held on to their shares and met the weekly ten shilling calls, hoping that one day the Hill would re-pay them. After a year had gone by, even they were growing restless and an outside expert was called in to examine the lode. The man's report was encouraging and so the syndicate pressed on; in fact an advertisement for more men was placed in the newspaper of neighbouring Silverton.[20] In January, 1885, sixteen months after Rasp's first enthusiasm for the outcrop, silver was discovered in ore from the shaft. The men's patience was to be amply rewarded.

Mine development during the first months of 1885 gave some clue as to the extent and richness of the Broken Hill lode. The members of the syndicate responded by re-organizing: they appointed one of their number mine manager and placed an experienced miner in charge of the underground workings. Despite encouraging prospects, money to meet the growing operating expenses was in short supply. Even with fourteen members the syndicate's resources were limited. In order to raise further capital the group decided in June 1885 to float a public company, the Broken Hill Proprietary Co. Limited [BHP]. 16,000 shares were issued, although only 2,000 were offered for sale to the public, the remaining 14,000 being retained by the syndicate. The sale of

the 2,000 shares (at £9 apiece) was intended to create a pool of £15,000 for mine development as well as returning £3,000 to the syndicate.[21] To encourage investors, fifty tons of Broken Hill ore were shipped to Melbourne for smelting. This yielded an impressive 742 ounces of silver per ton, and the product was publicly displayed in a Melbourne bank.[22] The 2,000 shares were soon sold. With the sale of the silver netting some £7,500, in addition to the capital raised by the sale of shares, expansion and improvements at the mine would now move quickly.

*

In his chronicle of The Rise of Broken Hill, Geoffrey Blainey observes that the men who dominated BHP's first board of directors "were late-comers to the syndicate, joining it in 1884 or early in 1885." By and large they were, he noted,

> ... not Mount Gipps employees but men of substance who owned sheep runs west of the Darling River. They were self-made men, intensely practical, fond of running a business.... It hardly seemed the ideal recipe for the board of Australia's most important public company to take men of sparse formal education, men who knew far more about sheep and land than metals, and to give them virtually a life-long seat; and yet the recipe worked... [23]

These men were aware of their limitations when it came to mining operations, however, and shrewd enough to obtain the services of the best available experts for running their property. In the 1880s, western North America was the undisputed leader of the mining world and it was from there that the BHP directors recruited their senior officials. "Just now," noted an Adelaide journalist in his report on Broken Hill in early 1888, "the "'Merican expert" is the prominent man."[24] Although the most important ingredient in BHP's long-term success was the richness of its mine, the Directors' readiness to

hire the best mining men that could be found was almost as significant.

In 1886 one of the Directors, W. R. Wilson, was dispatched to the U.S.A.[25] He visited mines, inspected equipment and interviewed a candidate for the job of metallurgist at Broken Hill. H. H. Schlapp, the prospective employee, was formerly superintendent of the Pueblo smelter in Colorado "and Mr. Wilson thoroughly satisfied himself ... that Mr. Schlapp's qualifications were of the very highest order."[26] The Directors engaged another mining man with American experience to make "an outside general report" on the mine, which was appended to the Directors' Report of 1886.[27] In early 1887, the job of General Manager was offered to a third "'Merican expert," W. H. Patton. He was Superintendent of the Consolidated Virginia Silver Mining Company, one of the largest mines on the famous Comstock lode. "This gentleman," the directors proudly told BHP shareholders,

> holds a premier position in the silver mining world of America, and has had a long experience in the mining of large silver lodes, which will be of the utmost value and importance in relation to your large property.
> .... He has had under his control very large milling and amalgamating plants, and is fully conversant with all their operations. Your Directors therefore regarded the possession of his experience and advice in regard to these processes of ore reduction as of the highest importance, and as alone justifying the appointment.[28]

Not until the 1920s did an Australian again hold the position of General Manager.[29]

The Broken Hill lode was enormous and its size, although in many ways a most welcome surprise, created problems for miners. In places on the BHP claim, the lode was a hundred feet wide; one of the first geologists to inspect Broken Hill described it as "the most extraordinary and largest lode I have ever seen..."[30] Mining such a massive ore body entailed the removal of

enough underground material to jeopardize stability at the surface. As a consequence, Patton introduced the square-set method of mine timbering in an effort to prevent subsidence and cave-ins from hampering mining operations.[31] Even square sets, however, did not prevent earth movement and the occasional disastrous cave in. Patton's successor as General Manager, John Howell, another American, introduced an alternative solution to the problem. He began extracting ore from the surface by means of an open cut, which eventually extended almost a mile along the line of lode and 300 feet deep.[32] The open cut was not only efficient, allowing the recovery of virtually the entire ore body that it exposed, but also relieved pressure on deeper underground workings and meant that a significant amount of timber could be retrieved from the underground workings that it exposed.

When Howell inaugurated the new system of surface workings in 1891, BHP was riding a crest of prosperity. The first six years of the company's life had been prosperous ones indeed: profits rose from £16,000 in 1886 to £1,143,000; by May 1891 shareholders had received an unprecedented £2,500,000 in dividends.[33] The majority of BHP's shareholders were residents of Victoria and the size and regularity of the company's dividends "became a major factor in the Victorian economy."[34] This wealth reflected the mine's silver production, a staggering thirty million ounces of silver, from the first fifty ton ore shipment in mid-1885 to the end of 1891.[35] Such success attracted much attention and many imitators: Broken Hill soon spawned a number of other mining companies, all aspiring to match BHP's remarkable career.[36]

By 1888 Australian stock exchanges were experiencing "a most extraordinary boom in silver-mining shares," a speculative fever that was strongest in Melbourne.[37] Inspired by the Broken Hill Proprietary Company's

impressive career, the mining craze was such that according to one Australian journal

> You only had to issue a prospectus which contained the magic words Broken Hill, and draw some lines on a piece of paper and say it was a plan showing the lode to run 'right through the centre of this valuable property,' and that certain wonderful assays had been made, and an eager frantic public was ready to subscribe L50,000 or L100,000 in half an hour; and next morning the stock was launched upon the market and snapped up at 100, or even 500, per cent premium... [38]

At the peak of the boom in early 1888, BHP shares (£20 par value) were quoted at £413.[39] Not only did the company's shares soar but its directors took advantage of the public confidence in mining to subdivide and profit. After all, BHP's claims along the line of lode on Broken Hill totalled nearly 300 acres. As the structure and extent of the lode became known, BHP directors decided that holding on to all seven claims was unnecessary. From February 1887 to February 1888, three other companies were floated off of the BHP "parent:" Broken Hill Proprietary Block 14 Company (16 Feb., 1887), British Broken Hill Proprietary Company (28 July, 1887), and Broken Hill Proprietary Block 10 Company (21 Feb., 1888).[40] BHP shareholders prospered with the formation of each company. The company's wealth seemed inexhaustible yet less than five years had passed since Charles Rasp had peered at specimens from Broken Hill and hopefully consulted his propector's guidebook.

Speculative activity in mining shares was so hectic during the first quarter of 1888 that exhausted brokers closed the Melbourne exchange for twelve days at Easter.[41] Prices fell when trading resumed after the holiday period but although the boom in silver mining shares was over, a collapse did not ensue. Indeed the course of the boom did not have a substantial impact on mining at Broken Hill.[42] "The torrent of speculation had been checked," observed one historian of the Melbourne boom, "only to break out into a new

channel."[43] Land companies flourished where before mining companies had multiplied and when the inevitable crash came, the culmination of both long term and short term weaknesses within the Australian economy, many Melbourne investors were financially embarassed.[44] Although BHP was not directly threatened by the depression of the early 1890s, the mood of retrenchment which marked those years was to have a profound impact on Broken Hill.

*

In 1888 four thousand men worked at the Broken Hill mines and that year they brought over a hundred thousand tons of ore to the surface. In January, the privately-owned Silverton Tramway Company completed a thirty-five mile rail line, connecting Broken Hill with the South Australian railway network. This was a crucial event in Broken Hill's development, for the rapidly growing output from the mines required a reliable transportation system capable of handling bulk shipments efficiently and cheaply.[45] Gradually a town took shape alongside the famous hill. In 1887, the population was estimated to be 5,000; two years later the figure had more than doubled.[46]

A contemporary article entitled "Life on the Barrier" described the town as it was in 1888:

> Following quickly upon the tents and iron shanties came stores, hotels, churches, and a better class of dwelling house. The field had settled down in some degree, but even so, the life led by most of the men was of the roughest kind. Drinking was indulged in freely, and in the freezing nights of winter men would stagger from the door of the public-house out into the surrounding wastes of salt-bush; there they would fall and lapse into unconsciousness, and in the morning, perchance, there they would still be lying, touched by the hand of death even as they slept. Some hundreds passed into the land of shadows in this besotted state.... A pest more fatal than drink came in the summer time, in the form of typhoid fever, and men were cut down in

scores.[47]

While perhaps coloured by moral disapproval, the account is not wildly inaccurate. The population, like that of other mining communities not long past the first stages of development, was relatively young and predominantly male; contemporary descriptions suggest that Broken Hill society lacked even the rudimentary sense of dignity which other late Victorian communities in Australia nourished, however vainly. This flaunting of convention was in keeping with its character as a new community relatively isolated from the major urban centres. *"Walk down the streets of ... Broken Hill today,"* wrote the author of "Life on the Barrier" disapprovingly, *"and it will be noticed that the men clustered at the corners, or about the public house doors, do not hesitate to use both profane and lewd expressions while women are passing close beside them..."*[48] As the earlier quotation suggests, the consumption of alcohol was considerable; *"...everybody drank in the general madness,"* recalled another newspaper man in his memoirs.[49] Low rainfall, smelter emissions and periodic droughts led to drinking problems of a different sort.

Pure drinking water was a rare commodity in the near desert conditions of the Barrier. The situation became critical in dry years such as 1888, when a mere 3.26 inches of rain fell.[50] This water shortage was aggravated by the smelters, whose emissions frequently precipitated upon rooftops and found their way from there into domestic rainwater tanks; in addition, water from the town's open wells and reservoirs was frequently polluted by rotting animal and vegetable contaminants.[51] Health problems soon assumed serious proportions: in May 1889, for example, BHP Directors informed shareholders that they had given £500 to the Broken Hill hospital fund since "The institution [had been] in urgent and pressing need of assistance during a

disastrous epidemic of typhoid fever."[52] Numerous other contemporary accounts as well as reminiscences describe the ever-present threat of typhoid, and as late as 1912, Broken Hill's medical officer of health reported himself "far from satisfied with the condition of the town; the death rate is still far too high and the incidence of infectious diseases, especially typhoid fever, too great..."[53]

Concern over sanitation and the provision of an adequate water supply mobilised Broken Hill residents. As the drought worsened in late 1888, they requested access to a reservoir controlled by the New South Wales Department of Mines. Townsfolk were enraged when this was denied and soon organised a demonstration to vent their frustration. Carefully preparing an effigy of the Minister of Mines, they paraded it through the town in a hearse, accompanied by a band playing the Dead March and an empty water cart. A journalist who accompanied the "body" in the hearse declared that "a good time was had by all and most of them were too drunk to know what a good time it was."[54] The subsequent effigy burning was widely reported by the Australian press, and perhaps as a response the New South Wales government devoted some attention to the problems of Broken Hill. The town was granted municipal status and the contentious reservoir would henceforth be controlled by the municipal council.[55]

Virtually from its founding, Broken Hill's relationship with the colony's administrative centre seven hundred miles to the east was uncertain.[56] In the minds of Broken Hill residents, the 1888 water shortage only emphasized the shortcomings of the New South Wales government. They concluded that Sydney-based politicians were little interested in the welfare of those who lived in the far west and, especially during Broken Hill's early years, continually charged the colonial government with neglecting the town.[57] The

crux of this criticism was that the government provided very little in the way of public services or amenities in return for the rich revenues derived from the town's mining industry. Prior to the water supply controversy, for example, the New South Wales government had infuriated Barrier residents by refusing to undertake construction of a thirty-five mile rail link between Cockburn, South Australia and Broken Hill, when the South Australian railway was completed to the former centre in late 1886.[58] The railway eventually was built by private capital, and its construction was one in a series of events which fostered Broken Hill's tradition of self-help and independence.

Broken Hill's links with South Australia contrasted sharply with the frequent hostility which characterised the town's relationship with New South Wales. Many of the early run holders came to western New South Wales from South Australia,[59] a trend which continued with the mining industry. "During 1886," observed the statistician T. A. Coghlan, "South Australia lost 8819 men by migration, chiefly to Broken Hill;" five years later nearly half of the town's population gave South Australia as their place of birth.[60] The rail connection to the South Australian border fostered even closer ties between that colony and Broken Hill. In addition to monopolizing passenger traffic to and from the mining field, the railway ensured that Broken Hill ore shipments would be directed west to South Australian ports, in particular to the coastal town of Port Pirie, 230 miles away on Spencer Gulf. In 1895 the London **Economist** described the relationship between Broken Hill and South Australia as one based on trade: *"In fact,"* wrote their correspondent, *"with Broken Hill, the prosperity of the colony [of South Australia] is largely bound up."*[61] The South Australian connection remains strong to this day: Broken Hill's clocks keep the same time as that of its neighbour rather than that of New South Wales, for example, and "Australian rules" football, the sport of Victoria and South

Australia but not New South Wales, is the one played on its rugby fields.

*

Broken Hill's first town council, elected in late November 1888, attacked the young community's problems vigourously.[62] Understandably its first moves were in the field of public health but the council's composition, as well as its endeavours, reveals something of the nature of the community. Its membership, as Kennedy points out, "suggests the absence of a clearly established class structure..." Three of the twelve aldermen were mine managers; another two were miners; "two were auctioneers or mining agents...; two were building contractors...; while the others included a publican, a boarding-house keeper, and a store-keeper."[63] This diverse group reflects the town's recent origins, but the fluidity that it suggests did not last very long. Class lines were soon drawn in Broken Hill; indeed they assumed a significance in the community unlike that of any other in Australia. The first mayor of Broken Hill was BHP's underground manager; by the turn of the century, the town had become the first in Australia to elect a Labor mayor and a majority of Labor aldermen.[64] Broken Hill, noted a French mining engineer who travelled through New Zealand and Australia in 1902, was the district *"qui a été de tout temps l'un des centres les plus actifs de l'agitation ouvrière en Australie."*[65]

The first miners' organisation in the region was the Barrier Ranges Miners' Association, formed in September 1884, at Silverton. It operated as a friendly society, chiefly to provide compensation to injured workers.[66] In early 1886, Silverton miners established a branch of the Amalgamated Miners Association of Australasia [AMA], and in July of that year the office was transferred to Broken Hill. The AMA was unequivocally a miners' union, dating back to 1874 when a dozen Victorian locals founded the Amalgamated Miners'

Association of Victoria. By the time the Broken Hill AMA branch was established, the upsurge of "new unionism," combined with the energy of W. G. Spence, had made the organisation a powerful force throughout the Australasian colonies.[67] Despite the initial participation of managers and other non-miners on its board and a letter urging moderation from Spence, the Broken Hill AMA soon was at odds with mining companies.[68]

In early 1889, the AMA executive resolved to establish a closed shop in the Broken Hill mines. During the year the issue was frequently aired at public meetings. George Dale described the escalating campaign thirty years later:

> The usual skull-dragging of certain individuals into the union took place ... and men who were disinclined to join politely shown "the error of their ways." It is well known to "battlers" of those days that more than one man who at a later period became a force to be reckoned with in the movement received his initiation at the hands of a small band who refused to take "no" for an answer. Stewards having battled for many months and "roped in" many recruits, reports at meetings showed that there were still many men working who resolutely refused to join hands with their class; then notices were posted, naming a date afer which unionists would refuse to work with those outside their ranks. This brought in a further number, but still there were non-unionists on the fields....
>
> The agitation continued for some months with increasing bitterness...[69]

The widespread community support for the London Dock Strike - two public meetings were held in Broken Hill during September in solidarity with London's dockers and £1,000 collected in contributions[70] - gave further encouragement to the unionist cause. Two months later, on 7 Nov., the union declared a strike to force the issue of union only labour.

Broken Hill's first strike was short and decisive. Although it lasted a brief ten days, the dispute was accompanied by intimidation of non-union workers. Five days into the strike, a women's brigade formed. Four hundred

women armed with brooms marched onto the mines to sweep out the strike-breakers. The non-unionists they apprehended were tarred and feathered.[71] Merchants went to some lengths to assure the AMA of their support. The baker Charles Wright, for example, put a notice in the **Barrier Miner** "wish[ing] most emphatically to deny the rumour that has been spread about, that I have been supplying the blacklegs working on the mines with provisions."[72] Broken Hill's working people regarded community solidarity as vital; those who violated the principle faced ostracism and boycott.

BHP directors responded swiftly to the strike.[73] They travelled to Broken Hill, met with union leaders and accepted the AMA demands with few objections. In the agreement which settled the strike, BHP and the other mining companies not only recognised the principle of a closed shop but also agreed to deduct union dues from miners' wages for the AMA.[74] The dispute fostered unionism in the community, reflected by the formation of four other unions during the strike.[75] In early March 1890, the various Broken Hill union locals founded the Barrier Trades and Labour Council.

Victory also crowned the AMA's second dispute with the companies, a strike which reflected the impact of the 1890 Maritime Strike on labour relations in eastern Australia.[76] Inter-colonial shipping was drastically curtailed by the Maritime Strike, which had begun in August. Broken Hill mining operations demanded steady supplies of both fuel, in the form of coke and coal, and timber; ships, ports and trains were all crucial. The mines' ore and the refined bullion also relied on the various transportation links. AMA representatives from Broken Hill visited the South Australian ports in an attempt to enable the mines to continue to receive their necessary supplies. The miners' sympathies were not in doubt: £500 was dispatched to the Labour

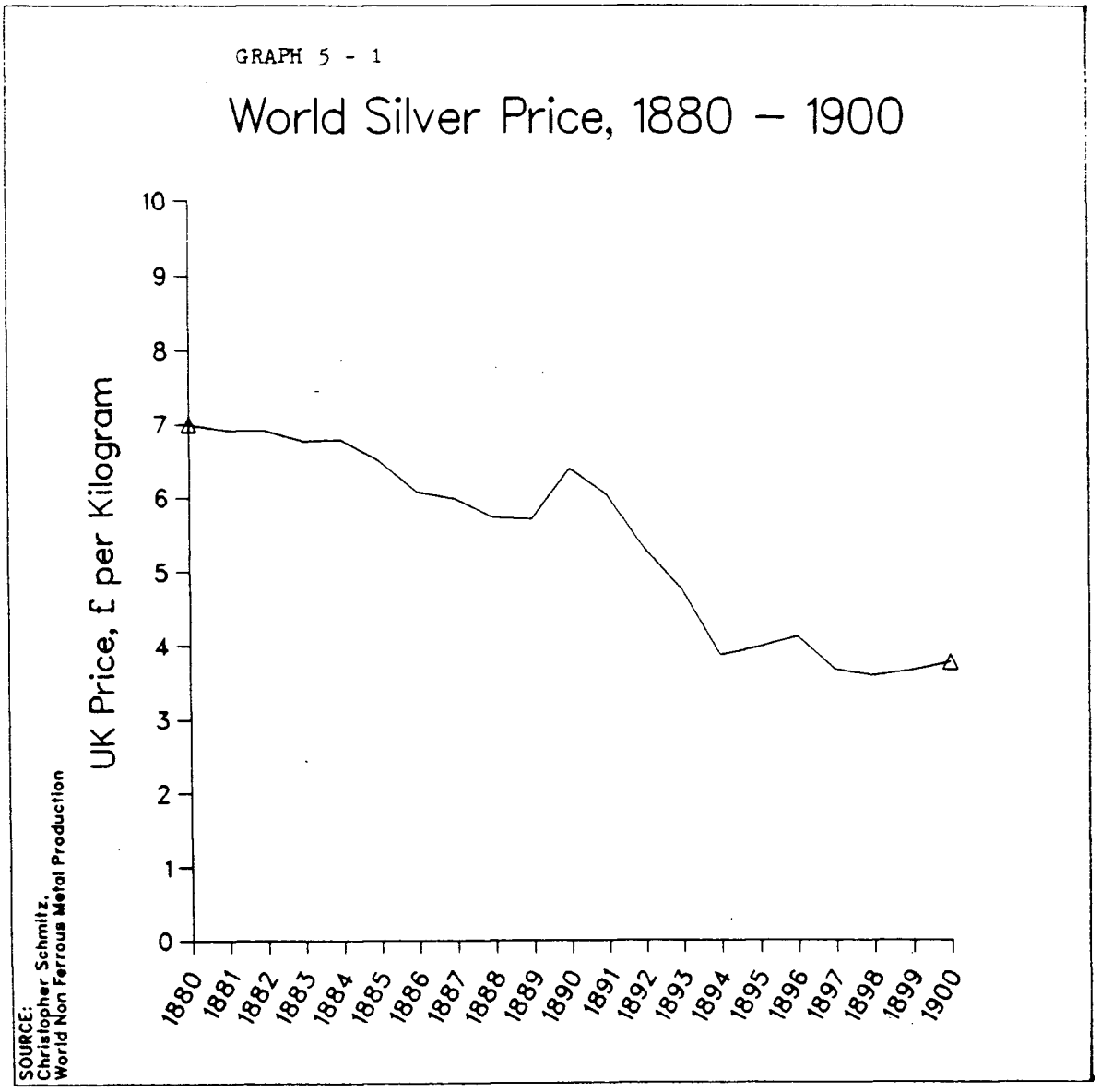
Defence Committee in Sydney, and AMA members agreed to a fortnightly 5/- levy on their wages to support the strikers.[77]

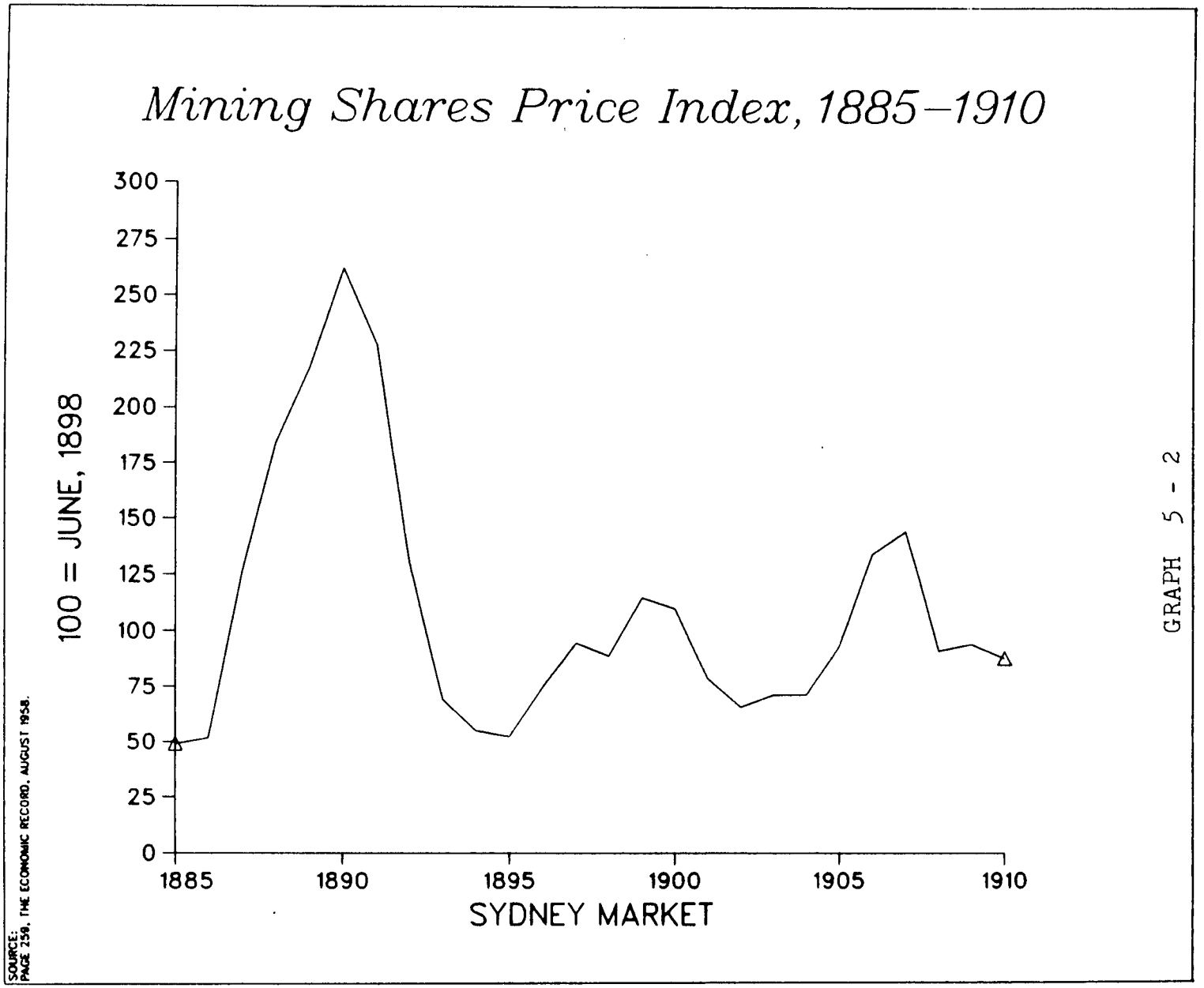
Operations at the mines could not continue in the face of growing class tensions throughout the Australian colonies. Whether from practical difficulties or from class solidarity, BHP directors served notice of their intention to shut down the mine in early September.[78] Miners responded angrily, walking out before the mines were due to shut. The strike ended after four weeks, when the AMA and the companies reached a negotiated settlement. The agreement stipulated that "in the event of any further trouble, the ... issue shall be referred to a Board of Arbitration;" it upheld all the conditions of the 1889 agreement, which included the check-off; and it reduced the hours of work from forty-eight to forty-six per week. If there was any concession from the union, it was a clause agreeing "that in the event of a Trades Council or any Labor body outside the A.M.A. of Barrier Colonial District, No. 3 calling the latter out for a dispute foreign to the mine or men, they will refuse to come out..."[79] The AMA's victory in 1890 contrasted sharply with the disarray in which the Maritime Strike left many other Australian unions.[80]

Throughout the Australian colonies, the early 1890s were a time of recession, and employers frequently took advantage of the prevailing unemployment to reinforce the clear victory of the Maritime Strike. "Freedom of contract," that is, the right to employ non-union labour, was the rallying cry.[81] Inexorably, the gains won by organised labour during the 1880s were rolled back. Broken Hill's miners had managed to survive the 1890 confrontation with no loss in the prestige or power of their union. Changing economic circumstances during the early 1890s, however, meant that they too

in a highly profitable position until 1892, when both share values and the price of silver began to drop. Broken Hill mining companies decided the time had come to match falling returns by reducing working costs. The graph below and the one overleaf reveal the downward trend in the price of silver and the value of mining shares on the Sydney stock market.[82]

GRAPH 5 - 1




Mining Shares Price Index, 1885–1910
100 = JUNE, 1898
300
275
250
225
200
175
150
125
100
75
50
25
0
1885
1890
1895
1900
1905
1910
SYDNEY MARKET
SOURCE:
PAGE 259, THE ECONOMIC RECORD, AUGUST 1958.
GRAPH 5 - 2

At their employers' request, mine managers held a special meeting on 6 May, 1892 to consider appropriate policy on three questions: "the appointed Lead Commission, the Contract system in general, & the Reduction of Wages necessary at the Mines..."[83] The meeting resolved to have the clause in the 1890 agreement which disallowed contracting "struck out," and decided to give one month's notice of the proposed change. No mention was made of negotiating with miners or referring the matter to a board of arbitration, as the 1890 agreement stipulated. BHP's manager, John Howell, was present at this meeting and later explained the situation to company shareholders:

> The truth is, the mine managers at Broken Hill were so hampered and controlled by what I may call socialistic labour rules, that it was utterly impossible for us to get anything like the amount of work from the men that we were entitled to expect from the good wages and constant employment the men were receiving. Something had to be done, some change had to be made, and the only thing under the circumstances that could be done was to break the agreement between the companies and the miners (or the unions) which then existed....[84]

The miners' union reacted predictably to the suggested change. The AMA called a special meeting, and "Mr. Sleath [the secretary] was instructed to advise the directors that under no circumstances could the proposal be accepted."[85] A desultory correspondence went on between the companies and the union for six weeks, and finally the Melbourne-based mining companies' association informed the AMA that all agreements between them would lapse in thirty days' time, on 30 July; after the latter date the mines would be worked by contract. The AMA held a mass meeting on Sunday 3 July, and voted to strike the following day.

Three weeks into the strike, the union sent secretary Sleath to the half yearly share holders' meeting in Melbourne, to present the miners' point of

view. (The AMA had purchased a BHP share and was thus allowed representation.) While the move was an imaginative one, Sleath received a very rowdy reception and failed to convince shareholders to re-consider approving Directors' actions in unilaterally abrogating the 1890 agreement.[86] Sleath insisted at the meeting that the union was not so much opposed to contracting as it was to the abrogation of the agreement. "Stoping by contract had never been objected to by the men.... but they desired to know what sort of contract, what form of the contract system, was wanted.... The real question was not stoping by contract, but whether an agreement which had been honorably entered into by two parties should be dishonorably broken."[87] Sleath argued that managers were not so much concerned with contracting as they were with ending the 1890 agreement, and there is some evidence to support this claim. For example, in an article on the strike written for an English audience Arthur Duckworth claimed that "The miners demurred to the contract system being applied to underground work as involving a positive reduction of wages; but the real bone of contention was the future non-recognition of the unions."[88] Similarly, BHP's Chairman insisted at a shareholders' meeting six months later that "the principles for which we have striven during the past strike [were] freedom of contract (hear, hear), and the right to manage the Mine as we please, irrespective of unions and union agitators. (Loud applause.)"[89]

For nearly two months the situation was a stand-off: the companies and the miners faced each other at the mine gates, neither willing to yield. At the end of August, BHP went on the offensive, re-opening their property with strike-breakers. Recruiting workers was an easy matter: in Melbourne alone there were eight thousand men registered unemployed.[90] For several weeks tensions were high in Broken Hill, but it was becoming clear that the miners' cause was doomed. More and more men arrived to take the place of striking

unionists; police reinforcements continued to pour into town; and the actions of the police magistrate made it very clear where the sympathies of the court lay.[91]

The strike was declared off on 7 November. Unlike the first two disputes at Broken Hill, the 1892 conflict had been a long and hard-fought struggle, and ended with the union's defeat. The AMA lost more than the strike: it lost prestige, many members[92] and the closed shop and check-off from the earlier agreements. The bitter memories took a long time to fade. When a Royal Commission visited Broken Hill in 1897, for example, a miner complained that "the old sore of 1892 is still to the fore."[93] Even in the Commonwealth Parliament, ten years afer the strike, references to 1892 could provoke angry exchanges. Long-time BHP official William Knox (and member for Kooyong) spoke at length on the proposed Conciliation and Arbitration Bill, justifying his opposition by referring to the 1892 strike. Josiah Thomas, a Broken Hill unionist and the member for Barrier, was soon on his feet attacking both Knox's account of the strike and the role that he had played; he had to be ordered to his seat by the Speaker.[94]

A young Irish miner may be allowed the last words. A week and a half before the strike's end, he described the situation in a letter to his mother:

> ...we have all been out on strike for the last 17 weeks and no telling when we will go to work again. The mine owners was wanting to lower the wages, so the men all struck to a man; there is 7,000 men on strike; we struck on the 4th July last, so things are in a very bad state in Broken Hill, as there is no other work but "minen" in this part of New South Wales so all the men are walking about the streets. There has been about 1,500 men left the Hill since the strike. There has been some "ruff" work since the strike as the mine owners have been fetching miners from other parts so the government have sent large bodies of police to keep law and order; there has been some shots fired but no lives lost as yet; there are 8 of our leaders in jail... [95]

The following year he wrote again, describing the legacy of the strike:

> ...it lasted for 18 weeks and when it was called off the mines was very near full handed with men that the mine owners brought from other parts of the world so there was hundreds of the old hands that could not get work and ... it caused great poverty. Women and children were starving as well as the men and all the old hands that got work has to take the worst places in the mines.... A good many of the men that can't get work are leaving Australia and going to South America; they are going to form a new colony of their own; ... there is a ship load of people leaves Sydney this week...[96]

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Thirty-five Labor Party representatives had been elected to the N.S.W. Legislature twelve months before the strike began. Members of this group attacked the government's handling of the strike and when the opposition leader Reid moved a no-confidence motion, a Labor member added an amendment, declaring disapproval "of the way in which the Government have administered the law at Broken Hill."[97] Labor members were still divided over the thorny question of free trade vs. protection, however, and their consequent inability to vote as a bloc on the no-confidence motion led to recrimination and the eventual expulsion of those who had sided with the government. The event was an important one for the fledgeling Labor Party, since it taught the new members some necessary political lessons and "drove the concepts of caucus, pledge and solidarity deeper into Labor consciousness."[98]

Like many other working people throughout Australia, Broken Hill miners concluded that the defeats of the early 1890s reflected an alliance of employers and the state. This common perception sparked an unprecedented interest in politics and stimulated the growth of the Australian Labor Party.[99] J. H. Cann, president of the AMA, was Broken Hill's first Labor MLA, elected

in June 1891.[100] Three years later the number of Barrier seats trebled, and the Australian Labor Party [ALP] won all three in the 1894 election, as well as the neighbouring riding of Wilcannia. Each of the four men elected had close links with Broken Hill's union movement: Cann, Josiah Thomas and Richard Sleath had been active on the executive of the AMA; William John Ferguson was active in the Engine Drivers and Firemen's Union.[101] In addition, both Sleath and Ferguson had served jail sentences for their part in the 1892 strike.[102]

The miners' representatives in the N.S.W. Legislature pressed for improved conditions at Broken Hill. In particular they continually raised the related issues of health and safety on the mines. Prior to the 1892 strike, the AMA had asked Cann, their former president and now their MLA, to have the problem of lead poisoning looked into by some offical body. In mid-August, 1891, Cann rose in the Legislative Assembly to ask the Secretary of Mines to "cause an inquiry to be made as to the effect of lead upon miners and others working in silver and lead mines at Broken Hill..."[103] The secretary acquiesced, although almost a year went by before the Lead Poisoning Inquiry Board began its hearings, on 27 June, 1892, exactly a week before the strike began. Working in the lead carbonate ores was widely recognised as courting danger; the mines tacitly acknowledged this by rotating workers in the worst places.[104] A number of miners went to some lengths to protect themselves from the effects of their hazardous professions, but these precautions were rarely successful. A fifty-one year old miner told the Board of the extent of the problem:

> 1312. I suppose you know a good number of the miners employed here? Yes.
> 1313. Do you know many who have worked a considerable time in lead, and who have not suffered from lead-poisoning? I have in my time met one or two who have not been affected,

> but in my experience mostly all of them have been affected more or less.
> 1314. Do you know any man who has worked here any length of time without being leaded? No; I cannot name one. [105]

It was not just the underground miners that were "leaded." The dust in the smelters was also deadly, as were the smelter emissions. From 1 January, 1890 to 30 June, 1892, two hundred and ninety-four people were admitted to the Broken Hill Hospital suffering from lead poisoning; eleven people died from it.[106] Perhaps the most pathetic case was Zebina Lane's two year old daughter: the flowers that she picked and put into her mouth had enough lead on them to kill her.[107] The Board recommended that a number of facilities be provided by the mines so that workers would be able to reduce their exposure to lead; it also suggested that greater efforts be made to make workers aware of the health risks. The lead carbonate ore that contributed most to the problem, at least for underground workers, was largely worked out by the mid-1890s. The lead smelters had also left the Hill by the late 1890s, re-locating at Port Pirie in South Australia. Even in the 1980s Broken Hill residents remember the effects of lead poisoning. One elderly man recalled that

> In the early days when I came here (1906) you could still see a man fall in the gutter in a fit. It would be the effect of the lead poisoning on his system that throws him into a fit. I've seen them in Argent Street and they'd take these fits...[108]

The issue of health and safety in Broken Hill's mines was not solely a concern with lead poisoning. In the middle 1890s, the number of serious and fatal accidents on the Barrier rose, and Broken Hill's representatives in the N.S.W. Legislature were soon demanding action. In September, 1896, Josiah Thomas, the member for Alma, successfully adjourned the House

> for the purpose of discussing a definite matter of urgent public importance, namely, "the urgent need of appointing more Government inspectors at the Broken Hill mines, consequent on the large number of fatal accidents which have recently taken place there." [109]

Thomas was convinced of the reason for the rising number of accidents: "There can be no doubt to those who know anything about the Broken Hill mine," he assured the House,

> that the great rush to take out the ore, the great wish to economise in every possible way, and the great idea to maintain the present large dividends, or else to bring mines which are not paying dividends into the dividend paying list, is the great reason for the large number of accidents which occur."[110]

Richard Sleath followed Thomas and was a good deal blunter. He doubted that another inspector would do any good: "This mining inspector is simply the tool of agents of the mining managers.... the whole administration of the Mines Department is as rotten as it can possibly be."[111] In his opinion, the wholesale importation of unskilled men into the mines as a result of the 1892 strike had caused the increase in accidents. Cann was next to speak, and he declared that alarming increase had only come "since the system of contract was introduced at Broken Hill."[112] Ferguson, the fourth Broken Hill man, agreed: "The contract system at Broken Hill is a huge juggernaut, under whose wheels men are being crushed and maimed, in order to earn large dividends for the proprietors of the mines."[113] Despite several hours of debate and a number of other speeches in support, the motion was lost.

Nine months later, in June 1897, a series of fatal accidents at Broken Hill sparked another effort to have the House address the question of safety in the mines. Again, all four Broken Hill men gave lengthy and impassioned speeches; when the Secretary of Mines spoke, they gave him little peace,

interrupting him repeatedly.[114] This time the House agreed to take action, and two weeks later a Royal Commission was appointed, "To Inquire into the Working of Mines and Quarries in the Albert Mining District."

The commission was directed to investigate the causes of the recent Broken Hill accidents; to determine if any one cause contributed especially to the accidents; and to recommend such improvements in regulation, inspection or working of the mines that would create a safer working environment. A district court judge was the sole commissioner although Broken Hill's Inspector of Mines and representatives of both the mine owners and the AMA were also present for the sittings.[115] Judge Murray concluded that there was "general agreement ... in the belief that the incompetency of the men was the prevailing cause of accidents," a view he shared, although he rejected the idea that there had been any dramatic increase in the frequency of accidents.[116] He denied that either the contract system or BHP's open-cut had created more accidents, and insisted that James Hebbard was doing a good job as Inspector of Mines. He found no need for a second inspector at Broken Hill although he did recommend a system of tribunals or boards to investigate serious accidents.[117]

The Commission's findings were probably little comfort for Broken Hill miners, and the accidents continued. In 1901 and 1902, serious accidents led to two more Royal Commissions investigating mine safety on the Barrier, although neither found any fault with the manner in which mining was carried on at Broken Hill. The second commission, however, pointed out that the falls of rock which occurred occasionally in the mines were due to the poor timbering methods of the early days and emphasised the continuing need for care in filling in worked-out stopes.[118] The battle for safe working conditions was to

continue, although it was not won until the miners' union had regained its position as a powerful force on the field.[119]

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While the elected representatives of Broken Hill's miners fought for better working conditions on the Barrier, the economic situation worsened. The 1892 strike illustrated the mining companies determination to re-arrange the terms of employment within the mines in order to reduce costs. Even the much-heralded introduction of contracting, however, had failed to improve the rapidly deteriorating economic outlook for Broken Hill.

Lead and silver prices had begun to decline in 1890. By 1893 both metals had slipped to less than 75% of their 1890 value.[120] In his 1908 History of Broken Hill, Curtis's entry for 1893 was short: "Known as the "bad" year. Bank failures, silver crisis."[121] BHP could not escape the inevitable consequences; the Chairman of Directors gave the shareholders the bad news at a meeting in July, 1893:

> I regret very much to tell you that the Directors intend to reduce the wages and general working expenses of the Company in every shape and form. They are very reluctant to do this, but necessity compels them, this of course being brought about through the decline in value of the products of the Company. Silver and lead have gone down and from these causes your dividends in the future will not be so large as they have been and we are therefore compelled to make reductions in every possible way... [122]

Day wages went down to an all-time low at Broken Hill's mines, to 7/6 from 8/4.[123] In addition to the fall in prices, the character of Broken Hill's ore was changing. It is difficult to exaggerate the significance of this change, which ultimately affected every aspect of the mining industry.

During the first decade of mining at Broken Hill, the ore that was mined had undergone a process of oxidisation. As a result the ore's mineral content was high and the procedure to extract that mineral content was relatively straightforward. Broken Hill's metallurgical expertise was largely drawn from the United States, and BHP employed American technology when it built the area's first ore concentrator in 1889.[124] The concentrates produced by this plant carried high mineral values and were relatively easy to smelt. The system was not perfect, however, and considerable mineral content was lost in the process of concentration.

Concentrating involved crushing the ore by stages, reducing it in size and then agitating it in a manner which utilised the varying specific gravities of the constituent parts of the ore. Since the specific gravity of the gangue (the valueless portion of the ore) differed from that of the mineral that was destined for the smelter, the process of agitation facilitated a rough separation of mineral and gangue, by means of various patented devices.[125] Substantial loss accompanied the process of concentration because gravity separation was most effective on particles of a certain size. Unavoidably, the stampers, crushers and rollers which reduced the ore also produced dust and tiny particles, known as slimes, "the bane of the millman."[126] The slimes did not separate out during agitation since they were too small to be affected by the process. Although their mineral value was substantial, they were lost in the treatment process, leaving the plant with the tailings.[127]

BHP's concentrating mill was a direct adaptation of American technology and was not particularly well-suited to Broken Hill ores. Its stampers pulverised the ore and much silver was lost in the tailings.[128] In 1890 the company built a leaching plant to try and recover this silver although it too

suffered from inefficiency. In the early years BHP and the other Broken Hill mining companies evidently regarded mineral losses as a regrettable but necessary consequence of concentration. Outside observers took a different view of such sloppy procedures. Donald Clark, for example, "Special Commissioner to the **Australian Mining Standard**," referred in 1904 to "the extravagant treatment of the early days." and derided the "Concentration methods [which] give frightfully wasteful results." In an article on "Concentration by Gravity Processes," Clark claimed that "The recognised losses have been, and are now, enormous, and very little if any effort has been made to materially reduce them.... more than half [the mineral] value is lost."[129] It was not until the mineral value of Broken Hill ore began to decline, coinciding with the fall in metal prices, that the companies were forced to improve their concentrating techniques.

The drop in Broken Hill's ore values reflected the gradual depletion of the rich oxidised ore nearest the surface. Production increasingly relied on the deeper, lower grade sulphide ore.[130] Sulphide ore was distinct from oxidised ore in several ways. It was leaner, that is to say, its mineral content was considerably less, but also its structure was more complex. The ore still contained silver and lead but it also included zinc and other minerals. Typically, the zinc and lead values were roughly equivalent, running from 10 to 15% each in a ton of sulphide ore.[131] As noted in chapter 4, the presence of zinc seriously hampered smelting lead-silver ores. It had to be removed to permit efficient smelting operations but the zinc sulphide (or blende) and the lead sulphide (or galena) were so closely associated in the sulphide ore that the Broken Hill concentrating mills were unable to separate the two. As the Barrier mining companies contemplated their bleak prospects once the oxidised ore reserves were exhausted, a mood of pessimism prevailed:

> It was currently stated that it would not be possible to treat the sulphide ores by concentration; it was held that a large proportion of the zinc lead sulphides were not admixtures, but isomorphous sulphides, and that no process of mechanical separation could effect a separation of this so-called compound. It is well known now [1904] that such is not the case... [132]

Facing the same discouraging future, BHP and the other mining companies arranged to have Dr. C. Schnabel, a leading German metallurgist, visit the Barrier in 1892, to advise them of the best means of treating the sulphides.[133] Schnabel recommended that they rely on roasting and leaching processes to remove the zinc. This would mean abandoning considerable investments and a growing body of accrued experience and expertise in concentrating; the Broken Hill companies were not prepared to accept the loss. Schnabel's advice was ignored and the companies turned instead to other authorities, closer to home. The South Australian copper mines at Wallaroo and Moonta had evolved relatively sophisticated ore concentrating techniques, and their expertise and technology were soon applied on the Barrier.[134] Captain Warren, an old hand from South Australia, pioneered new concentrating methods at Broken Hill's Block 10 mine, introducing his own patented vanner.[135] The Hancock jig, a South Australian invention, was another crucial component in this new technology. By 1894 the experiments were yielding favourable results and gradually Broken Hill companies were able to produce concentrate high in lead and low in zinc from sulphide ore.

BHP's open cut had allowed the company to continue to extract oxidised ore through the mid-1890s. At the same time, the company's experts continued to experiment with the sulphides while its Directors fielded anxious questions from shareholders at the semi-annual meetings.[136] By 1897, BHP was confident that the sulphides could be profitably treated by the new concentrating

methods. The vital corollary was that its mine was no longer under threat of imminent closure as the final depletion of the rapidly dwindling oxidised ore reserves approached. The sulphides were to be concentrated utilising economies of scale, as the Chairman explained to shareholders in January, 1897:

> we are erecting a large concentration plant to put through in the meantime 5,000 tons per week, to be increased if required to 10,000 tons. It is necessary that we should have a very large plant and put through a very much larger amount of stuff than formerly owing to its [the ore's] being much lower in grade.[137]

By mid-1898, over a third of BHP's production was sulphide ore.[138] The future of the company was now assured; the change, which had been "fraught with possibilities of great moment," was one no longer to be dreaded. The sulphides could produce dividends for BHP shareholders, as a relieved Chairman announced to the Half-yearly Ordinary General Meeting in Melbourne in early 1898:

> Schemes for the successful and profitable reduction of [sulphide] ores have occupied the attention of our managers and experts, and exercised the minds of your Directors, for a number of years. The process finally adopted is by no means a new one, nor is it from a metallurgical point of view as complete as it should be; but it possesses the merit, which I have no doubt will be most satisfactory to you, that it yields a profit.... Briefly stated the process consists in a mechanical separation, or concentration of the ore, and a reduction by smelting of the more valuable portion so obtained. The ore in the first place is crushed and jigged in water, whereby the sulphide of zinc is separated from the sulphide of lead, and the silicious or valueless material passes away as tailings. The zinc product, carrying some silver, is either sold or put aside for future treatment. The sulphide of lead, carrying the larger portion of the silver, is then smelted in the usual manner, and the bullion so obtained is by us refined and separated into the various metals and products which we send to market.
> .... The success so far obtained demonstrates that the sulphide ore can be worked at a profit, and that our feet are upon firm ground.[139]

If BHP was now "upon firm ground," it remained close to the precipice. The company's margin of profit grew slimmer and from the mid-1890s until 1902 both profits and dividends continued to decline.[140] At the same time, mountains of slime and tailings began to grow along the line of lode, as the concentrators separated out the galena from the sulphide ore. By 1904, the accumulated stocks were estimated at 6.5 million tons.[141] A vast amount of zinc lay in these dumps, a potential fortune which spurred Broken Hill's mining managers and metallurgists to try to discover a process which would enable the blende to be separated out from the gangue. The great difficulty was that the sulphide ore contained appreciable amounts of rhodonite and garnet, in addition to the galena (lead sulphide) and the blende (zinc sulphide). This made the extraction of the blende extremely difficult. As was pointed out above, concentrating rested on the varying specific gravity of the constituent parts of the ore. The zinc blende (comprising "an impure zinc sulphide, with appreciable quantities of sulphides of iron and manganese"[142]), the rhodonite and the garnet shared a very similar specific gravity; thus even with the recent improvements in concentrating technique, separating the three minerals seemed virtually impossible, at least by mechanical concentration.[143] This was the background to one of the most important developments in ore treatment, indeed in the history of mining technology generally.

*

Broken Hill mining companies established the practical application of flotation to mixed sulphide ore deposits.[144] This discovery had a tremendous impact world-wide on the treatment and production of low-grade ores. Flotation's subsequent career tends to over-shadow, or at least obscure, its modest beginnings as simply an appropriate solution to a local problem on

the Barrier. Some discussion of the context of the development of flotation at Broken Hill is necessary in order to understand its initial application.

The new concentrating techniques developed at Broken Hill during the 1890s had made it possible to separate the galena from the sulphide ore, thus solving the pressing problem of profitable mining operations based solely on these deposits. It soon became apparent that this solution led to a second problem: the concentrating mills generated vast amounts of tailings rich in zinc, and a way had to be found to recover this unrealised profit. The treatment of sulphides needed to become more efficient, to retrieve the zinc blende as well as the galena. "The zinc product is dumped on the mines where it remains a vast asset, locked up," declared the Inspector of Mines in 1901, "The zinc problem at Broken Hill is therefore the question of the hour."[145]

Companies experimented with a variety of techniques in their efforts to discover the best means of treating the slimes and tailings that were accumulating at Broken Hill. Flotation had two early rivals: magnetic separation and "wet extraction," or the Ashcroft process, as it became known.[146] Flotation quickly superseded these methods, however, and in the early 1900s flotation plants were erected along the line of lode by the major mining companies.[147]

Flotation ignored the traditional basis of ore concentration; the differences in the specific gravity of the various constituents of the ore, utilised by Broken Hill's concentrating mills, played no part in the process. A standard metallurgical textbook defined flotation as "a method of wet concentration of ores in which separation of mineral from gangue is effected by causing the mineral to float at or above the surface of a body of liquid pulp while the gangue becomes or remains submerged. The method operates, in

general, only on particles smaller than 0.5 or 0.3 mm. diameter..."[148] Another technical writer explained that flotation separated the mineral content of the ore from the gangue as a consequence of "the adhesion of some species of solids [in Broken Hill's case, the zinc blende] to gas bubbles which are generated or introduced in the pulp, and the simultaneous adhesion of other species of solids [the gangue] to the water in which they are suspended. Flotation of the solids adhering to the bubbles permits their removal from the pulp as a froth of different composition than the pulp."[149]

Several patents registered in the United States during the latter half of the nineteenth century seemed to grasp the essential principle underlying flotation but almost no practical experiments were carried out.[150] The first working plant that achieved a rudimentary form of flotation was built at a gold mine in Wales. Frank Elmore constructed a machine which mixed oil, water and crushed ore to produce a concentrate relatively high in gold.[151] The process, however, was less than perfect and the inventor frankly admitted that he had little appreciation of the theory involved.

> Mr. Elmore said .... As to the theory of the process, there was a general idea that static electricity might have something to do with some of the results achieved. It was difficult to account for the results, but at present they had had no time to look into the theoretical side of the work...[152]

Athough the "Elmore Oil Process" was much discussed, and put into use at various mines around the world,[153] it was not a commercial success. In Australia at about the same time, Charles Potter took out the first flotation patent designed to treat Broken Hill ores.[154]

Potter discovered that if Broken Hill's pulverised tailings were placed in a hot acid solution, and the mixture was then agitated, bubbles were produced.

Much of the zinc blende would adhere to these bubbles and float to the surface, where it could be skimmed off and saved; unaffected by the bubbles, the valueless gangue did not float. Developing a machine that could utilise the process commercially proved difficult, however.[155] While this work was going on, BHP's general manager, Guillaume Delprat, patented a very similar idea in late 1902, twelve months after Potter had taken out his patent. Delprat's process utilised salt cake instead of acid, but was otherwise nearly identical. As a result, Potter launched a legal challenge to Delprat's patent, claiming the right of prior discovery. After some four years of litigation, a compromise was reached which allowed BHP free use of the re-named Potter-Delprat process.[156]

BHP moved quickly to utilise the flotation processs in its ore treatment plants, although the company's metallurgist acknowledged that "Considerable difficulty was experienced at first in placing this new process on a commercial footing." After experimenting with "about a dozen" different separation machines, one was finally developed which proved suitable to the demands of continuous operation. Then zinc production began in earnest:

> ...by the beginning of May 1903, fifty tons of zinc-concentrate had been produced by the [Delprat-Potter] process from tailing that was ordinarily dumped. This ... was the first 50-ton lot... ever produced by flotation. After this the process made rapid strides, and by October 1904 was treating 500 tons of feed daily, which amount was gradually increased until, by October 1905, the output exceeded 1000 tons per day.[157]

Further experimentation, adaptation and improvements followed swiftly in the wake of Potter's and Delprat's original work. Broken Hill was soon among the world's leading zinc producers and metallurgists quickly realised that flotation technology was one of the most significant advances in ore

treatment ever made. Yet in spite of this, the established mining companies on the Barrier by and large failed to recognise the implications of the new discovery. Perhaps their long search for some method to treat Broken Hill's ever-growing heaps of tailings blinded them to the fact that flotation was far more than simply a solution to this problem: it opened up countless new opportunities as well. New companies soon realised this, however, and were not slow to capitalise on its implications.

W. S. Robinson, his brother Lionel, William Clark, Francis Govett, Herbert Hoover and W. L. Baillieu were among those who rose to prominence in these new companies. They formed an "Anglo-Australian group" and, while seen as "mere interlopers and nobodies," they had a profound impact on Broken Hill. As W. S. Robinson recalled in his memoirs,

> In 1905 the B.H.P. and the other old companies which have long since vanished from the field mined more than three quarters of the ore. Those same companies also held more than three quarters of the reserves of ore which were believed to exist on the field. They possessed, and missed, the opportunity we were about to snatch. They failed to realise that the line of lode at Broken Hill extended far to the north and south of the existing workings. They also failed to realise quickly enough the full advantages of the new flotation process in winning money from the dumps of zinc tailings that framed the horizon of Broken Hill. [158]

TABLE 5 - 1
Ore Shipments from Broken Hill

Year	Number of Miners	BHP output, in tons	Total Broken Hill output, in tons
1885	N/A	3,000	3,000
1886	N/A	14,750	14,750
1887	N/A	51,000	51,880
1888	4,000	101,610	119,884
1889	N/A	161,500	N/A
1890	4,500	192,546	N/A
1891	5,650	471,101	N/A
1892	4,850	403,132	N/A
1893	N/A	500,000 (approx.)	N/A
1894	4,500	642,822	N/A
1895	4,297	517,565	N/A
1896	5,329	420,747	828,366
1897	5,950	384,319	1,011,961
1898	5,956	402,211	1,139,873
1899	6,523	412,298	1,402,544
1900	7,375	538,973	1,416,097

Source: H. Willoughby's "History of Broken Hill."

TABLE 5 - 2
Population of Broken Hill

Year	Population
1883	20
1887	5,000
1889	10,189
1891	19,789
1901	27,500
1911	30,972
1913	33,900
1915	35,000
1918	24,850
1921	26,337

Source: p. 187, R. J. Solomon, "Broken Hill The Growth of Settlement," The Australian Geographer, VII, 5, August, 1959.

TABLE 5 - 3
Serious and Fatal Accidents at Broken Hill

Year	Number of Fatal and Serious Accidents	Number of Men Employed	Accidents per Thousand Men Employed
1891	28	6932	4.039
1892	17	5226	3.252
1893	23	4300	5.348
1894	28	4240	6.60
1895	37	4943	7.485
1896	31	5400	5.74
1897	37	5950	6.218
1898	35	6011	5.82
1899	45	7249	6.207
1900	82	7405	11.073
1901	73	6989	10.44
1902	38	5169	7.351
1903	N/A	N/A	N/A
1904	75	6794	11.039
1905	46	7407	6.21
1906	44	8457	5.20
1907	44	8820	4.988
1908	31	6889	4.499
1909	23	5255	4.376
1910	35	6915	5.061
1911	41	7704	5.321
1912	38	8139	4.668
1913	55	8763	6.276

Source: p. 146, Exhibit No. 11, Report of the Royal Commission to inquire into the Fatal Accident which took place at the Broken Hill Central Mine, on the 8th October, 1902,, (for years 1891 - 1902) & pp. 719-20, Exhibits 3 & 5, Report of the Royal Commission on Mining Industry at Broken Hill in the State of New South Wales, 1914 (for years 1904 - 1913).

TABLE 5 - 4
Financial Position of BHP, 1886 - 1902

Year	Net Profit £'000	Dividends £'000
1886	16	0
1887	169	128
1888	312	248
1889	292	240
1890	879	816
1891	1,143	1,104
1892	1,157	1,152
1893	569	480
1894	853	600
1895	688	576
1896	537	576
1897	300	288
1898	251	288
1899	230	264
1900	207	192
1901	214	240
1902	91	96

Source: p. 193, Helen Hughes, The Australian Iron and Steel Industry 1848 - 1962.

TABLE 5 - 5
Zinc Concentrate Produced from Broken Hill Ore, 1904-1923

Year	Yearly Total, Tons	Progressive Total, Tons	Percentage of World Zinc Production
1904	57,602	-	8.3%
1905	103,532	161,134	14.2%
1906	102,664	263,798	13.2%
1907	236,251	500,049	29.0%
1908	275,932	775,981	34.6%
1909	373,906	1,149,887	43.8%
1910	468,627	1,818,514	52.5%
1911	516,378	2,134,892	52.3%
1912	520,518	2,655,410	48.6%
1913	506,661	3,162,071	45.6%
1914	359,310	3,521,381	33.0%
1915	190,916	3,712,297	16.6%
1916	209,741	3,922,038	15.5%
1917	113,531	4,035,569	8.3%
1918	87,019	4,122,588	6.8%
1919	114,313	4,236,901	12.3%
1920	11,073	4,247,974	1.2%
1921	260,985	4,508,959	38.0%
1922	349,112	4,858,071	34.3%
1923	229,292	5,087,363	19.8%

Source: P. 389, Members of the Broken Hill Branch..., "The Development of Processes..." & p. 188, Schmitz, World Non-Ferrous Metal Production and Prices, 1700-1976.

Endnotes

1 P. 22, Geoffrey Blainey, The Steel Master A Life of Essington Lewis, Melbourne, 1971.

2 Peter Robinson, 7, 8 & 12 July, 1966, Australian Financial Review, quoted on p. 168, H. G. Raggatt, Mountains of Ore, Melbourne, 1968.

3 The climate of the region is described, with annual statistics, on pp. 15-20 of O. H. Woodward's A Review of the Broken Hill Lead-Silver-Zinc Industry, Sydney, 1965 (second edition); see also pp. 30-36, E. C. Andrews, The Geology of the Broken Hill District, Memoirs of the Geological Survey of New South Wales, Department of Mines, Sydney, 1922.

4 Charles Sturt named the area around Broken Hill "Stanley's Barrier Range" during his 1844 expedition. The Colonial Secretary's name was subsequently dropped. "Australia" is used here in its geographical sense; its political existence did not begin until 1 Jan., 1901.

5 Pp. 23-39, Bobbie Hardy, West of the Darling, Brisbane, 1969.

6 Pp. 7-11, Andrews, The Geology of the Broken Hill District, Hardy (p. 47, West of the Darling) doubts this but agrees Sturt must have been very close. The grandfather of Essington Lewis, long-time Managing Director of the Broken Hill Proprietary Co., was "a humble servant in Sturt's party." (p. 23, Blainey, The Steel Master,)

7 The process of rural settlement and expansion in the area surrounding Broken Hill is described on pp. 61-145, Hardy, West of the Darling, the source used for this paragraph. See also p. 25, R. H. B. Kearns, Broken Hill A Pictorial History, Adelaide, 1982 & pp. 5-8 of Kearns' pamphlet, Silverton A Brief History, Broken Hill, 1983 (fifth edition).

8 Not all the interest was enthusiastic or admiring: a disgruntled Engels pointed out to Marx that "California and Australia are two cases which were not foreseen in the [Communist] Manifesto: creation of large new markets out of nothing. They will have to be included." (Engels to Marx, 24 August, 1852, p. 165, Karl Marx, Frederick Engels, Collected Works, Vol. 39, London, 1983.)

9 P. 21, Sir Henry Ayers, "President's Inaugural Address," Transactions of the Australasian Institute of Mining Engineers, 1, 1893. This was the first gathering of the institute, in Adelaide during April, 1893. Ayers, by this time a senior politician in the South Australian Legislative Council, had himself been active in the copper mining industry in South Australia in the late 1840s; see pp. 110-13, Geoffrey Blainey, The Rush That Never Ended A History of Australian Mining, Melbourne, 1978 (third edition).

10 R. Lockhart Jack pointed out that "the Moonta Mine was the first Australian company to pay over a million pounds in dividends" (p. 13, The Geology of the Moonta and Wallaroo Mining District, Bulletin No. 6, Geological Survey of South Australia, Department of Mines, Adelaide, 1917). Oswald Pryor has published an anecdotal history of Moonta: Australia's Little Cornwall, Adelaide, 1962. For an overview of the history of mining in South Australia, see pp. 105-33, Blainey, The Rush That Never Ended & pp. 95-105, R. M.

Gibbs, A History of South Australia From Colonial Days to the Present, Blackwood, S.A., 1984 (second edition).

11 P. 31, Kearns, Broken Hill A Pictorial History,

12 The accounts of this first discovery vary in detail: see pp. 22 & 49, The Barrier Silver and Tin Fields, "By a Special Correspondent...," Adelaide, 1888; p. 90, Edward F. Pittman, The Mineral Resources of New South Wales, Geological Survey of New South Wales, Sydney, 1901; pp. 151-52, Hardy, West of the Darling; pp. 135-36, Blainey, The Rush That Never Ended; & p. 31, Kearns, Broken Hill A Pictorial History,

13 The following section is based on the pamphlet by Kearns, Silverton A Brief History; pp. 41-45, Roy Bridges, From Silver To Steel The Romance of The Broken Hill Proprietary, Melbourne, 1920; pp. 4-6, Leonard Samuel Curtis (ed.), The History of Broken Hill Its Rise and Progress, Adelaide, 1908; and pp. 22-23, The Barrier Silver and Tin Fields in 1888,

14 Calculated from statistics on p. 6, Curtis, The History of Broken Hill, These shipments do not include any ore from Broken Hill. The quotation in the text is from Curtis, op. cit,

15 P. 14, Kearns, Silverton A Brief History; p. 4, Curtis, The History of Broken Hill,

16 P. 7, Curtis, The History of Broken Hill,

17 From an interview which Rasp gave in 1905, recounting his momentous discovery (19 Aug., 1905, Argus, Melbourne), quoted on p. 3, "CHARLES RASP, founder of Broken Hill," 6 page typescript compiled by A. Coulls & John Liebich, and reproduced by the Broken Hill Public Library Services, 1985. As Blainey points out, "Of all the payable lodes discovered in Australia in the nineteenth century, Broken Hill probably had the most conspicuous outcrop." (p. 17, Geoffrey Blainey, The Rise of Broken Hill, Melbourne, 1968).

18 This paragraph is based on information provided in "CHARLES RASP, founder of Broken Hill;" see also p. 47, Kearns, Broken Hill A Pictorial History; pp. 167-68, Hardy, West of the Darling; pp. 17-18, Blainey, The Rise of Broken Hill; & pp. 50-54, Bridges, From Silver To Steel,

19 This paragraph, and those that follow, is based largely on the account given by Roy Bridges, pp. 55-103, From Silver To Steel, While later writers have been a good deal more thorough than Bridges in their research, none have substantially altered his narrative. Bridges' book has all the hallmarks of a commissioned history (e.g., excessively laudatory, suffused with a whiggish interpretation) but as Blainey points out (p. 163, The Rise of Broken Hill) he did have the great advantage of being able to interview many of the men actively involved in the events that he described. It should be noted that Bridges borrowed freely from the semi-annual BHP Directors' Reports; for examples, see notes 25 & 27 below. Two early journalistic accounts of the discovery of Broken Hill confirm Bridges in such detail as they provide (pp. 24-25, The Barrier Silver and Tin Fields, 1888, & pp. 6-13, Curtis, The History of Broken Hill, 1908) as does the autobiography of an early investor, pp. 167-72, John Lewis, Fought and Won, Adelaide, 1922. The most useful modern

treatments of this early period are those by Kearns (pp. 47-52, Broken Hill A Pictorial History) and Blainey (pp. 11-48, The Rise of Broken Hill).

20 Pp. 81-82, Bridges, From Silver To Steel, The expert was Norman Taylor, who had previously worked for the Geological Survey of Victoria.

21 Details from the company prospectus and p. 109, Bridges, From Silver To Steel,

22 P. 112-13, Bridges, From Silver To Steel,

23 P. 42, Blainey, The Rise of Broken Hill, In mid 1905, BHP Chairman Harvey Patterson reflected on the company's progress during its first two decades. Himself an original director, Patterson described "The Provisional Directorate [which] comprised a carpenter, a surveyor, a solicitor, a speculator, four sheep farmers and a station manager..." For Patterson, and no doubt for many other investors,

> the progress and success which has been attained [by BHP] has been ... a wonderful revelation of what can be done by careful management though no member of the Board at the time [of BHP's founding] even dreamt that the Mine contained such vast resources. It has always been the aim of the Board to procure the best available talent in all the numerous branches of the business...

(P. 3, Report of the Fortieth Half-Yearly Ordinary General Meeting, Broken Hill Proprietay Comany Limited, 25 August, 1905.)

24 P. 62, "A Special Correspondent," The Barrier Silver and Tin Fields in 1888, Kearns (p. 53, Broken Hill A Pictorial History) names seven Americans employed in senior positions by Broken Hill mining companies during the first years; two others (William Harper and Zebina Lane, a Canadian) should be added to the list. Cf, p. 33, Brian Kennedy, Silver, Sin, and Sixpenny Ale A Social History of Broken Hill, Melbourne, 1978, & pp. 154-55, Blainey, The Rush that Never Ended,

25 P. 8, Directors' Report, Broken Hill Proprietary Co. Ltd., 30 Nov., 1886. Bridges' account (p. 145, From Silver To Steel) is taken literally from this report. See also pp. 154-55, Blainey, The Rush that Never Ended, and for detail on Wilson, pp. 39-40, Blainey, The Rise of Broken Hill,

26 P. 8, Directors' Report, Broken Hill Proprietary Co. Ltd., 30 Nov., 1886.

27 The man, John Provis, concluded "that the mine is destined to rank among the foremost of the leading silver mines of the world." (p. 38, Directors' Report, Broken Hill Proprietary Co. Ltd., 30 Nov., 1886.) Again, Bridges lifted his account (pp. 143-4) directly from this report.

28 P. 8, Directors' Report, Broken Hill Proprietary Co. Ltd., 31 May, 1887. Blainey states that Patton was offered an annual salary of £4,000, "the most expensive manager hitherto hired by an Australian mining company" (p. 25, The Rise of Broken Hill; cf, pp. 60-61, Blainey, The Steel Master). Otis Young describes developments on the Comstock Lode and the "Con Virginia" on pp.

234-66, Western Mining An informal account of precious metals prospecting, placering, lode mining and milling on the American frontier from Spanish times to 1893, Norman: Oklahoma University Press, 1970; milling operations at Patton's former workplace are particularly well-described. By the 1880s, when Patton left Nevada for Broken Hill, the field was in decline.

29 P. 64, Blainey, The Steel Master,

30 Norman Taylor in September 1884, quoted on p. 81, Bridges, From Silver To Steel, Andrews (p. 138, The Geology of the Broken Hill District) gives the width as one hundred feet. As the lode went deeper, it became wider; for example, in 1903 its width in the Central Mine was given as 270 feet. (P. 126, Edwin K. Beaumont, "Silver-Lead Ore Mining and the Various Systems of Stoping and Timbering Employed in Broken Hill, New South Wales," Transactions of the Australasian Institute of Mining Engineers, IX, 1903.)

31 For the development of square-sets, see pp. 242-46, Young, Western Mining,, P. H. Warren (pp. 201-06 in Andrews, The Geology of the Broken Hill District) gives an excellent account, with illustrations, of timbering methods at Broken Hill. See also pp. 56-7, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry; pp. 13 & 21, Directors' Report, 30 Nov., 1887; and p. 14, Directors' Report, 31 May, 1888. The Proceedings of the Australasian Institute of Mining Engineers (New Series, No. 10, 1913) contains probably the most detailed description; that issue includes five papers on "Some Features of Broken Hill Mining" (pp. 129-80). An important earlier account was written by Edwin K. Beaumont, "Silver-Lead Ore Mining and the Various Systems of Stoping and Timbering Employed in Broken Hill, New South Wales," Transactions of the Australasian Institute of Mining Engineers, IX(1903): 117-44.

32 See p. 16, Directors' Report, 30 Nov., 1892 & the remarks of Howell at the Fifteenth Half-Yearly Meeting of BHP, 25 Jan., 1893, Melbourne (p. 6 of published transcript); also pp. 174-78, Bridges, From Silver To Steel; p. 53, Kearns, Broken Hill A Pictorial History; & pp. 102-04, Blainey ,The Rise of Broken Hill, Blainey mistakenly describes the open cut as a glory hole. "The line of lode" is a distinctive Broken Hill phrase, as is the ore body to which it refers; a century old, it is still in use.

33 Statistics on BHP are from p. 193, Helen Hughes, The Australian Iron and Steel Industry 1848-1962, Melbourne, 1964. As Blainey emphasises, "It is difficult now to appreciate the sensation which these dividends created. Mining journalists in the early 1890s could count on the fingers of one hand the Australian mines which, in their working life, had paid out one million to shareholders..." (p. 33, The Rise of Broken Hill,)

34 P. 254, Geoffrey Serle, The Rush to be Rich A History of the Colony of Victoria, 1883-1889, Melbourne, 1971. Note also the comments of A. R. Hall, pp. 121-23 & 152, The Stock Exchange of Melbourne and the Victorian Economy, 1852-1900, Canberra, 1968.

35 BHP silver production figures are from pp. 75-76, Benjamin White, Silver Its History and Romance, London, 1920.

36 For information on these competitors, see pp. 47-105, Kearns, Broken Hill A Pictorial History & pp. 51-95, Curtis, The History of Broken Hill,

37 The quotation is from p. 1696, T. A. Coghlan, Labour and Industry in Australia, Vol. III, London, 1918. For a discussion of the boom, see pp. 113-76, Hall, The Stock Exchange of Melbourne and the Victorian Economy, 1852-1900; pp. 244-70, E. A. Boehm, Prosperity and Depression in Australia 1887-1897, Oxford, 1971; and pp. 247-71, Serle, The Rush to be Rich, Michael Cannon's colourful account (pp. 47-51, The Land Boomers, Melbourne, 1966) is qualified by the remarks of Hall, p. 250, op. cit., Serle, pp. 261-62, op. cit., & Boehm, p. 245, op. cit. The Barrier Silver and Tin Fields in 1888 offers an excellent first-hand account of the speculative fever in Broken Hill itself, especially pp. 5-39, as does pp. 178-93 of A. G. Hales' autobiography, My Life of Adventure, London, 1918. See also pp. 149-52, Blainey, The Rush that Never Ended, and pp. 22-4, Curtis, The History of Broken Hill. Curtis provides a useful table of the share values of various Broken Hill mining companies, 1885-88, on p. 30, op. cit,.

38 31 March, 1888, Illustrated Australian News, quoted on pp. 49-50, Cannon, The Land Boomers, & p. 254, Serle, The Rush to be Rich,

39 P. 140, Hall, The Stock Exchange of Melbourne and the Victorian Economy, 1852-1900, Hall points out that "Oddly enough even at this peak price it was not really over-valued..." Cf, p. 254, Serle, The Rush to be Rich, The par value of BHP shares changed as their market value climbed. In 1889, one £20 share became ten £2 shares; the following year, ten £2 shares became five 8 s. shares. (p. 43, Curtis, The History of Broken Hill.)

40 The dates in brackets indicate when shareholders' meetings agreed to sell off the respective companies. The original blocks were numbered 10 to 16, hence the names of Block 10 and Block 14. The British, floated in London, comprised blocks 15 & 16. The most comprehensive account of the flotations is by H. Willoughby, "History of Broken Hill," Chapter IV, "Description of Early Operations with details of Syndicates and Companies at Work on the Field," Part VI, (typescript, Broken Hill, 1952?). Note, however, that a portion of Willoughby's account is lifted directly from pp. 146-50, Bridges, From Silver to Steel, See also pp. 32-37, The Barrier Silver and Tin Fields in 1888; pp. 30-31, Blainey, The Rise of Broken Hill; pp. 83-87, Kearns, Broken Hill A Pictorial History; and the contemporary account in The Economist, p. 1536, Vol. 47, 30 Nov., 1889.

41 P. 142, Hall, The Stock Exchange of Melbourne and the Victorian Economy, 1852-1900 & pp. 254-55, Serle, The Rush to be Rich, As Boehm points out, "The busiest speculative activity in mining shares occurred in Melbourne, ... the financial centre of Australia..." (p. 245, Prosperity and Depression in Australia 1887-1897).

42 P. 142, Hall, op. cit.; p. 244, Boehm, op. cit,

43 P. 255, Serle, The Rush to be Rich,

44 For a discussion of the crash see pp. 255-326, Boehm, Prosperity and Depression in Australia, 1887-1897,

45 See Table 5 - 1, "Ore Shipments from Broken Hill," appended to this chapter.

46 Population figures are given in Table 5 - 2, appended to this chapter.

47 Pp. 207-08, E. Davenport Cleland, "Life on the Barrier," Centennial Magazine, Vol. 1, 1888-89.

48 P. 207, E. Davenport Cleland, "Life on the Barrier," Centennial Magazine,

49 P. 121, Randolph Bedford, Naught to Thirty-three, Sydney, 1944. A South Australian journalist visiting Broken Hill in 1888 observed that "In the hotels [of Broken Hill on a Saturday night] a few toilers in the bowels of the earth are so elated with the change of air and scenes that they are demonstratively merry, while some others have drunk so deeply at the cool fountain of pleasure after the heat and burden of the week that they have passed into a profound sleep, and are enjoying the sweets of their paradise, while their forms are outstretched in the ankle-deep red dust on the footpaths." (p. 8, The Barrier Silver and Tin Fields in 1888,) See also pp. 24-27, Kennedy, Silver, Sin, and Sixpenny Ale, To this day the town has an extraordinary number of licensed hotels and clubs.

50 P. 30, Andrews, The Geology of Broken Hill, Willoughby (p. 2, chapter on Water Supply, "History of Broken Hill") states that two inches of the year's rainfall came in February. The figure for the whole year of 1888, 3.26 inches, was the lowest annual rainfall recorded until 1940, according to the statistics of Andrews & and those on pp. 19-20, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry, Kennedy (p. 41, Silver, Sin, and Sixpenny Ale) states that 2.5 inches of rain fell in 1888, although he cites no source for this figure.

51 P. 209, Kearns, Broken Hill A Pictorial History, citing a report from the Broken Hill newspaper, the Silver Age, 30 April, 1888.

52 P. 8, BHP Directors' Report, 31 May, 1889.

53 The Barrier Miner, 23 Feb., 1912. For autobiographical accounts of typhoid at Broken Hill, see p. 117, Bedford, Naught to Thirty-three; pp. 175-76, Hales, My Life of Adventure; & pp. 24-27, Ion L. Idries, Lightning Ridge, 1940. Kearns quotes a Broken Hill paper (Silver Age, 16 March, 1888) which described the town as "so smothered in dust you can't see across the street; where typhoid decimates the population; and where there is no provision for the sanitary comfort of the people." (p. 25, R. H. B. Kearns, Broken Hill Volume 1, 1883-1893 Discovery and Development, Broken Hill, 1975, second edition). See also p. 22, The Barrier Silver and Tin Fields in 1888, For typhoid's persistence as a health problem at Broken Hill, see pp. 65, 80 & 145, Kennedy, Silver, Sin, and Sixpenny Ale, Kennedy notes that 170 of the town's 387 deaths in 1888 were due to "what contemporaries called zymotic diseases, including diarrhoea, dysentery, typhoid and enteritis." He points out that "Broken Hill's mortality was almost twice the New South Wales average for 1886-90 ... a striking fact when we remember that this was an abnormally young population." (p. 38, op. cit.)

54 P. 124, Bedford, Naught to Thirty-three, The demonstration and effigy burning are described on pp. 25-6, Curtis, The History of Broken Hill; pp. 134-5, Bridges, From Silver to Steel; pp. 206 & 209, Kearns, Broken Hill A

Pictorial History; & pp. 41-2, Kennedy, Silver, Sin, and Sixpenny Ale,

55 P. 42, Kennedy, Silver, Sin, and Sixpenny Ale, Kearns (p. 206, Broken Hill A Pictorial History) reproduces a page from the Illustrated Sydney News, 26 October, 1888, indicating the coverage that the effigy burning received. Note that the illustration is an exaggerated reproduction of a photograph which was later printed on p. 25, Curtis, The History of Broken Hill,

56 New South Wales was the first of the British colonies established in Australia, founded as a penal colony in 1788. By the time mining began at Broken Hill, New South Wales enjoyed responsible government based on the British parliamentary model. On 1 January, 1901, it became a state in the Commonwealth of Australia. This change in status had little impact on Broken Hill; in fact, the town's Mayor boycotted the ceremonies in Sydney, commenting tartly that he had "something more important to do than attend the National Drunk." (quoted on p. 126, Kearns, Broken Hill A Pictorial History,)

57 This became a convenient political pose: as Brian Kennedy observes, "Hostility to Sydney was fanned at countless public meetings through the late 1880s." (p. 28, Silver, Sin, and Sixpenny Ale,)

58 Pp. 195-6, Kearns, Broken Hill A Pictorial History; pp. 10-2, Kennedy, Silver, Sin, and Sixpenny Ale; & pp. 22-3, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry. This short rail line became very profitable indeed: "Next to the "Proprietary," it [the Silverton Tramway Co.] is the greatest dividend-paying "mine" on the Barrier, and probably there is no other Railway Company in the world, with only 35 miles of lines, that can boast of paying away in dividends over £1,180,877 in eighteen years [1889-1906]." (p. 119, Curtis, The History of Broken Hill). Blainey notes that the South Australian section of this railway "became the most profitable ever built in South Australia. Four years after it was opened it was generating 44 per cent of the revenue for the entire railway system of South Australia..." (p. 26, The Rise of Broken Hill). A direct rail connection east to Sydney from Broken Hill did not come until 1927.

59 Pp. 62-63 & 75-92, Hardy, West of the Darling,

60 P. 1553, Coghlan, Labour and Industry in Australia; p. 7, Bruce John Pennay, "Industrial Disputes at Broken Hill up to 1909," MA thesis, University of Sydney, 1968. Both miners and mine managers from South Australia's copper mines moved to Broken Hill: see pp. 16-7, 28, Kennedy, Silver, Sin, and Sixpenny Ale,

61 P. 1145, 31 Aug., 1895, The Economist, Vol. 53.

62 See, for example, p. 22, Kearns, Broken Hill 1883-1893,

63 P. 44, Kennedy, Silver, Sin, and Sixpenny Ale,

64 P. 84, ibid; p. 22, Kearns, Broken Hill 1883-1893,

65 P. 440, M. E. Glasser, "Etude sur la Condition des Ouvriers des Mines en Australasie," Annales des Mines, Dixième Série, Mémoires, Tome VIII, Paris, 1905. I am grateful to Len Richardson, of the University of Canterbury, who

drew my attention to this work.

66 . Pp. 49-50, Kearns, Silverton A Brief History.

67 . Pp. 78 & 102-03, Robin Gollan, Radical and Working Class Politics A Study of Eastern Australia 1850-1910, Melbourne, 1960; pp. 70-71, Gollan, The Coalminers of New South Wales A History of the Union, 1860-1960, Melbourne, 1963; and pp. 49-52, Edgar Ross, A History of the Miners' Federation of Australia, Sydney, 1970.

68 . Pp. 29-32, Kennedy, Silver, Sin, and Sixpenny Ale, Kennedy suggests that it was no coincidence that Broken Hill managers formed their own association at this time too, jocularly naming it the Amalgamated Mining Managers' Association of Australasia. Pennay underlines the moderation of the AMA when it was founded, and quotes from a letter that Spence wrote to the Barrier branch: "Give capital to understand that we are not aggressive. Our principles are the settlement of all difficulties by conciliation. We do not believe in strikes and must have a good cause and have exhausted all other means before resorting to such an extreme." (p. 12, Bruce John Pennay, "Industrial Disputes at Broken Hill up to 1909," MA thesis, University of Sydney, 1968).

69 . Pp. 9-10, George Dale, The Industrial History of Broken Hill, Melbourne, 1918; facsimile edition printed in Adelaide, 1976. Dale was a militant unionist during the war, and his account needs to be treated with caution, as later historians have pointed out (see, e.g., pp. 106-07, Pennay, "Industrial Disputes at Broken Hill...")

70 . P. 17, Pennay, "Industrial Disputes at Broken Hill..." & p. 54, Kennedy, Silver, Sin, and Sixpenny Ale,

71 . Pp. 150 & 153-54, Kearns, Broken Hill A Pictorial History, Fifteen years before, women at Moonta in South Australia had swept the mine clear of blacklegs (pp. 37-9, Oswald Pryor, Australia's Little Cornwall,) Given the links between Broken Hill and the South Australian copper mines, the action at Broken Hill in 1889 was almost certainly informed by this prior experience. A. G. Hales later claimed that the idea of mobilising the women was his: pp. 200-04, My Life of Adventure, His lurid account, which appears to confuse the 1889 strike with the later & more bitter 1892 dispute, should be treated with caution, although Kearns reports that the meeting which formed the women's brigade was "called by A. G. Hales and Richard Sleath." (p. 154, Kearns, op. cit.,) For a discussion of the similar role played by workers' wives in coal mining disputes in New South Wales, see Winifred Mitchell, "Wives of the Radical Labour Movement," pp. 1-14, Ann Curthoys, Susan Eade, & Peter Spearritt (eds.), Women at Work, Canberra, 1975.

72 . 13 Nov., 1889, Barrier Miner, quoted on p. 154, Kearns, Broken Hill A Pictorial History, Similarly, publican W. J. Matthews claimed "I would not keep one blackleg in my house if I knew it..." (ibid.,) Pennay (p. 17, "Industrial Disputes at Broken Hill...") quotes a list of strike-breakers that was drawn up by the AMA four days into the strike: "These men had to be shunned and avoided by the members of the Association..."

73 . See the account of the strike's settlement on p. 9, BHP Directors' Report, 30th Nov., 1889; also p. 1454, Coghlan, Labour and Industry in Australia, Vol.

III.

74 . A copy of the 1889 agreement is appended to Pennay's thesis, "Industrial Disputes at Broken Hill..." The only concession from the AMA was to agree to change their union to an independent "colonial district" within the AMA, "so that the Executive may control their own affairs and draw up such rules as will be approved by a Committee of Managers." The device of colonial districts, however, was already an accepted practise within the AMA: see, for example, pp. 80 & 82, Ray Markey, "Trade union democracy and the Labor Party in New South Wales, 1880-1914," Historical Studies, 22(1986): 71-92. Pennay (p. 18) states that there is no evidence that management in fact ever exerted influence to change AMA rules.

75 . The four new unions were carpenters, mechanics, masons and bricklayers, and "Smelting, Concentrating and Surface Workers." Apart from the AMA, two other unions were formed prior to the 1889 strike: Engineers, and Engine Drivers and Firemen. P. 18, Pennay, "Industrial Disputes at Broken Hill..." The "Smelting, Concentrating and Surface Workers" joined with the AMA in 1894 (p. 4, Kearns, Broken Hill Vol. 2 1894-1914 The Uncertain Years, Broken Hill, 1974.

76 . The Maritime Strike has been much studied: see, for example, N. B. Nairn, "The 1890 Maritime Strike in New South Wales," Historical Studies, 10 (1961): 1-18; J. A. Merritt, "W. G. Spence and the 1890 Maritime Strike," Historical Studies, 15 (1971-73): 594-609; Robin Walker, "The Maritime Strikes in South Australia, 1887 and 1890," Labour History, 14 (May, 1968): 3-12; & especially pp. 7-37, John Rickard, Class and Politics New South Wales, Victoria and the Early Commonwealth, 1890-1910, Canberra, 1976.

77 . P. 59, Kennedy, Silver, Sin, and Sixpenny Ale, & p. 15, Dale, The Industrial History of Broken Hill,

78 . Kennedy argues that the BHP directors' actions were "a series of hasty and provocative measures" (p. 59, Silver, Sin, and Sixpenny Ale) and Dale's account supports this view (pp. 15-17, The Industrial History of Broken Hill). Pennay, however, claims that the Directors had little choice but to close the mine, given the stockpile of bullion waiting to be shipped and the fact that no ore could be smelted (pp. 20-21, "Industrial Disputes at Broken Hill..."). The BHP Directors' Report of 30 Nov., 1890 states that "we became involved in troubles with our own employés, the primary cause of which was brought about by circumstances which were entirely beyond our control, or that of our employés." The weight of evidence appears to support Pennay's argument.

79 . A copy of the agreement is appended to Pennay, "Industrial Disputes at Broken Hill..." Dale also printed the agreement, although in a slightly different form; he omitted the clause which prohibited sympathy strikes. (p. 17, Dale, The Industrial History of Broken Hill,)

80 . A point also made by Pennay, p. 22, "Industrial Disputes at Broken Hill..." Robin Walker notes that another group of workers "made gains. Making peace in September 1890, the Port Pirie wharf labourers secured a reduction in the working day..." (p. 10, "The Maritime Strikes in South Australia, 1887 and 1890," Labour History, 14, May, 1968.) It seems likely that the Broken Hill and Port Pirie settlements were linked.

81 . P. 25, Rickard, Class and Politics, & p. 26, Dale, The Industrial History of Broken Hill,

82 Statistics used in the graph are from "Table 3, Security Prices and Yields in the Sydney Market 1875 - 1955," p. 259, D. McL. Lamberton, "Some Statistics of Security Prices and Yields in the Sydney Market, 1875-1955," The Economic Record, Vol. 34, August, 1958. Although Melbourne was the financial home for most Broken Hill mining companies, the Sydney index mirrored activity in the Melbourne market (p. 248, Boehm, Prosperity and Depression in Australia, 1887-1897,) For the price of silver I have relied on Schmitz's World Non Ferrous Production and Prices, 1700-1976 (pp. 290-91), as indicated on the graph. It should be noted that these are current values; in this regard, see Schmitz's comments, "Introduction," pp. 25-29, op. cit,

83 . Broken Hill Mining Managers' Association Minute Book, Vol. 1, entry for 6 May, 1892; emphasis in the original. The mine managers were in a receipt of a letter from the Melbourne-based Barrier Ranges Mining Companies' Association, directing their attention to these three issues. I am grateful to Mr. B. J. O'Donnell, secretary of Broken Hill Mining Managers' Association, who kindly arranged access to the Association's historical material.

84 . P. 6, Broken Hill Proprietary Co. Ltd., Fifteenth Half-Yearly Meeting, 25 Jan., 1893. Appreciative shareholders voted Howell and other BHP management staff £2,500 for their loyalty to the company during the strike.

85 . P. 21, Dale, The Industrial History of Broken Hill,

86 . Accounts of the meeting vary: for one sympathetic to Sleath, see Barrier Miner, 27 July, 1892. The Argus, (Melbourne) 28 July, 1892, provides an anti-labour perspective.

87 . Report of Sleath's speech to BHP shareholders, 27 July, 1892, Barrier Miner, The paper went to four editions that day, printing the latest account of the (late afternoon) meeting received over the telegraph from Melbourne, suggesting that a good deal of importance and/or faith was placed locally on the initiative.

88 . Arthur Duckworth, p. 150, "The Broken Hill Strike," The Economic Journal, III, 1893.

89 . P. 3, Broken Hill Proprietary Co. Ltd., Fifteenth Half-Yearly Meeting, 25 Jan., 1893. "Freedom of contract" was a catch-phrase for the right to hire non-union labour, un-related to the contract system of mining. In the BHP Directors' Report for the Half Year ending 30th Nov., 1892, however, the Directors argued that the mining companies' demand for "freedom of contract" was a response to AMA intimidation in the early weeks of the strike: see p. 9. In The Rise of Broken Hill, Geoffrey Blainey takes the opposite view, and insists that mine managers "did not want a quarrel with the union" and claims that although "It has been commonly argued that the mines in 1892 decided to introduce contract-mining in order to break the union and to lower the standard of living, ... the evidence is strongly against that interpretation." (p. 60) It should be noted that Blainey's mining books, while very good history, are written largely from the point of view of the successful entrepreneur and

manager; indeed Blainey has also written the biography of one such person (BHP's Essington Lewis) and edited the memoirs of another (W. S. Robinson). He has also disparaged an emphasis on mining's labour relations, in the Preface to The Rush that Never Ended. It is perhaps not surprising then that he takes a whiggish view of the 1892 strike, and the introduction of contracting generally, although he notes that "The bitterness of the revolt against the mining companies [i.e., the 1892 strike] does not quite make sense if it is seen simply as a protest against the introduction of contract mining." (p. 61) Contracting's subsequent acceptance and success, which Blainey emphasises, had much to do with the introduction of the bonus system many years later. As my friend Logan Hovis has argued elsewhere, the two should not be confused.

90 . The figure is from p. 27, Pennay, "Industrial Disputes at Broken Hill..."

91 . Brian Dickey published a series of official documents relating to the 1892 strike, to supplement the twenty-six pages of "Correspondence, &c., Received by the Government on the Broken Hill Strike," printed in the New South Wales Legislative Assembly Votes and Proceedings, 1892-3. Dickey argued that "It is not possible, on the evidence so far to hand, to prove a conspiracy between government and management, or even overt and deliberate bias on the part of the Government... The trouble is that a suspicion will always remain." (p. 42, "The Broken Hill Strike, 1892, Further Documents," Labour History, 11, 1966). Dickey is overly charitable towards the imported police magistrate, Whittingdale Johnson: "It was a difficult time for him as much as for the miners, and he is entitled to our sympathy and understanding." (p. 43.) The documents Dickey published came from the N.S.W. Attorney General's papers. He either overlooked or considered unimportant the letter from the Labour Defence Committee (of Broken Hill) to J. H. Cann (Broken Hill unionist and N.S.W. MLA), 6 Aug., 1892 (in Attorney General - Special Bundles 5/7749.2, "Broken Hill Industrial Disputes, 1892, 1908-09," N.S.W. State Archives). It is difficult to understand Johnson's two letters of 12 & 13 Aug., 1892 (which Dickey did publish, pp. 44-47, ibid.) without first having read the Labour Defence Committee's. Johnson's lengthy letters are a response to the Committee's substantial charges and his defence of his actions is less than convincing. Johnson's admission that he had "been sent here to control the unchecked disorder that had previously reigned" is telling; his methods to achieve that control do not entitle him to our sympathies. Pennay's judgement is closer to the mark than Dickey's: "Whether Whittingdale Johnson had behaved impartially or not is, perhaps, not as important as the fact that he created the impression that he had not.... Johnson's words and actions ... made him appear to be more an ally of the mining companies than an impartial magistrate. On a number of occasions his words express a desire to have work re-commenced and this seemed to be beyond his province. To Johnson his task was to deal with a situation rather than judge cases." (pp. 40-41, Pennay, "Industrial Disputes at Broken Hill...") Cf. the bitter memory of George Dale, pp. 33 & 41-43, The Industrial History of Broken Hill. It should also be noted that Dickey confuses mine managers with senior company officials (p. 43). Knox, who looms large in the various telegrams, etc., was indeed BHP's General Manager, but the title is misleading. He was not a mine manager but a Melbourne mining magnate; he did not live in Broken Hill.

92 . In September, 1896 Richard Sleath gave the AMA membership as "1,000; but there are 4,000 men employed at Broken Hill" (p. 3025, New South Wales

Parliamentary Debates, 1st Series, Vol. 84, Session 1896); in October, 1897, Judge Murray thought "about half of the whole number of miners" belonged to the AMA (p. 1, Report of the Royal Commission appointed on the 7th July, 1897, to inquire into the Working of Mines and Quarries in the Albert Mining District). George Dale gives somewhat different membership figures: in 1895, "less than 500"; ca. 1902, "about 1,300 strong"; 1905, "considerably over 2,000." (pp. 91 & 99, Dale, Industrial History of Broken Hill,

93 . Question 5523, p. 171, Report of the Royal Commission appointed on July 7 1897 to inquire into the working of mines and quarries in the Albert Mining District, Sydney, 1897. Another miner complained of the victimisation by the mining companies after the strike: Questions 850-854, p. 25, ibid, Similarly a mining contractor admitted that simply "The name of free labourer [i.e., strike-breaker] is enough to get any man a thrashing from a dozen or fourteen roughs." (p. 155, ibid., quoted on p. 71, Kennedy, Silver, Sin, and Sixpenny Ale.)

94 . P. 4253, Commonwealth Debates, 26 Aug., 1903. For Knox's account of the strike, see p. 4253-55, ibid, Thomas responded with his version, pp. 4282-84, ibid,

95 . W. C. Quinn to Mrs. Eliza Quinn, Broken Hill, 28 October, 1892. William Quinn letters, MS 2518, National Library of Australia; photocopied typescripts, originals held in Public Records Office of Northern Ireland.

96 . William C. Quinn to Mrs. Eliza Quinn, Broken Hill, 24 June, 1893, Quinn Letters. In fact, the ship bound for New Australia did not leave until 16 July. For an excellent brief account of this experiment, see pp. 19-34, Verity Burgmann, 'In Our Time' Socialism and the Rise of Labor 1885-1905, Sydney, 1985.

97 . Quoted on p. 85, Bede Nairn, Civilising Capitalism The Labor Movement in New South Wales 1870-1900, Canberra, 1973.

98 . P. 86, Nairn, op. cit.; on the general issue, see pp. 84-87 & pp. 25-26, H. V. Evatt, Australian Labour Leader The Story of W. A. Holman and the Labour Movement, Sydney, 1954, abridged edition.

99 . The relationship between the Maritime strike and the rise of the Australian Labor Party [ALP] remains controversial. Verity Burgmann has written a revisionist account which emphasises the role of socialist propagandists in the formation of the ALP. Note especially her discussion on pp. 11-18, 'In Our Time'. Other interpretations include D. J. Murphy (ed.), Labor in Politics The State Labor Parties in Australia, St. Lucia, 1975; Rickard, Class and Politics; & Nairn, Civilising Capitalism,

100 . The N.S.W. riding was known as Sturt. For details on Cann's political career, see p. 48, C. N. Connolly, Biographical Register of the New South Wales Parliament 1856-1901, Canberra, 1983.

101 . For details of the men's careers, see the various entries in Connolly, op. cit, The four Broken Hill men formed almost a third of the fourteen member Labor caucus. There were one hundred and twenty five seats in the Legislature in all, reduced to ninety in 1904.

102 . For their arrest and trial, see pp. 47-50 & 54-6, Dale, The Industrial History of Broken Hill. In a bizarre twist, years later another MLA charged the pair with plotting to blow people up during the strike: 23 June, 1898, pp. 228-35, N.S.W. Parliamentary Debates, First Series, Session 1898. This led to a Royal Commission which dismissed the charges completely.

103 . P. 100, Appendix A, Lead Poisoning Inquiry Board, printed in New South Wales Legislative Assembly Votes and Proceedings 1892-93, Vol. 4. Cited hereafter as Lead Poisoning Inquiry.

104 . See for example, the answers to Questions 163 & 179, pp. 5-6, Lead Poisoning Inquiry.

105 . P. 34, Lead Poisoning Inquiry; testimony of Mr. W. Strachan, 29 June, 1892.

106 . P. 540, A. G. Cumpston, "Health and Disease in the Broken Hill Mining Industry," M. Radmanovich & J. T. Woodcock, Broken Hill Mines -1968, Melbourne, 1968.

107 . Ibid. Despite this, Lane, mine manager of Block 14, was the most obstinate of the managers when it came to dealing with the Lead Poisoning Inquiry. He particularly objected to the presence of Josiah Thomas on the Board, an active executive member of the AMA. He refused to allow Thomas into the mine. See especially pp. 118-20, Lead Poisoning Inquiry.

108 . Les Buck, quoted on p. 52, Edward Stokes, United We Stand Impressions of Broken Hill 1908-1910 Recollections and photographs from the period, Canterbury, 1983. Another miner writing in 1935 described how in Broken Hill,

> It was a common sight to see miners drop in a fit on the surface, underground, at times when riding in the cage, and going to and from work. Men would be walking along, suddenly fall into a fit, writhing on the ground. The passers-by accepted it as normal.

Alf Cocks, Barrier Daily Truth, 20 July, 1935, quoted on p. 39, George Farwell, Down Argent Street The Story of Broken Hill, Sydney, 1948.

109 . P. 3020, New South Wales Parliamentary Debates, 1st Series, Vol. 84, Session 1896.

110 . P. 3022, op. cit.

111 . P. 3026, op. cit.

112 . Ibid.

113 . P. 3036, op. cit.

114 . Pp. 1266-84, New South Wales Parliamentary Debates, 1st Series, Vol. 88, Session 1897. For the Secretary of Mines speech, see pp. 1275-79, op. cit.

115 . See Judge Murray's remarks, p. 2, Report of the Royal Commission appointed on the 7th July, 1897, to inquire into the Working of Mines and Quarries in the Albert Mining District, The inspector, James Hebbard, had been sharply attacked in the House by Sleath, as noted previously (see especially pp. 3024-26, New South Wales Parliamentary Debates, 1st Series, Vol. 84, Session 1896). Judge Murray took a much different view, warmly commending Hebbard for his work: see p. 24, Report,, On the other hand, the mine owners' representative several times accused another of Broken Hill's MLAs (Thomas) as seeking the inquiry solely to get himself appointed as a Mine Inspector; see, for example, p. 47, Questions 1355-59, & p. 54, Questions 1533-34, Minutes of Evidence,,

116 . The quotation is from p. 20, Report,,; for Murray's reasoning in concluding that there had been no increase in the number of accidents, see pp. 16-20, op. cit, Part of the problem, insisted Broken Hill's mine inspector, was that while accidents in Barrier mines were faithfully reported, other mining fields were not as conscientious (see especially p. 183, Question 5888, Minutes of Evidence,,) This made Broken Hill's accident record look worse than it actually was. Table 5-3, appended to this chapter, indicates the accident rate at Broken Hill.

117 . See Report of the Royal Commission appointed on the 7th July, 1897, to inquire into the Working of Mines and Quarries in the Albert Mining District, passim,

118 . Pp. 6 & 10-11, Report of the Royal Commission to inquire into the fatal accident which took place at the Broken Hill Central Mine on the 8th October, 1902,,

119 . For an historical overview of the frequency of accidents, see p. 391, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry, The period 1900 to 1909 had the highest fatal accident rate (2.64 per thousand workers, over the decade.) 178 men died during the decade, compared to 12 deaths over the ten years, 1973-1982. (This second statistic from p. 33, Kay Koenig, Broken Hill 100 Years of Mining, 1983).

120 . Calculated from statistics in Christopher J. Schmitz, World Non-Ferrous Metal Production and Prices, 1700-1976, (London, 1979) pp. 278 & 290.

121 . P. 32, Curtis, The History of Broken Hill,

122 . P. 5, typescript of Half yearly Ordinary General Meeting, 27 July, 1893, Melbourne.

123 . P. 4, Report of Forty-seventh Half-yearly Ordinary General Meeting, 26 March, 1909. The 7/6 wage for an eight hour day remained in force until October, 1906.

124 . In May 1888, the General Manager informed shareholders that "The new ore-dressing plant from Messrs. Fraser and Chalmers, of Chicago, U.S.A., is now on the ground.... This plant is a duplicate of ore dressing machinery used at the Lake Superior and Annaconda [sic] copper mines in America..." (pp. 12-13, BHP Directors' Report for 31 May, 1888). "Mr. Holly, an American expert in ore concentration," supervised construction and the plant was in operation

by July, 1889. (The quotation is from p. 45, Curtis, The History of Broken Hill; cf. pp. 190-91, Bridges, From Silver to Steel; & p. 8, BHP Directors' Report for 31 May, 1889).

125 . Descriptions of the ore concentrating practices at Broken Hill may be found on pp. 369-416, Donald Clark, Australian Mining & Metallurgy, Melbourne, 1904; W. Poole, "Treatment of Broken Hill Ores," Journal and Abstract of Proceedings For 1908-9 Session, of the Sydney University Engineering Society, New South Wales, Vol. XIII (1908-09): 83-121; James Hebbard, "Evolution of Minerals Separation Process on Central Mine," Proceedings of the Australasian Institute of Mining and Metallurgy, New Series, No. 10, (1913): 75-128; E. T. Henderson, "The History of Ore Treatment Processes in Broken Hill," Proceedings of the Australasian Institute of Mining and Metallurgy, New Series, No. 72, (1928): 99-112; Members of the Broken Hill Branch of the Australasian Institute of Mining and Metallurgy, "The Development of Processes for the Treatment of Crude Ore, Accumulated Dumps of Tailing and Slime at Broken Hill, New South Wales," Proceedings of the Australasian Institute of Mining and Metallurgy, New Series, No. 80, (1930): 379-444; & pp. 78-154, O. H. Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry, Sydney, 1965, second edition (edited by K. P. W. Parsons). Chief among the patented devices in use at Broken Hill were the May and Hancock jigs; Frue, Warren and Luhrig vanners; and Wilfley tables. Most of these devices are described in Theodore Simons, Ore Dressing Principles and Practice, New York, 1924; see also Donald M. Liddell, "Mechanical Concentration," pp. 161-86, Donald M. Liddell (ed.), Vol. 1, Handbook of Non-ferrous Metallurgy, New York, 1926.

126 . P. 208, Chas. C. Freeman, "Ore Treatment in Broken Hill," in E. C. Andrews, The Geology of the Broken Hill District, The situation was the same in North America: Arthur F. Taggart noted that "slimes were considered a necessary evil.... Slime was like crime, ignored by busy people in so far as it was possible." (p. 101, Arthur F. Taggart, "Seventy-five Years of Progress in Ore Dressing," in A. B. Parsons (ed.), Seventy-five Years of Progress in the Mineral Industry 1871-1946, New York, 1947.)

127 . See Henderson, "The History of Ore Treatment Processes in Broken Hill." Henderson claimed that "The loss of metals in these mills was very high, only about 60% of the lead and 50% of the silver being recovered in a marketable form. The loss in slime produced in crushing was largely responsible for this. The slime production amounted to 15% to 20% of the ore crushed..." (p. 103)

128 . Note, for example, the remarks of Henderson, p. 101, "The History of Ore Treatment Processes at Broken Hill," and Bridges, pp. 191-92, From Silver to Steel,

129 . Pp. 371-72 & 388-89, Donald Clark, Australian Mining & Metallurgy, The chapters of the book orignally appeared as articles in the Australian Mining Standard, Clark was also critical of Broken Hill mining methods: see, e.g., p. 356. For more general criticisms of Australian mining practice at this time, see Karl Schmeisser, a German mining expert who visited Australia at the request of British-based mining company (pp. 185-87, The Gold-fields of Australasia, translated by Henry Louis, London, 1898). Herbert Hoover, who worked as a mining consultant in the early 1900s, was so appalled with the calibre of the men who managed the West Australian mines operated by his British-based company that he fired most of them and "sent to the United States for

fifteen university-trained mine managers, metallurgists, and mechanical engineers." (p. 78, The Memoirs of Herbert Hoover Years of Adventure 1874-1920, New York, 1951; cf, pp. 230-33, George H. Nash, The Life of Herbert Hoover The Engineer, 1874-1914, New York, 1983).

130 . Woodward dates this shift as "Towards the end of 1893..." (p. 78, A Review of the Broken Hill Lead-Silver-Zinc Industry).

131 . Pp. 155-56, Andrews, The Geology of the Broken Hill District; see also the table of values on p. 388, Clark, Australian Mining & Metallurgy.

132 . P. 371, Clark, Australian Mining & Metallurgy.

133 . Pp. 184-87, Bridges, From Silver to Steel. It should be noted that the problem was not confined to Broken Hill. For example, in the same year that Schnabel visited the Barrier, a New York mining annual declared that "Among the most important problems of the mineral industry of today is the question of how to profitably utilize the enormous quantities (amounting to millions of tons) of mixed blende and galena that have been opened in Colorado, New South Wales, and other mining countries" (p. 316, Stephen H. Emmens, "The Treatment of Zinc-Lead Sulphides," in Richard P. Rothwell (ed.), The Mineral Industry Its Statistics, Technology & Trade, Vol. 1, 1892).

134 . In 1894, for example, several Broken Hill companies shipped ore to Wallaroo and Moonta for testing: p. 79, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry, & p. 384, Members of the Broken Hill Branch..., "The Development of Processes..."

135 . For Warren's role, see pp. 59-60, Curtis, The History of Broken Hill; p. 76, Hebbard, "Evolution of Minerals Separation Process;" p. 54, Blainey, The Rise of Broken Hill; & especially pp. 371 & 380-86, Clark, Australian Mining & Metallurgy.

136 . The following inquiries, from BHP's Half-yearly Ordinary General Meeting on 31 Jan., 1895, were typical:

> Mrs. Wallace inquired if it were true that the Mine had only two years to live?
> .... Mr. Walter Sully observed that shareholders in England were very anxious to know what the Directors intended to do with the property when the oxidised ores were disposed of. Would the Mine pay when the whole of this oxidised ore was got out? People in England were very anxious on this point...

Ten years later, when the last of the oxidised ore had been taken out of the open cut, the Chairman referred to such interrogations: "I remember years ago being confronted by questions from Shareholders as to how many years they [the deposits of oxidised ore] would last, as it was thought that upon their exhaustion dividends would have to cease..." (p. 1, Report of the Thirty-Eighth Half-Yearly Ordinary General Meeting, 26th August, 1904.)

137 . 28 Jan., 1897, BHP Half-yearly Ordinary General Meeting. See also p. 195, Bridges, From Silver to Steel.

138 . Figure from comments of Chairman at the 29 July, 1898 Half-yearly Ordinary General Meeting.

139 . 28 Jan., 1898 BHP Half-yearly Ordinary General Meeting, Melbourne. The quotation in the text is from the same meeting.

140 . Table 5 - 4, appended to this chapter, illustrates the financial postion of the company.

141 . P. 79, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry,

142 . P. 83, W. Poole, "Treatment of Broken Hill Ores."

143 . "Both [rhodonite and garnet] have a specific gravity closely approximating to that of blende, and it was realized very early that the separation of these minerals by ordinary water concentration was not to be expected..." p. 78, James Hebbard, "Evolution of Minerals Separation Process on Central Mine." Cf, p. 93, W. Poole, "Treatment of Broken Hill Ores."

144 . A number of American authorities fail to recognise this indisputable fact. Theodore Hoover, for example, claims that "the commercial application of the idea [i.e., flotation]" began in 1907: the date of the first use of the Minerals Separation process. (p. 4, Theodore J. Hoover, Concentrating Ores by Flotation Being a Description and History of a Recent Metallurgical Development, Together with a Summary of Patents and Litigation, London, 1914, second edition; first published in 1912). This in spite of the fact that Hoover notes five pages later that "The Delprat process ... at the Broken Hill Proprietary mine ... is a decided success.... This plant is the third largest flotation-concentration plant in the world..." The BHP plant was in operation in 1904, three years before "the commercial application." Hoover, it should be pointed out, was a former general manager of the Minerals Separation Company, which perhaps has something to to do with his periodization. His brother testified in court that the 1907 Minerals Separation application "proved a failure." (quoted on p. 12, T. A. Rickard, (ed.), Concentration By Flotation, New York, 1921). More generally, Hoover (pp. 1-41, op. cit.), Callow (pp. 3-25, "Notes on Flotation," Transactions of the American Institute of Mining Engineers, Vol. LIV, 1916), & Taggart (pp. 101-10, "Seventy-five Years of Progress in Ore Dressing") all emphasise the importance of earlier patents in establishing the principle of flotation, especially the 1885 U.S. patent of Carrie Everson. This patent described the process in enough detail to establish prior invention; that, at any rate, is their claim. (In this regard, however, note the deprecating remarks of Rickard, pp. 3-4, op. cit.) Broken Hill's metallurgists responded to such statements in 1930. In a jointly authored piece, they noted that "In published literature of recent date, where much publicity has been given to flotation processes, credit for certain developments has inadvertently been given to others, where it truly belonged to Broken Hill metallurgists..." (p. 382, Members of the Broken Hill Branch, "The Development of Processes...") A more impartial authority noted as early as 1913 that Broken Hill was "generally recognized as the home of flotation processes," and referred to "the acknowledged leadership of Broken Hill engineers in this branch of metallurgy." (p. 315, Spicer, "Evolution of Methods of Handling Slime...")

145 . Quoted on p. 79, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry,

146 . Magnetic separation is described by Donald Clark, pp. 406-16, Australian Mining & Metallurgy, Clark also describes "wet extraction," (pp. 428-41, op. cit.) but the best account is provided by the inventor himself: Edgar A. Ashcroft, "The Treatment of Broken Hill Sulphide Ores by Wet Extraction Processes, and the Electrolytic Deposition of Zinc," Transactions of the Institution of Mining and Metallurgy, VI (1897-98): 282-337. See also Walter Renton Ingalls' "The Ashcroft Process for the Treatment of Mixed Lead and Zinc Sulphide Ores," pp. 488-90, Engineering and Mining Journal, Vol. 66, 22 Oct., 1898. Although the Ashcroft process proved a costly failure, it foreshadowed the later evolution of Cominco's treatment of the complex Sullivan lead-zinc ore. It was frequently referred to during the court case between Cominco and the French Complex Ore Reduction Company in the mid 20s, Cominco management insisting that French had simply copied Ashcroft's (and other metallurgists') work.

147 . The best accounts of the development of flotation at Broken Hill are D. P. Mitchell, "Flotation at Zinc Corporation, Ltd.," Engineering and Mining Journal, 92 (18 Nov., 1911): 994-97; Hebbard, "Evolution of Minerals Separation Process on Central Mine;" Edwin T. Henderson, "The Development of Flotation at the Broken Hill Proprietary Mine, Australia," Mining and Scientific Press, Vol. 117 (21 Sept., 1918): 375-79 (and later reprinted on pp. 545-58, in Rickard (ed.), Concentration By Flotation); Henderson, "The History of Ore Treatment Processes at Broken Hill;" Members of the Broken Hill Branch..., "The Development of Processes for the Treatment of Crude Ore...;" pp. 81-154, Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry; pp. 200-09, Bridges, From Silver to Steel; & pp. 68-85, Blainey, The Rise of Broken Hill. Herbert Gepp provided an excellent summary of the development of flotation at Broken Hill, in a letter back to his former employer in Scotland:

> ...in the early days [at Broken Hill] only oxidised ores very high in silver were mined... As they obtained depth the sulphides were encountered & then the trouble began.... The sulphide ore contains in addition to sulphide of lead, silver & zinc, also rhodonite (silicate of manganese) garnet & quartz & mica. The ore is crushed & concentrated in jigs & on tables & thereby most of the lead & abt. 1/2 of the silver is obtained. Gravity separation has been unable to separate the zinc sulphide from the rhodonite & garnet all of which have much the same specific gravity & so huge dumps of tailings (amounting to abt. 8 or 9 million tons altogether) were accumulated waiting for some solution of the difficulty. (They [i.e., the tailings] contain from 12-20% of zinc together with some lead & silver). It was finally discovered that by dropping the crushed tailings into a hot (1% - 2%) solution of sulphuric acid that the CO2 bubbles (formed by the action of the acid on the carbonates present) attached themselves to the particles of sulphides & floated them up to the surface of the liquid where they could be run off & the clean gangue (rhodonite, quartz, etc.) was left at the bottom & could be discharged therefrom. It is most astonishing to see the way in which this selective action takes place. One small pan say 4 x 4' x 5' deep will treat up to 10 tons an hour & an average consumption of acid as published in

journals is about 20 lbs. acid per ton of tailing (ie. 1 ton acid to 100 tons tailings)...

- pp. 331-32, Gepp to Lundholm, 20 May 1906, Letterbook, 1904-1907, Gepp Collection, MS 390, National Library of Australia. Gepp was then 28 years old, and had recently arrived in Broken Hill to build and operate an acid plant for the newly-formed Zinc Corporation.

148 . P. 779, Arthur F. Taggart, Handbook of Ore Dressing, New York, 1927.

149 . P. 1, A. M. Gaudin, Flotation, New York, 1932.

150 . See the discussion on pp. 3-31, Rickard (ed.), Concentration By Flotation, and pp. 1-41, Hoover, Concentrating Ores by Flotation.

151 . Pp. 5-8, Rickard (ed.), Concentration By Flotation & Charles M. Rolker, "Notes on the Elmore Concentration Process," Transactions of the Institution of Mining and Metallurgy, VIII (1899-1900): 379-95.

152 . P. 392, Discussion, Rolker, "Notes on the Elmore Concentration Process." Sixteen years later a mining engineer noted that "The most peculiar fact about the flotation process of ore concentration is that in spite of its rapid development and wide application to metallurgy, the practical results obtained have not been built up as a result of the application of a definite theory, but have rather disregarded basic reasons and grown upon the practical physical facts derived from experimentation." (p. 22, Herbert A. Megraw, The Flotation Process, New York, 1916.)

153 . Including Rossland, as noted in Chapter IV.

154 . The patent was dated November 1901, but Potter "as early as 1899 had been working on chemical methods ... for the treatment of [Broken Hill's] tailing[s]." (p. 388, Members of the Broken Hill Branch..., "The Development of Processes...")

155 . P. 106, Henderson, "The History of Ore Treatment Processes in Broken Hill;" pp. 390-91, Members of the Broken Hill Branch..., "The Development of Processes...;" & pp. 397-401, Donald Clark, Australian Mining & Metallurgy.

156 . "This proved to be the biggest patent case ever heard in Australia. The Proprietary won in the lower Court and again in the Supreme Court, and the case was finally settled by the Potter people allowing the Proprietary to use the Potter and Delprat patents free of royalty, while Potter's received the combined patents so that they could collect royalty from other users." (P. 106, Henderson, "The History of Ore Treatment Processes in Broken Hill.") See also Henderson's remarks on p. 375, "The Development of Flotation at the Broken Hill Proprietary Mine, Australia." The Australian litigation was soon overshadowed by a series of law suits lasting a decade as inventors, patent-holders and mining companies vied for the legal rights to the flotation process. For a discussion of this litigation, see Mining Magazine, 10 (March, 1914): 168-70; pp. 42-67, Hoover, Concentrating Ores by Flotation; pp. 100-36, Rickard (ed.), Concentration By Flotation; & pp. 405-10, Rickard, A History of American Mining, New York, 1932. There were two major phases in this legal battle: first, the Elmore brothers attempting to establish that the Minerals

Separation Company's process infringed on their patents. The Elmores lost two important appeals, one to the House of Lords in 1909 and, in a second case against the Sulphide Corporation (Australian license holders of the Minerals Separation process) to the Judicial Committee of the Privy Council, in 1914. The second phase of the litigation involved the Minerals Separation company defending its patents in the U.S. against various mining companies copying its process without permission or royalty payments. As Rickard notes in several accounts, the litigation provoked much ill-will: "Anybody familiar with the bitter business feuds and personal vendettas generated during the course of the quarrels over patent rights needs not to be told that keen prejudice, amounting in some cases to malice, has been injected into the ragged literature of flotation." (p. 51, T. A. Rickard, "The Flotation Process," The Transactions of the Canadian Mining Institute, 19, 1916; cf, pp. 46-48, ibid.; p. 405, Rickard, A History of American Mining; & pp. 19-20, Rickard, "The History Of Flotation," in Concentration By Flotation,) Taggart, however, argued that "Progress in flotation in the United States was both hindered and aided by the litigation that raged for some fifteen years after its introduction." On the positive side, Taggart thought that mill operators' efforts to thwart patent litigation led them to experiment and develop "a 'feel' and a knowledge of [flotation] process idiosyncracies that has contributed greatly to subsequent operating development." (pp. 109-10, "Seventy-five Years of Progress in Ore Dressing.")

157 . Henderson, p. 375, "The Development of Flotation at the Broken Hill Proprietary Mine, Australia." Only eight months after Delprat applied for his patent, BHP's Directors had authorised construction of a plant capable of treating a thousand tons a week. (P. 2, BHP Half-Yearly Ordinary General Meeting, 31 July, 1903.) Table 5 -5, appended to this chapter, shows the rapid development of zinc production at Broken Hill following Potter's and Delprat's discoveries.

158 . P. 40, If I Remember Rightly The Memoirs of W. S. Robinson 1876-1963, edited by Geoffrey Blainey, Melbourne, 1967. The quotations in the text are from pp. 39 & 40, ibid. "Less than a decade later," noted Robinson, "... the mines associated with our group were becoming the leaders in what was one of the great silver-lead-zinc fields of the world. Our mines also had the biggest reserves of unmined ore on the field..." (p. 77, ibid.) The most important was the Zinc Corporation; for an account of its emergence see Robinson, op. cit. & pp. 348-70, Nash, The Life of Herbert Hoover,

VI

"A Hard World"[1]

Broken Hill, 1903-1921

Broken Hill is one of the wonderful places of the world. Far out in the desert, on the extreme western border of New South Wales, rising abruptly from the plain, is a ridge about two miles long and perhaps three hundred yards wide. A few years ago a man standing on this ridge would have ranged his eyes in each direction to the distant sky-line without beholding a human being, but to-day the ridge is covered with powerful machinery, dense black clouds of smoke rise up from the consumption of a hundred boilers, and a busy town of 25,000 inhabitants stands out boldly from the surrounding plain...[2]

In no town in Australia can one see so many men propped up against walls, or aimlessly wandering about; the women rapidly age, and even the young children have old faces. Beyond a man's daily work there is nothing for him to do, while families only exist in such a place as this.... the town would be uninhabited were it not for a strip of country a couple of miles long, by a few hundred feet wide...[3]

Several features have contributed to Broken Hill's reputation as a distinctive community. While pre-eminently a mining community, the site of an enormous silver-lead-zinc deposit, Broken Hill is also a town commonly regarded as something of a maverick, whose customs frequently contrast with national norms. As the previous chapter indicated, Broken Hill's social idiosyncracies as well as its mineral wealth were beginning to be appreciated by 1900. In addition it developed a unique labour relations system and is renowned within the international mining fraternity as the place which pioneered one of the most important sophistications of ore treatment.[4]

As the following pages will describe, the community's labour relations attracted much attention during the first two decades of this century. Although it excited considerably less public comment, BHP's decision to move into the iron and steel industry also had important consequences for Broken Hill. The company's plans to diversify, agreed to by shareholders in 1912, signalled a recognition that BHP ore reserves were limited and that eventual exhaustion required new strategies. The mining industry at Broken Hill came of age during the period examined in this chapter. As it matured, the pattern of both labour relations and corporate growth displayed significant similarities with those identified in British Columbia.

*

As well as the metallurgical advances described in the preceding chapter, New South Wales witnessed considerable political innovation around the turn of the century. In 1901 the state Parliament passed an Industrial Arbitration Act, legislation that its author, B. R. Wise, boasted was "a crucial experiment which should enable a decisive answer to be given as to the practicability and benefits of the legal method of settling industrial disputes."[5] In Wise's view, "The underlying principle of the Act [was] that an industrial dispute is a public nuisance, which ought to be restrained by the State like any other breach of the peace..."[6] The bill received the enthusiastic endorsement of the Labor Party, which had been demanding such legislation for several years. Broken Hill's Labor representatives were in the vanguard of those who had urged some form of compulsory arbitration.[7]

Although by 1901 Broken Hill was a solidly Labor constituency, the miners' union, seriously weakened by the defeat in 1892, exercised little power. New South Wales' Arbitration Act, based in part on the principle of union

recognition, seemed to offer the AMA an opportunity to regain its former prestige and influence.[8] In 1903, the union lodged a claim with the Court of Arbitration for increased wages, a reduction in the hours of work, and changes to the system of underground contracting; these were directed against BHP but were to apply to all the companies on the Barrier.[9] The court rejected the claim; the only direct advantage gained by the AMA was a qualified "union preference" clause.[10] The presiding judge justified the award, which basically translated the status quo into a two year contract, by referring to the ability of the mining companies to pay:

> Whilst it is possible, and even assuming for the sake of argument merely - though I think the contrary - that the Proprietary mine might be able to bear some increase in the wages, I am clearly of opinion that it would be highly dangerous and even suicidal to the men themselves if any further burden were thrown upon the other companies, for I am satisfied they could not bear it. And although this claim is, in form, filed against the Proprietary only, it is yet sought to be enforced against the kindred companies in Broken Hill, a Common Rule to apply to them being asked for. [11]

The Labor Party had supported arbitration and so had to accept such awards, however unjust they might appear. Socialists, on the other hand, had unequivocally rejected arbitration and voiced their criticism with mounting vigour.[12] H. E. Holland, for example, defined arbitration as "a legally expressed admission of the right of the Capitalist class to appropriate the larger portion of the wealth created by the working class."[13] Disillusionment with Arbitration awards led an increasing proportion of Broken Hill's working people to accept the socialists' analysis.[14]

The socialists' focal point in Broken Hill was the Barrier Social Democratic Club, founded in 1903, and from this base they set out to convert Broken Hill's working people to socialism.[15] They were almost always engaged in controversial debate, whether advocating more militant industrial strategies,

urging the need for birth control or warning of the evils of militarism. While this could provoke the wrath of other, more powerful groups within the community, notably the clergy, it also guaranteed them a high profile. Articulate speakers and prolific writers, never reticent in their claims for socialism's influence, it is difficult to measure the group's impact on Broken Hill.[16] They adopted tactics which helped to swell their audience, retailing liquor from their club on Sundays, for example, and inviting prominent socialists to Broken Hill to lecture. Tom Mann, veteran of the London Dock Strike, was the most successful of these outside speakers, and it was a socialist who suggested that he be hired by the miners' union in 1908, to help the AMA in its organizing drive.[17]

Events also aided the socialists' proselytizing efforts. The Labor Party, for example, frequently did seem to be moderating its stand in the quest for power and greater electoral appeal, although Broken Hill miners made a series of determined efforts to include a socialist plank in the Labor Party's platform.[18] Arbitration, miners discovered, turned out to be considerably less than the panacea to all their industrial troubles. And the socialists' continued assertions about the inevitability of the class struggle and the monopolization of industry seemed confirmed by the Barrier's absentee ownership and the political power that the mining companies apparently wielded. The ability and commitment of these indefatigable agitators also contributed to their influence. They turned out to be model union workers, and often rose quickly within the trade union hierarchy of Broken Hill, whose labour movement was sufficiently large to support a number of salaried officials.[19]

Life on the Barrier encouraged the notion that there ought to be a radical re-ordering of society. The values of community solidarity; the

harshness of the climate with the heat, the dust storms and the droughts; the bitterness of men victimised by mining companies or poisoned by the appalling working conditions: all helped to create a constituency receptive to the enthusiastic advocates of socialism. The tensions created by the First World War brought Broken Hill's militants their greatest moments of glory, the culmination of years of unceasing work, although the final triumph did not come until the end of the post-war "Big Strike." The process began in the years 1906-1909, and deserves particular attention.

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The 1903 arbitration award expired in late 1905 and the AMA decided to file a claim for a wage increase with the New South Wales Court of Arbitration. The NSW Industrial Arbitration Act had been the object of a number of legal challenges, however, and a higher court ruled that the act could only be invoked when an industrial dispute existed. As a result, the AMA's application was ruled inadmissible by the Court of Arbitration.

The Broken Hill miners' union was apparently not very upset with the dismissal of its application, although miners continued to press for wage increases from the companies.[20] In October 1906, BHP employees demanded a 25% wage increase and a 46 hour week, a 2 hour reduction. The BHP Board in Melbourne agreed that some wage increases were in order, information which Delprat, the general manager, passed on to his fellow mine managers at a meeting of the Broken Hill Mining Managers' Association. The Association subsequently issued a circular to all miners on the Barrier, suggesting a meeting to discuss "a general increase of wages during the present prosperous conditions of the industry."[21] The companies' increase was to be conditional on the prevailing high price of lead; their open invitation to all workers to

discuss the wage proposal in conference meant that non-union men would also attend, an idea which the various Broken Hill unions refused to entertain. As an earlier writer has emphasised, the companies were attempting to avoid accepting the Broken Hill unions as legitimate negotiating bodies, a move that "was clearly an ill-judged one, for it had the inevitable result of stirring up the unionists. Nothing could have been better calculated to arouse their belligerence."[22] The AMA and the other unions responded to the circular by forming a Combined Unions Committee [CUC] to coordinate negotiations with the mining companies.[23] The CUC opposed any sliding scale wage agreement, that is, one that would peg wages to metal prices, and it repeated the unions' refusal to attend any conference which include non-union men. After some negotiations, the companies accepted the unions' demands. No non-unionists attended the conference and the sliding scale proposal was dropped. The subsequent agreement of 11 December, 1906 was registered with the NSW Court of Arbitration.[24]

Gradually the unions were re-establishing their right to represent Broken Hill's working people. Their membership grew and with it their confidence; in particular the miners' union became more assertive and its leaders more militant. Reflecting this shift in attitude, in early 1908 the AMA affixed a preamble to its "Objectives":

> ...the objective of our Unionism is to obtain for the Workers the full fruits of their industry.... this can only be attained by the overthrow of Capitalism and the establishment of a Co-operative Commonwealth.... the class struggle exists...[25]

Similarly, the tone of Broken Hill's labour paper, the **Barrier Truth**, became more uncompromising, attacking the arbitration system, the state government and the mining companies with a new vigour.[26] While Broken Hill's workers

were exhibiting a new militancy, a severe drop in the price of lead in 1907 made profits slimmer or non existent for the mining companies.[27] It was clear that when the 1906 award expired at the end of 1908, negotiations between the unions and the mine managers' association were going to be difficult. The most unusual development, however, was the split which developed in the employers' ranks.

BHP had dominated the mining industry since the Barrier's first days. Even in the 1906 negotiations, its leadership, as well as that of its general manager, were obvious.[28] By late 1908, however, BHP was losing its position as Broken Hill's premier mine. For example, during the eleven year period, 1898 to 1908, BHP's ore production had averaged 43% of Broken Hill's annual total; from 1909 to 1919, BHP's share of the annual total fell to an average of only 12%.[29]

The "Big Mine's" declining production reflected the gradual depletion of its ore reserves. S. H. Prior, a former Broken Hill journalist, wrote a penetrating analysis of the situation in late 1908:

> A mine differs ... from the ordinary manufacturing concern. For every ton you take out of your mine, there is a ton less of the mine left. You only make profits by eating up your capital. What you receive over working expenses is not, therefore, all profit. A few mines last many years, but, even with perfect management, no mine can last forever. That fact is obvious, and yet persistently overlooked...
> ...It seems, therefore, necessary to give up the theory that the ore in the Broken Hill mines is "practically inexhaustible"...[30]

Prior then listed the estimated ore reserves of Broken Hill's mines. He pointed out that

> ...undoubtedly the gloomiest figure of the foregoing table of ore estimates is contained in the figures of the Broken Hill Proprietary. On the basis of last year's output there is less than five year's work in sight. Moreover, to reach even that

> quantity, a considerable amount of development work will be necessary. It is, of course, highly improbable that the mine will come to an end in five years...
> It is, no doubt, because of the poor prospects of the mine that the Broken Hill Prop. Co's directors are seeking to establish themselves as a great industrial concern. Knowing what enormous wealth has flowed to the Guggenheims of America through their smelters, the B. H. Prop. has during this year launched out into the business of ore-buyers; and it has also resolved to go into the business of zinc production on a large scale...[31]

As Prior suggests, BHP was becoming less and less interested in its mine and began to concentrate on other operations which offered a more secure future. The first example of this diversification was in the production of zinc. Following the successful application of the Potter-Delprat process, BHP began to produce considerable amounts of zinc concentrate. In 1908 the company built a zinc furnace in Port Pirie to smelt their product; once this furnace was completed and apparently treating concentrates successfully, the Directors decided to build nine more.[32]

By mid-1908, the spectre of depletion as well as poor metal prices convinced BHP Directors to reduce expenses at the mine. At the half-yearly meeting in late August 1908, the Chairman told the assembled shareholders that profits for the first six months of the year amounted to a meagre 1/8 per ton of ore mined, as compared to 8/9 per ton for the last six months of 1907. He had come to a firm conclusion:

> The foregoing figures clearly indicate that with Lead at L13 10s. per ton, and Silver at 2s. per oz., and, with all possible economies, you, as Shareholders, are not getting a fair or in any way adequate return for your enterprise, and it suggests that when the present agreement with the workers expires on the 31st December [1908], a considerable reduction on rates of wages now current will require to be made.[33]

When Broken Hill unions heard of the Chairman's speech they re-constituted the Combined Unions Committee, requested a conference with the Broken Hill Mining Managers Association and began to plan their strategy for the upcoming contract negotiations.[34] To strengthen their ranks, they recruited as many workers as possible to the unions' cause, hiring the charismatic Tom Mann to lead an organizing drive. Mann arrived at the end of September and within four weeks union membership had risen over 50%.[35] Growing in strength and confidence, the unions first turned on what they considered a bogus organization, the Non Political Union, before meeting with employers.

Formed in 1907, the NPU represented the surface workers around the mines and was widely perceived to be a bosses' organization.[36] It was the only Barrier union to register under NSW's contentious 1908 Industrial Disputes Act, and the CUC felt that this registration represented a potential weapon in the employers' hands. Their fear was that the NPU "might be used with facility by the mining managers to destroy the solidarity of the recognised Labor bodies."[37] The New South Wales act of 1908 imposed heavy penalties for striking while an agreement was in force, the chief reason unions opposed its enactment so vigorously. If the NPU negotiated an agreement with the companies, the provisions of the NSW act might be used to force the other unions to accept the same or a very similar agreement. For its part, the CUC wished to take the dispute to the Commonwealth Arbitration Court, which was gaining a reputation as being more friendly towards labour; this might not be possible if the NPU invoked the NSW act.[38] Thus when the NPU arranged to meet with the Broken Hill Mining Managers Association in late October 1908, the CUC threatened to strike if the meeting went ahead. At the last minute and amidst growing tension, the NPU cancelled the meeting.[39]

Following the NPU collapse, which signalled the demise of that organization, negotiations went ahead between the mine managers and the CUC. The unions pressed for a slight increase in the minimum wage, a closed shop and a forty-four hour week.[40] Delprat wanted his fellow mine managers to unite behind the BHP demand for a wage rollback to the 1903 award rate of 7/6. He argued that the 1906 increase (which had increased the minimum rate 15%) was in fact a bonus granted during a time of high metal prices and that it now should be withdrawn.[41] The other managers decided not to support Delprat's demand. Unlike BHP, their companies neither confronted depleting ore reserves nor possessed other more lucrative enterprises which could continue to operate and provide revenue in the event of a shutdown. On 20 November, when it became clear that the other mine managers were going to offer an extension for two years of the 1906 award rate, Delprat broke ranks and pulled out of the conference with the CUC. In early December, the unions and a majority of the Broken Hill companies reached an agreement, ratified by rank and file employees.[42] At the same time, Delprat issued a notice advising BHP employees that "The bonus granted for two years dating from 1st January, 1907, will cease on 1st January, 1909, and that the present rate of wages, less the bonus, will remain in force."[43] Having avoided a rollback with the other companies, the CUC was not about to accept one from BHP; the stage was set for the bitter struggle of 1909.

Since BHP refused to continue paying the 1906 award wages when the mine was scheduled to re-open in January, the unions declared that they had been locked out and posted pickets around the property on New Year's Eve. A few days earlier the AMA requested that the Commonwealth Court of Arbitration hear the dispute. Since Mann had organised BHP's Port Pirie smelter workers, the AMA was able to argue successfully that the dispute extended

beyond the borders of one state, a necessary precondition for an application to the Commonwealth Court.

The arbitration hearings were held in February 1909 and Judge Higgins gave his judgement on 12 March. Higgins emphatically rejected the principle that had governed the 1903 NSW award, that is, that the ability of a company to pay must govern the rate of wages. He maintained that his own 'living wage' rule, first articulated in the celebrated Harvester judgement in late 1907, must govern the Court's awards. After hearing much evidence concerning the cost of living at Broken Hill, he supported the men's claim that the 1906 minimum wage rate be continued. Probably conscious that BHP would contest an unfavourable judgement, Higgins was careful to justify his decision:

> Now, the first condition in the settlement of this industrial dispute as to wages is that, at the very least, a living wage should be secured to the employees. I cannot conceive of any such industrial dispute as this being settled effectively which fails to secure to the labourer enough wherewith to renew his strength and to maintain his home from day to day....
> ... to surrender any part of the living wage is to surrender the vital point of unionist effort on behalf of employees. I face the possibility of the mine remaining closed, with all its grave consequences; but the fate of Australia is not dependent on the fate of any one mine, or of any one company; and if it is a calamity that this historic mine should close down, it would be still a greater calamity that men should be underfed or degraded.[44]

Predictably, BHP utilised its considerable resources and the best legal talent to challenge Higgins' award, but the High Court disallowed the substance of this appeal.[45]

The dispute itself was a bitter affair, in many ways a reprise of 1892. The crucial difference was the isolation of BHP; miners remained at work at the other mines, contributing substantially to the relief costs of the out of work miners. Despite a vituperative anti-union press campaign orchestrated by

the **Sydney Morning Herald** and violent incidents largely engineered by Delprat, which saw strike-breakers attacked and beaten by unruly crowds, public sympathy remained by and large with the miners.[46] Events surrounding the dispute - the ready use of policemen, the evident collusion between the courts and the company, and BHP's obvious insensitivity to the community responsible for its wealth - fostered a class consciousness which exhilirated even such a veteran labour organiser as Tom Mann. In a letter to fellow socialist Bob Ross, who had recently left Broken Hill, Mann wrote

> ...Bob, lad, the boys have shown glorious fight - no cowardice, and the meetings have been grand. Meanwhile, rejoice. The Fat crowd here at any rate know there is a big and deep movement here that they had no knowledge of. I'm in splendid health and spirits, and full of activity; in short, I'm living and a few know it. [47]

On the evening before, Mann had told a meeting outside Broken Hill's Trades Hall that

> ...It has been whispered that some of us are to be arrested tomorrow.... I am quite content to take my punishment, so long as I know that I have done my utmost to stimulate you to dare to struggle after better social conditions and a higher and better life. [48]

As he suspected, Mann was arrested on 9 January and charged with riot, unlawful assembling and conspiracy.

Mann orchestrated the dispute carefully, using tactics which had done so much to maintain solidarity and determination during the London dock workers' struggle in 1889. Behind banners proudly asserting the right of the world's workers to the world's wealth, with bands playing and with lusty singing, pickets marched to and from the mine. Broken Hill's distinct working class culture was coming of age in the charged atmosphere of 1909.[49]

The dispute lasted from the beginning of January until the end of May. It ended inconclusively: unionists finally voted to end the dispute, but BHP refused to re-open its mine. For two years it remained closed, although the company did keep its Broken Hill flotation plant running, treating tailings left from earlier days, as well as continuing smelting operations at Port Pirie. However uncertain the dispute's outcome, its legacy was profound.

In 1909 Broken Hill was a town divided, although support for the out of work miners was widespread.[50] Even within the ranks of the labour movement divisions existed, kept in check most of the time by a common desire to present a united front to BHP and the outside world. The divisions were mainly over strategy and tactics, between moderates and militants. On the one hand, "Revolutionary Socialists" advocated boycotting arbitration proceedings and discounted the usefulness of working class political representation; on the other, Labor Party supporters cautioned against relying too much on industrial action and retained considerable faith in the value of their elected representatives in the Commonwealth and State parliaments. A substantial majority of Broken Hill residents supported the latter group, but one of the consequences of the dispute was to increase both the importance and size of the militant group.

The dispute earned Broken Hill a reputation for militancy and subsequently a number of young and committed workers were drawn to the community. As Wally Riddiford remembered,

> Most of them that came here in 1910, 1911 - after the 1909 Lockout - were militant. They used to lecture down at the Socialist Hall and I'd go down and listen in myself because they were good. Then I used to listen to the street corner orators when they were condemning the companies and blowing the socks off everybody else. [51]

Ern Wetherell, who arrived in Broken Hill in January 1911, was typical of these new arrivals:

> I had worked underground at Mt. Lyell [Tasmania], first as a labourer and then as a miner and I wanted to see this Mecca, Broken Hill, to be part, if I could, of man's surge forward to better times and to be in the Labor Movement that seemed in my teenage mind to be moving rapidly towards this goal..."[52]

Wetherell and his comrades, however, discovered that Broken Hill was not quite as they had imagined.

> I ... was drawn to this so-called Mecca of Unionism, but was soon disillusioned. I found that in Broken Hill working conditions were Australia's very worst. Unionism's power was mostly something to talk about in centres far off. However, it did not remain that way. The militant minority was destined to play its part in revolutionising conditions in the industry in Broken Hill. No place was more strife-torn than Broken Hill between 1914 and 1921. No part of the Southern Hemisphere has changed so much as Broken Hill in conditions of employment or industrial relationships.[53]

As Wetherell suggests, "the militant minority" had its work cut out; improvements came only gradually and after years of struggle. Nor should the context of these changes be ignored: they came as part of what amounted to a virtual transformation of the mining industry on the Barrier.

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After a careful analysis of the 1909 Broken Hill work stoppage, Judge Higgins concluded that

> the root of the whole difficulty ... [was] that in the opinion of the Company's officers the days of this great mine are appoaching an end. The General Manager says that the mine has not five years' life as an ore-producing concern, and that at the present rate of extraction it could not pay to work it after two and a half years.[54]

BHP's subsequent decision to allow its mine to remain idle for two years

(1909-1910) suggests the accuracy of Higgins' comments. Confronting imminent depletion, the company expanded operations sufficiently to remain in business in spite of the mine's closure. This program of diversification soon went beyond the vertical integration of its Broken Hill flotation plant and its Port Pirie smelters.

In 1897 the company purchased iron deposits to facilitate its smelting operations at Port Pirie. The quality and quantity of the Iron Knob deposit, across Spencer's Gulf from the smelters, impressed BHP officials. When the Board of Directors toured the site with an official party in 1901, "general regret was expressed that such splendid ore ... should find no further use than for flux or smelting purposes."[55] The dwindling ore reserves of BHP's Broken Hill mine underlined the potential value of the fortuitous acquisition.[56] Steps were soon underway to evaluate the iron ore deposits. In early 1907, for example, BHP's chairman told assembled shareholders that the company was "conducting experiments with a furnace for the production of pig iron." He added casually that "...there is no reason why its manufacture should not form an auxiliary to our extensive business."[57] But it was Delprat who really pressed the plans to diversify into steel. The following extract from his diary indicates the importance of his role in pushing BHP into the new endeavour:

> June 2, 1911. [BHP] Board meeting at Port Pirie. Previous to meeting explained to [BHP Chairman] Darling the necessity of starting Steel Works, with Iron Knob as our ore supply. Told him Broken Hill Mine would give out and Company would finish. Darling promised to support me if I brought matter up at Board meeting this day. Brought it up.... [The Board] Agreed to give me approximately 6 months leave of absence - [to travel to] America and continent - look into Iron industry.... get all information possible and Board to decide whether or not we should put up steel works. [58]

Delprat's feasibility study of European and North American steel works convinced him that BHP would have no trouble establishing an indigineous

steel industry. He recruited an American expert to examine BHP's iron ore resources and the man's report concluded that the Iron Knob deposit was an excellent foundation upon which to build an integrated steel industry.[59]

At the company's semi-annual meeting on 30 August 1912 the Directors presented their plans for a steel works to the assembled shareholders. The Acting Chairman asssured them that "the steps now proposed to be taken will convert [BHP] into a huge manufacturing and commercial enterprise with an ever-increasing and successful future." Perhaps anxious to dispell any doubts his audience might be entertaining, Harvey Patterson remarked expansively that

> When you calmly and deliberately consider the fact that this industry means the prolongation of the life of your Company for an almost interminable length of time, it will be suprising if every shareholder does not heartily assist in raising the necessary capital. [60]

The shareholders were as optimistic as their Acting Chairman: the necessary resolutions approving the scheme were "seconded without question by the shareholders" at the extraordinary general meeting of 27 September.[61] The shareholders' assent was apparently taken for granted since four months prior to the vote Delprat informed the NSW government that "Our Company has decided to erect iron and steel works in connection With our Iron Knob (S.A.) deposit..."[62]

In early 1912 the Labor government of New South Wales was making plans of its own to found an iron and steel industry in Australia. The year before a Royal Commissioner had declared that a state ironworks was indeed possible within the state, although he advised establishing a large scale plant.[63] In February 1912 three cabinet ministers also investigated the feasibility of a state iron and steel works and they too endorsed the idea.[64] The Legislative Assembly added its approval in mid-March, when the State Iron and

Steelworks Bill passed first reading.[65] There were problems with the plan, however: the cost was going to be very high, some thought prohibitive, and the Upper House was blocking the bill's passage.[66] In May Delprat wrote to find out the government's attitude to BHP's plans for a steel works:

> We ... are in doubt as to whether we ought to erect these works in New South Wales or South Australia. It would pay us - all conditions being equal - to erect them in New South Wales.... We would forego the advantage, if we found that the New South Wales Government would view with displeasure our establishing this industry in New South Wales, having regard to their own reported determination to erect similar works there.[67]

The government assured Delprat that it would encourage the establishment of any industry in the state. It eventually agreed to facilitate the construction of BHP's works at Newcastle in a number of ways, most significantly by dredging and keeping clear the harbour.[68] The Legislative Assembly endorsed the government's undertaking with BHP, but not without causing a division within the ranks of the governing Labor Party.

Some Labor MLAs, as well as many rank and file Labor supporters, felt that the government's agreement with BHP ended any chance of a state-owned steel works for New South Wales. They argued that establishing state-run industries was one of the planks in Labor's platform; indeed, part and parcel of Labor's raison d'etre in seeking political office. The willingness of McGowen and his cabinet to allow a private company, especially BHP, to forestall Labor's plans for a state steel works appeared a betrayal of their mandate. Despite such opposition, members of the Legislative Assembly voted 51 to 14 in favour of the bill ratifying the agreement between the government and BHP; all 14 of the bill's opponents were Labor members.[69] Delegates at the 1913 state Labor conference angrily attacked the government's support of BHP and a resolution criticizing its action passed by a vote of 104 to 42.[70]

Although Holman and others argued that a state steel industry could still be established, few believed such claims. And construction at Newcastle had begun.

W. S. Robinson noted in his memoirs that by 1914 BHP "had recently ceased to be the leading company at Broken Hill and was diverting all its energies and funds into the creation of a steel industry..."[71] When the company's Broken Hill mine began shipping ore again in 1911, after its two year closure, annual ore production hovered around 15% of the total output, a far cry from its once predominant position. The Chairman's report at the semi-annual meetings concentrated on almost everything but the mine; echoing Robinson's remarks, Blainey observes that "from 1913 all the excitement in the company's offices centred on plans for the steel industry."[72] In 1915 the company cheerfully sold off its Port Pirie smelters, the same year that its steel works began production. Although the mine did not finally close until the mid-thirties, from this time on BHP showed little interest in Broken Hill.

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BHP's declining influence on the Barrier was obvious by 1909. Despite the company's dwindling share of production, the growth and expansion of the mines at either end of the lode meant that ore shipments continued at much the same level. Conditions altered little until the onset of war in August 1914, but when the changes came they were profound.

The concentrates produced from Broken Hill's sulphide ores were difficult to refine, especially the zinc concentrates. As Broken Hill's production of oxidised ores gradually declined, the technologically-advanced smelters of Europe established control over the final processing of the output from the

Barrier mines. In particular, three German firms with subsidaries operating in Australia used their metallurgical knowledge to good effect: they negotiated long term contracts with Broken Hill mining companies and thus virtually monopolised the marketing of the field's lead and zinc. By 1909, for example, the German mining giant, Metallgesellschaft and its English subsidary H. R. Merton had become "the exclusive selling agents in Europe and the UK for the sale of the bulk of the lead and zinc produced at Broken Hill."[73]

Broken Hill's reliance on German marketing arrangements and Continental smelting technology led to a crisis in 1914. The Australian Prime Minister, W. M. Hughes, found the situation intolerable; in his opinion,

> The conditions existing in the metal industry at the outbreak of the war and for some months subsequently were at once a grave reflection upon the capacity of our race, an insult to our national pride, and a menace to our national safety. The domination of the metal industry in Australia by Germany was practically complete. ...the fortunes and development of the industry were determined by German capital and influence.... The great German octopus, whose tentacles gripped the Australian metal trade, stretched throughout the world...[74]

Under heavy prodding from Hughes, the Australian lead-zinc industry moved to a complete vertical integration, from mines to refineries. And the Collins House group of companies emerged as the industry's undisputed leader.

By 1914, Collins House controlled three major Broken Hill mines.[75] With the help and guidance of W. L. Baillieu and W. S. Robinson, these companies purchased a majority interest in BHP's lead smelters in early 1915 and established a cooperative company, the Broken Hill Associated Smelters, to run the operations at Port Pirie.[76] Since the sudden rupture with Germany had left them with no means of disposing of Broken Hill's concentrates on the world market, their urgent task was to improve and expand the Port Pirie operations so that Broken Hill ore could be treated. Robinson, who arranged the purchase

of the smelters from BHP, acknowledged that

> Certainly we would have preferred to acquire a new rather than a run-down smelting and refining plant but we had gained something we could not have gained elsewhere in time of war: the means of turning our silver-lead concentrates into saleable metal.[77]

BHP's Port Pirie zinc plant was not as satisfactory nor as efficient as its facilites for lead treatment. Robinson spent much time and anxiety trying to improve the facility, with help from Colin Fraser and "W. R. Ingalls' standard work, **Zinc and Cadmium**."[78] At the same time, H. W. Gepp, a Broken Hill manager, was in North America trying to sell to smelters there at least some of Broken Hill's zinc concentrates. Gepp also investigated the new zinc technology being pioneered by Anaconda and Cominco. Following experiments by Gepp at a trial plant in California, the Collins House group decided to adopt the electrolytic process. It launched the Electrolytic Zinc Company of Australasia in 1916, which then began construction of an electrolytic refinery at Risdon, Tasmania under Gepp's supervision, using cheap hydroelectric power provided by the state government.[79] By 1918 the plant had produced its first zinc; the Port Pirie zinc plant closed three years later.

The necessities of war forced Broken Hill companies to embark upon an ambitious program of vertical integration. As a result, the Collins House group emerged as a major actor in the world's base metals industry. The London-based Institution of Mining and Metallurgy subsequently saluted the men responsible for this development: in early 1924, Gepp was a joint recipient of the Institution's gold medal for his pioneering role "in the development of the electrolytic process for the production of zinc in the Commonwealth of Australia"; five years later Baillieu and Robinson received the same honour. As the President explained when announcing Robinson's and

Baillieu's award,

> ...these gentlemen .... were largely responsible for the financing of much of the base-metal industry of Australia, and they did a most important work in connexion with launching the electrolytic and flotation processes in the Commonwealth.[80]

The re-organization of the industry based on the Broken Hill mines, largely the work of Robinson and Baillieu, was matched by equally profound changes in the pattern of labour relations on the Barrier.

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The leadership of Broken Hill's miners' union passed into the hands of militants after 1909. Despite their prominence within the AMA, considerable evidence suggests that they had only a limited ability to determine union policy.[81] Their circumscribed power was obvious when negotiations began in late 1910 to renew the 1908 award. The AMA executive pressed for improved working conditions and reduced hours of work rather than a substantial wage increase. The mining companies' counter proposal effectively scuttled this plan, offering a 10% wage increase in exchange for a four and a half year agreement and no concessions on conditions or hours.[82] The union held two meetings to discuss the companies' offer but the disagreements were such that the question of accepting it was put to a referendum vote. Sixty per cent of those who voted were in favour of accepting the offer, a clear abandonment of the executive's negotiating strategy.[83] Although "the union executive remained belligerent and decidedly energetic" during the term of what became known as "the long agreement", several other incidents suggest that the rank and file did not share its attitude or outlook.[84]

The 1911 agreement did not cover the Port Pirie smelter workers, since their employer, BHP, was not a signatory.[85] They asked the Broken Hill AMA for help in seeking an arbitration award, but the request was turned down. A subsequent AMA meeting criticised this response and no less than three referenda were held on the issue. The AMA leadership, opponents of arbitration, were overruled by the membership, which favoured supporting the Port Pirie workers' effort to go to arbitration.[86] The militants' opposition to "militarism" and Australia's Defence Act was similarly rejected by a union referendum in 1912.[87] But such reverses did nothing to dampen the ardour of the militants. Despite setbacks and defeats, they continued to press for what they felt were necessary reforms; ultimately they were remarkably successful.

The militants' first victory came when they re-established the principle of compulsory unionism at Broken Hill, something that had been lost after the 1892 strike. In January 1913 the Barrier Labor Federation, a coalition of various unions, decided to ask its affiliates to hold a referendum, asking members if they were ready to refuse to work with non-unionists after March 31.[88] Ern Wetherell recalled that

> By an overwhelming majority the men voted for compulsory unionism. The vote was followed by an intensive campaign that recruited all but a few non-unionists. The Federation then decided, at a mass meeting on March 31, that on the morrow no man be worked with unless he were a financial unionist; in the event of any mine manager standing in the way of this resolution ... all the men should abandon work.... The managers were more concerned about profits than about the principle at issue. They wanted no stoppage of work, so unionism won...[89]

In fact, the Broken Hill Mining Managers' Association regarded the campaign with consternation. At a special meeting called to discuss the issue in mid-March, managers had agreed that the mines could not be worked only with non union labour.[90] They met with union representatives on April 1 and 2,

and the minutes of these meetings indicate that the unions were both confident and un-compromising:

> J. H. Pearce [President, Barrier Labor Federation] - ...If you want to work your mine it is only a question of saying to us that the union man will be employed there and the question is solved. If you are going to take the side of the non-unionist man, it is your look-out...
> J. J. Hocking [Secretary, Barrier Labor Federation] - The position is that if you have got enough non-unionists to work the mines in Broken Hill, we are quite willing to let you - but we will not work with them.[91]

When the president of the Broken Hill Mining Managers' Association asked if the unions would object if the matter was referred to the Arbitration Court, the AMA president responded brusquely,

> That is your option - we have nothing to do with it. We do not give a hang what the Arbitration Court says.[92]

Despite the managers' reluctance, the mines soon became the preserve of unionists: by August 1914, for example, the AMA secretary was able to claim that "95 per cent are our members now."[93]

An increase in the number of fatalities and a spate of accidents in 1912 stimulated a second union campaign in Broken Hill, as the AMA pressed for safer working conditions.[94] Although not as successful as the drive for compulsory unionism, the safety issue also revealed the increasing power and authority of the militants, whose determination was gradually being rewarded. The AMA began to stop work for twenty-four hours at any mine where a fatal accident occurred, and in 1914 it successfully lobbied the state government for a Royal Commission to examine the mining industry in Broken Hill, focussing especially on matters relating to health and safety.[95] But it was the war that gave the militants their greatest opportunity to win the improvements that they demanded with increasing authority.

Broken Hill militants received their strongest support from underground miners. During a protest stop-work in late 1911, for example, 83% of the miners stayed out, although an average of only 39% observed the union call.[96] The war sharpened the divisions between the underground miners and other mine workers. This became clear as the "long agreement" neared its end in 1915.

In May 1915 the companies proposed simply extending the agreement, due to expire at the end of June, until six months after the war's end. An AMA meeting voted in favour of accepting the offer but a subsequent one overturned this decision.[97] Negotiations and meetings between the miners' union and the companies over several months accomplished little. In late August, the companies offered an all round increase of 1/- per shift but the AMA rejected it. The dispute then went before Judge Higgins of the Federal Arbitration Court. Both sides met with Higgins in Melbourne in early September but reached no agreement. Growing impatient with the delay, underground miners decided to reduce their working hours: they voted to work a 44 hour week, that is, to work only a half shift on Saturday.[98] This resort to direct action angered Judge Higgins, and he threatened to prosecute the miners' union under the penal clauses of the Commonwealth Arbtitration Act.[99] The AMA then voted to resume working Saturday afternoons, which in George Dale's words "caused a very bitter discussion between the underground and the surface workers."[100] Wetherell described the situation and its consequences in his memoirs

> Clearly there was a cleavage in the ranks between moderates and militants. The militants at once called a meeting of underground workers, who decided to continue to miss the Saturday afternoon shift until a 44 hour week was granted. From then on the underground workers carried on as a separate entity within the union... [101]

Meetings continued between Higgins and various union and company representatives throughout the final months of the year. The companies finally issued a notice advising their employees that anyone who failed to work a 48 hour week would be dismissed. The effective date of this notice was 8 January, 1916, the first Saturday after the Christmas holiday. That afternoon the underground miners picketed the mines. On the following Monday, the companies carried out their promise and dismissed the miners who had absented themselves on Saturday. The underground miners went out on strike, and the next day the AMA agreed to strike in support of the underground miners. As the union's president put it,

> It was not now a question of any clique, section, or crowd. It was a question of the mining companies versus the workers of the Barrier. Mr. O'Reilly [the leader of the underground workers] and he, in the past, had been in different schools of thought, so to speak, but now.... Unity was essential. [102]

For the last time, pickets surrounded the mines; also for the last time, the miners' union presented its case to the President of the Commonwealth Arbitration Court.[103]

The strike lasted a month. In early February the federal government intervened, arranging for the men to return to work on short hours while Judge Higgins agreed to hear the case immediately.[104] Judge Higgins brought down his award on 28 April, giving underground workers their 44 hour week as well as establishing a minimum wage of 11/3 for contractors. The victory rested largely with the militants and the advocates of direct action, which as Kennedy suggests was "a powerful spur to still greater militancy in the future."[105]

The next fight was not long in coming, but was not waged against the mining companies. The issue was conscription: the announcement of a

nation-wide referendum on the issue led to an unprecedented wave of demonstrations, protest meetings and stop-works at Broken Hill. Led by militants, Labor's Volunteer Army [LVA] fought conscription vigorously, basing its opposition to the issue in class terms.[106] By now a local of the Industrial Workers of the World [IWW] operated in the town, which probably accounts for the great popularity of Joe Hill's songs, sung at every meeting. One of them, "Should I Ever Be A Soldier," was adopted as the LVA's anthem; at the inaugural meeting, "It was sung after the speeches, and again at the end of the proceedings, with great enthusiasm, stamping and cheering."[107]

During August and September of 1916, anti-conscription marches and meetings were held regularly. The conscription issue raised tensions throughout Australia; at Broken Hill the situation was particularly uneasy. In early September, for example, anti-conscription leaders were arrested on flimsy charges. One man was charged with using profane language, for singing a parody of "Onward Christian Soldiers"; the crowd's defiant singing outside the Court House made court proceedings difficult. Later, at the Police Station, the crowd was dispersed by baton charge.[108] The anti-conscription campaign culminated in a mass parade on the evening before the actual vote, a torch-lit procession which made a deep impression on those present.[109] On October 27, the town rejected conscription by a 5000 vote margin.

The next year saw another strike at Broken Hill, this time in sympathy with workers elsewhere.[110] Even though the dispute owed its origins to events in Sydney, it quickly escalated, reflecting Broken Hill's polarised social climate. Two days into the strike, for example, unionists marched onto the mines and

> The leaders demanded under threats that the boiler fires should be drawn. Police protection being insufficient, the boilers were forcibly stopped. [111]

In response to this apparent failure of the local police to uphold law and order, a detachment of South Australian police was sent to Broken Hill the following day and "used batons fearlessly and effectually [and thereby] overcame the attempt of strikers to take command of Broken Hill."[112] The police experienced considerable difficulty in obtaining anything in the way of goods or services in the town after this display of force. No store would sell them provisions and even the night soil cart boycotted their accommodation.[113] Two days later the police raided the hall of Broken Hill's IWW local and arrested a number of its members.[114] The fact that mine managers began seriously to ponder the question, "What is wrong with Broken Hill?" suggests the bitterness and anger engendered by the seven week strike.

Colin Fraser, a leading Collins House executive, issued a circular letter under this heading to Broken Hill managers in November 1917. He pointed out that

> It is hardly necessary to stress the urgency of the call upon the Broken Hill Companies to do something to improve the present state of affairs. The condition a few weeks ago was described by the Mine Managers' Association as "the worst in the history of Broken Hill." If things are allowed to drift from bad to worse it is difficult to forecast what the end may be - perhaps Nationalization... [115]

Peace came the same week of Fraser's circular but even the war's end brought little relief to the charged atmosphere. At least one mine manager speculated hopefully in public that returned soldiers would rid the town of "the Bolshevik element."[116]

The written responses to Fraser's circular were more sober. The most common problem identified by the managers was that there was no community of interest between employers and employed.[117] Gepp, who himself had made a valiant but abortive effort to improve conditions in Broken Hill just before the

war, gave pride of place in his list of "THINGS THAT ARE WRONG" to "The whole relations between the Companies and the men." Similarly Dr. Birks, the Superintendent of the town's hospital, declared that Fraser's question

> might be answered in a very few words by saying ... That what is wrong with Broken Hill is that there exists in an exaggerated form ill-feeling between the Mine Employees and the management of the Mining Companies.[118]

Finding appropriate or realistic solutions was more difficult. Better housing and more amenities were identified as priorities, but they required money. Before much could be done, another strike shut down Broken Hill's mines. The dispute grew into "the big strike", the longest and the most important of all Broken Hill's struggles.

The strike lasted for eighteen months, from April 1919 to November 1920. At the centre of the dispute were the AMA's demands for drastic changes in the mines' operations, including the abolition of the night shift, a five day working week and a six hour day.[119] These reflected the union's growing preoccupation with health and safety. Research in other mining centres had led to the recognition of miners' phthisis (pneumoconiosis) as a leading industrial disease, albeit a preventable one. Aware of this growing body of medical knowledge, the AMA used its daily newspaper to publicise both the dangers of pulmonary disease for the underground worker as well as tentative solutions to the problem.[120]

In 1918 a public inquiry under the auspices of the Board of Trade investigated the extent of miner's phthisis among miners in New South Wales, and concluded that further research was necessary. Specifically, it recommended a Technical Commission of Inquiry, one that would make careful medical examinations of a substantial percentage of the workforce, using the most

sophisticated clinical technology.[121] Both the union and the mining companies endorsed this proposal in September 1919, although this was about the only agreement between the two sides during the strike. The companies had long maintained that the health problems on the Barrier were by and large imported ones. In their view, such pulmonary disease as existed in the community was not a result of working underground in Broken Hill's mines but rather represented the effects of a miner's earlier work on other, more dangerous fields.[122] When miners flatly contradicted this notion, Melbourne directors expressed surprise and consternation: "This comes as a great shock to us," declared Baillieu.[123]

While the mining companies were prepared to cooperate with the men to discover the causes of industrial disease, they rejected the AMA's strike demands out of hand. In their view, "the industry could not carry on under these terms..."[124] They wanted the union to submit its demands to either the Federal or State Arbitration Court, something the AMA resolutely refused to consider. The result, not surprisingly, was a stalemate. The dispute dragged on for over a year before both sides finally agreed to refer the matter to a tribunal, and abide by its ruling. This came two days after the interim report of the Technical Commission had been released, a document which fully substantiated the union's claims concerning the hazardous working conditions underground.[125]

The tribunal sat for a month, from mid-August to mid September, 1920. The final judgement of its chairman, Judge Edmunds, gave the miners what they had been fighting for: a substantially reduced working day, a five day week and the abolition of the night shift. The victory reflected not only the weight of the Technical Commission's findings but also the political realities

of the day.[126] From January 1917, Broken Hill's representative in Sydney was Percy Brookfield, a leading militant who had risen to prominence during the anti-conscription fight of 1916. As a result of his election, the union had a powerful voice in the state Parliament throughout the strike to articulate and to justify its demands. Brookfield's importance increased following the extremely close election of March, 1920. His vote became necessary to keep Storey's Labor Party in office.[127] For this reason, the NSW government was prepared to support the miners' cause in somewhat unconventional ways. Edmunds, for example, was told by Premier Storey that a judgement favourable to the workers was necessary if he expected a coveted appointment to a Royal Commission.[128] Edmunds acquiesced to Storey's request.

The strike was declared off in mid-November of 1920. It had brought much hardship to Broken Hill, as Wetherell remembered:

> This long sustained suffering left its effects. Indeed a score of years later Dr. W. D. K. MacGillverey, outstanding man of science and humanity, told me a pathetic story of the backwash of this suffering when he said that in abnormally many cases difficulties of childbirth among young mothers then could be traced to the shortage of food and even of clothing in their infancy, the period of the strike.
>
> The great advantages that came as a result of the industrial siege of 1919-20 were won at immense cost. [129]

Broken Hill's mines were slow to return to full production, but as the industry re-established itself, industrial relations began to improve. Several elements were critical to this amelioration. The reduction in working hours and the other concessions won in the strike were important, as were several compensation acts passed by the state government, embodying the findings and recommendations of the Technical Commission.[130] In addition, the unions of Broken Hill formed a permanent united body to negotiate face to face with

the Mining Managers' Association, the Barrier Industrial Council.[131] There were to be no more judges or arbitrations by people outside of the industry. And from 1925, miners received a lead bonus related to the price of lead. The town itself began to blossom: improved irrigation and sanitary facilities as well as determined efforts on the part of several mine executives made a considerable impact on the hitherto bleak landscape.

The miner's community, his conditions of work and his remuneration improved dramatically after 1920. His world, which had seemed so hard, was now a human one. By the 1950s, an industrial relations study could conclude that "Altogether, the Broken Hill mines provide unusually good conditions of employment..."[132] Wetherell, the former militant, could reminisce with pardonable pride in the late 1960s that

> Changes in conditions of employment as well as pay have been more pronounced at Broken Hill than in any other part of Australia. Conditions have advanced from the very worst to the extreme best.[133]

TABLE 6 - 1

BHP Ore Production at Broken Hill

Year	BHP output in tons	Total Broken Hill output, in tons	BHP's output as percentage of total
1898	402,211	1,139,873	35%
1899	412,298	1,402,544	29%
1900	538,973	1,416,097	38%
1901	602,081	1,268,442	47%
1902	644,081	1,117,054	58%
1903	570,666	1,077,590	53%
1904	630,047	1,308,662	48%
1905	606,701	1,383,962	44%
1906	523,198	1,225,712	43%
1907	602,246	1,638,553	37%
1908	538,404	1,439,355	37%
1909	0	1,007,920	0
1910	0	1,198,942	0
1911	173,774	1,488,603	12%
1912	232,124	1,633,868	14%
1913	279,431	1,735,691	16%
1914	268,893	1,491,526	18%
1915	224,490	1,473,262	15%
1916	176,699	1,040,143	17%
1917	149,033	1,084,018	14%
1918	158,458	1,240,097	13%
1919	63,378	560,555	11%
1920	1,212	38,661	3%
1921	2,663	286,148	1%
1922	0	599,641	0
1923	5,224	841,447	1%

Source: H. Willoughby's "History of Broken Hill," drawn from statistics provided in the Annual Reports of the N.S.W. Dept. of Mines.

Endnotes

1 . "It is scarcely necessary to say that nothing would give the [New South Wales] Court [of Arbitration] greater pleasure than to see and know that all the workers had constant employment, good wages and reasonable hours, but this utopian notion must unfortunately be heavily discounted. It is a hard world, there is no sentiment in the products of the Barrier mines..." J. D. Cruikshank, employers' representative, speaking on the 1903 Award, p. 543, Industrial Arbitration Reports and Records, New South Wales, 1903, Vol. II, 1903 (Sydney, 1904).

2 P. 986, The Economist, Vol. 58, 14 July, 1900. The author was probably J. H. Curle.

3 . Pp. 342 & 344, Donald Clark, Australian Mining & Metallurgy, Melbourne, 1904.

4 . A very good discussion of the myths of Broken Hill labour relations was written by one of the mines' Industrial Relations Officers, R. F. Jones: "Industrial Relations in the Broken Hill Mining Industry - A Discussion," Broken Hill, 1975. Other perceptive descriptions of Broken Hill's labour relations include Kenneth Walker's chapter, "The Metal Mining Industry of Broken Hill," pp. 77-135, in his book Industrial Relations in Australia, Cambridge, Mass., 1956, and A. J. Keast's "Address delivered at Meeting of Members of The Institute of Industrial Management at Kelvin Hall, Melbourne, on June 5th, 1945," later published in pamphlet form as Broken Hill - Past, Present and Future, (Keast managed several Quebec mines during the thirties before asssuming the job of Mine Manager at the Zinc Corporation.) See also Elspeth Huxley's disapproving account of Broken Hill unionism, pp. 92-106, Their Shining Eldorado: A Journey through Australia, New York, 1967; the equally disapproving H. G. Raggatt, pp. 167-70, Mountains of Ore, Melbourne, 1968; and the bemused Bob Secter, "A Union Town Like No Other," A 4, 13 Nov., 1984, Vancouver Sun, For the international community's appreciation of Broken Hill's breakthrough in ore treatment, see pp. 76-7, Geoffrey Blainey, The Rise of Broken Hill, Melbourne: Macmillan, 1968; p. 315, H. N. Spicer, "Evolution of Methods of Handling Slime - III, Australian Practice," Metallurgical and Chemical Engineering, 11, June, 1913; & the Quarterly of the Colorado School of Mines, Vol. 56, No. 3, July 1961, passim, This particular volume of the journal reproduces papers from a symposium held at Denver in 1961, marking the fiftieth anniversary of froth flotation in the U.S.A. Note however the comments of footnote 144, chapter five.

5 . P. 881, B. R. Wise, "The Industrial Arbitration Act of New South Wales," The National Review, Vol. XXXIX, August, 1902. Wise acknowledged, however, that the act was "Framed ... in the light of New Zealand experience," p. 880, ibid, For accounts of the act's genesis and enactment, see, in addition to Wise's article above, pp. 69-181, Vol. 2, William Pember Reeves, State Experiments in Australia & New Zealand, London, 1902, 2 volumes; pp. 143-62 & 274-86, John Rickard, Class & Politics New South Wales, Victoria and the Early Commonwealth, 1890-1910, Canberra: Australian National University Press, 1976; pp. 3-20, Kenneth F. Walker, Industrial Relations in Australia; R. B. Walker, "Australia's Second Arbitration Act," Labour History, #19 (November, 1970): 17-25; pp. 12-15, Joan Rydon and R. N. Spann, New South Wales Politics, 1901-1910, Melbourne, 1962; & S. F. Macintyre, "Labour, capital and

arbitration," pp. 98-114, Brian Head (ed.), State and Economy in Australia, Melbourne, 1983. Reeves (p. 69, op. cit.) includes a useful contemporary bibliography & Rickard (pp. 147-49, op. cit.) provides an illuminating thumbnail sketch of Wise. For a contemporary socialist critique of "arbitration chloroform," see Harry Holland's pamphlet, Labor Leg-Ironed or Liberal and Labor Party Arbitration Acts in N.S.W., Wellington, 1912. M. E. Glasser, a French mining engineer, also wrote a contemporary account, following a visit to New Zealand and Australia in 1902. Glasser wanted to discover what impact labour legislation in the two countries had had upon miners and the mining industry; see his "Etude sur la Condition des Ouvriers des Mines en Australasie," pp. 148-518, Annales Des Mines, Dixième Série, Mémoires, Tome VIII, Paris, 1905.

6 . P. 881, Wise, op. cit.

7 . See, for example, J. H. Cann's remarks in 1892, quoted on p. 6, Walker, Industrial Relations in Australia; Josiah Thomas, pp. 4282-83, Commonwealth Debates, 26 Aug., 1903; & comments on pp. 12-13, Julian Mark Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry from 1903 to 1925," MA, University of Sydney, 1955. For a more general discussion of labour's support of arbitration at the turn of the century, see pp. 149-60, Rickard, Class & Politics; also, p. 106, Macintyre, "Labour, capital and arbitration;" & pp. 3-4, Holland, Labor Leg-Ironed. As Howard points out, employers generally, and BHP in particular, were opposed to the Bill (pp. 19-20, op. cit.)

8 . For the bill's endorsement of union recognition, see pp. 882-84, Wise, "The Industrial Arbitration Act of New South Wales," and pp. 53-54, B. Pennay, "Industrial Disputes at Broken Hill up to 1909," MA thesis, University of Sydney, 1968. Concerning the AMA's position in Broken Hill, Glasser noted after a visit in 1902 that "Ce fut la fin de la [1892] grève et la ruine, pour quelque temps du moins, de l'autorité morale de l'Union, qui perdit un grand nombre de ses membres. Depuis lors elle a repris peu à peu une certaine importance et une certaine puissance; mais elle n'a jamais revu l'état de choses 1891-1892, et elle ne compte guère actuellement dans ses rangs plus du tiers des ouvriers." pp. 459-60, Glasser, "Etude sur la Condition des Ouvriers des Mines en Australasie." Pennay also describes the AMA's weakness, 1893-1902, and maintains that "It was only after the N.S.W. Industrial Arbitration Act of 1901 came into force that the unions were able to participate effectively in industrial bargaining again." (pp. 50-51, op. cit.) Cf. Brian Kennedy's remarks, pp. 95-96, Silver, Sin, and Sixpenny Ale A Social History of Broken Hill 1883-1921, Paramatta: Melbourne UNiversity Press, 1978.

9 . For the AMA's claim, BHP's response and the judgement in the case, see pp. 525-48, Industrial Arbitration Reports and Records, New South Wales, 1903, Vol. II, 1903 (Sydney, 1904). See also the comments of George Dale, pp. 92-94, The Industrial History of Broken Hill, Melbourne: Fraser and Jenkinson, 1918.

10 . See clause 9, p. 537, Industrial Arbitration Reports and Records, New South Wales, 1903.

11 . P. 531, ibid. According to Kennedy, "The union gratefully accepted the judge's conservative award..." p. 96, Silver, Sin, and Sixpenny Ale; see also p.

26, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry."

12 . Socialists had broken with the Labor Party in 1898. For an account of their earlier influence and of the rupture, see pp. 69-90 & passim, Verity Burgmann, 'In Our Time' Socialism and the Rise of Labor, 1885-1905, Sydney, London, Boston: George Allen & Unwin, 1985.

13 . P. 4, Holland, Labor Leg-Ironed. Holland went on: "the [N.S.W.] Act of 1902 .... converted the trade union into a mere machine for the making of conflicting awards and industrial agreements terminating at varying periods and constituting contracts to scab on the working-class in order to keep faith with the master-class. It reduced the trade union officials to mere dues collectors, salary drawers, and private policemen..." Note also the comments of Peter Bowling, quoted on p. 97, Burgmann, 'In Our Time'.

14 . For a discussion of the change, see pp. 35-38, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry."

15 . Pp. 97-103, Dale, Industrial History of Broken Hill; pp. 102-04, Burgmann, 'In Our Time'; pp. 87-101, Kennedy, Silver, Sin, and Sixpenny Ale; pp. 15-17, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry."

16 . Note, however, the remarks of Kennedy, pp. 98-101, Silver, Sin, and Sixpenny Ale, and Pennay, pp. 63-71, "Industrial Disputes at Broken Hill."

17 . P. 70, Pennay, "Industrial Disputes at Broken Hill." Mann had come to Australia in 1902 and from 1905 was a staunch advocate of socialism. For a lengthy discussion of his career in Australia, see Graeme Osborne's "Tom Mann: His Australasian Experience 1902-1910," PhD, Australian National University, 1972; also Burgmann, 'In Our Time', passim.

18 . The AMA officially supported the Labor Party throughout the period. Cann, one of Broken Hill's MLAs but acting also as the representative of the AMA, launched the drive for a socialist plank in both the state and federal parties' platform at the 1905 convention of the Political Labor League. (See p. 63, Pennay, "Industrial Disputes at Broken Hill"; pp. 52-54, Ian Turner, Industrial Labour and Politics The Dynamics of the Labour Movement in Eastern Australia 1900-1921, Sydney, 1979; & pp. 67-70, Peter Loveday, "New South Wales," D. J. Murphy, ed., Labor in Politics,) Although unsuccessful, Cann continued to press the Labor Party to embrace socialist principles publicly and unequivocally, prompting Holman to burst out at the 1909 convention that "there seems to be an impression that this little idiotic idea from Broken Hill [is] true socialism." (quoted by Loveday, p. 70, op. cit.) In April 1906, Holman had publicly debated "The Principles of Socialism as Defined in the Platform of the Labor Party" with G. H. Reid. The debate was "an outstanding event of the year," according to Rydon & Spann (p. 68, New South Wales Politics, 1901-1910), and came during Reid's anti-socialist crusade. For details of Reid's efforts, see Rickard, pp. 167-203, Class and Politics.

19 . Broken Hill's impressive Trades Hall, completed in August 1905, reflects the size and strength of the labour movement. Even Rupert Murdoch has been unable to shake the power of the Barrier Industrial Council. Labour's control of the city government from 1900 (with brief interruptions) also meant that a

number of municipal jobs were available to workers, including socialists, who might otherwise be unable to find employment. (See pp. 255-61, Dale, Industrial History of Broken Hill & pp. 127-28, Blainey, The Rise of Broken Hill).

20 . Howard notes that the dismissal of the AMA's Arbitration application provoked little response in Broken Hill (p. 30, "A Study of Industrial Disputes in the Broken Hill Mining Industry..."). Pennay quotes BHP's general manager, Delprat, as telling his fellow managers at Broken Hill that "he had to place before his Board [i.e., the BHP Board of Directors in Melbourne], about the fifteenth application [for a wage increase] from the men on his mine since the expiration of the [1903] Arbitration Award" (p. 57, Pennay, "Industrial Disputes at Broken Hill...").

21 . Quoted on p. 58, Pennay, "Industrial Disputes at Broken Hill..."

22 . Pp. 33-34, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry..."

23 . The Combined Unions Committee included the AMA, the Silverton Tramways Employees Society, the Engine Drivers and Firemen's Association, the Mason and Bricklayers Society, the Iron and Brass Moulders Society, the Sailor Gang Union, the Boilermakers Union, the Amalgamated Society of Carpenters and Joiners, and the Amalgamated Society of Engineers. P. 59, Pennay, "Industrial Disputes at Broken Hill..."

24 . Pp. 3-4, Commonwealth Arbitration Reports, Vol. 3, 1909.

25 . Quoted on p. 64, Pennay, "Industrial Disputes at Broken Hill..."

26 . A change in tone noted by Howard, p. 36, "A Study of Industrial Disputes in the Broken Hill Mining Industry..." In 1908 the NSW government changed the arbitration system, replacing Wise's Industrial Arbitration Act with an Industrial Disputes Act. The change was bitterly opposed by unions, nowhere more vigourously than in Broken Hill. (p. 37, Howard, op. cit., & pp. 96-9, Rydon & Spann, New South Wales Politics, 1901-1910.) The Barrier Truth became Australia's first union-run labour daily in November, 1908, changing its name to the Barrier Daily Truth, under which name it still publishes. For details of its "launching," see pp. 144-45, Edward Stokes, United We Stand Impressions of Broken Hill 1908-1910 Recollections and photographs from the period, Canterbury: The Five Mile Press, 1983.

27 . The impact is obvious in the list of company dividends provided in Appendix 3, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry..."

28 . A point also made by Pennay, p. 61, "Industrial Disputes at Broken Hill..."

29 . See Graph 6 - 1, "BHP Ore Production at Broken Hill," appended to this chapter.

30 . Pp. 77-8, S. H. Prior, "Finance: the Investment Value of Broken Hill Mines," The Lone Hand The Australian Monthly, Vol. IV, No. 19, 2 Nov., 1908. For detail on Prior's career in Broken Hill, see p. 41, Kennedy, Silver, Sin, and

Sixpenny Ale.

31 . P. 78, Prior, op. cit.

32 . P. 4, Forty-sixth Half-Yearly Ordinary General Meeting of BHP shareholders, 28 Aug., 1908. As Osborne observes, "To a company with an unprofitable mine, the decision [to expand its zinc smelting facilities] probably necessitated economies in its mining operations." (p. 191, "Tom Mann: His Australasian Experience, 1902-1910"). Judge Higgins, at the 1909 Arbitration hearings, suspected that the capital expenditure needed to construct the nine new zinc furnaces was responsible for BHP's demand for a wage rollback (pp. 45-46, Graeme Osborne, "Town and Company: The Broken Hill Industrial Dispute of 1908-09," in John Iremonger, John Merritt and Graeme Osborne (eds.), Strikes Studies in Twentieth Century Australian Social History, Sydney, 1973). BHP's zinc furnaces used the Belgian process, on which see p. 154 above. Although BHP was proud of its smelting department at Port Pirie, W. S. Robinson, who took over operations there in 1915, regarded the smelters as "virtually useless." (p. 84, W. S. Robinson, If I Remember Rightly The Memoirs of W. S. Robinson, Melbourne: F. W. Cheshire, 1967, edited by Geoffrey Blainey; see also pp. 88-9, ibid.)

33 . P. 5, Report of Forty-Sixth Half-Yearly Ordinary General Meeting, 28 Aug., 1908.

34 . P. 32, Osborne, "Town and Company: The Broken Hill Industrial Dispute of 1908-09" & p. 16, Commonwealth Arbitration Reports, Vol. 3, 1909.

35 . P. 34, Osborne, "Town and Company: The Broken Hill Industrial Dispute of 1908-09." Osborne's dissertation devotes an entire chapter to Mann's work at Broken Hill in late 1908 and early 1909; see pp. 184-233, "Tom Mann: His Australasian Experience, 1902-1910." In 1981 Bill Eriksen, a young man in 1908, remembered Mann's impact at Broken Hill:

> Tom Mann was a good organiser, no doubt about it! Mann could sway you with his oratory. See, he was a renowned world orator.... he was a man with a very good flow of language and he had a wonderful delivery. One night I sat in Sulphide Street up by the baths and I could hear Mann right down at the Trades Hall. Those people were all very keen on organising the masses. See, the more you educate the people the more determined they are in their attitude.

(quoted on p. 188, Stokes, United We Stand.) Stokes' book contains marvellous pictures of the 1908-09 era at Broken Hill, several of which concern Mann: see pp. 188-89 & 198-201, op. cit.

36 . Both Howard and Pennay challenge this assumption, and argue that it was simply an organization opposed to the other unions (pp. 44-46, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry...;" p. 72, Pennay, "Industrial Disputes at Broken Hill..."). Osborne is more suspicious of the NPU (p. 33, "Town and Company: The Broken Hill Industrial Dispute of 1908-09"), while Kennedy reserves judgement (p. 103, Silver, Sin, and Sixpenny Ale). Dale's highly partisan account heaps abuse on the NPU, which of course does not prove that it was a "bogus union," but does reveal the depth of

antagonism that other unionists felt towards the organization (pp. 105-07, The Industrial History of Broken Hill).

37 . P. 12, CUC, Epitome of the Struggle, Broken Hill, 10 Aug., 1909, quoted on p. 103, Kennedy, Silver, Sin, and Sixpenny Ale. See also pp. 42-43, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry..."

38 . For the reputation of the Commonwealth court, as well as an account of is creation, see pp. 204-22, Rickard, Class and Politics, & pp. 170-204 of the same author's H. B. Higgins The Rebel as Judge, Sydney, 1984. Delprat certainly felt that the Commonwealth Court was prejudiced against employers; see p. 45, Osborne, "Town and Company: The Broken Hill Industrial Dispute of 1908-09," & pp. 159-60, Paquita Mawson, A Vision of Steel The Life of G. D. Delprat, C.B.E. General Manager of B.H.P. 1898-1921, Melbourne, 1958. Osborne argues that Mann was responsible for the strategy of appealing to the Commonwealth Court (pp. 33-4, op. cit.)

39 . See the accounts of Osborne, pp. 33-34, "Town and Company: The Broken Hill Industrial Dispute of 1908-09"; pp. 41-46, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry...;" & pp. 73-75, Pennay, "Industrial Disputes at Broken Hill." Delprat was particularly irate at the NPU collapse, which he accused of having "funked it." (quoted on p. 34, Osborne, "Town and Company: The Broken Hill Industrial Dispute of 1908-09") For his part, he busily moved guns onto the BHP property, making "all necessary preparations to stave off trouble at mine..." A week later, Delprat agreed with the BHP chairman that "in case of a strike no one should defend property unless police force there. Mistake [to] arm officers. Protest and limit to that." Entries in Delprat's diary, 19 Oct. & 25 Oct. 1908, Delprat Papers, MS 1630/15, National Library of Australia. Howard suggests that the entrenched anti-unionism of John Darling, BHP's chairman, may have been responsible for the company's hard line. (p. 58, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry...") This may well have been the case since in the negotiations of 1906 Delprat appeared much more amenable to compromise.

40 . P. 36, Osborne, "Town and Company: The Broken Hill Industrial Dispute of 1908-09."

41 . The view of the 1906 increase as a bonus was one held only by Delprat and BHP directors. In the words of Judge Higgins, who presided over the subsequent Commonwealth Arbitration case between BHP and the AMA, "In no possible light can it be called a "bonus".... It was expressly an increase of the rate of wages." (p. 16, Commonwealth Arbitration Reports, Vol. 3, 1909). Later writers have all agreed with Higgins' judgement.

42 . "This new agreement was signed by the Broken Hill South Company, the Sulphide Corporation, the North Broken Hill, the Broken Hill Junction North, the De Bavay Treatment, Block 14, Zinc Corporation, Broken Hill South Blocks, Broken Hill South Extended - in short, by all the principal companies in active operation, with the exception of the Proprietary Company and Block 10." (p. 17, Commonwealth Arbitration Reports, Vol. 3, 1909). Osborne states that Broken Hill Junction North stood by BHP (p. 38, "Town and Company: The Broken Hill Industrial Dispute of 1908-09"), but this is evidently a mistake; the Court would not be in error, but see also p. 104, Kennedy, Silver, Sin, and Sixpenny Ale & p. 48, R. H. B. Kearns, Broken Hill Volume 2 1894-1914 The

Uncertain Years, Broken Hill: Broken Hill Historical Society, 1974. A majority of Block 10's directors also sat on the BHP board (pp. 33 & 59, Leonard Samuel Curtis, The History of Broken Hill Its Rise and Progress, Adelaide: Frearson's Printing House, 1908). The British mine also supported Delprat and BHP.

43 . Quoted on p. 17, Commonwealth Arbitration Reports, Vol. 3, 1909.

44 . Pp. 20 & 34, Commonwealth Arbitration Reports, Vol. 3, 1909. Howard notes that this case was an important one for Higgins; more than a decade later, it was "the chief case cited in 'A New Province for Law and Order' in the analysis of the problems facing the arbitrator when the granting of the living wage threatens the continuance of an industry or a section of one." (p. 52, "A Study of Industrial Disputes in the Broken Hill Mining Industry...")

45 . Pp. 45-72, Commonwealth Arbitration Reports, Vol. 3, 1909. Two important clauses relating to hours of work at Port Pirie were disallowed, but in the words of one High Court Judge, "With regard to all the substantial portions of the Award which were in dispute, the Award stands." (p. 66, ibid.) Militants within the AMA later based their opposition to arbitration on this appeal: pp. 66-67, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry..."

46 . Osborne's two accounts of the strike are the best yet written (pp. 184-233, "Tom Mann: His Australasian Experience, 1902-1910" & "Town and Company: The Broken Hill Industrial Dispute of 1908-09") and form the basis of these remarks; Kennedy provides useful additional information, pp. 102-10, Silver, Sin, and Sixpenny Ale. The memories of Broken Hill's working people in Stokes' United We Stand add vivid evidence of the bitter legacy of the lockout: "Even now," said Les Crowe, "when I go through and think of some of the things that was done [in 1909] it still sticks in my gizzard." (p. 200, op. cit.)

47 . Tom Mann to R. S. Ross, 8 Jan., 1909, quoted on pp. 201-02, Osborne, "Tom Mann: His Australasian Experience, 1902-1910."

48 . From the Statement of Senior Constable Geo. Brown, Broken Hill, 14 Jan., 1909, "Re Meeting outside Trades Hall, Broken Hill, at 8 o'clock on Friday, 8th January, 1909," in NSW Attorney General - Special Bundles, "Remission of Sentences... Broken Hill Lockout, 1909," 5/7749.1, Archives Office of New South Wales. See also Mann's letter to Ben Tillett, 25 March, 1909, quoted on p. 217, Osborne, "Tom Mann: His Australasian Experience, 1902-1910." As Osborne emphasises, the 1909 dispute made a powerful impression on Mann, "an example of the vast potential strength of the working class when they combined in an industrial situation to demand their objectives..." (p. 202, op. cit.) Osborne also gives a good account of Mann's trial and subsequent acquittal (in spite of an extremely antagonistic judge); see pp. 219-23, op. cit.

49 . The notion of working class culture is, perhaps, over-used by contemporary historians, and as Ian McKay has pointed out, the concept itself is somewhat vague and imprecise ("Historians, Anthropology, and the Concept of Culture," Labour/Le Travailleur, 8/9 (Autumn/Spring 1981/82): 185-241, especially pp. 211-28). However, the reminiscences of Broken Hill's working people in Stokes' book offer numerous instances of what can only be described as a vital working class culture during this period; how else, for

example, can one characterise these memories of union parades?
"...we'd have the Eight Hours' Day procession in Argent Street, see? They used to have banners. Oh! They were lovely banners.... That was a great day!!" (Frank Bartley).
"It was a great thing to go to one of those processions, and then of course you'd go to the train to go to the picnic. I often wonder what became of those beautiful banners that they used to have. They were gorgeous things..." (Hilda Ferguson).
"The parades were very... spectacular! Course the unions would be there with their banners.... Very often you'd have a band in front of your banner and then your banner and then all your members behind the banner.... I done me share with the banner. There used to be a competition to see who could carry the banner you know? Everybody wanted to carry it.... Oh God! They were wonderful those processions." (Bill Eriksen)
All quoted on p. 140, United We Stand; see pp. 142-45 & 184-201, op. cit., for similar examples; also footnote 107, below, & the transcript of another interview with Frank Bartley, Folder 2, Item 10, Murray Walker Collection, MS 6750, National Library of Australia.

50 . Certainly many middle class non-participants supported the men; see for example the clergyman quoted by Osborne, p. 208, "Tom Mann: His Australasian Experience, 1902-1910."

51 . Quoted on p. 142, Stokes, United We Stand,

52 P. 2, Ern Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921," typescript, copy held by Charles Rasp Memorial Library, Broken Hill. See also the comments on pp. 123-27, Blainey, The Rise of Broken Hill & p. 114, Kennedy, Silver, Sin, and Sixpenny Ale.

53 . Pp. 2-3, Wetherell, op. cit,

54 P. 20, Commonwealth Arbitration Reports, Vol. 3, 1909.

55 P. 60, Helen Hughes, The Australian Iron and Steel Industry, Melbourne, 1964.

56 Geoffrey Blainey, on the other hand, is not persuaded that depletion forced BHP's move into steel: see p. 274, The Rush That Never Ended A History of Australian Mining, Melbourne: Melbourne University Press, 1978, third edition.

57 P. 4, Forty-third Half-yearly Ordinary General Meeting of BHP shareholders, 22 Feb., 1907.

58 Quoted on pp. 168-69, Mawson, A Vision of Steel,, In a speech describing BHP's steel works nearly a decade later, Delprat stated that "My only personal claim is that of having suggested the idea of steel works to my directors." (Speech before the Millions Club, 7 Oct., 1920, reported in Industrial Australian and Mining Standard, 14 October, 1920 & quoted on p. 255, Mawson, op. cit,) C. M. H. Clark sees the creation of BHP's Newcastle steel works as "the dawn of a new era in the history of Australia":

> The foundries of Newcastle would achieve what no amount of rhetoric and poetry had been able to accomplish: the material

> foundations for political and cultural independence. The flames belching from the top of the stacks would light up a new Australian identity: the Australia the young Henry Lawson, William Lane and Bernard O'Dowd had dreamed of would never come to be. The iron rail would finally destroy the bush culture, and lay material foundations which would generate their own mythology.

Pp. 415-16, Clark, A History of Australia V The People Make Laws 1888-1915, Melbourne, 1981. In a similar vein, Humphrey McQueen notes that "Broken Hill Proprietary commenced its iron and steel making at Newcastle on the eve of the landing at Gallipoli, thus providing another, and perhaps stronger, reason for claiming that Australia was born as a nation on 25 April 1915." (p. 185, "Shoot the Bolshevik! Hang the Profiteer! Reconstructing Australian Capitalism, 1918-21," in E. L. Wheelwright and Ken Buckley (eds.), Essays on the Political Economy of Australian Capitalism, Vol. 2, Sydey, 1978.) R. W. Connell and T. H. Irving also regard the establishment of the steel industry at Newcastle as one of the two "critical events in the genesis of industrial capitalism..." (p. 217, Class Structure in Australian History Documents, Narrative and Argument, Melbourne, 1980.)

59 The expert, David Baker, concluded his report on a very optimistic note:

> Having, therefore, suitable raw material in quality and quantity that can be assembled at low cost near an excellent market, it follows that your proposal to enter upon the manufacture of Steel in Australia, on a scale commensurate with the demand, must commend itself to you, inasmuch as, from the detailed figures I have worked out, it indicates, at a very conservative estimate, a promise of large profits.

Report of David Baker, 29 June, 1912, reprinted on p. 12, BHP circular to shareholders, 25 January, 1913.

60 P. 3, Report of Fifty-fourth Half-Yearly Ordinary General Meeting, 30 August 1912. The quotation in the text is from p. 1 of the same report.

61 P. 260, Roy Bridges, From Silver To Steel The Romance of the Broken Hill Proprietary, Melbourne: George Robertson & Co., 1920. To raise capital to meet construction costs, the company issued 240,000 new shares, at 40/- per share, although the nominal value remained 8/-. BHP shareholders could purchase one new share for every four they owned. (Detail from p. 2, BHP circular to shareholders, 25 January, 1913.) Later the Commonwealth Bank underwrote £ 1,000,000 in debenture issues. (P. 68, Hughes, The Australian Iron and Steel Industry; see also p. 2, Sixty-first Half-Yearly Ordinary General Meeting, 25 Feb., 1916.)

62 In a letter dated 13 May, 1912, & quoted on p. 66, Hughes, The Australian Iron and Steel Industry; also on p. 229, Evatt, Australian Labour Leader.

63 P. 61, Hughes, The Australian Iron and Steel Industry.

64 P. 65, Hughes, op. cit.

65 Pp. 65-66, Hughes, op. cit.

66 Pp. 66-67, Hughes, op. cit., & p. 84, Loveday, "New South Wales," in Murphy, (ed.) Labor in Politics.

67 P. 66, Hughes, The Australian Iron and Steel Industry. Evatt described the letter as "a typical letter in which he politely but definitely pointed a pistol at the Government's head." (p. 229, Evatt, Australian Labour Leader.)

68 P. 67, Hughes, The Australian Iron and Steel Industry. Connell and Irving characterise this aid as "massive state assistance" (p. 217, Class Structure in Australian History.)

69 P. 230, Evatt, Australian Labour Leader.

70 See p. 84, Loveday, "New South Wales," in Murphy, (ed.) Labor in Politics; p. 231, Evatt, Australian Labour Leader; & pp. 67-68, Hughes, The Australian Iron and Steel Industry.

71 P. 84, W. S. Robinson, If I Remember Rightly.

72 P. 44, Geoffrey Blainey, The Steel Master A Life of Essington Lewis, Melbourne: Macmillan, 1971. Typical of the Chairman's remarks at the various Half Yearly meetings was Duncan McBryde's disinterested observation in early 1916: "At the Mine nothing of any importance has occurred, except some labor troubles..." (p. 2, Sixty-first Half-Yearly Ordinary General Meeting, 25 Feb., 1916.)

73 P. 164, Frank Carrigan, "The Imperial Struggle for Control of the Broken Hill Base-Metal Industry, 1914-1915," in E. L. Wheelwright and Ken Buckley (eds.), Essays in the Political Economy of Australian Capitalism, Vol. 5, Sydney, 1983. By 1913, "of 433,100 tons of Australian zinc concentrates mined, 134,750 were destined for Germany, 234,500 for Belgium, 29,100 for France, 25,050 for Holland and only 9,700 tons for Britain." (p. 18, E. J. Cocks and B. Walters, A History of the Zinc Smelting Industry in Britain, London, 1968.) In the same year, Australian smelters "produced only 122,000 tons of metallic lead, or less than half as much lead as European smelters extracted from Broken Hill's concentrates." (pp. 78-79, Blainey, The Rise of Broken Hill.) Cocks and Walters provide a good description of the stagnation of the British smelting industry in the late nineteenth century and effectively refute Blainey's suggestion that German control of the zinc smelting industry was simply a function of "cheap coal and cheap labour." (p. 79, Blainey, op. cit.)

74 A statement made by Hughes in October 1915, and quoted on p. 19, L. F. Fitzhardinge, The Little Digger 1914-1952 William Morris Hughes A Political Biography Volume II, Sydney, 1979. Hughes became Australian Prime Minister that month, succeeding Andrew Fisher; both were Labor. Hughes was expelled from the ALP at the end of 1916, over his support for conscription, but remained in office until 1923. As Hughes suggested, Germany's technological edge had implications beyond Australia. In the words of one distinguished British metallurgist,

> It is difficult now to recall the shock which the First World War gave this country. It suddenly awakened to realize

> the neglect by many of our industries of the application of science, and the serious position we were in when cut off from German supplies. ... I myself vividly remember how we were handicapped in the supply of non-ferrous metals, owing to the German control of their sources, even in countries of our own Empire...

(P. 65, R. S. Hutton, Recollections of a Technologist, London, 1964.) Note also the comments of W. S. Robinson, p. 93, If I Remember Rightly.

75 The three companies were North Broken Hill, Broken Hill South and the Zinc Corporation; in addition, Almagamated Zinc (De Bavay's), a Broken Hill treatment company, was based in Collins House. For detailed discussions of the group, see pp. 76-89, Peter Cochrane, Industrialization and Dependence Australia's Road to Economic Development, 1870-1939, St. Lucia, 1980, and Peter Richardson, "The Origins and Development of the Collins House Group, 1915-1951," Australian Economic History Review, Vol. 27, No. 1, (March 1987): 3-29. The memoirs of W. S. Robinson, a key personality within Collins House, also provide useful information on the group's early development; see If I Remember Rightly, passim. The name of the associated companies, the Collins House group, derives from a common address within "the building of the same title situated at 360-366 Collins Street in the financial district of Melbourne." (p. 6, Richardson, op. cit.)

76 P. 8, Richardson, "The Origins and Development of the Collins House Group, 1915-1951"; pp. 85-86, W. S. Robinson, If I Remember Rightly & pp. xliii-xliv, speech by Baillieu, Transactions of the Institution of Mining and Metallurgy, Vol. XXXVIII, 1928-1929.

77 P. 88, W. S. Robinson, If I Remember Rightly. Similarly Baillieu remarked that "When the War broke out on 4th August, 1914, the production of [Broken Hill's] zinc concentrates was unsaleable, and the great bulk also of the lead concentrates." (p. xliii, Transactions of the Institution of Mining and Metallurgy, Vol. XXXVIII, 1928-1929.)

78 P. 89-90, Robinson, op. cit.

79 Pp. 94-97, Robinson, op. cit.; pp. 13-84, C. D. Kemp, Big Businessmen Four Biographical Essays, Melbourne, 1964; & typescript autobiography of H. W. Gepp, Gepp Papers, MS 1632/2, National Library of Australia. Note also the comments on pp. 83-84, Cocks and Walters, A History of the Zinc Smelting Industry in Britain & pp. 279-80, Blainey, The Rush To Be Rich. The Tasmanian background, emphasising the role played by the state government, is discussed by John Reynolds, "The Establishment of the Electrolytic Zinc Industry in Tasmania," Tasmanian Historical Research Association, Papers and Proceedings, Sept., 1957, pp. 26-35. For a technical description of the Risdon plant, see pp. 204-28, O. H. Woodward, A Review of the Broken Hill Lead-Silver-Zinc Industry, editied by K. P. W. Parsons, Sydney: West Publishing Corporation, 1965, second edition.

80 P. xlii, Transactions of the Institution of Mining and Metallurgy, Vol. XXXVIII, 1928-1929. The quotation in the text is from p. xiv, ibid., Vol. XXXIII, 1923-1924.

81 Details in this paragraph are drawn largely from Howard's "A Study of Industrial Disputes in the Broken Hill Mining Industry," especially pp. 62-79.

82 The minimum wage was to rise from 8/7 1/2 to 9/6; see pp. 142-43, Dale, Industrial History of Broken Hill. It is clear from Dale's account of the negotiations that "the militant section" and the executive opposed the companies' offer.

83 The vote was 1504 to accept, 892 to reject, the offer; this was in January, 1911. A second vote was held in March, asking unionists if they were prepared to accept a four and a half year agreement. This also was accepted, 1332 in favour, 879 against. (p. 62, Howard, "A Study of Industrial Relations in the Broken Hill Mining Industry.")

84 P. 65, Howard, op. cit. See also p. 119, Kennedy, Silver, Sin, and Sixpenny Ale. Howard notes that "Reading the union's correspondence files for the years 1911-12, one is struck particularly by the depth of feeling which still remained from the events of the 1909 dispute. Hostility to the part played by the police and scepticism towards the efficacy of arbitration are its keynotes." (op. cit.)

85 However, BHP did re-open its mine in 1911, agreeing to observe the same wage rates and conditions as other companies. (P. 63, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry.")

86 See pp. 66-67, Howard, op. cit., & pp. 149-50, Dale, Industrial History of Broken Hill. Howard points out that "The whole affair marked a further reverse for the extreme militants." (ibid.)

87 15 & 16 May, 1912, Barrier Miner. The vote was 1124 in favour of retaining the Defence Act, 956 against. The Act made military drill compulsory for young men; a Broken Hill parent refused to allow his son to drill and was subsequently prosecuted. The AMA executive helped Giles in various ways during the course of his court case: see 12, 13 & 15 April, 1912, Barrier Miner; pp. 116-17 & 119, Kennedy, Silver, Sin, and Sixpenny Ale; & p. 59, Kearns, Broken Hill Volume 2, 1894-1914. For a discussion of the Defence Act, see pp. 84-87, Russel Ward, The History of Australia The Twentieth Century, New York, 1977.

88 The Barrier Labor Federation was largely dominated by the AMA, whose members formed 75% of the total membership. See the testimony of A. J. Turner, p. 417, 30 July, 1914, Royal Commission on Mining Industry at Broken Hill in the State of New South Wales.

89 P. 15, chapter 1, Ern Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921." See also Kennedy's thoughtful discussion of "the underlying group attitudes, beliefs and prejudices that were sustained and fostered during the campaign", pp. 120-22, Silver, Sin, and Sixpenny Ale; & pp. 152-58, Dale, Industrial History of Broken Hill.

90 P. 115, Minutes of Meeting of 14 March, 1913, Broken Hill Mining Managers' Association Minute Book, Volume 5.

91 Pp. 210 & 218, Minutes of Special Grievance Committee Meeting, 2 April,

1913, op. cit.

92 P. 209, Minutes of Special Grievance Committee Meeting, 2 April, 1913, op. cit.

93 Testimony of W. D. Barnett at 1914 Royal Commission, quoted on p. 120, Kennedy, Silver, Sin, and Sixpenny Ale.

94 See pp. 150-51, Dale, Industrial History of Broken Hill & p. 9, chapter 1, Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921." Dale hints that a possible motive for this campaign was the sheer cost to the union of paying out benefits to injured miners. In addition, the "long agreement" (of four and a half years' duration) meant that formal negotiations would not start again until early 1915; this possibly encouraged the AMA to focus greater attention on issues of health and safety.

95 P. 124, Kennedy, Silver, Sin, and Sixpenny Ale & pp. 129-31, Blainey, The Rise of Broken Hill.

96 The statistics on the Dec. 18, 1911 stop work were:

83% of miners absent
62% of truckers "
72% of mullockers "
27% of "others" "
30% of millmen "
15% of surfacemen "

(P. 488, Broken Hill Mining Managers' Association Minute Book, Volume 4.)

97 Pp. 174-76, Dale, Industrial History of Broken Hill & pp. 80-81, Howard, "A Study of Industrial Disputes in the Broken Hill Mining Industry."

98 Ern Wetherell explained the importance of the reduction in working hours to miners:

> This claim for a shortened week meant the gaining of a half-holiday on Saturday, the day of sport, particularly of football which had a most enthusiastic following. Three shifts were worked in rotation so that only one Saturday in three was available for workers to enjoy their sport.

P. 6, Chapter 2, Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921." The importance of recreation time on Saturdays may also be detected in the testimony of a miner at a 1901 Royal Commission. The man was fired after missing one too many Saturday afternoon shifts, which he did in order to play in a brass band. See the testimony of T. Lawson, 1 July, 1901, especially # 1433-1441, p. 51, Royal Commission to Inquire into the Fatal Accident which took place at the Broken Hill South Mine, Broken Hill, on the 24th May, 1901..."

99 For Higgins' disapproval, see pp. 182-85, Commonwealth Arbitration Reports, Vol. 10, 1916. On the general topic of Higgins' changing conception of his role as President of the Arbitration Court, see Humphrey McQueen's "Higgins and Arbitration," pp. 145-63, in E. L. Wheelwright and Ken Buckley (eds.), Essays on the Political Economy of Australian Capitalism, Vol. 5, Sydney, 1983.

100 P. 182, Dale, Industrial History of Broken Hill. This AMA vote came on October 2, 1915.

101 P. 7, Chapter 2, Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921." Dale and Wetherell were both members of the militant group. Although their work needs to be treated with caution, and plainly cannot be accepted as impartial, both narratives provide excellent accounts of the sense of the times, written by people who participated in the events described. Frances Mortimore's pamphlet, The Inland Island, Sydney, 1917, is another useful "snapshot" of Broken Hill during the war years. A school teacher, Mortimore spent two years on the Barrier before being forced out of her job as a result of her anti-conscription activities; she left Broken Hill in December 1916.

102 M. P. Considine, speaking at a mass meeting on 11 January, quoted in 12 Jan., 1916, Barrier Daily Truth. For accounts of the strike, see pp. 11-29, Chapter 2, Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921"; pp. 192-206, Dale, Industrial History of Broken Hill.

103 As will be seen below, this was not the last strike on the Barrier, but, in Wetherell words, "later strikes were not threatened by any influx of men ready to take the place of the strikers." (p. 15, Chapter 2, Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921.")

104 Pp. 21-23, Chapter 2, Wetherell, "Industrial History of the 'Stormy' Years of 1910-1921" & pp. 182-83, Commonwealth Arbitration Reports, Vol. 10, 1916.

105 P. 136, Kennedy, Silver, Sin, and Sixpenny Ale.

106 "It is a thousand times better to be a traitor to your king than to your class," declared one anti-conscriptionist; he was subsequently charged with abusive language for the speech. (19 Sept., 1916, Barrier Daily Truth.) For other examples of opposition to conscription articulated in explicitly class terms, see 4 Sept., 1916, Barrier Daily Truth. The militants' ability to maintain their leadership of the anti-conscription movement despite serious differences with other more moderate elements within Broken Hill's labour movement is discussed by G. R. LeDuff, "Factions in the Labour Movement in Broken Hill 1914-1919: With Particular Reference to the Conscription Issue," BA (Hons) thesis, Flinders University, 1969, especially p. 61. For a more general discussion of the conscription crisis and the Australian labour movement, see pp. 97-121, Turner, Industrial Labour and Politics.

107 24 July, 1916, Barrier Daily Truth. Dale describes how during the campaign "A piano was taken on a trolley each evening, and after Harry Kelly, with his band of L.V.A. songsters, had rendered the "Red Flag," "Solidarity Forever," "Should I Ever Be A Soldier," etc., militant speeches were delivered against Conscription." (pp. 219-20, Dale, Industrial History of Broken Hill.) Such singing played a prominent role in Broken Hill throughout this period. During the "big strike" of 1919-20, for example, one leading participant described how

> ...they used to have concerts, all the people used to go along to hear the artists that were on a voluntary basis.... Sometimes there'd be singing, sometimes a dance, not very

> often a dance; it always catered for the people who had no ability to do anything, the bottom strata of people and the result of that was a lot of union songs were sung, almost revolutionary songs. "Should I ever be a soldier" was the title of one. Should I ever be a soldier beneath the red flag I will fight, see, that's socialism. Another one, "Join the one great union grand", songs like that. You'd hear men singing those songs, they'd pick them up there and go anywhere and meet them and they'd be humming away at the songs themselves...

(Interview with Mr. Carragher, 12/3/1970, pp. 11-12, appendix to Barbara Hammond, "The Origins and Course of the Broken Hill Strike 1919-20, The Spuds and Onions Strike," BA (Hons) thesis, University of Melbourne, 1970.)

108 19 & 26 September, 1916, Barrier Daily Truth. For a discussion of the context and impact of the conscription campaign across Australia, see Michael McKernan's The Australian People and the Great War, Sydney, 1984, passim.

109 See the accounts of Dale and Wetherell, both of whom spoke at the mass rally that evening: p. 16, Wetherell, chapter 3, "Industrial History of the 'Stormy' Years of 1910-1921" & pp. 220-22, Dale, Industrial History of Broken Hill.

110 The strike at Broken Hill lasted from 20 August to 6 October. For the causes and course of the wider dispute, see Dan Coward, "Crime and Punishment: The Great Strike in New South Wales, August to October 1917," pp. 51-80, in John Iremonger, John Merritt and Graeme Osborne (eds.), Strikes Studies in Twentieth Century Australian Social History, Sydney, 1973, & pp. 139-61, Turner, Industrial Labour and Politics.

111 Typescript report on "Broken Hill Mines," in file on "Labour Difficulties - Port Pirie and Broken Hill", Prime Minister's Department, Correspondence files, Secret and Confidential series, first system, CRS A2939, Item SC 298, Australian Archives - Canberra. Turning off the boilers, that is, the steam engines that provided the mines' power, effectively shut down the mines' systems of access, ventilation and drainage. Shorty O'Neill, a prominent unionist, admitted that this demonstration of union muscle got out of hand: "they pulled a fellow off the big mine and tried to hang him coming down..." (p. 8, interview in appendix, Hammond, "The Origins and Course of the Broken Hill Strike 1919-20.") See also pp. 234-35, Dale, Industrial History of Broken Hill.

112 Telegram of Peake to Prime Minister, 24 Aug., 1917, in "Labour Difficulties - Port Pirie and Broken Hill" file, op. cit. All material in this file concerns the 1917 sympathy strike, and indicates how closely the federal Cabinet followed events at Port Pirie and Broken Hill. When this telegram was received, for example, the good news was phoned through to the prime minister's house. (Annotation on telegram.)

113 See 24 Aug., 1917, Barrier Daily Truth & pp. 235-37, Dale, Industrial History of Broken Hill.

114 3 Sept., 1917, Barrier Daily Truth. In all, 32 men were sentenced to six

months hard labour, for belonging to an unlawful association (the IWW). For a discussion of the political events leading up to the suppression of the IWW at Broken Hill, see pp. 157-59, Frank Cain, The Origins of Political Surveillance in Australia, Sydney, 1983; see also Ian Turner, Sydney's Burning, Melbourne, 1977, passim.

115 Circular letter of Colin Fraser, 7/11/1917, in "What is wrong with Broken Hill?" file, Broken Hill Mining Managers' Association. At the time Fraser was joint managing director of the Broken Hill Associated Smelters.

116 James Hebbard, manager of the Central Mine (13 Nov., 1918, Barrier Miner). Several days later the Barrier Daily Truth reported that a group of soldiers assaulted those they found wearing red ribbons (15 Nov., 1918, op. cit.); this however was swiftly followed by a parade of unionists through town, presumably to demonstrate that they would not be intimidated by violence. This was on a Thursday; on the following Sunday, uniformed soldiers attended a Labor meeting where they mounted the platform and sang "The Red Flag," "the crowd enthusiastically joining in." (18 Nov., 1918, Barrier Daily Truth.) Carragher, a prominent AMA activist in 1918-19, remembered that "When the soldiers were coming back the middle class of Broken Hill thought ... they would get the soldiers onto the miners.... this middle class, now the soldiers were coming back, they began to feel that they were in a stronger position to stand out and criticise the agitators of Broken Hill..." (pp. 3-4, interview in appendix, Hammond, "The Origins and Course of the Broken Hill Strike 1919-20.") Note also the comments on p. 148, Kennedy, Silver, Sin, and Sixpenny Ale.

117 I am indebted to Hammond's very useful appendix to her study of the 1919-20 strike, which provides a "Tabular Analysis of Responses to Fraser's Circular "What's Wrong With Broken Hill" - Problems and Remedies." (Hammond, "The Origins and Course of the Broken Hill Strike 1919-20.")

118 Emphasis in the original. Both replies are in "What is wrong with Broken Hill?" file, Broken Hill Mining Managers' Association. As Kennedy notes, "Several of the contributions to the inquiry, "What is wrong with Broken Hill?", were substantial essays in their own right and revealed a hitherto rare capacity for social analysis and self-scrutiny on the part of company managers." (p. 145, Kennedy, Silver, Sin, and Sixpenny Ale.)

119 For a succinct statement of the union's demands, see the four page typescript submitted to the prime minister by an AMA delegation on 29 Sept., 1919, in "Industrial - Broken Hill Trouble, 1919" file, Prime Minister's Department, General Correspondence File, Annual Single Number Series, CRS A2, Item 20/634, Australian Archives - Canberra.

120 Kennedy provides much useful detail on this topic: see pp. 124-27, 149-57 & 165-74, Silver, Sin, and Sixpenny Ale and pp. 49-70, A Tale of Two Mining Cities Johannesburg and Broken Hill 1885-1925, Melbourne, 1984.

121 P. 544, Cumpston, "Health and Disease in the Broken Hill Mining Industry"; p. 1, "Report of the Technical Commission of Inquiry Appointed upon the Recommendation of the New South Wales Board of Trade to investigate the Prevalence of Miners' Phthisis and Pneumoconiosis in the Metalliferous Mines at Broken Hill," Parliamentary Papers, Vol. 2, Legislative Assembly, New South

Wales, 1921.

122 Several such views are quoted on p. 152, Kennedy, Silver, Sin, and Sixpenny Ale. As one mining company official put it, "Dust arising from the sulphide ore of Broken Hill ... is comparatively innocuous..."

123 P. 165, Kennedy, op. cit.

124 "Broken Hill Strike - Statement By The Companies," 7 page typescript, May, 1920, In "Industrial - Broken Hill Trouble, 1919" file, Prime Minister's Department, General Correspondence File, Annual Single Number Series, CRS A2, Item 20/634, Australian Archives - Canberra.

125 Pp. 186-89, Wetherell, "Industrial History of the "Stormy" Years of 1910-1921."

126 For an account of the tribunal's sittings, see pp. 190-203, Wetherell, op. cit.

127 Although originally a Labor member, Brookfield had become the sole parliamentary representative of the diminutive Industrial Labor Party. Turner's Industrial Labour and Politics, passim, sheds light on the somewhat convoluted politics of this period.

128 Pp. 194-97, Wetherell, "Industrial History of the "Stormy" Years of 1910-1921."

129 P. 209, Wetherell, op. cit, Similarly, Kennedy points out that "Infantile mortality jumped from 99 per 1000 births in 1918 to 147 per 1000 in 1919.... the union newspaper cursed the companies as 'baby-killers'." (p. 164, Kennedy, Silver, Sin, and Sixpenny Ale).

130 For a discussion of these acts and the mechanics of their operation, see Malcolm R. Finlayson, "Industrial Diseases and Medical Examination of Broken Hill Mine Employees," Health, Vol. III, No. 4, (July, 1925): 101-07.

131 The two most useful chronicles of the history of post 1919 industrial relations at Broken Hill are pp. 77-135, Walker, Industrial Relations in Australia & B. Maughan, "Review of Industrial Negotiations 1920-1946," typescript, Broken Hill, 1947, copy held by Broken Hill Mining Managers' Association.

132 Pp. 96-96, Walker, Industrial Relations in Australia.

133 Pp. 3-4, Wetherell, "Introduction," "Industrial History of the "Stormy" Years of 1910-1921."

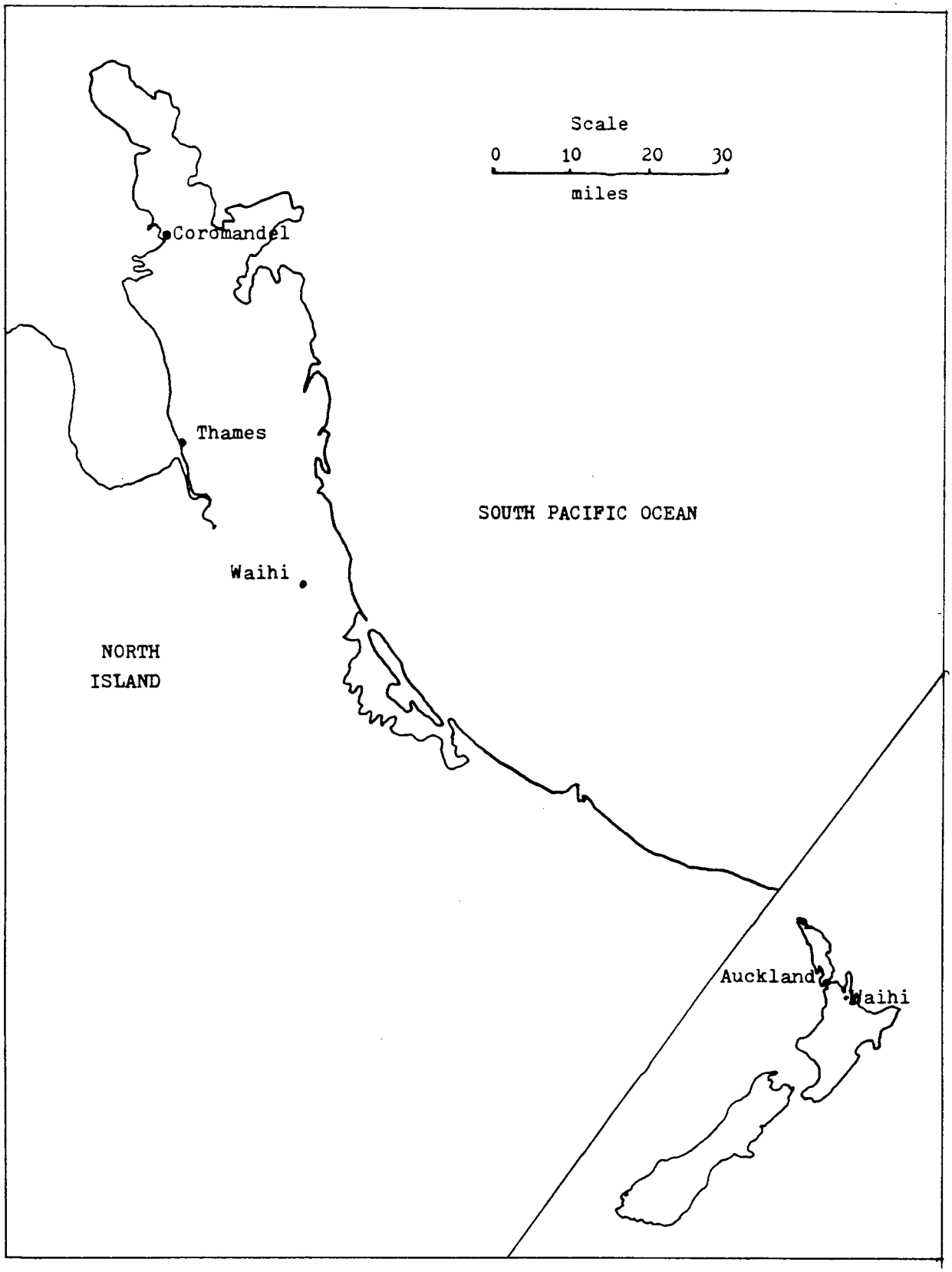
VII

Waihi, The Early Years

After wandering in the barren, sandy deserts of Western Australia, where every knoll of rock is visible in its bald nakedness for miles around, rising like a lonely island in the miserable landscape, and every tree and tuft of grass seems to share in the general sadness of that thirsty land, how great a delight to find oneself transported to this charming island! There are no wild animals, snakes, or scorpions in New Zealand, and life has everything in its favour....

...the Hauraki peninsula... remains a splendid field for the prospector and the mining engineer to open up.... and it can be confidently asserted that before many years are past, with the help of British skill and capital, this will prove one of the most valuable goldfields in our colonies.[1]

Waihi is the most favourably situated of the three mining areas examined here. Just over one hundred kilometres southeast of the urban centre of Auckland, on the North Island of New Zealand, it enjoys a moderate climate, experiencing neither Rossland's bracing winters nor the scorching summer heat and periodic droughts of Broken Hill. The town is less than a hundred metres above the level of the nearby Pacific Ocean and the rolling hills and farmland which surround it are in marked contrast with Rossland's position in the Western Cordillera and the saltbush scrub and plains of the Barrier. While Rossland remains a dormitory suburb of the neighbouring smelter city of Trail, and Broken Hill mines continue to produce ore, present-day Waihi possesses few ties to its mining past.[2] Nonetheless its history as a gold mining centre is a rich one, and during the early years of this century its principal mine was regarded as one of the world's finest.[3]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Auckland
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Waihi's progress to this position was neither easy nor assured; indeed, of the three communities, its development was the most hesitant, a consequence of the refractory nature of its ore. Like Broken Hill and Rossland, however, its discovery and gradual expansion reflected the growth of mining within a larger regional context. This chapter examines these years at Waihi: the process of discovery, the efforts to establish companies based on its ore deposits and the eventual ascendancy of the Waihi Gold Mining Company. Such a chronicle must begin in the 1850s, with the impact of the Australian gold rushes on New Zealand.

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The mid-nineteenth century gold rushes attracted people on an unprecedented scale. These egalitarian stampedes were distinct from many earlier and later mass events in that they reflected neither religious nor patriotic fervour. The essential and distinguishing feature of a gold rush was simply the number of people who participated: people aware of the potential significance of a gold discovery, confident of its existence in a given area, and with faith in their ability not only to travel to the point of the alleged discovery but also to mine the precious metal successfully upon arrival. Since placer mining required only inexpensive tools and an elementary grasp of straightforward alluvial mining techniques, few barriers other than distance blocked participants. The attraction of a gold field was compelling. Material advancement was, after all, the raison d'etre of many a colonist and the perceived opportunity of a gold rush was difficult to resist.[4]

Many New Zealanders crossed the Tasman in 1851 to take part in the Australian gold rush. The exodus threatened to reach alarming proportions and authorities began to ponder strategies to hold colonists at home. To some, the

ideal solution to the problem of imminent de-population would be to discover a local gold field. It was with this thought in mind that a group of Auckland notables offered to pay £500 to any who could locate a payable gold field within reach of their community.[5] In October 1852, the reward was claimed by Charles Ring, who had found gold on the Coromandel Peninsula east of Auckland. After hurried negotiations with the Maoris of the area arranged a system of compensation, the Waiau valley was declared a gold field.[6] Those attracted to the field were soon disappointed: they found little alluvial gold and were discouraged from careful prospecting by high license fees. Interest in the area quickly declined, and would-be miners were later diverted by news of the South Island gold discoveries.

There was gold in Hauraki, however, both on the Coromandel Peninsula and south in the area around Thames. Its exploitation simply called for different methods than those of the placer miner. The Hauraki's gold occurred principally in quartz reefs. Mining such gold needed far more sophisticated equipment than the convenient placer deposits of water-borne gold. Instead of simply having to separate native gold from sand or gravel, hard rock miners needed to carry out a multitude of complex tasks. Reflecting on this contrast between placer mining and hard rock mining, a mining engineer commented in 1892 that

> When it is possible, as it was in New Zealand, to pick gold with a knife out of the rocky crevices of a river-bed, and save it in a pannikin, people will not spend time and money on long tunnels and deep shafts through hard ground. Gradually the gold that requires merely picking up becomes exhausted; the days of tin dishes and cradles passes away, and these primitive appliances give way to engineering works of great magnitude and cost, and to the employment of large numbers of day labourers, working for influential companies under competent management.
> ... every year brings about conditions under which the individual miner must give way before the organized efforts of capitalists.[7]

As the extract suggests, hard rock mining needed capital, and almost all quartz mining was carrried out by companies. The Hauraki fields were no exception.

The Hauraki goldfields' first mining companies appeared in the early 1860s, to work the Kapanga quartz deposits on the Coromandel peninsula. These met with only limited success, however, and uneasy relations with the Hauraki Maoris during the Waikato war of 1863 further dampened enthusiasm for the field.[8] Four years later prospectors located the first of the rich Thames quartz deposits. The Director of New Zealand's Geological Survey put the date of first discovery at 1865,

> but it was not until 1867 when overtures had been made to the natives, who were inclined to be unfriendly, that the area was thrown open for mining. In August of the same year, four prospectors ... discovered a reef of great richness in Kuranui Creek, an event which brought thousands of gold seekers and gave the necessary impetus to the staking of claims far and wide... [9]

This was particularly welcome news for Auckland, as the city was experiencing a sudden depression following the conclusion of the Maori Wars. Economic recovery came swiftly: "The ensuing gold rush cleared the city's soup kitchens of unemployed and helped to confer prosperity on the whole of the North Island."[10] The Thames goldfield, however, was not one that offered much opportunity to the urban unemployed. A few lucky prospectors profited from their discoveries, but companies and capital were the necessary elements to wrest the gold from the ground.[11]

A number of the Thames mines returned handsome, if short-lived profits to their owners. The most spectacular of these was the Caledonian, producing a phenomenal ten tons of gold in twelve months, during 1870-1871. These two years marked the peak production of the Thames field; gold production subsequently dropped sharply and mining did not recover its premier position.[12]

Despite its brief duration, the Thames boom had important consequences, particularly for the Auckland business community. Thames became the city's "speculative outpost," and from its prosperity came "a tightly-knit elite group with finesse in company promotion and control [and] a much larger group prepared to follow the elite's lead."[13] Thomas Russell, a forty year-old lawyer/politician/financier, emerged from the boom as the "unchallenged leader of the Auckland business community."[14]

During the mid-1870s, the Thames field's slow decline led ever-hopeful prospectors to speculate on the chances of finding other bonanzas. The area south east of Thames, the catchment of the Ohinemuri River, was widely believed to be auriferous, but Maoris continued to resist any incursions by gold seekers. Pressure mounted to force the opening of the area to prospectors. In early 1875 James Mackay, Commissioner for the area, was able to take advantage of differences within the Ngati Maru and persuaded a majority of chiefs to grant Europeans prospecting rights in the Ohinemuri, in exchange for financial compensation.[15] Twenty years later, William Pember Reeves described the scene as the first hopeful Europeans were permitted into the area:

> When on March 3rd of that year [1875] the Gold-fields' Warden declared Ohinemuri open, the declaration was made to an excited crowd of hundreds of prospectors, who pushed jostling and fighting around the Warden's table for their licenses, and then galloped off on horseback across country in a wild race to be first to "peg out" claims.[16]

Despite high anticipations, the rewards were at first slender indeed. There was no payable alluvial gold to be found, and the quartz deposits did not measure up to the rich patches which had characterised the Thames field. Men soon left the area as quickly as they had arrived.

Prospecting continued in the Ohinemuri, but in a desultory fashion. In February 1878 two prospectors, J. McCombie and Robert Lee, travelled into the region, close to the present site of Waihi.[17] They stopped by a small stream and found that they could get "colour," small specks of gold, by panning the gravel. A quartz outcrop was clearly visible on the hill on the far side of the creek; this, they speculated, was the source of the gold. They made their way up the hill, and were impressed by what they saw:

> As the outlook was generally more promising than anything previously encountered during our prospecting tour, we decided to pitch our camp and give the outcrop a trial.[18]

For almost a year the two men worked on their claim, despite the opposition of local Maoris. They drove a tunnel into the hill, intersecting a quartz lode nearly six metres wide. Samples from this ore body gave an assay value of just over an ounce of gold per ton, as well as three ounces of siver.[19] A trial crushing of two tons of ore was disappointing, however, returning only 35% of this assay value. McCombie and Lee tried to interest investors in the property but without much luck:

> The whole concern was reported upon most unfavourably by everyone who paid the place a visit and who considered themselves authorities on the subject of gold and silver mining. Briefly, all the leading experts, acting on behalf of capitalists, politely informed us that they could not conscientiously advise their principals to put up any money for development, and that no one but an enthusiastic optimist would have anything further to do with it.[20]

When the two men heard of a gold strike at Te Aroha, they decided to abandon the claim.

William Nicholl visited the area not long after McCombie and Lee's departure and like them, he was impressed by the potential value of the Waihi ore.[21] After spending two weeks exploring the western side of the hill, Nicholl

pegged out a five acre claim which he named the "Martha." He registered it at the government office in Thames and set about opening up the property with the help of a working partner. Nicholl's efforts attracted the attention of other miners, and several additional claims were staked alongside the Martha. In his reminiscences, Nicholl describes how a group of "mining magnates" visited the property and persuaded him and his partner to enter into an agreement, duly signed at a nearby pub. In exchange for a third share of the mine, the three magnates would erect crushing equipment once the two miners had put in a sixty-five metre tunnel. However, when the tunnel was completed, the businessmen decided against taking up their option. This was repeated a second time: an Auckland businessman visited the claim and offered to float a company for a third share in the mine. He was unable or unwilling to do this, and his option lapsed. Finally Nicholl and his partner found a group of more determined Auckland businessmen, and a company was successfully floated to work the claim.

The Martha company was formed in 1881, and in May 1882 a crushing plant of fifteen stamps began operations on the property.[22] Problems soon arose: the plant had been poorly located, without a reliable supply of water, and the ore proved difficult to treat. As a result, operations continued only intermittently. The Martha amalgamated with a number of adjoining claims in 1883 to form the Martha Extended Company, and the crushing plant was subsequently moved to a more favourable location, a little under two kilometres to the south. Unfortunately for the shareholders, operations remained unprofitable, largely as a result of losses in the treatment process. The ore itself was quite valuable, but only a fraction of its mineral content could be extracted. The government mining engineer reported in 1887 that

> The loss in crushing this class of ore with the ordinary

> battery process is something enormous.... It is quite disheartening to the owners of these claims to know that they have a valuable property and cannot extract the metals from the ore. They are now making themselves acquainted with the mode of assaying and ascertaining its value, but are yet unable to get a cheap method of treatment. [23]

During the years of its operations in the mid and late 1880s, the Martha Extended crushed some 20,000 tons at an average value of 14/- per ton.[24] Such returns did not provide a sufficient margin of profit, and so the Martha Extended ceased its mining operations and let the mine out on tribute, that is, allowed a party of individuals to work the mine for a percentage of the output.[25] In the late 1880s, the future of Waihi looked bleak, its mining ventures having been a succession of failures.

Some mining had also been done on nearby Silverton Hill, a kilometre east of Martha Hill. These claims had produced very little ore by the late 1880s and their chances of survival seemed no better than the Martha Extended. Despite such poor prospects, several of these properties were sold in 1887 to a London-based mining company, the Waihi Gold Mining Company. Given the Martha's history, the purchase was a curious one: if anything, the Silverton claims were less likely to prove payable. It is necessary to look beyond the Waihi district's ore deposits to understand the floating of the London company.

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The Waihi Gold Mining Company was launched in London in late 1887, during a wave of British investment in colonial mining companies.[26] The initial impetus for this largely speculative activity was the Colonial and Indian Exhibition which the Queen opened in May, 1886. The Queensland court at the "Colinderies" featured a fully operational crushing plant, noisily reducing a

hundred tons of rich quartz supplied by four of the Colony's gold mines. Such a graphic demonstration of hard rock mining had a considerable impact, as Geoffrey Blainey has described:

> The novel display, noted the Mining Journal on 11 December, "opened the eyes of British capitalists". It also opened their purses, and in 1886 money was cheap and plentiful in England.[27]

The Day Dawn Block, a leading Queensland mine, was reconstructed as a British company in August 1886, returning a handsome profit to its original owners. Other Queensland mines were not slow in profiting from the example: before long, nearly thirty more had been floated in London at ludicrously inflated prices.

By the end of October, The Times was issuing solemn warnings to British investors. Queensland's governor became so concerned over the number of mines appearing almost daily on the Exchange that he cabled London, cautioning that there was "reason to fear some not altogether bona fide."[28] In mid-December, the New Zealand Herald carried an account of "The Goldmining Craze" in its regular "London Letter":

> The rush of investors to take shares in goldmining companies which has been going on ever since the astonishing success of the Day Dawn Block Company, continues with apparently unabated force. Queensland mines are just now in such favour with the investing public that a few days since the advertisement actually appeared in a London paper:- "Queensland Mine Wanted - Anyone having control in London of a Queensland mine can find a purchaser by applying to..." The natural consequence of this feeling on the part of the public has been to bring forth several companies the value of the shares in which may, perhaps, not be largely in excess of the paper on which the scrip is printed.... Almost every day now produces a fresh gold mine in some quarter or other of the globe...[29]

The boom continued throughout 1887, as The Economist noted disapprovingly in a review article on "The Speculation in Mining Shares" in January, 1888: "...in

spite of the disappointments of the past, the number of these companies successfully launched is growing at an ever-increasing rate."[30] Seven weeks earlier, the journal listed the Waihi Gold Mining Company among its "Issues of the Week."[31]

Thomas Russell, the Auckland financier who had profited from the earlier Thames mining boom of 1870-71, was the man responsible for floating the Waihi Gold Mining Company in London. Russell played a critical role in New Zealand's financial development during the latter nineteenth century, although he resided in London from 1874 until his death in 1904.[32] Despite the move, he remained in close touch with New Zealand, actively promoting British investment in the various projects with which he was associated. These were considerable, and included the Bank of New Zealand, the New Zealand Insurance Company, and the New Zealand Loan and Mercantile Agency Company.[33] He made occasional trips to New Zealand, in the words of one observer "passing through the country in harlequin fashion, originating new schemes of commercial adventure."[34] It was on one of these trips, in mid-1887, that he acquired an interest in the mining properties of Waihi.[35]

From 1886, Auckland's financial condition was precarious. The city experienced a severe slump, bankrupting many a prosperous businessman. Russell himself was in considerable financial distress, and a number of his companies were foundering. Even the Bank of New Zealand seemed (and indeed was) on the brink of collapse by 1887, in which year it paid no dividend.[36] Given this economic climate, Russell's determination to launch a mining company seems rather unusual; indeed, several historians have admired Russell's skill and insight in having the perspicacity to recognise in the Waihi mine the great company that was to be.[37] This however is to read far too

much into Russell's actions. Without a great measure of luck, he and the company were doomed to failure.

The Waihi Gold Mining Company's prospectus explained to potential shareholders that it was formed for "the purpose of acquiring and working a group of Gold Mining Properties situate at Waihi in the Thames District, New Zealand."[38] The properties referred to by the prospectus were several of the Silverton Hill claims, the principal one being the Union. It had by this time become clear that the nearby Martha Extended Company was handicapped by the refractory nature of its ore, which could not be treated satisfactorily by any current metallurgical technique. Although it was not known whether the Silverton Hill lodes would suffer from the same difficulty, they did give very high assay values. Several small lots of ore dispatched to San Francisco and London, for example, assayed as high as £50 a ton.[39] This made for good reading on a company prospectus but was no indication of a mine's real worth. The prosperity of the Waihi company would be determined not by a few tons of hand-picked high grade ore but rather by average ore values and the total available tonnage of its properties. On this score, the outlook was not promising.

Little development work had been done on the Silverton properties prior to their sale. Their entire output at this stage was little more than five hundred tons and the extent of their ore reserves was unknown. The most promising of the group, the Union Mine, had shipped some three hundred tons during the twelve months ending in March, 1887, returning an ounce of gold per ton. This was a creditable amount, but certainly no bonanza.[40] During the next year, reported the government's mining engineer,

> The only operations carried out ... consisted in sinking a prospecting shaft 130 ft deep to test the lode at a lower

> level.... From what I could learn the quality of the ore at the place where it was cut was not equal to that found at the top. This company's mine together with the Rosemont and Winner mines, have been purchased by an English company... [41]

Given these properties' dubious potential, one must question why the Waihi Gold Mining Company was organized at all. The answer is probably a combination of factors, but Thomas Russell was undoubtedly the central figure. His visit to New Zealand in mid-1887 would have revealed to him, had he not already known, the extent of the depression in Auckland and just how close he himself was to bankruptcy. The visit also brought him into contact with a former Thames mine manager, now active in Waihi, "Long Drive" Walker. The sale of the mine was apparently a consequence of this meeting.[42] Russell's familiarity with the London Exchange was the stuff of legends in New Zealand and he certainly would have known of the buoyant market for colonial mining companies at the time.[43] It seems likely that his rather reckless and speculative bent, exacerbated by near insolvency, led him to gamble on what must have seemed a long shot: the potential wealth to be won by launching an un-proven mine from a little-known gold field on a Stock Exchange undergoing a speculative flurry.[44] Aided by several strokes of great good fortune which he had no way of foreseeing, Russell's long shot proved immensely successful.

The Waihi Gold Mining Company possessed few assets in its early years of operation. Its mining properties were barely more than prospects and it had no treatment facilities for such ore as could be raised. Its first priorities, not unnaturally, were to push forward developments at its Union mine and to erect crushing equipment to handle its ore. However, the experience of the Martha mine suggested that current New Zealand

metallurgical techniques were insufficient for dealing with the Waihi ores.

Many of the metallurgical advances of the nineteenth century were first made in the western United States, spreading from there to the rest of the mining world. Globe trotting American experts and the proliferation of periodicals devoted to technical engineering subjects aided this diffusion.[45] Mining companies around the world were not slow to recognise American technological supremacy, and once the Waihi Company was launched, its mine manager visited the western United States to examine and purchase suitable machinery for handling the Union's silver-gold ore. The company also hired an "American expert" to oversee the operation of this equipment.[46]

Milling techniques for hard rock gold deposits in the mid-nineteenth century, as they evolved in California from known methods, were reasonably simple.[47] The ore was broken down by crushers and stamper batteries and then passed through screens and onto copper plates coated with mercury. Ideally the free gold combined with the mercury to form amalgam; later the gold and mercury could be separated. As more complex and more refractory ores were treated, especially the silver-gold ores of Nevada, the imperfections of table or plate amalgamation became too costly; too much bullion was lost in the tailings. The "Washoe Pan" process was developed to treat the silver gold ores of the Comstock, as an alternative to table amalgamation.[48] Its principal feature was placing finely crushed ore into large tubs, not unlike large wringer washing machines, where the ore was agitated with a mercury-rich solution. This encouraged the formation of a large mass of amalgam, which would sink to the bottom of the pan. It was then a straightforward matter to wash out the tailings and recover the amalgam. It was this technique which Walker seized upon to apply at Waihi, where the ores were also high in silver.[49]

Walker's purchase of a large ore treatment plant, as well as the company's extensive program of development at the mine, soon created financial difficulties for the company: there was simply not enough available capital to support such ambitious plans. Within a year of its founding, the company was forced to raise £10,000 by a debenture issue.[50] Crushing operations were hampered by engineering difficulties and shortcomings in the equipment, and with no source of revenue the mine's expenses escalated. Russell's son, T. Henry Russell, staved off the company's collapse by meeting expenses out of his own pocket.[51] In May, 1889, the London Directors proposed to consolidate the company's debt into a £20,000 debenture issue. The chairman of the New Zealand Board explained in a circular letter that local shareholders were expected to purchase £4,000 of this issue:

> It is plainly intimated to the Local Directors [by the London Board] that in default of this sum being raised liquidation of the company must follow. [52]

Even Thomas Russell was beginning to doubt the wisdom of his latest speculative venture; he had written to a close friend the month before that

> The Waihi business has not been a good one. It has swallowed up nearly all I have made the last twelve months. It may and I hope will come right yet, but I wish I had never touched it, as it has hampered me & mopped up my small stock of spare cash. [53]

Company shareholders in Britain and New Zealand had no more enthusiasm than Russell for Waihi's prospects: the £20,000 debenture issue was poorly subscribed, leaving the Directors to take up most of them. At the same time, Waihi shares slumped to less than a quarter of their £1 par value.[54]

The first piece of good news came at the end of 1889: after many false starts, crushing operations at the mine had finally begun.[55] This promising news was not the company's salvation, however, for it was becoming apparent

that the Union Mine did not have a sufficient ore supply to keep the plant running.[56] The director of the Waihi School of Mines described the company's new plant as "the first of its kind in New Zealand":

> In many respects it was a great improvement on any battery previously built on the Hauraki goldfield, but it is doubtful whether it would have paid its way had not the Waihi Co., through the shrewdness of Mr. T. H. RUSSELL, then superintendent, acquired the ground held by the Martha Co....[57]

Russell bought the Martha Extended Company's mine for £3,000, and then sold it to the Waihi company in mid-1890.[58] Recording the sale in his annual report on quartz mining, the government's mining engineer found it incredible "that the Martha Company should have parted with so valuable a property.... a lode of colossal proportions... one of the best mining properties ever opened up in the colony..."[59] Nonetheless, the mine's performance up to 1890 had been dismal. Well before its sale to Russell, it had been let out on tribute, a fact that suggests that the Martha Extended Company had given up on the mine some time previously.[60] While the Martha mine disappointed its earlier owners, the Waihi company was to reap enormous benefits from its acquisition; for one thing, its survival was now assured.

The Martha mine's extensive ore deposits could keep the Waihi company's expensive plant at the Union Mine in full operation. The distance to the Martha was not great and a tram line soon connected the two. Although the company's Union battery had to surmount a number of difficulties during construction and initial operation, it now lived up to its reputation as "one of the best plants in the colony."[61] Earlier methods of treatment had not been able to unlock a substantial percentage of the mineral content of the mine's ore, but the Union battery's process of pan amalgamation was at least twice

as efficient. With this new method, "the recovery was 60 to 66% of the gold and 35 to 40% of the silver."[62] As one writer argued a decade after the purchase, this figure was high enough to put the company on a profitable basis:

> ...the Waihi Co. [in 1890] was by no means in a satisfactory financial position; but during the next few years, thanks to the abundant supply of good ore obtained from the Martha lode, and the up-to-date methods of battery treatment, the company found itself on a better footing. The average extraction from the pan amalgamation system was much better than that obtained by the Martha Co. in their wet crushing and copper plate amalgamation battery... [63]

The Waihi company took possession of the Martha mine in January, 1891, and steadily increased the scale of mining operations.[64] To provide further capital for development, the company issued another £50,000 in shares, bringing the total to £150,000. It expanded the crushing plant, doubling the number of stamps to sixty. In 1892 the Union plant treated some 20,000 tons of ore, extracting bullion worth nearly £50,000.[65] Finally, in mid-1893, five and a half years after its launching, the company paid its first dividend.[66]

The acquisition of the Martha only provided one half of the equation that was to make Waihi famous as one of the world's most profitable gold mines. The other necessary element was a more efficient method of ore treatment. While pan amalgamation was a considerable improvement on earlier methods, it still allowed one third of the ore's gold content to pass out of the battery with the tailings. As the volume of ore treated increased, so the value of this lost gold escalated. By a stroke of good fortune, a new treatment was being pioneered in the early 1890s only fourteen kilometres to the west, at the Crown Mine's battery in Karangahake.

The development of cyanidation ranks with the flotation process as one of the most important discoveries in ore treatment made during the last hundred years.[67] It made possible the exploitation of vast low grade gold ore deposits, guaranteeing extraction rates of 80% and better. The process rested upon gold's solubility in cyanide, something that chemists had known for most of the nineteenth century.[68] However this principle was not translated into an economical method of treatment for gold ore until 1887. In that year, working in a make-shift laboratory, a research chemist (J. S. MacArthur) and two physicians (Robert and William Forrest) developed the process which was to bear their names.[69]

The Cassel Gold Extracting Company sponsored the labours of these researchers and obtained the patents for the MacArthur-Forrest process.[70] Directors in this Glasgow-based company had interests in several mining properties, including the Crown Mine in Karangahake, on the Ohinemuri River downstream from Waihi. In 1888, ore from the Crown Mine had been treated successfully by MacArthur in the Glasgow laboratory, recovering nearly 90% of the assayed gold and silver values. Late in the year a team of Cassel's employees under John McConnell left Britain for Karangahake, where they were to set up a cyanide plant and demonstrate the viability of the process.[71] In June 1889, Cassel employees produced New Zealand's first cyanide gold, although problems with both ore supply and water shortages hampered operations.[72]

After taking over the Martha Mine, the Waihi company continued to experiment with various means of ore treatment. The ore's gold was extremely difficult to recover, being very fine, and the company tested several methods of crushing in an effort to improve the rate of extraction. The cyanide plant

at Karangahake soon attracted the attention of company officials, and in 1891 the mine manager sent ore samples there for treatment.[73] Although the cyanide process was undoubtedly more efficient, what company officials needed to know was whether or not it would produce a greater profit. Harry Gordon, the government's mining engineer, identified the problem succinctly in his 1891 report:

> The question that presents itself to my mind is, Will Cassell's [sic] process be an economical one to adopt? It certainly gives a larger percentage of the bullion, but the expense of treatment, together with the royalties the company are at present asking for the use of their patent rights, is almost prohibitive.[74]

After carefully comparing the costs of the Waihi's current method of ore treatment with the Cassel's process, Gordon concluded that the existing method returned two pennies more profit per ton than would the Cassel's process with the same ore.[75] This is probably the reason the Waihi company's first cyanide plant did not follow the Cassel's patents.

The Waihi company decided in 1892 to adopt the "Bohm process" for treating the Martha ore. It was, as Gordon put it, "similar to the Cassell process in some respects, but ... an entirely different method of application."[76] The process rested on the same principle of gold's solubility in cyanide, but the extraction was to be facilitated by placing the ore in a mechanical appliance through which the cyanide was drawn. While the idea was sound, it failed to work satisfactorily in practice.[77]

With the failure of the Bohm process, the Waihi company decided to investigate the applicability of the Cassel process. In December, 1892 the local Board of Directors hired Dr. A. Scheidel to help them decide whether or not to "go over to cyaniding."[78] At the same time, the Cassel company was

getting anxious to promote the use of its patented process in New Zealand. In 1892 it had sent one of its leading experts there, with permission to reduce the royalty charge to a more modest sum in an effort to drum up business.[79] In early April 1893, the local Board signed an agreement with the Cassel company to construct an experimental plant. Cassel's also purchased the tailings from the Waihi Company's pan amalgamation process for £5,000.[80] Beginning in early 1894, the Cassel company re-treated just under 30,000 tons of tailings, extracting bullion worth some £20,000, making a tidy profit as well as clearly demonstrating the superiority of the cyanide process.[81] The lesson was not lost on the Waihi Company. As a visitor to the region noted in 1895,

> When the Waihi Company began operations they obtained at first about 65 per cent. of the gold and 35 per cent. of the silver by dry crushing and pan amalgamation - about thrice as much as was extracted by their predecessors. After subsequent trials of the Cassel process, it was found that the extraction could be brought up to 90 per cent. of the gold and about 50 per cent. of the silver, and since then all the bullion has been obtained by this method.[82]

The introduction of cyanide did not end the experiments in ore treatment at Waihi, however. One more fundamental change was to come, converting the company's battery from dry to wet crushing. The latter method was the traditional one for crushing ore, and involved the liberal use of water, which kept down the dust and aided the "flow" of the ore. The Martha Company had used wet crushing but the Waihi company abandoned it when pan amalgamation was introduced; dry crushing subsequently became an integral part of its treatment process. Dry crushing involved kiln-drying the ore after it reached the surface, one ton of ore needing about half a ton of firewood to effect this purpose.[83] The ore then went to the battery where rock crushers and stamper batteries reduced it to sand-like particles. From the crushing plant, the ore went to the cyanide vats. In the mid-1890s, this process - dry

crushing and cyaniding - seemed to be the most advanced and efficient possible, returning a high extraction of the ore's mineral content and enabling the company to issue regular dividends.[84]

At least some observers were critical of the company's ore treatment process, however. For example, in 1898 a mining journalist, Raymond Radclyffe, writing of Waihi, remarked caustically that

> Of course, New Zealand is years behind the times, or she would never have gone on dry crushing and roasting her ores when any smart Yankee would have invented a far cheaper method...[85]

As Radclyffe intimated, dry crushing did possess a number of serious drawbacks. One problem was that the amount of ore that could be dry crushed in a twenty-four hour period - the "stamp duty" - was not high: it averaged about 1.4 tons per stamp.[86] Wet crushing would raise this figure considerably; indeed, by 1909, after the conversion to wet crushing had taken place, the figure had tripled to four and a half tons per stamp every twenty-four hours.[87] A second disadvantage of dry crushing was its inability to treat efficiently the sulphide ore that was occurring more frequently as the Martha Mine went deeper. In 1903, the Chairman of Directors explained to Waihi company shareholders in London that

> Had oxidised ore continued downwards, dry crushing would have continued at Waihi, but the intrusion of sulphide ore in the lower levels raised a practical difficulty, for when sulphide ore got into the cyanide vats, it interfered with our extraction, and losses of gold followed.[88]

The most serious drawback of dry crushing, however, was its effect on workers: as one author noted in 1903, "dry crushing was responsible for no little suffering and loss of life."[89]

Despite its deadly effects, a careful reading of the Waihi Company's reports, as well as the various technical papers on the topic, indicate that dry crushing was abandoned for commercial reasons rather than out of any concern for its impact on the health of workmen. James Park provided the most concise explanation of the change from dry to wet crushing, in his paper on "Cyaniding in New Zealand," delivered in September 1899 to the Californian meeting of the American Institute of Mining Engineers.[90] Park explained to his audience that

> When cyanide-treatment was adopted .... the results were so satisfactory that no further improvement was considered possible.
>
> In a few years, however, it became apparent that dry-crushing possessed many disadvantages, as compared with wet-crushing, the principal ones being the cost of the preliminary drying of the ore, the low duty of the stamps, and the large number of vats required for leaching. In 1897, mine-owners began to turn their attention to wet-crushing; and one by one, since the beginning of 1898, the different mills have been adopting wet-crushing, until, at the present time, dry-crushing is the exception and not, as it was two years ago, the rule. [91]

In early 1898 the Waihi Company opened a new treatment plant, the Victoria Mill at Waikino, eight kilometres west of the mine, and that year the company was reported to be "experimenting with a view to the possibility of wet crushing."[92] The next year management decided to switch over to wet crushing, although the process was not finally completed until January 1903.[93] The change to wet crushing was the last important alteration made in the Waihi Company's ore treatment process. Improvements continued, but these tended to be refinements and sophistications of current practice rather than fundamental shifts in method.[94]

*

By the mid-1890s, the Waihi Company was beginning an era of profitable mining. The extensive Martha ore deposits, coupled with the introduction of the cyanide process, were the twin foundations of its prosperity. Neither had had a place within the original company launched by Russell in 1887. Despite the claims of earlier writers, Russell had not embarked on a particularly shrewd investment in 1887; if the Martha had not been acquired several years later, his company would have collapsed.[95] And without the cyanide process, even the Martha's operations would have been only moderately profitable. Unless we are to grant Russell extraordinary powers of foresight, we must conclude that he was simply - and incredibly - lucky.

Indeed, reviewing the Waihi Company's early years of operations, what stands out is not the clear prospect of imminent success and steady dividends but rather a surprising number of errors in judgement, in addition to the two pieces of unlooked-for good fortune already mentioned. For example, the company spent an immense amount of money on a crushing plant ("stated to be somewhere about £60,000"[96]) without even first bothering to ensure possession of an adequate ore supply. And their plant was so badly assembled that the government mining engineer, normally circumspect as befitted his official position, was moved to condemn it as "money spent in foolish blundering."[97] Gordon also described how

> ...machinery has been erected and pulled to pieces again and again. Explosives have been used to break up the original plant without any apparent reason other than to prevent its remaining a memento... [98]

Not only was the company capable of extravagance and lack of forward planning, but as the extract suggests, it revealed an extraordinary capacity for introducing equipment completely ill-suited to operations at Waihi. Entries in

an historical account of its metallurgical development - written by company official, E. G. Banks - read like a catalogue of errors:

> Globe mills.... these mills ... evidently proved unsatisfactory.[99]
> ...a trial was made with an Otis ball mill, but results were most unsatisfactory.[100]
> Krom rolls were experimented with, but proved a failure.[101]

There was also the 1892 experiment with the Bohm cyanide process ("an utter failure," said Banks[102]), and even the new Victoria Mill (1898) had some teething problems:

> the first 100 head stamps in the Victoria mill at Waikino, were ... given double discharge mortars... but the experiment was eminently unsuccessful.[103]

The Waihi Company's success, then, rested not on engineering skill or business acumen, but on the wealth of the Martha Mine which had been unlocked by the latest advances in metallurgy. At the close of the century, the company's mine was acknowledged as New Zealand's premier gold mine, and one of the greatest in the world. The next chapter chronicles its inevitable decline.

Endnotes

1 Pp. 398-99, Henry M. Cadell, "Gold-Mining in the Hauraki District, New Zealand," Transactions of the Federated Institution of Mining Engineers, Vol. X, 1895-96. Cadell passed through New Zealand on his way back from Australia in late 1895.

2 The main mine ended underground operations in June 1952. At the time of writing (1987), a multinational mining conglomerate (Amax) plans to begin open-cast operations in the district.

3 For evidence of Waihi's prominence, see J. H. Curle, pp. 248-50, The Gold Mines of the World, London, 1899; p. 218, Waldemar Lindgren, "The Hauraki Goldfields, New Zealand," Engineering and Mining Journal, Vol. 79, 2 Feb., 1905; T. A. Rickard, "The Great Gold Mines," pp. 566-67, Mining and Scientific Press, May 4, 1907; J. M. Bell & Colin Fraser, "The Great Waihi Mine," p. 388, Canadian Mining Journal, Vol. 29, Aug. 15, 1908; & p. 4, "New Zealand," The Mining Magazine, Vol. 3, July, 1910.

4 For example, in the summer of 1850 the Hudson's Bay Company found it next to impossible to keep coal miners at its Fort Rupert settlement on Vancouver Island. A disgruntled James Douglas wrote to his superiors in London that

> The presence of the "England" and the tales of the wealth to be acquired in Calefornia [sic] circulated by her highly-paid crew, is the chief cause of all the dissatisfaction that prevails among the Company servants.... Their [sic] is little doubt about the intention of the Miners their ardent wish is to get to Calefornia...

(Douglas to Barclay, July 3, 1850, pp. 102-03, Hartwell Bowsfield, ed., Fort Victoria Letters 1846-1851, Winnipeg, 1979.)

5 P. 14, James Mackintosh Bell, "The Hauraki Goldfields, N.Z.," Transactions of the Australasian Institute of Mining Engineers, Vol. XVI, 1911. Similarly, the provincial governments of Nelson, Canterbury and Otago all offered rewards to any who might discover payable gold fields within their borders (p. 65, Philip Ross May, The West Coast Gold Rushes, Christchurch, 1967, 2nd edition.)

6 P. 28, J. H. M. Salmon, A History of Goldmining in New Zealand, Wellington, 1963.

7 Pp. 644-45, George J. Binns, "Mining in New Zealand," Transactions of the Federated Institution of Mining Engineers, Vol. III, 1891-92. For an introduction to the processes of both hard rock and placer mining, see Otis E. Young, Jr., Western Mining An Informal Account of Precious-Metals Prospecting, Placering, Lode Mining, and Milling on the American Frontier from Spanish Times to 1893, with the technical assistance of Robert Lenon, Norman, Oklahoma, 1970, and Rodman W. Paul, California Gold The Beginning of Mining in the Far West, Lincoln, Nebraska, 1965, 2nd edition.

8 P. 181, Salmon, A History of Goldmining in New Zealand.

9 P. 15, Bell, "The Hauraki Goldfields." See also pp. 182-207, Salmon, op. cit.

10 P. 10, R. C. J. Stone, Makers of Fortune A Colonial Business Community and its Fall, Auckland, 1973.

11 P. 195, Salmon, A History of Goldmining in New Zealand

12 For an illustration of the trend, see the graph of Auckland provincial exports, 1867-1882, on p. 11, Stone, Makers of Fortune. Note also Stone's comments on p. 15. Bell includes a similar graph, illustrating the value of Thames gold-silver production, 1867-1909, on p. 21, "The Hauraki Goldfields."

13 Pp. 12-13, Stone, op. cit. Cf. pp. 187-88 & 191, Salmon, A History of Goldmining in New Zealand & p. 96, M. F. Lloyd Prichard, An Economic History of New Zealand, Auckland, 1970.

14 Pp. 173-74, Stone, Makers of Fortune.

15 Pp. 6-8, Philip Rainer, "Company Town: an industrial history of the Waihi Gold Mining Company Limited, 1887-1912," MA thesis, University of Auckland, 1976 & p. 241, Salmon, A History of Goldmining in New Zealand.

16 P. 232, William Pember Reeves, The Long White Cloud Ao Tea Roa, Auckland, 1973; first published 1898. Cf. pp. 242-43, Salmon, A History of Goldmining in New Zealand. A handful of prospectors had gone into the area prior to 1875, but official disapproval had cut such activities short. (Pp. 240-41, Salmon, op. cit.)

17 J. McCombie, one of these men, wrote an extensive account of this expedition, published in a number of places: see p. 11, Rainer, "Company Town," (note 26) & pp. 29-36, J. B. McAra, Gold Mining at Waihi 1878-1952, Waihi, 1978. I have relied on McCombie's "The History of the Waihi Mine," pp. 136-40, The Mining Magazine, February, 1913.

18 P. 136, McCombie, "The History of the Waihi Mine."

19 I have not attempted to convert weights to the metric system; "ounces per ton" is the standard measure of the primary sources. Conversion would only create confusion.

20 P. 138, McCombie, "The History of the Waihi Mine."

21 Like McCombie, William Nicholl wrote an account of his experiences at Waihi. This has been published in several places: W. S. C. Nicholl, "The Discovery that Led to the Development of Waihi Gold Field," Ohinemuri Regional History Journal, Vol. 6, No. 1, (May, 1969): 5-9 & pp. 40-46, McAra, Gold Mining at Waihi. This paragraph is based on Nicholl's account.

22 P. 40, McAra, op. cit. & p. 8, Nicholl, "The Discovery that Led to the Development of Waihi Gold Field." Bell and Fraser, however, put the date of crushing operations at 1883 (p. 10, James Mackintosh Bell and Colin Fraser, The Geology of the Waihi-Tairua Subdivision, Hauraki Division, Bulletin No. 15 (New Series), Geological Survey Branch, Department of Mines, Wellington, 1912.)

23 H. A. Gordon, p. 15, "Report on Goldfields, Roads, Water-races, and other Works in connection with Mining," 1887, quoted on p. 6, P. G. Morgan, The Geology and Mines of the Waihi District, Hauraki Goldfield, New Zealand, Bulletin No. 26 (New Series), Geological Survey Branch, Department of Mines, Wellington, 1924.

24 There are differing estimates of the quantity; Morgan's is the most careful figure. He gives an estimate of 20,001 tons, worth £13,986, or 14 shillings per ton. (p. 137, Morgan, The Geology and Mines of the Waihi District.) Bell and Fraser put the figure at "30,000 tons ... for an average return of 13s. per ton.... an extraction of not more than 25 per cent. of the actual value." (p. 10, The Geology of the Waihi-Tairua Subdivision.) Frank Merricks gives 18,000 tons worth 13/6 per ton. (p. 36, "Notes on Dry and Wet Crushing," Transactions of the Institution of Mining and Metallurgy, Vol. VII, 1898.) And McCombie claims that "about 30,000 tons of ore was treated for an average return of 7s. 6d. per ton." (p. 139, "The History of the Waihi Mine.")

25 P. 139, McCombie, "The History of the Waihi Mine" & p. 10, Bell and Fraser, The Geology of the Waihi-Tairua Subdivision.

26 For a discussion of this "boomlet" see pp. 112-14 & 169, A. R. Hall, The London capital market and Australia 1870-1914, Canberra, 1963; see also the discussion in chapter 10, below, pp. 426-27.

27 P. 101, Geoffrey Blainey, The Rush That Never Ended A History of Australian Mining, Melbourne: Melbourne University Press, 1978, third edition.

28 For an example of The Times' warnings, see "Money Market and City Intelligence," p. 11, 30 Oct., 1886; for the Governor's cable, see p. 11, 1 Nov., 1886.

29 P. 6, 14 Dec., 1886, New Zealand Herald.

30 P. 106, 28 Jan., 1888, The Economist. Cf. "A Mining Promotion 'Boom'", pp. 650-51, 21 May, 1887; "The Speculation in Mining Shares", p. 146, 4 Feb., 1888, ibid; & p. 169, Hall, The London capital market and Australia 1870-1914.

31 P. 1575, 10 Dec., 1887, The Economist.

32 The best account of Russell's career is provided by Stone, Makers of Fortune, pp. 169-92 & passim. See also H. J. Hanham, "New Zealand Promoters and British Investors," pp. 56-77, in Robert Chapman & Keith Sinclair, eds., Studies of a Small Democracy Essays in Honour of Willis Airey, Auckland, 1963, and the entry on Russell, pp. 265-66, G. H. Scholefield, A Dictionary of New Zealand Biography, Wellington, 1940, Vol. 2.

33 For a list of the major companies in which Russell was involved, see p. 173, Stone, Makers of Fortune & pp. 70 & 262, Hanham, "New Zealand Promoters and British Investors."

34 Bishop Cowie, quoted by Stone, p. 175, Makers of Fortune.

35 P. 190, Stone, Makers of Fortune & pp. 26-27, Rainer, "Company Town."

36 Pp. 174-75, Prichard, An Economic History of New Zealand; pp. 167-68, C. G. F. Simkin, The Instability of a Dependent Economy Economic Fluctuations in New Zealand 1840-1914, Oxford, 1951; pp. 23-26, W. B. Sutch, "The Long Depression, 1865-95", in Colony or Nation? Economic Crises in New Zealand from the 1860s to the 1960s, Sydney, 1966; pp. 216-21, J. B. Condliffe, New Zealand in the Making A Study of Economic and Social Development, London, 1959, 2nd edition.

37 Eg., pp. 189-90 & 195, Stone, Makers of Fortune & p. 26, Rainer, "Company Town."

38 Quoted on p. 18, Rainer, "Company Town."

39 Pp. 129-30, Morgan, The Geology and Mines of the Waihi District.

40 Annual Report of the government's Inspecting Engineer, for the twelve months ending March 31, 1887, quoted on p. 52, McAra, Gold Mining At Waihi. Morgan's data suggests a higher figure - 384 tons, worth about £6 1/2 per ton, or the equivalent of over 2 1/2 ounces of gold per ton - although he acknowledges the shortcomings of his sources (p. 131, The Geology and Mines of the Waihi District).

41 Annual Report of the government's Inspecting Engineer for the twelve months ending March 31, 1888, quoted on p. 54, McAra, Gold Mining At Waihi.

42 See pp. 20 & 25-26, Rainer, "Company Town." Walker acted as vendors' agent in the mine's sale. Given Russell's well-known penchant for promoting N.Z. properties in Britain, it is possible that Walker may have taken the initiative in approaching Russell with the Waihi properties during the latter's 1887 visit. It is also likely that Walker may have known Russell during their joint association with the Thames goldfield, some fifteen years earlier. I have found no evidence to support either speculation however. For brief accounts of Walker's career, see p. 307, McAra, Gold Mining At Waihi & p. 187, Salmon, A History of Goldmining in New Zealand. The nickname "Long Drive" presumably derives from Walker's spell as manager of a Thames company of that name.

43 Pp. 175-76, Stone, Makers of Fortune & p. 11, E. B. Sammons, The Humphreys Gully Company A History and its Moral, Hokitika, 1888. This latter work describes Russell's involvement in a South Island mining company, registered in 1883 on the London Exchange. If the author (an indignant shareholder) is to be believed, Russell was an unscrupulous promoter. Evidence in later works tends to endorse Sammons' analysis, eg., pp. 173-74, Salmon, A History of Goldmining in New Zealand & pp. 64-65, Hanham, "New Zealand Promoters and British Investors."

44 As Stone suggests, the very fact that Russell was able to float a mining company in London in late 1887, in light of his well-known association with the suddenly suspect Bank of New Zealand, illustrates his formidable skills as a promoter and salesman. (p. 190, Stone, op. cit.)

45 For a somewhat boastful chronicle of American technological supremacy, see Abram S. Hewitt's presidential address, "A Century of Mining and Metallurgy," printed in Transactions of the American Institute of Mining Engineers, Vol. V, (1876-77): 164-96. The invaluable collection of articles edited

by A. B. Parsons, Seventy-five Years of Progress in the Mineral Industry 1871-1946, (New York, 1947), continues the story; the volume was also a product of the American Institute of Mining Engineers. For a good account of the impact of American mining engineers as they spread overseas, see pp. 278-317, Clark C. Spence, Mining Engineers and the American West The Lace-Boot Brigade, 1849-1933, New Haven, 1970. Herbert Hoover was probably the most famous and successful of this breed, and a recent biography traces his years as a mining engineer: George H. Nash, The Life of Herbert Hoover The Engineer, 1874-1914, New York, 1983.

46 G. W. Small was hired as "amalgamator and metallurgist" for one year; he arrived in N.Z. in July 1888. The company referred to him as "the American expert". (P. 24, 5th June, 1888; p. 27, 23 July, 1888; p. 63, 26 Jan., 1889; Minute Book of local Board of Directors, Waihi Gold Mining Company.) I am grateful to Mr. Ian Thwaites, the Librarian of the Auckland Institute and Museum, for permitting me to consult the records of the Waihi Gold Mining Company, including this Minute Book. These records are held under the company's subsequent name, the Martha Goldmining Company.

47 Perhaps the most lucid account of these processes is that by Young, in his Western Mining; see especially pp. 93-98, 193-202 & 248-50. Cf, pp. 137-42 & 187-89, Paul, California Gold; pp. 268-69 & 285-87, W. H. Dennis, A Hundred Years of Metallurgy, Chicago, 1963; & pp. 87-89, Arthur F. Taggart, "Seventy-five Years of Progress in Ore Dressing," in A. B. Parsons, (ed.), Seventy-five Years of Progress in the Mineral Industry 1871-1946.

48 For the evolution of the Washoe process, see pp. 188-89, Paul, California Gold; pp. 283-86, Dennis, A Hundred Years of Metallurgy; A. D. Hodges, Jr., "The Washoe Process," Mining and Scientific Press, Vol. 100 (21 May, 1910): 757-58; & pp. 248-50, Young, Western Mining. It was largely a sophistication of earlier techniques developed by the Spanish during their occupation of Mexico and South America.

49 P. 7, Morgan, The Geology and Mines of the Waihi District & pp. 54-56, McAra, Gold Mining At Waihi. Rainer confuses table and pan amalgamation (p. 31, "Company Town"), a minor error. Overall his account of the Waihi Company's development is by far the most accurate.

50 P. 34, Rainer, "Company Town."

51 Pp. 34-35, Rainer, op. cit. Curiously, Rainer is the only writer to have recognised Henry Russell's existence, a serious reflection on the scholarship of Waihi's other historians.

52 James Russell (brother of Thomas) to shareholders, 29 May 1889, Auckland. This letter is reprinted following p. 36, Rainer, "Company Town." It is worth noting that Thomas Russell followed a similar pattern when other of his companies were in trouble: see pp. 186-87, Stone, Makers of Fortune.

53 Russell to Logan Campbell, April, 1889, quoted on p. 190, Stone, Makers of Fortune.

54 P. 136, Morgan, The Geology and Mines of the Waihi District.

55 Pp. 36-37, Rainer, "Company Town."

56 This crucial point has been overlooked by scholars; see, however, p. 117, E. G. Banks, "Milling and Treatment at the Waihi Mine, N.Z.", Transactions of the Australasian Institute of Mining Engineers, Vol. XVI, 1912, (Banks was appointed the Waihi company's metallurgist in 1889; p. 307, McAra, Gold Mining At Waihi); also p. 39, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891. The Union Mine, it should be emphasised, was never a success; see the comments in the following chapter, p. 372, footnote 28.

57 P. 162, Percy Morgan, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield," Transactions of the Australasian Institute of Mining Engineers, Vol. IX, 2, 1903. Capitalisation in the original. Morgan was later Director of the New Zealand Geological Survey, and wrote the 1922 geological memoir on Waihi, The Geology and Mines of the Waihi District.

58 P. 39, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891. This was Thomas Russell's son, T. Henry Russell. He received 20,000 shares for the property. (pp. 38-39, Rainer, "Company Town.")

59 Pp. 40-41, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891. Harry Gordon, the engineer, concluded that "this will tend to make mine proprietors a little more careful in examining and prospecting their properties before disposing of them." (p. 40, ibid.)

60 In the words of Bell and Fraser,

> Certain mining companies, on meeting with no success, and finding themselves in financial difficulties, have at times resorted to the tribute system of working their claims.... to use T. A. Rickard's words, "the last resort of a perplexed mine-owner, and is a confession of inability to work one's own property."

- p. 24, The Geology of the Waihi-Tairua Subdivision. Cf, the comments of Morgan, pp. 161-62, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield," & p. 25, Jas. L. Gilmour and W. H. Johnston, "Mining Methods in the Waihi Mine, N.Z.," Transactions of the Australasian Institute of Mining Engineers, Vol. XVI, 1912.

61 P. 41, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891.

62 P. 119, Banks, "Milling and Treatment at the Waihi Mine, N.Z." Cf, p. 163, Morgan, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield," & p. 41, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891.

63 Pp. 162-63, Morgan, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield." This point is made by most writers; Gilmour and Johnston, for example, describe how before the Waihi company purchased the Martha mine,

> ...surface workings on a small scale had been carried out, without any great measure of success. The only method of treatment in use at this time was the old system of light stamps, amalgamating tables and berdans, and recovery by this method being low, little margin for profit was left, so that the property in these days was not considered of great importance...

- p. 25, "Mining Methods in the Waihi Mine, N.Z."

64 This process is well-described by the mine manager's diaries, in the Company papers held by the Auckland Institute and Museum. The earliest and most interesting diary entries are reprinted on pp. 66-76, McAra, Gold Mining At Waihi.

65 Production figures are from p. 357, P. Galvin, ed., The New Zealand Mining Handbook, Wellington, 1906; details on the Waihi share issue are from pp. 42-43, Rainer, "Company Town."

66 According to p. 654, Stock Exchange Official Year Book, 1894, the first dividend was paid out in July, 1893, one shilling per share. According to Galvin, three one shilling dividends were paid out in that year (p. 357, The New Zealand Mining Handbook.)

67 A point made by Geoffrey Blainey: p. 271, The Rush That Never Ended, who also cited the Bessemer steel process. Cf. A. W. Allen, "Early History of the Cyanide Process," Engineering and Mining Journal 3 Sept., 1 Oct., & 8 Oct., 1927 (pp. 371-74, 528-32, & 569-74). In 1903, Britain's Institution of Mining and Metallurgy recognised the importance of cyanidation when it awarded its gold medal to J. S. MacArthur, a co-inventor of the process (p. 249, Transactions of the Institution of Mining and Metallurgy, Vol. XXII, 1902-03.)

68 See, for example, John S. MacArthur, "Gold Extraction By Cyanide: A Retrospect," Journal of the Society of Chemical Industry, Vol. XXIV, No. 7, (15 April, 1905): 311-15, and pp. 9-13, A. Scheidel, The Cyanide Process Its Practical Application and Economical Results, California State Mining Bureau, Bulletin No. 5, Sacramento, 1894.

69 See the account by one of the inventors, John S. MacArthur, "The Discovery of Cyanidation," Mining and Scientific Press, Vol. 112, (10 June, 1916): 851-57.

70 The company's development and strategy is explored in some detail by Alan Lougheed, "The Cyanide Process and Gold Extraction in Australia and New Zealand 1888-1913," Australian Economic History Review, Vol. 27, No. 1, (March, 1987): 44-60, and the same author's "The Cassel Company, Cyanide, and the Gold Mining Industry, 1887-1927," unpublished paper presented to the International Mining History conference, Melbourne, 1985.

71 P. 47, Lougheed, "The Cyanide Process and Gold Extraction in Australia and New Zealand 1888-1913."

72 Ibid, See also J. McCombie's memoir, "Beginnings of Cyanidation," The Mining Magazine, Vol. IV, No. 6, (June 1911): 456. McCombie insists that "the

cyanide process... was in full operation [at Karangahake] for nearly a year before being adopted anywhere else." In fact, as Lougheed points out, the Cassel company had set up a plant in Queensland the year before. (p. 4, "The Cassel Company, Cyanide, and the Gold Mining Industry, 1887-1927," & p. 46, "The Cyanide Process and Gold Extraction in Australia and New Zealand 1888-1913.") MacArthur acknowledged that "The first cyanide gold was banked at Ravenswood, Queensland.... [but] The first cyanide plant, designed as such, was erected for the Crown Mines, at Karangahake..." (p. 852, "The Discovery of Cyanidation.")

73 P. 40, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891. According to Lougheed, MacArthur had successfully treated some Waihi company ore in January, 1888: note 13, p. 47, "The Cyanide Process and Gold Extraction in Australia and New Zealand 1888-1913."

74 P. 41, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891.

75 Ibid.

76 P. 46, Inspecting Engineer's Report on Quartz Mining, C-3, Appendix to the Journals of the House of Representatives, 1892. See also Bohm's description, p. 122, op. cit.

77 One authority on cyaniding described it as "an interesting experiment" but concluded that

> The cylinders used were, however, too long and narrow, containing as they did some 10 ft. in depth of ore, which the [cyanide] solution had to be forced through. The effect of this was that the solution could not be made to percolate through the whole of the ore, but passed up between the cylinder and the ore.... the solution went through the weakest spot, and had litte effect on the ore. The process ("the Bohm Process") proved a failure.

- pp. 75-76, Scheidel, The Cyanide Process. Cf. p. 69, Inspecting Engineer's Report on Quartz Mining, C-3, Appendix to the Journals of the House of Representatives, 1893; p. 119, Banks, "Milling and Treatment at the Waihi Mine, N.Z."; & pp. 29-30, Sybil M. Jack, "The Introduction of Cyaniding in New Zealand: A Case Study in the Role of Technology in History," Prometheus, Vol. 2, No. 1, June 1984.

78 Quotation from p. 146, Minute Book of the local Board, Waihi Company, 104th meeting, 21 December, 1892. Cf. pp. 50-51, Rainer, "Company Town" & p. 30, Jack, "The Introduction of Cyaniding in New Zealand." Scheidel had earlier set up a cyanide plant at the Sylvia Company's mine in Tararu, Thames, described on pp. 37-40, Inspecting Engineer's Report on Quartz Mining, C-3, Appendix to the Journals of the House of Representatives, 1892 & in his own book, The Cyanide Process.

79 Pp. 52-53, Lougheed, "The Cyanide Process and Gold Extraction in Australia and New Zealand 1888-1913."

80 According to A. W. Allen, this £5,000 represented the Waihi company's overdraft to a local bank (p. 528 (1 Oct., 1927), "Early History of the Cyanide Process.")

81 Figures are from p. 143, Bell and Fraser, The Geology of the Waihi-Tairua Subdivision. I am assuming that these figure are reasonably accurate, given the official status of the publication; Morgan, however, gives the slightly higher figure (an estimate) of £22,000 (p. 140, The Geology and Mines of the Waihi District), which is supported by James Park, pp. 181-82, The Cyanide Process of Gold Extraction, London, 1906, 4th English edition. Caddell gives another figure:

> ...the Cassel Company, who began their recovery operations in February, 1894, and ... treated about 20,000 tons, from which they ... obtained bullion to the value of L 25,000.... The success of this company led to the adoption of the cyanide process by the Waihi Company.

- pp. 408-09, Caddell, "Gold-Mining in the Hauraki District, New Zealand." Rainer puts the figure a good deal lower, at £11,369, although his source is an unreliable local history (p. 52, "Company Town"); Jack gives yet another figure, £30,000. (p. 30, "The Introduction of Cyaniding in New Zealand.")

82 P. 408, op. cit, Similarly, the New Zealand Year-Book reported in 1897,

> The cyanide process has been exclusively used [by the Waihi company] since May, 1894, and saves about 90 per cent. of the bullion contents of the ore, as against 66 per cent. saved by pan amalgamation, which had been the method adopted up to that time...

- p. 432, P. Galvin, "The Waihi Gold-Mining Company," New Zealand Official Year-Book, Wellington, 1897. Banks, the Waihi company's metallurgist, wrote that "The M'Arthur-Forrest cyanide process was introduced in August, 1893, and was an immediate success..." (p. 119, Banks, "Milling and Treatment at the Waihi Mine, N.Z.") For a description of the new plant, see pp. 44-47, Inspecting Engineer's Report on Quartz Mining, C-3, Appendix to the Journals of the House of Representatives, 1894, & pp. 408-10, Caddell, "Gold-Mining in the Hauraki District, New Zealand."

83 P. 120, Banks, "Milling and Treatment at the Waihi Mine, N.Z." The process is described in some detail on pp. 670-71, James Park, "Cyaniding in New Zealand," Transactions of the American Institute of Mining Engineers, Vol. XXIX, 1899, & pp. 164-66, Morgan, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield."

84 The Chairman of Directors reminded Waihi shareholders of this steady stream in May, 1899:

> At the end of 1893 we had ... paid L 23,000 away in Dividends. In 1894 ... we paid L 30,000 in Dividends.... 1895 ... we paid L 65,000 in Dividends.... the dividend since 1895 has been at the rate of 8 s. per Share per annum and has

> been paid at all times free of Income Tax, and those dividends, you are all aware, are paid quarterly punctually on the 1st day of each month as they fall due.

- p. 6, "Proceedings at the Ordinary General Meeting of Shareholders... May 25th, 1899," London.

85 P. 154, Raymond Radclyffe, Wealth and Wild Cats Travels and Researches in the Gold-fields of Western Australia and New Zealand, London, 1898. Radclyffe was referring specifically to Waihi, although his general prescription for the country ran along the same lines: "They want half-a-dozen clever Yankees at the Thames. I could mention a dozen mines run by English companies which can never make a profit, simply because the mine manager does not know how to treat the ores..." (p. 138, op. cit.)

86 P. 118, Banks, "Milling and Treatment at the Waihi Mine, N.Z." J. H. Curle, another visiting mining journalist, was very emphatic on this point: see pp. 248-49, Curle, The Gold Mines of the World. And in 1899 Waihi's Chairman of Directors told assembled shareholders in London that "There has been for some years and is now only one Waihi question, and that is the problem of increasing the out-turn of pulverised ore." (p. 5, "Proceedings at the Ordinary General Meeting of Shareholders... May 25th, 1899.")

87 P. 115, Banks, "Milling and Treatment at the Waihi Mine, N.Z."

88 P. 6, "Proceedings at the Ordinary General Meeting of Shareholders... April 30th, 1903." He had made the same point four years earlier: "The Dry Crushing Process has done good service ... but will not do for the mineralized ore we have found in small quantities in the present low levels, and which we shall probably find in larger quantities in still lower levels..." (p. 5, "Proceedings at the Ordinary General Meeting of Shareholders... May 25th, 1899.") In the most extensive discussion of the pros and cons of the two methods, Morgan declared that it was this factor "that had most influence in causing the abandonment of dry crushing..." (p. 175, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield.") Note also the comments on p. 120, Banks, "Milling and Treatment at the Waihi Mine, N.Z.", & pp. 249-50, Curle, The Gold Mines of the World.

89 P. 175, Morgan, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield." In late 1912, parliament's Goldfields and Mines Committee heard the petition of John Ritchie, which explained that he had worked

> at the Waihi Company's mine, where the dry process of crushing is in operation, as a battery hand; that as a result of such working he contracted pneumoconiosis, or miner's complaint; and that three medical practitioners have certified that he will never be fit to return to work any more. Having no resources he is concerned for the future of himself, his wife and his children. He has five children. He prays for relief.

- p. 3, I-4, Appendix to the Journals of the House of Representatives, Vol. 5, 1912.

90 Park was Director of the government-run School of Mines at Thames, and had quickly become an authority on cyaniding. At Thames, he was in an excellent position to study the early experiments with cyaniding at Karangahake and Waihi. Park also had an experimental cyanide plant at the School, with which he tested numerous Hauraki ores. His book, The Cyanide Process of Gold Extraction: A Textbook for the Use of Mining Students, Metallurgists, and Cyanide Operators became a standard work (I have been unable to date the first edition; the second edition was in 1896, and there were numerous later editions). In 1901, Park became Professor of Mining at the University of Otago.

91 P. 670, Park, "Cyaniding in New Zealand." A surprising amount of space in the technical journals explored the question of dry vs. wet crushing; in addition to Morgan's "The Rise and Fall of Dry Crushing on the Hauraki Goldfield," for example, two articles appeared in Transactions of the Institution of Mining and Metallurgy (Vol. VII): John McConnell's "Notes on Dry and Wet Crushing wth Cyanide Treatment, in New Zealand," pp. 26-34, & Frank Merricks' "Notes on Dry and Wet Crushing," pp. 35-39. More than twenty pages of "Discussion" on the topic followed these two papers, with contributions from several of Britain's leading metallurgists (pp. 39-62.)

92 P. 576, A. H. Bromly, "Treatment of Gold Ores in the Hauraki Peninsula, New Zealand," Engineering and Mining Magazine, Vol. 66, 12 Nov., 1898. Bromly provides a good description of the new mill, sited downstream on the Ohinemuri River to ensure a reliable water supply to run the plant continuously and cheaply.

93 The Chairman of Directors told shareholders in 1899 that "...as soon as possible, we shall make the necessary alterations to the whole of the Reduction Plant and adopt Wet Crushing throughout." (p. 5, Proceedings at the Ordinary General Meeting of Shareholders ... May 25, 1899.) Banks gives the timetable of the change, p. 122, "Milling and Treatment at the Waihi Mine, N.Z.",

94 The company did make significant sophistications in its treatment process in the early 1900s, when it introduced tube mills and vacuum filtration. For contemporary descriptions of these developments, see E. G. Banks, "Grinding in Tube Mills at the Waihi Gold-Mine, Waihi, New Zealand," Transactions of the American Institute of Mining Engineers, Vol. 38, (1907): 196-99; Ralph Stokes, "The Waihi Gold-Mine in New Zealand -II," The Mining World, Vol. 28, (8 Feb., 1908): 249-50; H. N. Spicer, "Evolution in Methods of Handling Slime - II," Metallurgical and Chemical Engineering, (May, 1913): 239-41; and William Macdonald, "Vacuum Filtration at the Victoria Mill of the Waihi Gold Mining Co., Ltd., New Zealand," Chemical, Metal and Mining Society, South Africa, Journal, Vol. 13, (May 1913): 527-39.

95 Eg., pp. 189-90 & 195, Stone, Makers of Fortune & p. 26, Rainer, "Company Town."

96 P. 39, Inspecting Engineer's Report on Quartz Mining, C-4, Appendix to the Journals of the House of Representatives, 1891.

97 P. 41, Inspecting Engineer's Report on Quartz Mining, C-3, Appendix to the Journals of the House of Representatives, 1890. The year before he noted that

"the arrangement of the plant does not do credit to the superintendent." (1889 report, quoted on p. 56, McAra, Gold Mining At Waihi.)

98 P. 41, Inspecting Engineer's Report on Quartz Mining, C-3, Appendix to the Journals of the House of Representatives, 1890.

99 P. 117, Banks, "Milling and Treatment at the Waihi Mine, N.Z."

100 P. 118, op. cit.

101 Ibid.

102 P. 119, op. cit.

103 P. 168, Morgan, "The Rise and Fall of Dry Crushing on the Hauraki Goldfield."

VIII

Waihi 1901-1920

The Waihi Mine is now crushing with 290 stamps, and is producing about £33,000 a month, of which probably more than half is profit.... No. 5 level is the deepest in the mine, and, wonderful to relate, promises to be the best yet opened.... Above this No. 5 level there is ore in sight for years to come. On the whole, this mine has turned out a far greater one than even I thought it was when I visited it.... the mine itself ... I unhesitatingly pronounce to be one of the greatest in the world.[1]

The London-based Waihi Gold Mining Company had a profound effect on the course of events in the town of Waihi, up to the time its mine finally closed in the early 1950s. Until the turn of the century, its ascendancy was never challenged. But by 1901, other currents were emerging in the community, especially the influence of organised labour.

Tensions between the company and the miners' union led to what remains, arguably, New Zealand's most important industrial dispute, the 1912 strike.[2] This event has attracted the attention of a number of historians, although it will be argued here that their interpretations, focussing on the emergence of a militant leadership at Waihi with links to the 'Red' Federation of Labor, have either ignored or underestimated the role played by the company's worsening financial position in the genesis of the strike. This chapter examines the mounting tensions between the miners' union and the company, relating them to the mine's deteriorating worth as a gold producer as well as the larger context of heightening class tensions throughout pre-war New Zealand.

The chapter concludes with a discussion of Waihi's development in the decade following the strike, a period neglected by most of those who have studied the community. In common with the two other regions examined, the post-war era heralded a new *modus vivendi* between employers and employed. This accord, it is argued, represents the true conclusion of the 1912 strike.

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In 1900, the government's annual Mines' Statement noted that "The Waihi Mine, the largest in New Zealand, is still making rapid advance, proving itself to be one of the great gold producers of the world..."[3] The Waihi's success was significant not only in and of itself but also because it contrasted sharply with other British-backed mining companies.

A flood of British mining investment had poured into New Zealand in the mid 1890s. **The Economist** cautioned investors to exercise care in their purchases, but to little avail. Its mining correspondent later reported how

> The mine flotation mania connected with the great "boom" of 1895 spread from South Africa and West Australia to New Zealand. A perfect deluge of flotations ensued: mines which had been worked out or proved worthless by local mining men were eagerly placed at the disposal of company promoters; ... nearly the whole of the Hauraki peninsula and Upper Thames was floated off into limited liability companies; a series of dishonestly worded prospectuses appeared in London, and the investing public was thoroughly fooled in the usual manner.
>
> ... by the middle of 1898, one fiasco after another had reduced the market for New Zealand shares to a state of complete collapse.[4]

Promoters launched in the neighbourhood of one hundred mining companies in London during the boom, and New Zealand's reputation suffered as these enterprises foundered.[5] The Waihi company reminded British investors that not all investments in New Zealand's mining industry were wasted ones.

The preceding chapter described the company's progress from a speculative flotation on the London Exchange to the dividend-paying property of the late 1890s. In many ways, the Waihi Company's career followed a pattern discernible in a number of mining fields around the turn of the century. Increasingly, managers and shareholders alike saw the leading productive mines as simply business operations akin to any other business, that is, as steady investments rather than as speculative gambles.[6] This shift in perception followed profound changes within the industry. Around the world, mining gradually moved beyond its reliance on high grade properties; the major metallurgical advances, especially cyanidation and flotation, made working lower grade ore deposits economically feasible. These lower grade properties needed large ore production and low working costs to remain profitable, and managers and engineers constantly sought ways to reduce working costs.[7] The general tendency around the turn of the century to economies of scale and more "scientific" production techniques was not confined to the mining industry. A similar process of restructuring was also taking place in other resource industries as well as in urban factories.[8] The impact of the change in mining, however, deserves far greater emphasis than it has so far received.[9]

On mining fields everywhere, managers abandoned the older techniques of mining high grade ore deposits. New mining methods emphasizing the extraction of maximum amounts of ore replaced the earlier reliance on a miner's expertise and independent judgement. As margins of skill became less necessary, management was able to exert greater control over the work-place. The impact had become obvious by 1913, when **The Engineering and Mining Journal** described "The Changing Character of Mining Labor":

> The new type of miner is not so intelligent, but is more obedient and more industrious. He works generally for less than the scale established at such camps as Butte and

> Goldfield. By himself, he is far less efficient but as part of a system employing a multiplicity of bosses, he probably delivers a lower cost per ton. To many companies he is a more desirable employee than a skilled miner...[10]

The writer was referring specifically to American mining labour, but the same process of de-skilling was at work in Waihi, and indeed at Rossland and Broken Hill as well.

Events at Waihi need to be understood both in terms of the mining industry's growing reliance on economies of scale generally and the Wahi Gold Mining Company's efforts to maintain its lucrative financial position in the face of steadily declining ore values. The attention that the company paid to the question of constantly reducing working costs illustrates these two related trends. In May 1909, for example, the company's Chairman went to considerable lengths to explain to shareholders the situation at Waihi. He pointed out, under the heading "Working Costs," that

> It is very difficult to compare costs of different mines in different countries. The whole conditions are different, and also in many cases the manner in which accounts are presented are quite different.... We carefully consider and compare the costs at Waihi with the costs of other companies. I can assure shareholders that we come out of the comparison very well, and that we all ought to be very much obliged to our representatives in New Zealand for the manner in which they grapple with this difficult question. (Applause.)....
>
> This year the costs per ton have been decreased by about 1 s. per ton, so that the total improvement in the year is about 1 s. 9 d. per ton. (Hear, hear.) .... This reflects great praise on the Waihi management, but do not suppose that we or they are content to rest satisfied. All our letters out to New Zealand are couched in this strain: "You have done admirably so far, but we must do better still," and every line from New Zealand shows that this attitude is loyally accepted as the right and proper attitude, and that every effort is being made, and will be made, to give effect to the mandate. (Applause.)[11]

Such concern with costs was understandable; with a fixed price for gold and

a steady decline in the average value of the mine's ore, the company's margin of profit rested on bringing down costs per ton, raising the output of both mine and mills, and continuing to improve extraction rates.[12]

In 1910, E. G. Banks, the company's metallurgist, appeared before a government commission investigating the silting of the Ohinemuri River. His testimony is further evidence of the company's constant efforts to reduce working costs.

> 97. [Mr. Cotter] Are you not now, and have you not been for some years past, since 1895, treating profitably a much lower grade of ore than you were at that period? - [Banks] Yes; we have also reduced our working costs.
> 98. You are able to treat by a better process of manipulation a larger quantity, but you are, and have been during late years, treating a much lower grade of ore than you were able to treat profitably at that time? - Yes, we are treating a lower grade of ore.
> ....
> 101. And what was the lowest grade you could treat profitably then and now? - I could not say. Now we can treat at a profit about twenty-shilling ore, or a little over; but I have not gone into it very closely. I could only take it on our working costs, which could be given, but which I cannot give at that date. I think our working costs then and now really govern the question.
> 102. You mean by "working costs" improved method of treatment? - Exactly; that reduces our working costs and increases our percentage. I can say that certainly twenty-three-shilling ore would pay for treatment now, and probably in those days it would be nearer thirty shillings or thirty-three shillings.
> ....
> 112. [Mr. Trunks] Since the days Mr. Cotter has referred to, when you had thirty stamps and crushed this thirty-shilling or thirty-three-shilling ore, I think the company has spent very large sums in improving its plant - the plant has practically been reconstructed? - We have spent hundreds of thousands of pounds in order to treat low-grade ore and reduce our costs. [13]

Two years later Banks published an article on "Milling and Treatment at the Waihi Mine," in which he described in some detail the company's efforts to expand operations while simultaneously reducing costs. As he pointed out, with

the mine's annual output of hundreds of thousands of tons, even tiny savings per ton translated into very substantial benefits overall. Banks provided a statistical series covering the years 1897 to 1909 to demonstrate the company's success.[14] His figures illustrated some predictable trends, such as a dramatic increase in tonnage (from the 40,767 tons raised in 1897 to 416,813 tons in 1909) and a similar hike in gross value (from £144,346 to £970,034 over the same period). Other data showed the equally important improvements and savings that were being made: for example, the total cost of extracting and then treating a ton of ore in 1897 was £1 10/5; by 1909 the company had cut this to 17/5. Extraction rates for gold and silver were 86.6% and 48.7% respectively in 1897; during the twelve year period they rose to 91.2% and 73.9%. And the tonnage crushed per stamper in a twenty-four hour period climbed from 1.315 to 4.492. All this represented, as Banks put it, "steady, solid advancement."[15]

The Waihi company's expansion and development did not take place in a vacuum. By 1901, for example, the population of Waihi had grown to nearly four thousand people, and four years later the town was the largest in the area south of Auckland.[16] In early 1902 the town became independent of the Ohinemuri County Council, when it was incorporated as a borough.[17] The 1901 Census revealed that some 40% of Waihi's population was female, hinting at a work force that was largely married. Over a thousand men worked for the Waihi company by 1901, and this group soon attempted to exert its collective power. "The labour question," admitted a company official in May 1901, "had for the first time given the company trouble..."[18]

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By the turn of the century, virtually all negotiations between employer and employed in New Zealand took place within the conciliation and arbitration procedures created by the Industrial Conciliation and Arbitration Act of 1894. Although evidence points to a union presence in Waihi as early as 1891,[19] Waihi miners apparently made no attempts to improve either wages or working conditions until 1900, when an Arbitration Court ruling raised the wages of the South Island's hard rock miners. Waihi miners were quick to press for a similar increase.[20] When the Waihi Company rejected the Union's wage scale, miners voted 1398 to 26 in favour of referring the dispute to the Auckland Conciliation Board.[21]

The Board began its sittings in mid-April 1901.[22] Union representatives described how their attempts to negotiate with the company had only resulted in the victimization of union delegates: the Superintendent fired twelve union officials in February and, in the words of one unionist, "attempted to kill the union."[23]

The Conciliation Board's recommendations were unacceptable to both the the union and the companies, and the dispute went to the Arbitration Court.[24] In early September, the Court sat in Waihi. Miners complained bitterly about the victimization of union members, attacked the recently-introduced contract system, and emphasized the need to have a clause in their award which would force the companies to hire unionists in preference to non-unionists. The President of the Union testified that

> If preference of employment is not granted to unionists it will be the death knell of unionism on this peninsula, as our present opponents would make it a point that any of us who hold strong union principles should not make a living on this goldfield...[25]

Company officials faced some tough questioning over their arbitrary dismissals,

which had been plainly intended to intimidate unionists. Superintendent Barry saw no need to apologise, however, stating bluntly that he had fired eleven men because they

> ...were creating a feeling of unrest, dissatisfaction and discontent among the men. It was not so much the increase in pay asked [by the Union], but it was the demand for the total abolition of contracts without any qualifications whatever that [Barry] objected to.... For men employed by a company to demand such abolition was, he considered, sufficient reason for dismissing them.... He denied that the present system of contracting was detrimental to the men.... Previous to March last no stoping had been done by contract for two years.... He had ... very peremptory instructions from Home to reduce expenses. [26]

Barry's reference to "very peremptory instructions from Home to reduce expenses" is significant. The London Directors had called an extraordinary general meeting of shareholders in December 1900 to win approval to increase the capital of the company by issuing further shares.[27] They were pushing ahead with expansion and development at both the mine and the new Victoria Mill at Waikino. In addition, the subsidary Union-Waihi Company, formed to work the original Union-Rosemont deposit, was in difficulty; as the Chairman put it, "That undertaking had temporarily required £60,000 of Waihi money."[28] Russell went on to explain that the various expenditures

> had absorbed their cash balances, and it became apparent that they must either restrict this expenditure, though extremely profitable in its results, or lean unduly upon their bankers.... the capital account had been overspent by L 70,000 or L 80,000 [and] the expenditure [was] still going on.[29]

As it turned out, the timing of the share issue could not have been worse.

Within days of the Waihi Company's meeting, the Whitaker Wright group of colonial mining companies began its precipitous collapse.[30] **The Investors' Monthly Manual's** contemporary description indicates its severity: "Since the

Baring crisis, of more than a decade ago, no event has given rise to a greater amount of difficulty."[31] Trade in mining shares on the London Stock Exchange, already dull as a result of the hostilities in South Africa, took some time to recover. And Waihi Gold Mining Company shares dropped from their all-time high of over £12 in late 1900 to less than £6 by September 1901.[32] As a result, Waihi experienced a period of retrenchment during the year: some 150 workers lost their jobs while those that remained had to accept the contract system.

The Arbitration Court's award did little more than legitimise the company's actions. The description of its effect sent by the company's superintendent to his Directors in London is revealing: "Practically speaking, the system on which the Mine has been worked has been left undisturbed."[33] Seven years later, a New Zealand director of the Waihi company, Seymour Thorne George, still remembered the Court's 1901 decision as an important victory. In a debate in the Legislative Council on an amendment to the Industrial Conciliation and Arbitration Act, George connected the Court's award with the introduction of contracting:

> And now I must speak of a mine with which I am acquainted - the Waihi Mine.... There we have the energy wage, and the result is that we have got the pick of the miners of the Dominion. We have there a contract system which we had great difficulty in getting introduced. We were taken, in the old days, before the Conciliation Board, and the Board went against us, as it generally did in those days.... We then took it before the [Arbitration] Court, and there we gained our point. The contract system was started...[34]

The Arbitration Court not only refused to make any significant alterations to the traditional wage rate or to working conditions but also, as George implies, gave judicial approval to contracting.

The handicap under which Waihi miners laboured in the 1901 Arbitration case was the same as that of Broken Hill miners in their first experience with an Arbitration Court in 1903: the Judge concluded that although the Waihi Company could perhaps afford to pay its workers more, the other mines included in the Award might be pushed into bankruptcy by any increase in their costs.[35] According to an historian of the early workings of the Arbitration Court, the Waihi ruling was the first to establish the principle,

> that in wage fixing, the Court owed a duty not only to the parties but to the industrial economy.
>
> In other words, the Arbitration Court when considering an application for an increase in an award rate, would take into consideration as a basic principle, what can be called the 'prosperity of the specific industry' as a factor in judgement.[36]

The miners' union rejected such reasoning, and angrily demanded the Judge's dismissal.[37] The only clause in the award that addressed their demands was one dealing with preference for union members, although comments by the Judge suggested that it would not provide very effective protection.[38] This was the extent of the union's gain, however; its claim for a wage increase was unsuccessful and miners' denunciations of contracting were received unsympathetically by the Court. Waihi miners moved to ensure that they would not again be caught in the same position, that is, denied concessions because of their association through the Thames Miners' Union with the numerous marginal mines of the Hauraki District. They dropped their affiliation with Thames and established their own union.[39]

The miners did not abandon their efforts to alter their working conditions, but they did adopt new tactics. In 1902 and 1903 they petitioned the government for reduced hours, hoping to achieve by legislation what they had been unable to secure from the Arbitration Court.[40] Premier Seddon noted

that the petition came from "the great bulk of miners at Waihi.... he thought their prayer should be granted." He was, after all, a former miner himself, and used the opportunity to lecture the House on the dangers and unhealthiness of hard rock mining.[41] In addition, one suspects that Seddon knew well that the fragility of the liberal-labour coalition which kept his government in power called for such occasional concessions, to deflect and disarm the labour movement's growing assertiveness.

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While miners tried various avenues in their efforts to gain better conditions, the company continued to explore ways to reduce costs. Substantial economies were possible in at least two areas. First, Waihi was still without a rail connection with the rest of New Zealand, and as a result the company's transportation costs were very high. In addition, demands for more and cheaper energy had grown as the scale of operations increased. The Victoria Battery at Waikino, for example, consumed 110 tons of coal a day, and the task of supplying this quantity kept 130 horses at work.[42] In 1903, with further production increases planned, the company undertook several initiatives to reduce the high cost of both transportation and energy.

The company had originally tried to build a private railway, but the government rejected the idea. As the Minister for Public Works explained to the House of Representatives in 1903,

> ... some few years ago a proposal was mooted for the construction by a private company of a railway between Paeroa and Waihi.... The Government did not see their way to support the line being made by a private company.... I think members will agree with me in saying that works of this kind ought to be in the hands of the State, and, the Government holding this view, permission could not be given to the company to proceed with the line, and provision was made for the State to undertake it.[43]

The government decided to build the railway in 1899, but the pace of construction was slow; "about a mile a year," the local member estimated sarcastically.[44] In 1903 the company offered to loan the government the money necessary to finish building the railway in order to have it finished as quickly as possible, an offer the government accepted.[45] With this infusion of company money, it took less than two years to complete the line, which was officially opened on 9 November, 1905.[46]

The Waihi company's second approach to the government, also in 1903, was not as successful. The company sought permission to build a private hydro-electric plant on the Waikato River, at a point nearly a hundred kilometres southeast of Waihi. The government turned down the request, although it eventually consented to the plan seven years later.[47] In June 1910, not long after the company had finally obtained the government's approval, the commission looking into the silting of the Ohinemuri River questioned the company's manager on the purpose of the hydro-electric scheme.

> 54. [Mr. Mueller] ... by getting in ... electric power you hope to be able to treat still lower-grade ore than you have been treating in the past with profit? - [Mr. R. E. Williams] That is so; we are trying to make reductions all the time.
> 55. Anything you can save on the cost of production allows you to put through a cheaper class of ore? - Yes.[48]

The tensions at Waihi, between a company constantly seeking greater economies and a work force determined to win a larger share of the profits of its labour, gradually increased after the 1901 Arbitration Award, until a strike was declared in 1912. At first, however, relations between company and miners remained surprisingly calm.

In late 1903 the union, now independent of the Thames organization, negotiated its first agreement with Waihi companies. Both sides accepted a Board of Conciliation's recommendations, which were very nearly identical to the 1901 Arbitration award.[49] Wages remained the same for almost all workers, although surface workers gained a reduced working week, from 48 to 45 hours.[50] Following the 1901 Willis amendment to the Industrial Conciliation and Arbitration Act, the conciliation process became an optional part of the arbitration process. Neither the union nor the mining companies appealed the Board's recommendations to the Arbitration Court; in fact, the two sides had reached a prior agreement and simply submitted this to the Board for approval.[51]

Other evidence points to a degree of consensus between miners and employers. The Waihi company's superintendent, for example, was eight years the chairman of the Ohinemuri County Council (1893 to 1901), and after Waihi became a borough in 1902, former mine manager Thomas Gilmour was mayor from 1904 to 1908.[52] Given New Zealand's broad franchise, it is difficult to see how these men could have been elected without considerable working class support. This collaboration was certainly apparent when Mayor Gilmour officially opened the miners' union's new building in 1905. John Newth, president of the union, used the occasion to tell the assembled crowd that he saw no need for his organization to "run against the employer."[53] Newth had done much to establish the union's presence in the community, serving as president from 1902 to 1907 and succeeding Gilmour as Waihi mayor in 1908. His municipal success can scarcely be seen as a significant event in working class representation; indeed, in the municipal elections of 1911, the miners' union ran a mayoral candidate, unsuccessfully, against him.[54]

In 1907 Waihi miners went before the Arbitration Court for a second time. Their claims included two of particular significance: a wage increase of a shilling a day for most workers and a demand that all contractors join the miners' union.[55] The Court refused the latter claim but did grant a modest sixpence a day increase to wage workers. H. T. Armstrong, who followed Newth as union president, had helped conduct the arbitration case. He recalled bitterly that "on the evidence produced we beat the employers at every point, still little or no improvement in conditions was obtained..."[56] The contemporary history of the 1912 strike offered a similar analysis of the 1907 award:

> The dissatisfaction engendered by six years of working under the old award was now intensified, and the impression that little was to be obtained from the Arbitration Court began to grow.[57]

Nine months after the Court's award, miners started discussing the possibility of cancelling their union's registration under the Industrial Conciliation and Arbitration Act.[58]

While symptoms of unrest were growing at Waihi, these should not be over-emphasised. In January 1908, for example, Ralph Stokes, a mining journalist travelling the world and visiting the mines of the British Empire, reported that at Waihi,

> Although nearly all employe[e]s are unionists, ... it cannot be said that the local organization is strong or aggressive. The functions of the union are chiefly those of an accident society, to which very many subscribe without taking any interest in its semi-political programs. [59]

Various references to poorly attended union meetings substantiate Stoke's analysis.[60]

Discontent among miners was growing, however, particularly with the system of contracting that prevailed at Waihi. All underground work at the

mine revolved around contracting. It dictated virtually everything, from how mining was carried out in a particular stope to how much an individual miner was paid. The company controlled the system: it decided who received contracts and upon what terms. The contracts themselves - basically agreements to break a certain tonnage of ore from a specified stope for an agreed amount of money - were the product of private negotiations between the company and an individual contractor or contractors.[61] Leading contractors would have fifteen or more men working for wages under them, while the company provided all necessary ancillary services for the contractors, including equipment, haulage, pumping, ventilation, lighting, timbers, and so on. The company also decided upon the system of mining, that is, by what method ore was broken and taken from stope to surface. Thus contracting gave the company a maximum amount of control over production with a minimum of responsibility for the actual work in the stopes, since the contractor would oversee his crew and force the pace of work as much as possible.[62] It was, reflected one company director proudly, "the energy wage".[63]

During the early 1900s, the company's ore production climbed and work was carried on at lower and lower levels. As work went deeper, the width of the ore body grew, and this increase in size permitted an important change in mining methods. After a visit to Australia, mine manager R. E. Williams introduced shrinkage stoping, a bulk system designed to produce greater quantities of ore more efficently than the older "cut and fill" or "overhand" stoping method.[64] At a conference of mining engineers in early 1911, two of Williams' fellow officers described how the system of "Shrinkage Stoping and Filling" operated at the mine:

> This system has been adopted during the last four years.... The lengths of blocks taken out by this method vary from 150 to 300 ft., and widths up to 50 ft. have been taken....

> Under favourable conditions, this system of stoping has been found to be the most economical method yet practised, there being no cost for shovelling ore, no timber used, no cribbing up of passes...[65]

While the system was clearly advantageous to the company, it offered few benefits to working miners. Its introduction coincided with concerted efforts by miners to modify the system of competitive contracting that prevailed at Waihi.[66]

Competitive contracting virtually ensured friction at the work-place. In the opinion of many miners, it fostered cut-throat competition and allowed the company to practise favouritism; they also blamed it for many of the accidents at the mine.[67] In 1908, miners at union meetings discussed eliminating the competitive system and replacing it with the co-operative one used on public works; under this latter system, also known as "all-in-the-job contracting," workers participated equally in the contract, sharing both the expenses and the profits.[68] In early June, a union delegation met formally with company officials and proposed the adoption of cooperative contracting and letting contracts by public tender.[69] Company officials were non-committal but agreed to study the union's ideas. Several days later, on June 9, a special union meeting reviewed the negotiations. It became clear that miners were not united in their demands: a ballot on the issue of public tendering passed only narrowly, 277 to 211.[70] Miners opposed to cooperative contracting subsequently held their own meeting and voted 81 to 9 in favour of keeping competitive contracting. They too sent a delegation to meet with company officials.[71] Finally the company held a public meeting,

> ...the Coy. inviting the Miners Union members to meet & discuss their request that the Cooperative system of contracts be introduced in the mine.[72]

Superintendent Barry, speaking for the company, argued that any changes in work practice would violate the current agreement negotiated in 1907 and to operate until 1910. Union President H. T. Armstrong pointed out that cooperation between company and union could easily overcome that problem. Barry's real objection was that the cooperative system would be unworkable; again Armstrong countered, arguing that the system worked perfectly well on large public works. Barry threatened to close down the mine if the union called a strike over the issue. The meeting ended inconclusively, with nothing settled.

The union and the company continued to meet, however, and finally the company offered to do what it could to meet the union's request. "We will," wrote Superintendent Barry,

> extend to the utmost the system of cutting our work up into small contracts and will see that all sign the specifications. This will go a long way to meeting your wishes. We are unable to give up our right to let contracts privately, but shall increase as far as we can, the calling of public tenders.[73]

This seemed a concession of sorts, and a well-attended union meeting voted by large majority to accept the written offer.[74]

These negotiations between company and union were important for several reasons. Not only was the grievance a deeply-held one, but the meetings themselves were an important precedent. For the first time, Waihi miners had engaged in a sustained effort to change conditions outside of the arbitration system by meeting face to face with employers. In addition, the action suggests that events elsewhere in New Zealand were having an impact at Waihi.

In January 1908, a group of coal miners in an isolated community on the South Island's west coast went on strike even though they were covered by an arbitration award. The Blackball strike was not the first illegal strike since Reeves' Industrial Conciliation and Arbitration Act had come into effect in 1894, but it was the most significant. In the words of two of New Zealand's leading labour historians, the dispute

> ...brought to a head the widespread disaffection with the arbitration system and demonstrated how easily the court could be ignored. After three months, the longest strike since 1891, the miners won all they wanted, [and] made a laughing stock of the Arbitration Court...[75]

The strike involved the length of the lunch break. Provoked by several young miners with experience overseas, Blackball workers demanded the standard half hour lunch break or "crib time", instead of the fifteen minutes allowed by the company at Blackball. But at least as important as the issue was the skill with which the leadership was able to stage-manage the dispute. The Judge hearing the charge of illegal striking brought against the Union, for example, considered fifteen minutes to be sufficient time for lunch, and then adjourned the Court for an hour and a half in order to eat his own. Speakers on fund-raising missions told amused crowds up and down the country of this hypocrisy.[76] When the union refused to pay the £75 fine that the judge levied, members' furniture was seized and put up to auction. Pat Hickey, one of the strike-leaders, described the event in his **'Red' Fed. Memoirs**:

> Before the sale commenced, I somewhat rudely pushed the bailiff from his rostrum, and, mounting it, outlined the facts in connection with the seizure of the household goods, and informed the gathering that if they imagined that they would be able to secure bargains they would very quickly be disillusioned. "For," I remarked, "we will not only deal with you when you bid, but after you have bidden." A group of young miners, headed by the late Jim Bowers (a boxer of some note) had already been "sworn in" to handle prospective bargain-hunters.... In all, the forced sale realised 12 s. 6 d.[77]

Hickey himself was fined, but refused to pay. Accompanied by the Blackball Band, he was sent off to spend his fourteen days in jail. Rather than create a martyr, the mine company quietly paid the fine before he was imprisoned.[78] It was the stuff of legends, and men like Bob Semple, Paddy Webb, and Hickey, the leaders of this new militant group, a self-appointed vanguard of what was soon to become a wave of militancy, played it for all it was worth.

The Red Feds, as they later became known,[79] did more than simply tap a widespread and growing discontent with the Arbitration Court. With boundless enthusiasm and single-minded energy, they advanced an entire alternative policy to the status quo. In Hickey's words,

> Certain fundamental principles were insisted upon at all times. These can be briefly described as our insistence upon the failure of craft unionism; our insistence that compulsory arbitration was a crippling influence, and must be destroyed; and our general emphasising of the fact that the future of the working class was wrapped up in themselves - that it was from them and them alone that any real advance could come.[80]

Making ready use of the thought and writings of American and European syndicalists, the Red Feds repeated their message again and again. Every struggle they claimed as a victory, and every victory contributed to their appeal. Most important of all, a receptive audience was ready to listen to this new gospel: "wherever Semple went crowds gathered to hear him proclaim the new evangel of liberation."[81]

The rise of the Red Feds was a symptom of the disintegration of the Liberal coalition that had governed New Zealand since 1890. Organised Labour, one of the Liberals' traditional supporters, was particularly disenchanted and grew more and more vocal in its criticisms.[82] Palliative measures, such as the Royal Commission that investigated health and safety in New Zealand's mines, revealed the extent of workers' complaints but did little to address their

grievances.[83]

Miners at Waihi were well aware of what was going on at Blackball. The strike received widespread publicity, and Hickey had visited the town on a fund-raising trip around the North Island.[84] When the West Coast coal miners launched a New Zealand Federation of Miners after the Blackball strike, an organization modeled on the American Western Federation of Miners, they invited the Waihi union to join. Although the rank and file does not seem to have shown a great deal of enthusiasm for the idea, the union executive decided to participate in the Federation's second conference, to be held in Wellington during October 1908.[85] Union President H. T. Armstrong and Secretary Scanlon attended the conference as Waihi's delegates. Their union, with its 1400 members, was by far the largest present, and their fourteen votes, one for every hundred in the union, carried a good deal of weight. Both Waihi men were elected officers in the Federation, Armstrong as vice-president and Scanlon, treasurer.[86] However inadvertently, Waihi's miners had become part of a larger movement.[87]

Within three months of the Federation's meeting in October, the organization was drawn into a dispute which demonstrated the virtues of collective action. A new Compensation Act, to come into force in January 1909, included as an industrial disease miner's phthisis. Employers insisted on the right to screen their employees as they returned from the Christmas break; the mining companies did not wish to continue to employ anyone who had already contracted the disease. Miners in Reefton and Waihi refused to be examined, and the Waihi union threatened to strike if anyone lost their job for refusing the medical check. The Federation backed the unions, and the government finally agreed to amend the legislation. It was, Hickey remembered,

"a splendid advertisement for the Federation."[88]

From this time on, a more dynamic unionism took hold in Waihi. Its progress was not easy; in early 1909, for example, president Armstrong was forced to leave town, as he could no longer find work. His successor met the same fate within a matter of months. When Bill Parry was elected president in May 1909, he was provided with a salary and given the job of Workmen's Inspector, visiting the mine and reporting on any unsafe working conditions.[89] Miners began to see some improvements: Parry was able to close unsafe stopes, to force the company to provide more supports and better ventilation underground. Health and safety concerns became issues that could close the mine. In early 1910, for example, when two miners died at work, miners refused to work until after their funeral.[90] In 1910 and 1911, more militant unionists fought to have the union withdraw from the Industrial Conciliation and Arbitration Act. The union held three ballots on the issue, the first in January 1910 and the last in February 1911.[91] All favoured withdrawal, but an absolute majority of the union membership needed to vote in favour if the move was to be successful. To secure the necessary numbers, the final ballot took place at the top of the shaft and in May 1911 the union formally cancelled its registration under the Act.

Once outside of the Arbitration Act, the union was free to negotiate face to face with the Waihi company. A series of meetings began in early June but little progress was made. Then the union turned for help to their Federation.[92] The breakthrough came on the 19th June: the company agreed to institute cooperative contracting underground and awarded numerous wage increases.[93] The company's concessions amply vindicated the anti-arbitrationist militants; as an earlier author has noted, the June 1911 agreement "represented

the most significant gains in the history of labour relations at Waihi."[94] The union's confidence was high and its popularity among the rank and file soared.

Ironically, as the union gained in strength and confidence, the mine's situation worsened. The Waihi company had to confront a depressing geological fact. Investigations at the 9th level during 1910 showed that the limit of the mine's ore reserves had been reached; the ore body, while large, did not extend forever into the depths of the earth. The corollary was that the company's operations could not continue forever to expand and prosper.

The Chairman was optimistic about the mine's future when shareholders gathered for the annual general meeting in 1909. He reviewed developments at the mine and spent some time discussing the size and richness of the ore body as the mine continued to deepen. The seventh level had proved particularly extensive, and the eighth level's prospects seemed at least as good:

> ...in the opinion of many, ... the 8th level is in its turn superior to the 7th level, just as the 7th level was superior to every level above. (Applause.) .... there is, in my view at least, nothing in the developments on the 9th level to make us conclude that the 9th level will necessarily be inferior either in widths or values to any of the levels above. (Applause.) It may be worse, but it may be better, and it is far too early to form any opinion upon it, and although we cannot suppose that as we go down we are going to find every level superior to the one above it, yet there is nothing whatever to make us suppose that the best level in the mine has yet been passed. (Applause.) [95]

In early 1910, however, the first hints of trouble appeared. The market value of Waihi shares began to decline. A minor rally followed the annual general meeting in May, but then the slide continued. **The Mining Magazine** reported in July that

> the recent depreciation in the shares [of the Waihi company] has caused anxiety both in Australia and London. The

> disappointing development on the Martha lode at the No. 9 level is the reason for the slump.... We hope the management ... will be able to prove that the impoverishment in the Martha lode is local and does not affect the other members of the vein-system... [96]

Two months later bad news from New Zealand intensified shareholders' uneasiness. **The Times** published a brief note in its commercial column:

> The secretary [of the Waihi company] states that as the grade of ore being crushed is somewhat lower it is anticipated that the returns made every four weeks will be less, and that they will probably be down to about L 68,000 each before the end of the year... [97]

Superintendent Barry was in London at the time but quickly returned to New Zealand. The directors later admitted that when he reached Waihi, in November, Barry "was disappointed with the position of the Mine."[98] He ordered mine manager Williams to make a full report on the mine's ore reserves. Williams was also to estimate what sort of reduction in tonnage was required to allow the mine to continue regular ore production.[99] Williams completed his report on 14 December 1910; "the Mine," he concluded, "has received a serious set-back."[100] In his opinion, production would have to be cut back to 1,000 tons a day.

Such news was scarcely reassuring to nervous shareholders. **The Economist** reported on 31 December 1910 that "Waihi gold [shares] fell on persistent selling."[101] The Directors decided to have an outside authority report on the mine, to either confirm or reject Williams' analysis of its condition. The manager of Queensland's famous Mount Morgan mine happened to be in the area, attending the meeting of the Australasian Institute of Mining Engineers at Thames. He consented to inspect the Waihi but could only endorse what Williams had already written: "it is evident that a reduction from the present output will soon be necessary."[102]

T. A. Rickard, editor of the London-based **Mining Magazine**, had been following the Waihi's career carefully; indeed in happier days, four years earlier, he had pronounced it one of the world's greatest gold mines.[103] Rickard was critical of the company's directors and thought "even eminent mining managers from Queensland" would do little to improve the mine's situation. In his opinion,

> the Waihi directors have exhibited lack of ability both in their recent policy and in the general management, which has been known among professional men to have been marked by lack of capacity and economy.... what the Waihi needs is skillful technical advice, the best obtainable for the money, on the difficult question underlying the impoverishment of the lode. The only doctor required by the patient is a specialist in a disease unfortunately not uncommon, namely, non-persistence of rich ore.... The directors should face the facts frankly or resign to men more capable of meeting difficulties of exceptional gravity.... It is ten thousand pities that so fine a mining enterprise should have been brought to such a state of collapse. [104]

Understandably, the directors tried to take a more optimistic view than Rickard, but even they regretfully acknowledged that "the Mine has lost for the present that quality of stability which it was believed to possess..."[105]

The next year brought no relief. In April 1912 the commercial pages of the **The Times** quoted the directors of the company as saying that "up to the present the anticipations of Mr. Williams concerning the 10th level have been confirmed, and the developments have been very disappointing."[106]

Management pondered how to re-structure the mine, searching for strategies to improve its prospects. An obstreperous union could perhaps be provoked into striking, and this would facilitate the necessary re-arrangements of the mine's operations. Ore left lying underground would not produce dividends, but nor would it lose its value. By this stage, share values had sunk so low that they could scarcely drop any further. Although no written

evidence survives to establish an incontrovertible link between the company and the strike, it is difficult to see why else the company supported the creation of a new union at Waihi, an event that led directly to the six month dispute which began in May, 1912.

Much has been written on the Waihi strike.[107] Almost all the literature places the strike within the context of the emergence, and decline, of a militant faction within the New Zealand labour movement. According to the traditional view, this militant group - usually known by their nickname, the Red Feds - took on the craft unions, the bosses and the state, finally meeting its defeat at Waihi in 1912 and on the Wellington waterfront in 1913. A recent critique argues that this conventional narrative places too much stress upon the role of leadership and ideology while ignoring the crucial role played by contemporary social and cultural changes.[108] But in terms of its understanding of the Waihi strike, this interpretation reveals another, perhaps even more substantial flaw: it loses sight of the company's role.[109]

The failure of scholars to consider the company's actions is surprising since they tend to assume that the company either helped to form the secessionist union of engine drivers or, at the very least, acquiesced in its creation.[110] As it was this action that provoked the strike, the question arises as to why management was prepared to accept the mine's closure: what would such a closure accomplish? The common view is that the company wanted to break the union. This however is a very incomplete answer. One doubts that either company officials in Waihi or Directors in London felt duty-bound to break a prominent Red Fed union, whether to satisfy an ideologically-inspired vindictiveness or simply to oblige other employers. It is argued here that management was content to allow the mine to lie idle so that it could come

to terms with the mine's deteriorating position as an ore-producer. This analysis is confirmed by a careful examination of the mine's statistics, which demonstrate that the company's pattern of ore production changed completely following the strike. The graphs appended to this chapter, especially Graph 8 - 2, "Tons of Ore Produced, 1892-1922," show the dramatic increase from the late 1890s until 1910, the collapse from 1910 to 1912, and the steady though much reduced returns after 1913.

The strike began on 14 May, 1912. The central issue was recognition of a second union at the mine, the Ohinemuri Winders, Engine Drivers and Firemen's Union. This union comprised a number - a minority - of the most skilled and highly-paid workers at the mine. These men claimed that their craft interests were neglected by the Miners' Union and that they therefore needed their own organization.[111] They also disliked the attitudes and rhetoric of the Miners' Union and remained loyal to the arbitration system. Their group picture, taken under a Union Jack, suggests that they were drawn from the older and more conservative ranks of the mine's work force.[112] When formed in May 1912 the new union registered under the Industrial Conciliation and Arbitration Act.

The Waihi Miners' Union regarded the new organization as a company creation.[113] Miners decided to refuse to work with any of its members, and the union president handed the manager a curt note:

> I am instructed to inform you that members of the Waihi Workers Union employed in Mine have ceased work, and will not resume until such time as Union receives assurances from Companies that disbandment of recently formed Engine Drivers Union is insisted upon by them.... If Union's demands are not granted before 12 o'clock to-day [14 May, 1912] all members of Union employed in batteries etc. shall cease work. [114]

It was soon apparent that the company was not overly anxious to see work

resumed. Insisting that the dispute was a fight between two unions, and thus beyond its control, the Waihi company simply waited. In a circular to shareholders in late July, for example, the company's secretary explained the circumstances surrounding the strike and informed them that the company, along with the Waihi Grand Junction, had

> refused to interfere between the two Unions in any way. The Companies also refused to make any new Agreement with the Waihi Miners' Union until the Union is again registered under the Arbitration Act.... In the existing circumstances it is impossible to say how long a period will elapse before work will be resumed. [115]

The strike began in mid-May and for nearly five months the company made no attempt to work the mine. At first the striking miners seemed to hold the upper hand, at least within Waihi. They put on educational street theatre, using Edward Bellamy's famous metaphor of the coach pulled by the masses; they taunted "Arbitrationist" engine drivers and encouraged others to boycott them; they attended morale-boosting entertainments at the Miners' Hall, staged by their union.[116] If the strikers were optimistic, their hopes of a short strike or an easy victory were soon dashed. Overall control of the strike was in the hands of their Federation. On 18 June, Federation representatives met with the Mine Owners' Asssociation; they were told that there could be no settlement until the Miners' Union re-registered under the Arbitration Act.[117] This the union refused to consider.

A number of miners left Waihi to find jobs elsewhere. Union representatives embarked on fund-raising tours around the country and over to Australia; a long strike would need much help. The appeals of Waihi's miners met with a mixed reception, however. In the four years since its inception, the 'Red' Federation had made enemies - not only employers, but also among the

urban-based craft unions. Leading Red Feds had poured scorn on those who they considered weak and ineffectual.[118] Now some of these more moderate unionists were willing to let the miners deal with their situation alone.[119]

The less than enthusiastic response of a number of unions must have disappointed striking miners. A more ominous event happened on the floor of the House of Representatives: in early July, the Liberal government lost the confidence of the members, and W. F. Massey's Reform Party assumed power. By the end of the month the Police Commissioner began making his plans to intervene in the dispute.[120] The Commissioner travelled to Waihi in September, joining the more than seventy policemen he had sent to the mining community.[121] During the month, some forty-five leading strikers were arrested and imprisoned; then the company's manager admitted to Commissioner Cullen that he planned to open the mine in early October.

The company's decision to re-open the mine after its four and a half months' closure probably reflected a mood of confidence; no more trouble need be expected from the strikers or their union. At first only a few workers crossed the picket line, but within a fortnight a hundred men had begun to show up each day.[122] After several weeks of operations, the mine manager recorded in his Diary that

> The workmen are getting a bad time from the strikers & a number of women but this is considerably overcome by working day shift only and using vehicles to take them to & from the mine, also by our tram which takes a large number backward & forward from Waikino. All the men are being worked on wages until circumstances will allow of Contracts, and it is anticipated that several Contracts will be let in about a week's time. The new Contracts will be let so that Contractors will employ ... wages men. The General Conditions of Contracts has been reprised. [123]

Such indignities that the workers may have endured were nothing compared to

what they did in revenge to the strikers. After the mine had been re-opened for just over a month, and with the deliberate encouragement of the Police Commissioner, the strike breakers began publicly marching through the town.[124] Within four days one striker had been killed and several others severely beaten; either under threat of violence or out of fear, most of the remaining strikers left town. Three weeks later the Federation admitted defeat and declared the strike off.

The end of the strike was sufficiently newsworthy to appear as a feature article in **The Times** of London. Its Wellington correspondent commented that "the result is now expected to be a severe setback for the revolutionaries who had lately been increasing their hold upon the labour movement in a remarkable way."[125] Subsequent writers have confirmed this analysis, and there can be no doubt that the miners' defeat at Waihi, as well as the Wellington strike the following year, had a profound impact upon the Red Federation. A chastened leadership finally responded to the appeals for unity and agreed to form a common front both industrially and politically with other unionists.[126]

At Waihi the strike's end brought little change. The company had already implemented the changes it wished to see, including the re-introduction of competitive contracting. A new miners' union was formed, the Ohinemuri Mines and Batteries Employees Union; former strikers were denied membership.[127] Ore production was brought down to what was considered to be a sustainable level, just under 4,000 tons a week. At the Waihi company's next annual general meeting, the Director told shareholders that at this level, ore production could continue "for at least four years, and, of course, we all hope it may be maintained for a good deal longer." He pointed out that

> This tonnage ... will support a quarterly dividend of 1s. per share.... a great come down from the dividends which the Waihi used to distribute, but we have to face facts as they are.... It is all very unpleasant, ... and we are economising in every direction and we have begun by reducing our own fees, which we hope will help in impressing on everyone the paramount importance for rigid economy in every department of the company's work. (Hear, hear.) We are also making arrangements for moving into smaller offices, and, in fact, we are doing all that can be done.[128]

The Red Feds' weekly paper, **The Maoriland Worker**, carried regular reports from Waihi, although the news was rarely encouraging. Three years after the strike, for example, H. A. Campbell provided a lengthy description of "Unhappy Waihi:"

> Waihi today is a town of lost business and lamentations. Every business man one meets tells a tale of woe. Everything dates from the strike.... The general complaint is that the large majority of miners are earning very poor wages, and in consequence are unable to spend much money.[129]

Campbell was on an organizing trip, trying to sign up members in a railway builders' union, and he met numerous "victimised Red Feds" along the Waihi-Tauranga line, then being built.[130] Victimisation remained a sore point at Waihi for some time; as late as 1917 former miners were still unable to get work because of their role in the strike.[131]

The town never returned to its former affluence; reduced output at the mine meant fewer workers, and management insisted on the strictest economy. "Waihi is one of the poorest paid places in New Zealand," claimed **The Maoriland Worker's** correspondent.[132] When the former vice president of the original miners' union visited the town, the same correspondent ("Wage Slave") noted rather plaintively that "We should like to see more speakers come through this way..."[133]

Perhaps "Wage Slave" was more encouraged by the increasing signs that the town's miners were returning to the labour fold. In 1916, for example, the union launched an arbitration case in an effort to win a wage increase; it secured a former striker as their advocate.[134] At the end of that year the union joined the United Federation of Labour and in 1917 all the former strike-breakers were voted off the executive. **The Maoriland Worker** reported that

> the last vestige of the men who took part in the formation of the union that broke the Waihi strike have been removed from office in the union.... So now, once again, Waihi takes its stand amongst the militant unions of God's Own Land... [135]

A somewhat unusual dispute in early 1919 demonstrated just how much the union had changed. With a man who had been active in the old Red Fed union now president, the union secured a closed shop clause in its agreement with the company. Nine former strike-breakers, however, refused to become members of the union that they helped to form. It looked for a few weeks as if a strike was imminent, but gradually tempers cooled - the company even offered to pay the union dues of the recalcitrant men, but the membership voted this down - and the issue was left over to the next round of collective bargaining.[136]

In 1920 a three week strike closed the mine but it did not attract the attention or the passions of 1912. Even the local Chamber of Commerce resolved that "a living wage should be paid to the workers..."[137] In London the Chairman gloomily told shareholders that

> We have had to make concessions in order to secure peace, and our New Zealand representatives inform us that the new agreement will raise wages by 2 s. per ton, and that this, coupled with other increases, will raise costs altogether by about 5 s. per ton. Such a rise in the cost of production cannot fail to render stone unpayable which could otherwise have been worked at a profit...[138]

Eight years earlier, just days before the 1912 strike, the company had pondered investing its surplus profits into new properties. Shareholders had voted on the idea, giving it their whole-hearted approval.[139] The board considered some 60 prospects, and arranged for the inspection of properties in Canada and Australia, but none had seemed suitable.[140] Then the war temporarily halted the search but the proposal came up again at the meeting in 1920, for a critical decision had to be made. The government had recently purchased the Hora Hora hydroelectric plant from the company; should the company continue looking for a new property or should it simply work out the Waihi deposit until depletion forced its closure? If the latter course was taken, 10 shillings per share could be paid out to shareholders.[141] Shareholders opted for the money. The mine continued to produce for another thirty years, but the company slowly reduced its capital and wound down the scale of its operations. Since ore reserves were gradually dwindling, little incentive existed for continued development or expansion. In June 1952 the last ore reached the surface.

*

The town of Waihi still evokes the memory of 1912: the Red Feds, the death of Evans, the coercive state of Massey. Given such memories and the passions that they have aroused, it is scarcely surprising that Waihi's historians have concentrated on the strike, labour relations and a militant union leadership. Little attention has been paid to the mining industry yet it is here, as in Rossland and Broken Hill, that the underlying tensions leading to the events of 1912 are to be found. The strike allowed the company to carry out its plans for re-structuring the mines' operations; the miners' union could only react to, but not alter, these initiatives. The proceedings of the 'Red'

Federation's Fourth Annual Conference of 1912 demonstrate that the movement's leadership had been caught off guard by the actual declaration of the strike in May.[142]

This chapter has tried to put the strike within the context of changes within the mining industry. When the century opened, the company appeared to be in an especially strong position. With high share values and the need for dividends, it pushed production in order to maximise its profits. When the true state of the mine's ore reserves became known, its entire strategy had to be altered. The real tragedy of the Waihi strike was its inevitability; similar events had already taken place in Broken Hill in 1892 and in Rossland in 1901. The next chapter will compare just what the labour relations of these three communities had in common.

TABLE 8 - 1
Production Statistics of Waihi Gold Mining Company, 1892-1922

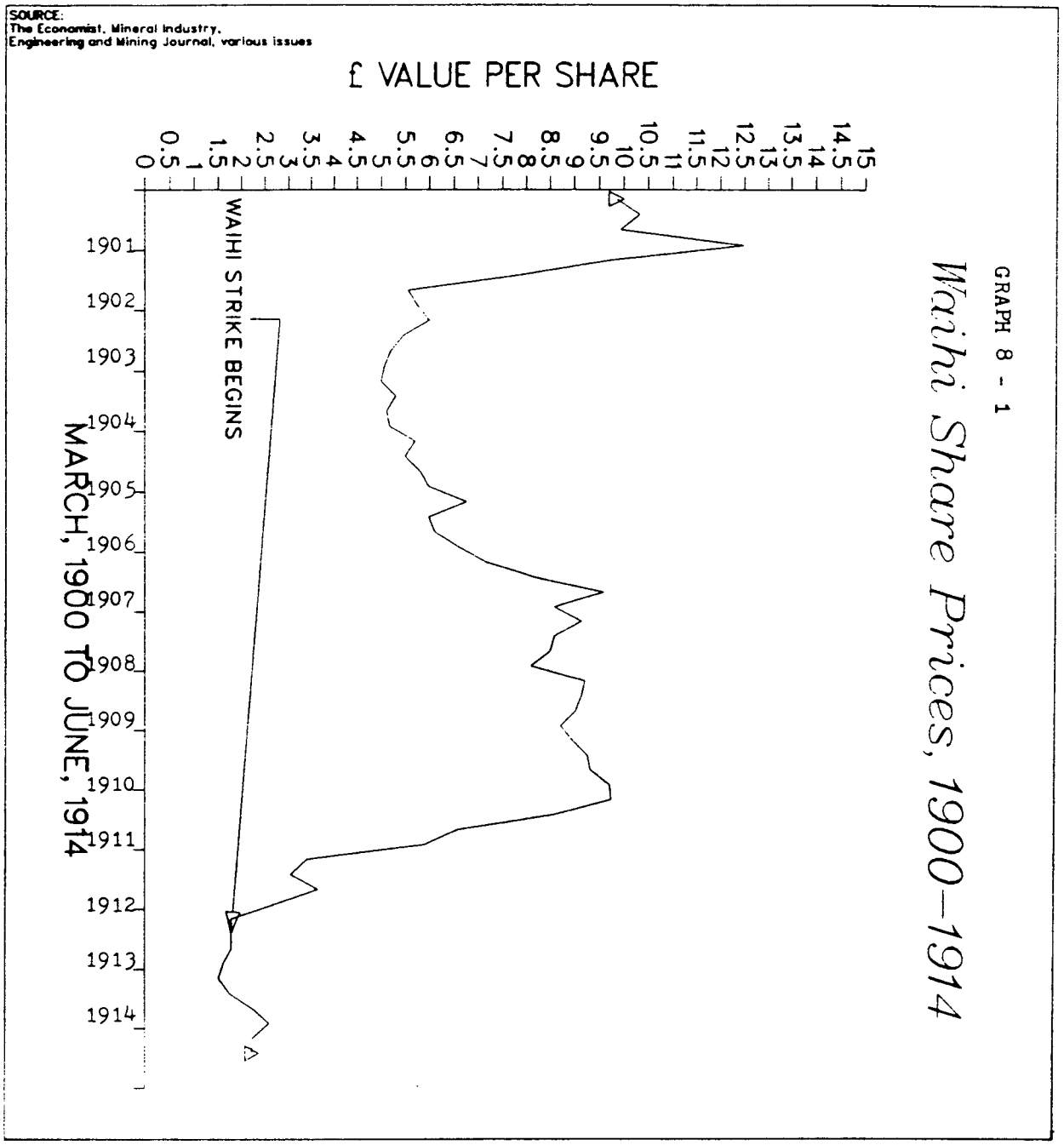
Year	Tons of Ore	Value, £	Number of Men Employed
1892	20,492	46,219	47
1893	22,182	64,345	N/A
1894	27,846	83,023	N/A
1895	37,710	120,335	116
1896	38,539	135,156	N/A
1897	45,658	144,041	N/A
1898	87,280	256,494	500
1899	114,667	302,525	800
1900	125,453	317,902	1,036
1901	178,444	461,205	1,079
1902	201,023	521,574	1,141
1903	259,082	658,393	1,120
1904	291,176	683,882	1,236
1905	298,531	728,521	1,396
1906	328,866	837,927	1,465
1907	356,974	878,486	1,500
1908	393,214	930,511	1,500
1909	416,813	959,594	1,500
1910	442,020	926,100	1,400
1911	350,699	679,116	1,030
1912	147,828	332,786	1,200
1913	184,768	336,652	866
1914	183,405	332,165	700
1915	192,333	349,581	753
1916	194,231	371,520	687
1917	191,742	370,567	601
1918	188,998	387,065	553
1919	192,613	380,402	578
1920	159,308	341,432	531
1921	164,042	348,294	599
1922	181,092	300,998	651

Source: pp. 138-39, P. G. Morgan, The Geology and Mines of the Waihi District & various Annual Reports of the Minister of Mines, in the Appendix to the Journals of the House of Representatives.

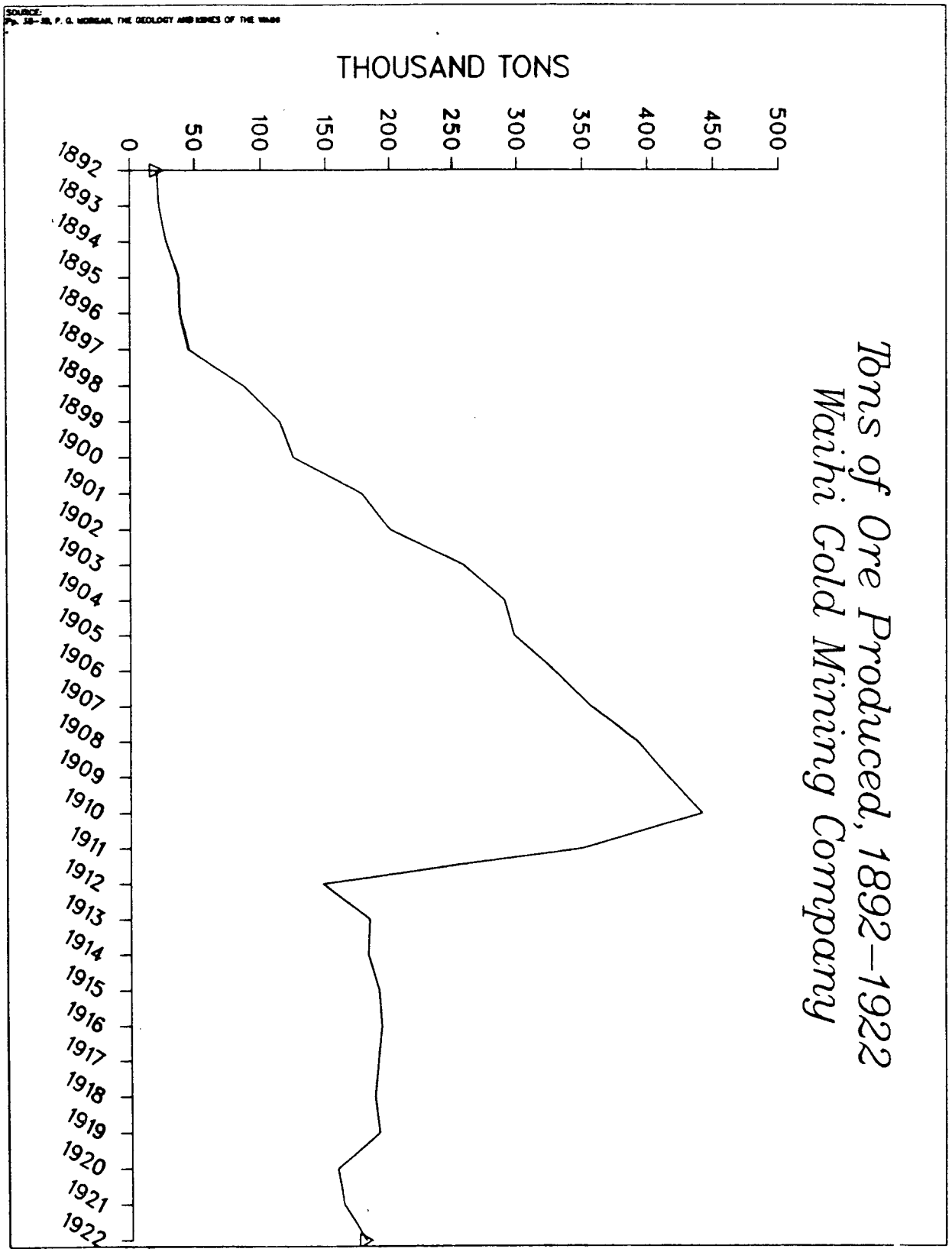
TABLE 8 - 2
Statistics Provided by E. G. Banks

Year	Tons Treated	Stamp Duty	Gold Extraction, %	Silver Extraction, %	Total Expenditure per Ton, £, s, d,
1897	40,767	1.315	86.6	48.7	1 10 5
1898	77,929	1.520	88.2	57.6	1 6 3
1899	102,381	1.790	88.4	57.4	1 7 2
1900	112,012	1.888	88.2	52.7	1 7 3
1901	159,325	1.960	88.1	56.1	1 9 2
1902	179,485	2.118	88.2	61.6	1 8 0
1903	231,323	2.406	87.5	65.1	1 5 8
1904	259,978	2.657	87.1	63.6	1 4 5
1905	298,531	3.124	87.3	64.8	1 1 3
1906	328,866	3.504	88.5	66.1	1 0 11
1907	356,974	3.794	89.0	70.3	1 0 0
1908	393,214	4.167	90.4	73.3	0 19 5
1909	416,813	4.492	91.2	73.9	0 17 5

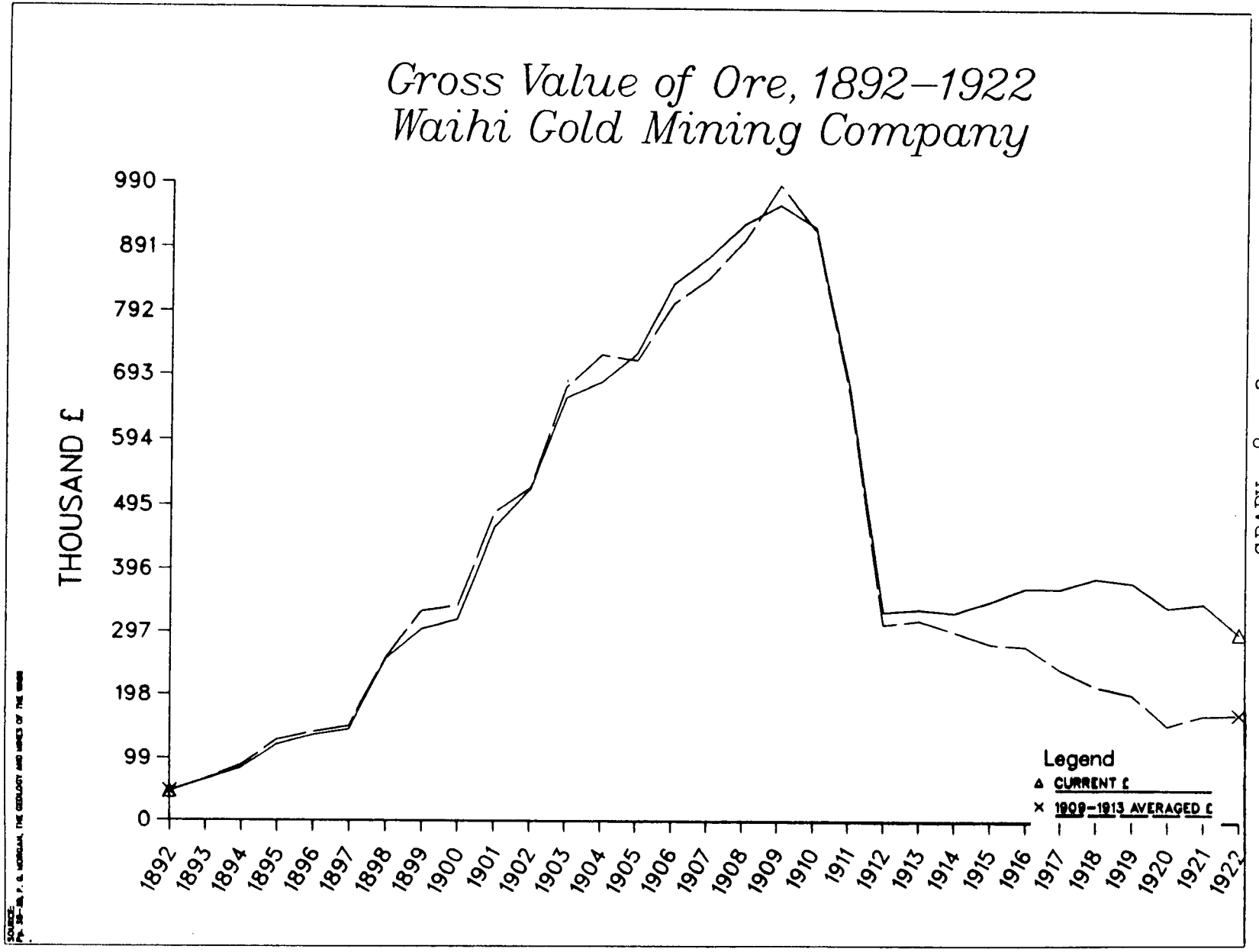
Source: p. 115, E. G. Banks, "Milling and Treatment at the Waihi Mine," Transactions of the Australasian Institute of Mining Engineers, Vol. XVI, 1912.


SOURCE:
The Economist, Mineral Industry,
Engineering and Mining Journal, various issues
£ VALUE PER SHARE
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
10
10.5
11
11.5
12
12.5
13
13.5
14
14.5
15
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
MARCH, 1900 TO JUNE, 1914
WAIHI STRIKE BEGINS
GRAPH 8 - 1
Waihi Share Prices, 1900–1914

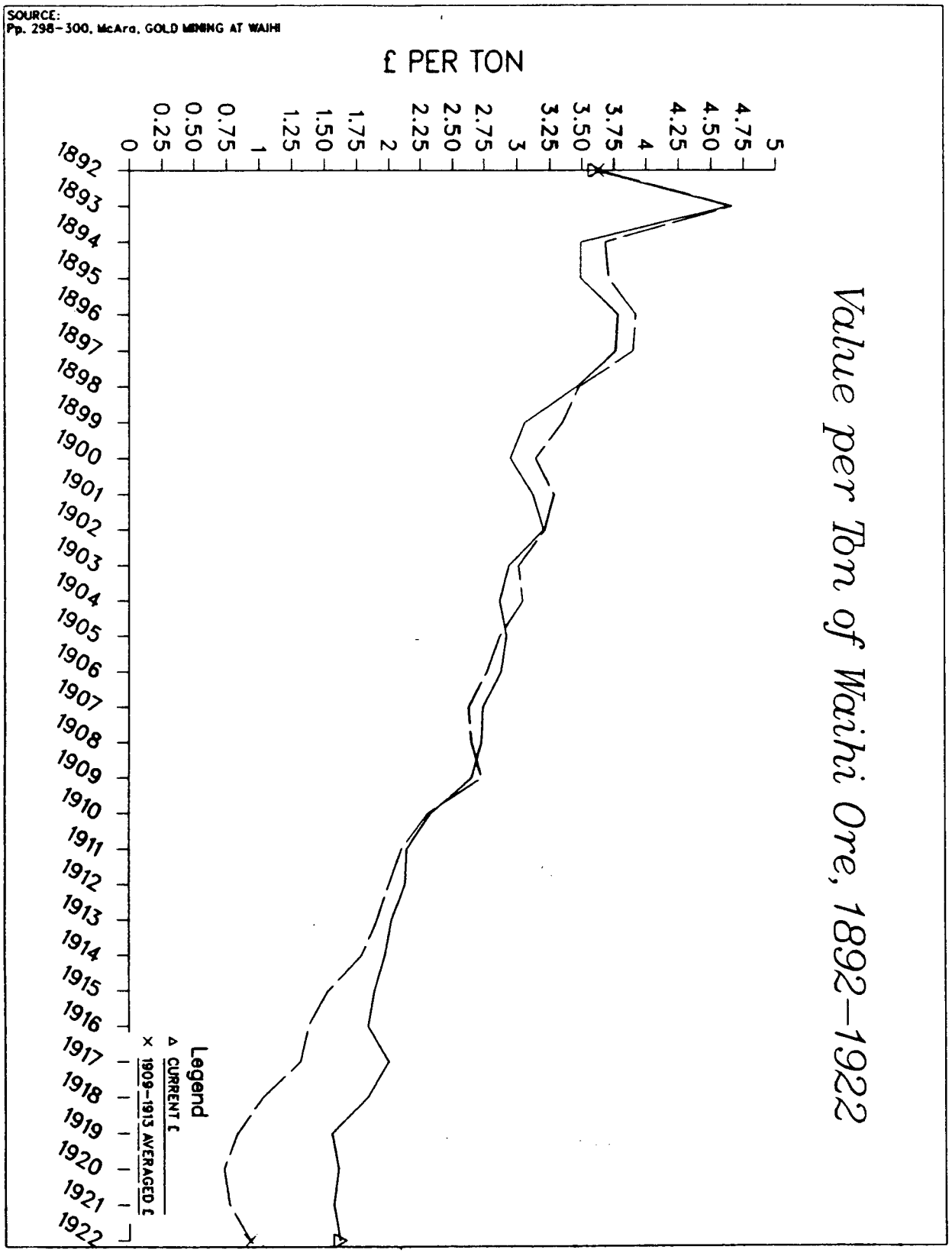
GRAPH 8 - 1


SOURCE:-
THOUSAND TONS
0
50
100
150
200
250
300
350
400
450
500
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
Tons of Ore Produced, 1892–1922
Waihi Gold Mining Company

GRAPH 8 - 2


Gross Value of Ore, 1892–1922
Waihi Gold Mining Company
THOUSAND £
990
891
792
693
594
495
396
297
198
99
0
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
Legend
CURRENT £
1909–1913 AVERAGED £

GRAPH 8 - 3


SOURCE:
Pp. 298–300, McAra, GOLD MINING AT WAIHI
£ PER TON
0
0.25
0.50
0.75
1
1.25
1.50
1.75
2
2.25
2.50
2.75
3
3.25
3.50
3.75
4
4.25
4.50
4.75
5
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
Legend
Δ CURRENT £
× 1909–1913 AVERAGED £
Value per Ton of Waihi Ore, 1892–1922

GRAPH 8 - 4

Endnotes

1 P. 1169, "Australasian Gold Mines," The Economist, Vol. 59, 3 Aug., 1901. The author, "Our Special Mining Commissioner," was J. H. Curle. He reported his visit to Waihi in The Gold Mines of the World, London, 1899: see pp. 248-50. At the end of this book, he summarised the mines he had visited, rating them under five separate classifications. Both the Waihi and the Le Roi made the second best group, as "Sound Gold Mining Shares Which May Be Safely Bought..." (p. 307). Only one Queensland mine, and the "best Witwatersrand mines" made the premier category, as "The Soundest Gold Mining Shares, Which ... May Be Bought With Absolute Safety..." (p. 306).

2 It is probably a fruitless exercise to assign such labels; but the Waihi strike marked a watershed in N.Z. industrial relations. In a very short space of time, the Massey government illustrated that it had no intention of following the Liberals' policy of overseeing industrial relations as a benevolent if disinterested referee. At Waihi the new government adopted a tough anti-labour position and a willingness to intervene on behalf of the employer when requested; the days of Liberal paternalism were truly over. However, the 1890 Maritime strike, the 1908 Blackball strike, and the 1951 Waterside strike were other crucial class struggles in N.Z. history. Cf, the comments of R. J. Campbell, p. 34, "The Role of the Police in the Waihi Strike: Some New Evidence," Political Science, Vol. 26, No. 2, December, 1974.

3 P. 115, C-3, Appendix to the Journals of the House of Representatives, 1900.

4 Pp. 235-36, Curle, The Gold Mines of the World. Cf, pp. 124-26, Raymond Radclyffe, Wealth and Wild Cats, London, 1898.

5 The figure of one hundred mines is given on p. 236, Curle, op. cit., and also on p. 1276, The Economist, 5 Aug., 1905.

6 See, for example, the article on the South African mining company, General Mining and Finance Corporation Limited, especially p. 1096, "MINES AS INVESTMENTS," The Economist, Vol. 68, 22 May, 1909. Herbert Hoover also presented the case for mining as a rational investment in his influential work (in fact, a collection of lectures given at Stanford and Columbia), Principles of Mining, New York, 1909, especially pp. 181-84. Cf, James Ralph Finlay's The Cost of Mining, New York, 1909, especially pp. 1-5 & 50-51. Such assumptions contrast markedly with two representative works on mining from the decade before: Radclyffe's Wealth and Wild Cats (1898) and Curle's The Gold Mines of the World (1899). These latter two were principally guides for speculators. For a well-argued rejection of the notion of mining-as-an-investment, see "Mining Speculation," Mining Magazine, Vol. 4, No. 3, (March, 1911): 181-85.

7 From 1903 to 1905, for example, the Mining and Scientific Press carried numerous articles on "The Costs of Mining," later collected and published as a book, edited by T. A. Rickard: The Economics of Mining, New York, 1905. James Ralph Finlay, one of the contributors to this debate, subsequently expanded his articles into a book-length treatment, The Costs of Mining.

8 This topic is the focus of a growing body of literature. For examples, see Richard Rajala, "The Rude Science: Technology and Management in the West Coast Logging Industry, 1890-1930," paper presented to BC Studies Conference,

Victoria, 1986; David A. Hounshell, From the American System to Mass Production 1800-1932 The Development of Manufacturing Technology in the United States, Baltimore, 1984, especially pp. 217-61; Craig Heron, "Hamilton Steelworkers and the Rise of Mass Production," pp. 68-89, Bryan D. Palmer, ed., The Character of Class Struggle: Essays in Canadian Working-Class History, Toronto, 1986; and the magisterial work by Alfred D. Chandler, Jr, The Visible Hand The Managerial Revolution in American Business, Cambridge, 1977.

9 One notable exception to this neglect is Logan W. Hovis's "Technological Change and Mining Labour: Copper Mining and Milling Operations at the Britannia Mines, British Columbia, 1898-1937," MA thesis, University of British Columbia, 1986. I have benefitted greatly both from this work and my association with Hovis as a fellow researcher.

10 P. 534, The Engineering and Mining Journal, Vol. 95, 8 March, 1913.

11 Pp. 2-3, Report of the Proceedings at the Ordinary General Meeting ... 13th day of May, 1909, reprinted from the Mining Journal, 15 May, 1909. Martha Goldmining Company records, TN 428, Auckland Institute and Museum. The defensive tone of the Chairman's remarks was probably a result of one shareholder's campaign against the company's management. This man, W. E. Steers, based his criticisms on a comparison of the performance of the Waihi mine with that of the Simmer & Jack, in South Africa. See pp. 5-6, op. cit.

12 That is, the percentage recovery of the assayed value of a ton of ore.

13 P. 204, "Report of Commission appointed to Inquire into Silting of Waihou and Ohinemuri Rivers, together with Minutes of Evidence and Exhibits," Appendix to the Journals of the House of Representatives, Vol. 1, C - 14, 1910. The problem of silting is discussed by Arthur Jarman, "Silting at Waihi," Mining Magazine, Vol. 3, (September, 1910): 191-94.

14 See Table 8 - 2, "Statistics Provided by E. G. Banks," appended to this chapter.

15 P. 115, Banks, "Milling and Treatment at the Waihi Mine, N.Z."

16 Waihi's population is given on pp. 39-40, Results of a Census of New Zealand, 1901. The total was 3,813; by gender, 2308 males, 1505 females. An earlier study noted that "by 1905 [Waihi] was the leading town in South Auckland. Hamilton had a population of 2,150, Cambridge 1,244, Thames, which was declining, 3,750, Te Aroha, 1,109, Tauranga, 1,047 and Waihi 5,594. As early as 1899 a correspondent of a Waihi newspaper had referred to his pleasant holiday in Hamilton away from the hustle and bustle of "city" life in Waihi." (p. 65, C. G. Sleeman, "Gold Town: The Influence of Goldmining Upon Waihi, 1890-1953," MA thesis, 1958, University of Auckland. Footnotes deleted.)

17 P. 66, Sleeman, "Gold Town."

18 P. 717, The Economist, 11 May, 1901. The occasion was the annual general meeting of the company. The speaker (Thomas Russell) added that "in the opinion of the Directors, no serious difficulties were likely to arise from it. From inquiries which had been received from some shareholders it might be supposed that a calamity had happened..."

19 Evidence of early unionism at Waihi can be gleaned from the Mine Manager's Diary: in early 1891, for example, he recorded that five of the Waihi company's 36 miners travelled the fifty kilometres to Thames, to take part in the union's first anniversary celebrations. (entry for 7th March, 1891, Mine Manager's diary, quoted on p. 68, J. B. McAra, Gold Mining at Waihi 1878 - 1952, Christchurch, 1978.) Later that year, the President of the Miners' Union successfully persuaded Waihi's superintendent to abandon an effort to increase the hours of work. (entry for 10th Dec., 1891, Mine Manager's diary, quoted on p. 70, op. cit.) On Monday, 2nd March, 1896, the mine manager noted that "This day has been kept as a holiday on account of Miners Union sports horse races etc." (Vol. 28, Daily Diary Kept by Mine Manager, May, 1895 - May, 1896, Martha Goldmining Company records, TN 428, Auckland Institute and Museum.) In mid 1895, H. T. Armstrong arrived in Waihi "and then went to work in the Waihi mine. There I found they had a Union and it was the very thing I wanted." (letter of H. T. Armstrong to his children, ca. March, 1917, quoted on p. 142, Bernard Kendrick, "Hubert Thomas Armstrong: Miner, Unionist, Politician," MA thesis, Auckland University College, 1950.) Rainer, however, states that "There is little evidence of union activity in Waihi during the 1890s." (p. 74, Philip Rainer, "Company Town an Industrial History of the Waihi Gold Mining Company, Limited, 1887-1912," MA thesis, University of Auckland, 1976.)

20 For references to the stimulus of the Reefton award, see p. 314, "Reasons for Award in the Thames Gold-Mining Dispute," Journal of the Department of Labour, 1902, & p. 188, M. E. Glasser, "Etude sur la Condition des Ouvriers des Mines en Australasie," Annales Des Mines, Dixième Série, Mémoires, Tome VIII, Paris, 1905.

21 20 April, 1901, New Zealand Herald.

22 For an account of the Board's sessions, see April to June 1901, New Zealand Herald, passim; also pp. 77-83, Rainer, "Company Town." The Board's recommendations are printed on pp. 553-55, Journal of the Department of Labour, 1901.

23 20 April, 1901, New Zealand Herald.

24 P. 83, Rainer, "Company Town." Under the terms of Reeves' Industrial Conciliation and Arbitration Act, a Conciliation Board's recommendations were not binding ones. There was considerable dissatisfaction with the procedure, viewed by many as a waste of time and money. In 1901, the Willis amendment (to the Industrial Conciliation and Arbitration Act) made appeals to the Conciliation Board optional, and allowed disputes to proceed directly to the Arbitration Court. See pp. 48-74, Alan Williams, "Industrial Militancy in New Zealand: The Contributing Influence of the Industrial Conciliation and Arbitration Act, and its Administration, 1894-1908," PhD thesis, 1976, Massey University.

25 27 Sept., 1901, New Zealand Herald. The Conciliation Board focussed chiefly on the Waihi Company and its miners; for example, the report in the Journal of the Department of Labour referred to "the Waihi gold-miners' dispute" (p. 552, 1901). The Arbitration Court took a larger view, and referred to the dispute as "Thames Gold-Miners." The union involved was the "Thames Miners'

Industrial Union of Workers"; Waihi miners did not have their own separate union.

26 27 Sept., 1901, New Zealand Herald. Both the Conciliation Board and the Arbitration Court publicly chastised Barry's actions in victimizing unionists; the matter was even raised in Parliament by the area's member, leading Premier Seddon to add his disapproval; no one was prepared to go beyond deprecating statements, however. (See p. 555, Journal of the Department of Labour, 1901; p. 317, Journal of the Department of Labour, 1902; & pp. 12-13, New Zealand Parliamentary Debates, Vol. 117, 30 July, 1901.)

27 Waihi shares had a par value of £1, although during December 1900 they were selling for £11 - £12 apiece. The new share issue of £10,000 was to be offered to existing Waihi shareholders at £10 a share. Thus, although the nominal capital of the company was only increasing by £10,000, from £320,000 to £330,000, £100,000 in cash would be raised. For details of various share issues, see p. 136, Morgan, The Geology and Mines of the Waihi District, Hauraki Goldfield, New Zealand, Bulletin No. 26 (New Series), Geological Survey Branch, Department of Mines, Wellington, 1924.

28 P. 1870, The Economist, Vol. 58, 29 Dec., 1900. The Chairman, Thomas Russell, was addressing an extraordinary general meeting of Waihi Company shareholders, held on 22 Dec. The Union-Waihi was floated as a separate company in 1894. In 1898 it purchased the neighbouring Silverton claim from a Scottish company. The company's subsequent career was summarised by Bell and Fraser:

> Fortune, however, did not favour the Union-Waihi Company, although a considerable amount of work was done..., and in 1902 financial considerations necessitated the property and plant being transferred to the Waihi Company.

- pp. 10-11, James Mackintosh Bell and Colin Fraser, The Geology of the Waihi-Tairua Subdivision, Hauraki Division, Bulletin No. 15 (New Series), Geological Survey Branch, Department of Mines, Wellington, 1912.) Cf. the sunny comments of Russell on the Union-Waihi's prospects, p. 717, The Economist, Vol. 59, 11 May, 1901. According to the figures provided by Morgan, the Union-Waihi only raised ore from 1900 to 1902. The quantity and value of the ore suggest that operations were marginal: 23,494 tons worth £37,834. (p. 132, Morgan The Geology and Mines of the Waihi District.)

29 P. 1870, The Economist, Vol. 58, 29 Dec., 1900.

30 This fascinating tale has never been adequately told, but see pp. 19-20, J. W. McCarty, "British Investment in Western Australian Gold Mining, 1894-1914," University Studies in History, Vol. IV, No. 1, 1961-62; pp. 203-05, Blainey, The Rush That Never Ended; & Aylmer Vallance, pp. 52-65, Very Private Enterprise An Anatomy of Fraud and High Finance, London, 1955. Useful contemporary descriptions are given by The Mining Record, Vol. 8, (February, 1901): 54-60; The British Columbia Review p. 7, 5 Jan., 1901, & p. 16, 12 Jan., 1901; & The Economist, pp. 165-66, 30 Jan., 1904.

31 Quoted on p. 178, A. R. Hall, The London capital market and Australia 1870-1914, Canberra, 1963.

32 For Waihi share values, see the graph appended to this chapter.

33 Pp. 21-22, Superintendent Barry's Report for 1901, Report of Directors and Statement of Accounts ... 31st Dec., 1901, Waihi Gold Mining Company records, Auckland Institute and Museum. Almost exactly two years later, BHP's General Manager reported in similar terms to his Directors in Melbourne on the effect of the first Arbitration Court decision in Broken Hill: "The claim for higher wages was disallowed, and a few questions with regard to the contract form for underground work were adjusted..." (pp. 16-17, General Manager's Report, 30th November, 1903, Broken Hill Proprietary Company).

34 Seymour Thorne George, p. 635, Parliamentary Debates, Vol. 145, 30 Sept., 1908. For a brief biography of George, see p. 29, Rainer, "Company Town."

35 The Judge explained that

> ...we are not justified in increasing that rate [of wages] because one or two employers are prosperous.... we have also to consider what effect upon the industry as a whole and upon the workers themselves an increase would produce. We think that to accede to the union demands would be to do an act which would in the present state of the mining industry here result in the loss by a large number of workers of their present means of livelihood...

- pp. 314-15, Journal of the Department of Labour, 1902. For the Judge's ruling in the 1903 Broken Hill case, see p. 247, supra.

36 P. 157, Williams, "Industrial Militancy in New Zealand."

37 Pp. 188-90 & 454-55, Glasser, "Etude sur la Condition des Ouvriers des Mines en Australasie." Glasser found the union's attitude reprehensible, although he remembered similar incidents in France when miners there also refused to accept arbitration rulings. (p. 455)

38 The Award is printed on pp. 1064-72, Journal of the Department of Labour, 1901. The preference clause is #16, pp. 1068-69. However, Judge Cooper's remarks in his "Reasons for Award in the Thames Gold-Mining Dispute" indicate that employers would still be able to victimise particular individuals if they so desired:

> We have not interfered with the condition giving the employer the right to require the dismissal of any man employed by the contractor.... the employer ought to have a right to object to any man employed by the contractor who ought not, in the mine-manager's opinion, to be allowed to work in the mine. This power ought not to be arbitrarily exercised, nor does it appear to have been except in one instance. We think that the provision in the award prohibiting the employers from doing anything, in the employment or dismissal of men, for the purpose of directly or indirectly injuring the union will sufficiently protect union men employed by contractors.

> We do not think that we ought to insert a condition requiring employers to give reasons for the dismissal of men...

- p. 315, Journal of the Department of Labour, 1902. The Judge's hopes and the preference clause notwithstanding, the Waihi company continued to victimise and blacklist; for examples, see pp. 43 & 45, Stanley Roche, The Red and The Gold An Informal History of the Waihi Strike, 1912, Auckland: Auckland University Press, 1982.

39 P. 15, H. E. Holland, "Ballot Box", and R. S. Ross, The Tragic Story of the Waihi Strike, Wellington, 1913.

40 See "Select Committee on reducing hours of work in mines," Appendix to the Journals of the House of Representatives, I 4 - A, 1903, and pp. 723-38, New Zealand Parliamentary Debates, Vol. 124.

41 Pp. 725-26, op. cit.

42 P. 67, A. A. Jenkinson, ed., Ohinemuri County Diamond Jubilee Souvenir 1885-1945, Paeroa, 1945.

43 P. 405, Parliamentary Debates, Vol. 127, 6 Nov., 1903.

44 P. 412, op. cit. The man indignantly told the House that "in few parts of the world would a company in the position of the Waihi Gold-mining Company be de-barred from building a railway..." (ibid.) As he implies, the situation at Waihi is in striking contrast with that of both Broken Hill, with its privately-owned Silverton Tramway Company (described in 1908 by Leonard Curtis as "Next to the "Proprietary," ... the greatest dividend-paying "mine" on the Barrier," p. 119, Leonard Samuel Curtis, The History of Broken Hill Its Rise and Progress, Adelaide: Frearson's Printing House, 1908) and Rossland/Trail with its CPR connections.

45 For references to the Waihi Company's offer to the government, see pp. 407 (McGowan, Minister of Mines) & 410-11 (Herries), Parliamentary Debates, Vol. 127, 6 Nov., 1903. See also p. 67, Ohinemuri County Diamond Jubilee Souvenir 1885-1945.

46 Robert Lowry, "The Ohinemuri Railway Era," Ohinemuri Regional History Journal, Vol. 5, No. 2, (October, 1968): 25-26.

47 P. 7, O. C. Stephens, "Pylon at Waihi Museum" "Memorial of Hora Hora Days," Ohinemuri Regional History Journal, Vol. 5, No. 1, May, 1968; p. 2, Mines Statement, Appendix to the Journals of the House of Representatives, Vol. 1, C - 2, 1910. See also Caudelle Clarke, "A Short History of Hora Hora and the Hydro-Electric Power Development," Ohinemuri Regional History Journal, Vol. 5, No. 1, (May, 1968): 4-6; and pp. 142-43 & 154-55, McAra, Gold Mining at Waihi 1878 - 1952. Ralph Stokes, "Traveling Correspondent" of The Mining World, found the government's opposition to the company's power scheme ludicrous:

> The ideal power scheme for the district would involve the utilization of the water power available at the Hora Hora

> rapids on the Waikato river, some 50 miles off, and its transmission to the mines. But the New Zealand government, ever zealous of what it bombastically terms the rights and property of the people, would not entertain the favourable terms offered (which included a stipulation as to the continued support of local railway traffic) and refused to grant the required sanction. Thus the Hora Hora rapids are still spending their power uselessly upon the channel of the Waikato river - for the good of the people.

- pp. 60-61, Ralph Stokes, "The Waihi Gold Mine in New Zealand, - I," The Mining World, Vol. 28, 11 January, 1908.

48 P. 191, "Report of Commission appointed to Inquire into Silting of Waihou and Ohinemuri Rivers, together with Minutes of Evidence and Exhibits," Appendix to the Journals of the House of Representatives, Vol. 1, C - 14, 1910. Williams was in charge while Superintendent Barry was in London, conferring with company officials there. Two other company officials gave much the same explanation for the Hora Hora hydro-electric plan in a published paper: "With a view to cope with the enormous pumping expected in depth, and, to further lessen the cost of mining production and treatment, a scheme for the supply of cheaper power to the whole of the company's operations has been devised and adopted..." (p. 50, Jas. L. Gilmour and W. H. Johnston, "Mining Methods in the Waihi Mine," Transactions of the Australasian Institute of Mining Engineerc, Vol. XVI, 1912.)

49 Published on pp. 126-32, Journal of the Department of Labour, 1904. Cf. pp. 1066-72, op. cit., 1901.

50 Of the nearly fifty job categories listed, only three received an increase from the 1901 award, and these were not categories that covered a significant proportion of the work force. The only other change in the 1903 agreement, which otherwise followed the 1901 award virtually word for word, was a new clause covering "Incompetent Workers." This provided for the employment of elderly or handicapped workers at a reduced wage, with prior union approval. It had been recommended by the 1901 Conciliation Board but not included in the 1901 award, and was a minor gain for the union.

51 Superintendent Barry reported to London that "A conference was held with representatives of the Miners Union and a new agreement arrived at and submitted to the Conciliation Board for ratification..." (p. 27, Superintendent Barry's Report, Report of the Directors and Statement of Accounts ... 31 Dec., 1903, in Martha Goldmining Company, TN 428, Auckland Institute and Museum.) The union might have wished to avoid going to the Arbitration Court in order to save money; the 1901 conciliation and arbitration hearings had cost it "over £1,000." (p. 16, Holland, et al., The Tragic Story of the Waihi Strike.) Union President John Newth could still praise the Court as a "useful and serviceable institution" in 1905, however. (Waihi Daily Telegraph, 28 Aug., 1905, quoted on p. 112, Rainer, "Company Town.")

52 P. 11, Ohinemuri County Diamond Jubilee Souvenir 1885-1945, and p. 93, Rainer, "Company Town." Gilmour was the Waihi company's mine manager from 1891 to 1902. Armstrong, a union activist in Waihi during the early 1900s, described the company's influence in municipal affairs:

> In 1907 I stood as a Labour Candidate for the Borough Council, and was elected by a large majority.... We not only had to fight the mine owners in the union, but one of their Officials was Mayor of the town, and several other members, were members of the Council, so that I was up against them in all directions...

- Armstrong's letter to his children, ca. March 1917, quoted on p. 145, Kendrick, "Hubert Thomas Armstrong."

53 Waihi Daily Telegraph, 28 Aug., 1905, quoted on p. 112, Rainer, "Company Town." Eight years later, the authors of The Tragic Story of the Waihi Strike offered their sarcastic description of the ceremony and they too chose to emphasise the community of interests loudly proclaimed on that occcasion:

> The official opening of the hall [in 1905] was celebrated in the usual manner by the usual banquet, at which the usual sentiments, loyal and patriotic, and all the rest of it, were given and responded to in the usual way. Mr. H. P. Barry (superintendent) and Mr. R. Williams (underground manager) were present as representatives of the mine-owners. All was harmony and "peace, perfect peace." The identity of the interests of Capital and Labor was established beyond dispute...

- p. 16, Holland, et al., The Tragic Story of the Waihi Strike.

54 For Newth's role in building up the Waihi union, see p. 90, Sleeman, "Gold Town," & on the 1911 election, p. 123, op. cit. Cf. pp. 95-96 & 112, Rainer, "Company Town." I have taken Newth's Christan name as "John," following Sleeman and Rainer, although Erik Olssen gives it as "Tom." (p. 199, review of Roche's The Red and the Gold, New Zealand Journal of History, Vol. 17, No. 2, October, 1983.)

55 The union's claims are printed on pp. 196-99, Department of Labour, Awards, Recommendations, Agreements, etc., ... for the Year 1907, Vol. VIII.

56 Armstrong's letter to his children, ca. March, 1917, quoted on p. 145, Kendrick, "Hubert Thomas Armstrong."

57 P. 17, Holland, et al., The Tragic Story of the Waihi Strike.

58 At a union meeting in February, 1908: see pp. 123-24, Rainer, "Company Town." Rainer notes that Armstrong spoke in favour of Arbitration, and like many others, felt that it was poor administration that was responsible for the system's shortcomings.

59 P. 61, Ralph Stokes, "The Waihi Gold Mine in New Zealand, - I," The Mining World, Vol. 28, 11 January, 1908.

60 Kendrick cites a reference to the Waihi Daily Telegraph, 12 Oct., 1908, to support his statement that "meetings of the Union were poorly attended and frequently had to be postponed for the lack of a quorum." (p. 28, Kendrick, "Hubert Thomas Armstrong.") Referring specifically to 1909, Holland, et al.,

reported that "At that time meetings of the Union were very poorly attended, interest in Union matters being conspicuous by its absence." (p. 18, The Tragic Story of the Waihi Strike). Rainer also notes a poorly attended union meeting in early 1908, p. 124, "Company Town."

61 Development work underground was usually contracted out by distance rather than tonnage, or by a combination of distance and tonnage. Such work would include shaft sinking, pushing through drives, winzes, etc.; the necessary preliminaries before actual ore production began. For example:

> A contract has been let for 150 ft. 22/6 per ft.... A contract has been let to drive 200 feet 17/- per ft. & 3/6 per ton.... A contract has been let 18/- per ft. & 4/- per ton to rise ... to No. 2 Level.

- pp. 142-44, Mine Manager's Diary, Vol. 40, 1903-1904, Martha Goldmining Company Records, M 37, Auckland Institute and Museum. Production mining, on the other hand, was contracted by tonnage alone; see the description on pp. 35 & 49-52, Gilmour and Johnston, "Mining Methods in the Waihi Mine." Pp. 51-52 provide examples of the tally forms used by contractors in the mine. A few details of the system's operations are provided on pp. 8-9, Kendrick, "Hubert Thomas Armstrong" & p. 105, Sleeman, "Gold Town"; both accounts were based on interviews with former Waihi miners.

62 The company remained responsible for ensuring that the safety provisions of the Mines Act were upheld, however. The mining inspector could (and did) stop production or prevent the use of specific pieces of equipment if he felt they were unsafe or were in violation of the Act. For an instance of one such dispute, see pp. 29, 38, & 68, Mine Manager's Four-weekly Reports to London Office, Vol. 6, 1904-05, Martha Goldmining Company Records, M 37, Auckland Institute and Museum.

63 P. 635, Parliamentary Debates, Vol. 145, 30 Sept., 1908.

64 The company chairman explained to shareholders that "the shrinkage method of stoping was adopted in some parts of our mine after a visit of Mr. Williams to Australia." (p. 6, Report of the Proceedings at the Ordinary General Meeting ... 13th day of May, 1909, reprinted from the Mining Journal, 15 May, 1909. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.) In all likelihood it was Broken Hill that Williams visited, where he had earlier worked. Williams was a Cornish-born miner whose career stretched back to the late 1860s. Before coming to Waihi in 1902, he had worked in England, on the Comstock in the United States, at Kalgoorlie as well as Broken Hill in Australia, and also at Waitekauri in New Zealand. (p. 189, "Report of Commission appointed to Inquire into Silting of Waihou and Ohinemuri Rivers, together with Minutes of Evidence and Exhibits," Appendix to the Journals of the House of Representatives, Vol. 1, C - 14, 1910, & p. 147, New Zealand Mines Record, Vol. XII, No. 4, 16 Nov., 1908.) Williams became co-manager following the retirement of Thomas Gilmour in 1902. Gilmour's youthful son James was the other manager.

65 Pp. 38-39, Gilmour and Johnston, "Mining Methods in the Waihi Mine." Johnson was the company's surveyor. Gilmour and Johnston's paper was subsequently republished in the Mining and Scientific Press, pp. 789-93, Vol.

105, 21 Dec., 1912. The conference where they originally presented it was that of the Australasian Institute of Mining Engineers, held at Thames in January 1911 and attended by some one hundred and forty members. The subsequent volume of the Transactions of the Australasian Institute of Mining Engineers (Vol. XVI, 1912) published the papers presented at this gathering, including several dealing with Waihi. For another description of shrinkage stoping at Waihi, with particularly useful illustrations, see pp. 190-200, McAra, Gold Mining at Waihi 1878 - 1952.

66 Erik Olssen correctly points out that not all miners agitated for a change in the system of contracting. (p. 199, New Zealand Journal of History, Vol. 17, No. 2, October, 1983.) A majority, however, did favour the change.

67 This is clear from the evidence that miners gave at the Royal Commission on Mines, which sat in Waihi during late August, 1911. Charles Opie's testimony was typical:

> 49. What do you consider is the cause of the majority of accidents that occur in these mines? - I think the present contract system is responsible for them.
> 50. Why? - Well, they do not get a very big price, and have to work at high speed to make a wage.

- p. 223; cf. # 36 & 37, p. 226; # 34, p. 255; & # 44, p. 262, Royal Commission on Mines, Appendix to the Journals of the House of Representatives, C - 4, Session 1, 1912.

68 P. 8, Kendrick, "Hubert Thomas Armstrong"; Kendrick's source was an interview with Charles Opie, who was active in the agitation for switching to "all-in-the-job" contracting. See also p. 17, Holland, et al., The Tragic Story of the Waihi Strike. Seddon had introduced co-operative contracting for government works in 1891, when he was the Minister responsible; for details, see P. J. Gibbons, "Some New Zealand Navvies: Co-operative Workers, 1891-1912," New Zealand Journal of History, Vol. 11, No. 1, April, 1977: 54-75.

69 The following account rests largely on pp. 125-30, Rainer, "Company Town"; also, pp. 106-07, Sleeman, "Gold Town," & pp. 8-12, Kendrick, "Hubert Thomas Armstrong."

70 P. 127, Rainer, "Company Town."

71 These opponents of the change were, predictably, those who were profiting under competitive contracting. As Holland et al. later reported,

> ...the greater number of contractors remained obdurate in their opposition [to cooperative contracting]. These latter, although members of the Union, held a meeting on their own, at which ways and means of combating the Union's movement were considered. About 50 or 60 contractors attended that meeting, and their influence, thanks to the Union being tied up under the Arbitration Act, far outweighed their numbers...

- p. 17, The Tragic Story of the Waihi Strike. Armstrong remembered that "Not only were we very bitterly opposed by the Employers, but also by a

section of the workers.... they would imperil their mortal souls to find favour in the eyes of their employers." (Armstrong to his children, ca. March, 1917, quoted on p. 144, Kendrick, "Hubert Thomas Armstrong.")

72 Entry for June 15, 1908, p. 12, Mine Manager's Diary, Vol. 7, 1908-1910, Martha Goldmining Company records, M 37, Auckland Institute and Museum.

73 Printed in New Zealand Herald, 24 June, 1908, quoted on p. 130, Rainer, "Company Town." Also printed in the Waihi Daily Telegraph, 6 July, 1908, quoted on p. 106, Sleeman, "Gold Town" & p. 9, Kendrick, "Hubert Thomas Armstrong."

74 "A capacity Union meeting voted to accept the offer, with only five dissenting." (p. 131, Rainer, "Company Town.")

75 P. 7, Erik Olssen and Len Richardson, "The New Zealand labour movement, 1880-1920," in Eric Fry, ed., Common Cause Essays in Australian and New Zealand Labour History, Sydney & Wellington: Allen & Unwin, 1986. See also Patrick O'Farrell, "Politics and Coal: The Socialist Vanguard, 1904-8," pp. 101-27, in Miners and Militants Politics in Westland 1865-1918, Six Essays edited by Philip Ross May, Christchurch, 1975.

76 P. 13, P. H. Hickey, 'Red' Fed, Memoirs, Wellington, 1925. Hickey commented that "we afterwards used [this event] with much effect."

77 Pp. 17-18, op. cit.

78 Pp. 15-16, op. cit.

79 The name was not coined until early 1912, when Hickey published a broadside on red paper. (p. 48, op. cit.)

80 P. 31, op. cit.

81 P. 41, Olssen, "Some reflections about the origins of the 'Red' Federation of Labour, 1909-13," in Eric Fry, ed., Common Cause.

82 On the disintegration of the Liberals generally, see R. K. Newman "Liberal Policy and the Left Wing 1908-1911 A Study of Middle Class Radicalism in New Zealand," MA thesis, University of Auckland, 1965, and R. T. Shannon, "The Decline and Fall of the Liberal Government. A Study in an Aspect of N.Z. Political Development, 1908-1919," MA thesis, University of Auckland, 1953. For a discussion of Labour's disenchantment, see pp. 13-46, Barry Gustafson, Labour's Path to Political Independence The Origins and Establishment of the New Zealand Labour Party 1900-19, Auckland, 1980.

83 In the case of the Royal Commission on Mines, the two miners' representatives issued a dissenting report: see pp. 37-40, Report of Royal Commission on Mines, Appendix to the Journals of the House of Representatives, C - 4, Session 1, 1912.

84 P. 15, Hickey, 'Red' Fed, Memoirs.

85 According to Rainer, the union meeting to consider joining the Federation

lapsed for want of quorum. (p. 136, Rainer, "Company Town.") Kendrick, however, gives considerable detail on at least one subsequent meeting which considered the proposal. (pp. 16-20, Kendrick, "Hubert Thomas Armstrong.")

86 Proceedings of the conference were subsequently published. See also pp. 21-21, Hickey, 'Red' Fed, Memoirs, & pp. 15-21, Kendrick, "Hubert Thomas Armstrong."

87 Holland, et al., put the date of Waihi's affiliation a year later, in October 1909. (p. 17, The Tragic Story of the Waihi Strike.) This is possibly a typographical error.

88 P. 23, Hickey, 'Red' Fed, Memoirs. For accounts of the dispute, see pp. 30-38, Kendrick, "Hubert Thomas Armstrong," & pp. 140-43, Rainer, "Company Town."

89 Pp. 18-19, Holland, et al., The Tragic Story of the Waihi Strike. Parry did not take up the job as Workmen's Inspector until September (p. 273, entry for 8 Sept., 1909, Mine's Diary, Vol. 7, 1908-1910, Martha Goldmining Company Records, M 37, Auckland Institute and Museum.)

90 P. 375, entries for 10, 11 & 12 March, 1910, Mine's Diary, Vol. 7, 1908-1910, Martha Goldmining Company Records, M 37, Auckland Institute and Museum. Cf, the comments of Holland et al, on this practice at Waihi, p. 24, The Tragic Story of the Waihi Strike.

91 Pp. 19-20, Holland, et al., The Tragic Story of the Waihi Strike, & pp. 158-60, Rainer, "Company Town."

92 The Federation changed its name to the New Zealand Federation of Labour in 1909, a move which intensifed the rivalry between the Red Feds and the craft-dominated Trades and Labour Councils. The latter group were planning to launch a similar Federation and did not take kindly to the Red Feds' initiative. See pp. 24-58, Gustafson, Labour's Path to Political Independence.

93 Pp. 20-23, Holland, et al., The Tragic Story of the Waihi Strike, & pp. 161-68, Rainer, "Company Town."

94 P. 166, Rainer, "Company Town."

95 Report of the Proceedings at Ordinary General Meeting ... 13th day of May, 1909. Reprinted from Mining Journal, 15 May, 1909. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

96 P. 4, The Mining Magazine, Vol. 3, July, 1910.

97 P. 15, The Times, 2 Sept., 1910. See also p. 159, The Mining Magazine, Vol. 3, September, 1910; its report concluded that "the decreased production is a symptom either of an error in estimates or of an impoverishment of the lode in recent workings."

98 P. 5, Report of the Directors and Statement of Accounts ... 31st December, 1910. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

99 Ibid.

100 P. 5, "Special Report by Mr. R. E. Williams," 14 Dec., 1910. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

101 P. 1352, The Economist, Vol. 71, 31 Dec., 1910. Cf, the description of the Waihi share collapse on pp. 401-02, Engineering and Mining Journal, 25 Feb., 1911.

102 P. 3, "Report on the Mine by G. A. Richard," 6th April, 1911. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

103 T. A. Rickard, "The Great Gold Mines," Mining and Scientific Press, (4 May, 1907): 565-67. Rickard was the most respected mining journalist of his day; Young calls him "the dean of American precious-metals mining from 1890 to 1929." (p. 41, Western Mining.) Details of his career may be found in The Pick and The Pen, passim; Otis E. Young, Jr., "Thomas Arthur Rickard, 1864-1953," Arizona and the West, Vol. XI, (Summer, 1969): 105-08; and Rickard's autobiography, Retrospect, London, 1937.

104 P. 250, The Mining Magazine, Vol. 4, April, 1911. Five years later, Rickard wrote two retrospective articles on the gold mines that he had discussed in his 1907 piece, "The Great Gold Mines." He repreated his criticisms of the Waihi's directors, with considerable emphasis:

> The Waihi did have bad luck in depth, and this bad luck, being accompanied by over-valuation of the shares and delay in making known the fact of impoverishment on the lower levels, caused a fiasco of sensational and disastrous character. The quotation on 500,000 shares dropped from $50 to $14.50 within twelve months and is now $8.50, indicating a fall of $20,212,750 in the market valuation. The episode reflects discredit on the directors in London; for either they were ignorant concerning facts that were known at the mine or they were aware of the truth and failed to advise the shareholders with reasonable promptitude. The Waihi must have caused a great loss of money to the public...

- p. 655, "The Greatest Gold Mine," Mining and Scientific Press, 4 November, 1916.

105 P. 7, Report of the Directors and Statement of Accounts ... 31st December, 1910. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum. This report was compiled after Richards' report had been made, probably in late April or early May, 1911.

106 P. 25, The Times, 27 April, 1912.

107 The best accounts of the strike have been written by partisans: Holland, et al., The Tragic Story of the Waihi Strike & Roche, The Red and the Gold. Despite the obvious sympathy of the two works for the striking miners, both are reliable narratives of actual events; their interpretations and analysis, however, should be treated with some caution. Erik Olssen is less impressed

with Roche's book: see his review in New Zealand Journal of History, Vol. 17, No. 2, (October, 1983): 199-200; note also Roche's reply, op. cit., Vol. 19, No. 1, (April, 1985): 95-97. Olssen himself provides a useful and succinct account of the strike in "Trouble at Waihi," New Zealand's Heritage, No. 72, (1972): 1989-92. Perhaps the most scholarly account is that by Rainer, pp. 175-269, "Company Town," although R. J. Campbell's "The Role of the Police in the Waihi Strike: Some New Evidence" is equally invaluable. The same cannot be said of Laurie Barber's "The Waihi Strike of 1912," New Zealand Law Journal, (February 1983): 57-60. Gustafson devotes a chapter to the strike in Labour's Path to Political Independence, pp. 59-66; another lengthy account may be found in Sleeman, pp. 147-216, "Gold Town." In addition, standard histories of New Zealand typically include a discussion of both Red Feds and the defeat at Waihi; e.g., p. 166, W. H. Oliver, The Story of New Zealand, London, 1960, & pp. 209-10, Keith Sinclair, A History of New Zealand, Harmondsworth, 1980, 3rd edition.

108 Olssen, "Some reflections about the origins of the 'Red' Federation of Labour, 1909-13."

109 Rainer devotes the most space to the company's problems and initiatives; indeed, he quotes a Coromandel newspaper that offered a very shrewd appraisal of what the company was up to: "In all probability [the company] will play a waiting game until such time as they are prepared to carry on under more economical conditions..." (Coromandel County News, 17 May, 1912, quoted on p. 194, Rainer, "Company Town.") Rainer approaches the analysis given here, but he inadvertently handicaps himself by ending his study in 1912. The company, after all, won the strike and subsequent years demonstrate what it wished to achieve.

110 Rainer provides the best discussion of this contentious issue, pp. 183 & 189-93, "Company Town." Other accounts tend to accept without question that provided by Holland, et al., pp. 28-35, The Tragic Story of the Waihi Strike.

111 Pp. 151-56, Sleeman, "Gold Town."

112 A copy of this photograph was reprinted between pp. 72-73, Holland, et al., The Tragic Story of the Waihi Strike; note the contrast between this picture and that of the Miners' Union's strike committee, reprinted on p. 64, Roche, The Red and the Gold. See also Olssen's comments on age and militancy, with some suggestive statistics, pp. 32-33, "Some reflections about the origins of the 'Red' Federation of Labour, 1909-13." The engine drivers' manifestoes underline their discomfort at being grouped with

> a Union whose officials embrace every opportunity of insulting the Empire and its rulers, of ridiculing our traditional beliefs, of scoffing at all religion, and of bleating forth anti-militarism, atheism, and Revolutionary Socialism in season and out.

- reprinted on p. 34, Holland, et al., op. cit. The Waihi company was as devoted to the Empire as these engine drivers; whenever the occasion arose to name mills or ore bodies, the choice invariably fell on a member of the royal family. Describing the mine's various reefs, including the Empire, the Albert, the Princess, the Edward and the Rex, one mining journalist noted with

amusement that "the Waihi Co. is loudly patriotic." (p. 103, Ralph Stokes, "The Waihi Mine in New Zealand - II," The Mining World, Vol. 28, 18 Jan., 1908.)

113 See, for examples, pp. 191-92, Rainer, "Company Town"; pp. 28-35, Holland, et al., The Tragic Story of the Waihi Strike; & pp. 159-61, Sleeman, "Gold Town."

114 P. 104, Report for period ending 8th June, 1912, Mine Diary, Vol. 8, 25 Nov. 1911 to 12 April 1913, Martha Goldmining Company Records, M 37, Auckland Institute and Museum. Miners and other underground workers had stopped work the day before. The manager noted that "A verbal reply was given, that, the matter is out of our hands now, and in the hands of the Mine Owners Association." He probably did not bother to mention that the Association's president (Charles Rhodes) was a company director.

115 Hubert Akers, Secretary, to Shareholders, 26th July, 1912, London. The company issued three such strike circulars to its shareholders; later ones were sent on 28 October 1912 & 24 Jan. 1913. (copies held in Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.) The company repeated its position in its annual report on 1912 (pp. 6 & 12, Report of the Directors and Statement of Acccounts ... Year ending 31st December, 1912. Martha Goldmining Company Records, TN 428. Auckland Institute and Museum) and at the annual meeting of shareholders in 1913. (p. 1, Report of the Proceedings of the Ordinary General Meeting of the Shareholders ... 8th May, 1913, reprinted from the Mining Journal, 10 May, 1913. Martha Goldmining Company Records, TN 428. Auckland Institute and Museum.)

116 For a picture of the street theatre, and a discussion of the strikers' mood in the first days, see pp. 63-68, Roche, The Red and the Gold.

117 Pp. 36-37, Holland, et al., The Tragic Story of the Waihi Strike; pp. 70-71, Roche, The Red and the Gold; & pp. 203-04, Rainer, "Company Town."

118 Typical of the Red Feds' view is Scott Bennett's sarcastic "Unionism: Old and New," p. 9, Maoriland Worker, 20 Feb., 1911. Hickey later admitted that "Mr. Semple was very frequently unsparing of his criticism of the craft union and its official. His forceful personality, his fiery eloquence, and his extraordinary capacity for illustration, stung many a reactionary official to the quick..." - p. 34, 'Red' Fed. Memoirs. For examples of the umbrage taken by the moderate faction of the trade union movement, see "About Some Wind Bags," (article on the Federation's conference), & "I. W. W. - The New "Miners' Complaint"," both in 27 Aug., 1910, Weekly Herald, & J. T. Paul's pamphlet, Labour and the Future, Dunedin, 1911.

119 See the angry account of this perceived treachery on pp. 55-87, Holland, et al., The Tragic Story of the Waihi Strike.

120 Pp. 35-36, Campbell, "The Role of the Police in the Waihi Strike." As Campbell notes, "The change in government was no doubt significant..., but whether there was some definite ministerial directive or whether the Police Commissioner merely assumed that he would now have a freer hand, cannot be definitely resolved."(p. 35.)

121 The local Inspector had opposed bolstering the police presence in Waihi.

He explained to Police Commissioner John Cullen that:

> The strike Executive have assisted the Police in warning the men to conduct themselves properly, and ... they have taken pride in the fact that no breach of the peace has occurred since the strike...

Wright to Cullen, 12 Aug., 1912, quoted on p. 36, Campbell, "The Role of the Police in the Waihi Strike."

122 The manager compiled the following statistics on the mine's work force, entering them in his Mine Diary:
Oct. 2 (the day the mine first opened), 24 men reported for work;
Oct. 5, 48 men reported for work;
Oct. 12, 95 men reported for work;
Oct. 19, 110 men reported for work;
Oct. 26, 140 men reported for work;
Nov. 2, 155 men reported for work;
Nov. 9, 190 men reported for work;
Nov. 16, 214 men reported for work;
Nov. 23, 238 men reported for work;
Nov. 30, 250 men reported for work;
Dec. 7, 271 men reported for work;
Dec. 14, 297 men reported for work;
Dec. 21, 298 men reported for work;
Dec. 28, 299 men reported for work.
– pp. 112, 119 & 125, Reports for periods ending 26th Oct., 23 Nov., & 28 Dec., 1912, Mine Diary, Vol. 8, 25 Nov. 1911 to 12 April 1913, Martha Goldmining Company Records, M 37, Auckland Institute and Museum.

123 Pp. 112–12, Report for period ending 26th Oct., 1912, Mine Diary, Vol. 8, 25 Nov. 1911 to 12 April 1913, Martha Goldmining Company Records, M 37, Auckland Institute and Museum. These four-weekly Diary reports were sent over to the London Directors. As the manager implies, competitive contracting had been re-introduced.

124 The police commissioner cabled to the Minister of Justice that "I thought it was quite time for the workers to show their strength and advised the mine authorities to carry out the demonstration..." (Cullen to Herdman, 8 Nov., 1912, quoted on p. 38, Campbell, "The Role of the Police in the Waihi Strike.")

125 "End of the Waihi Strike," p. 5, The Times, 2 Dec., 1912. An earlier article on "The Waihi Labour Trouble," detailing the arbitrationists' attack upon the Miners' Hall, had been relegated to the commercial section (p. 21, The Times, 13 Nov., 1912.) The Economist's correspondent described the strike as "the nearest approach to civil warfare we have had in New Zealand." (p. 15, "Gold Production in New Zealand," 5 July, 1913, The Economist.)

126 See pp. 32–39, H. Roth, Trade Unions in New Zealand Past and Present, Wellington, 1973; Erik Olssen, "The Great Strike of 1913," New Zealand's Heritage, 73, (1972): 2023–33; Olssen, "The 'Red Feds'," New Zealand's Heritage, 74, (1972): 2066–72; & pp. 67–88, Gustafson, Labour's Path to Political Independence. Note, however, the responses to Gustafson's book by Olssen (New Zealand Journal of History, Vol. 15, No. 1, (April, 1981): 82–84) and

Plumridge (Comment, New Series, No. 12, (September, 1980): 31-32 & No. 13, (June, 1981): 17-19.)

127 This policy continued until August, 1915, when a new union executive was brought in. See "Victimisation," Maoriland Worker, 18 Aug., 1915, & "Waihi Doings," 1 Sept., 1915. In April, 1916, the union president was advising Auckland unionists that his organization's policy of black-listing had been abandoned. ("Auckland Reports," 5 April, 1916, Maoriland Worker.)

128 P. 1, Report of the Proceedings at the Ordinary General Meeting of Shareholders ... 8th May, 1913. Reprinted from The Mining Journal, 10 May, 1913. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

129 "Unhappy Waihi," Maoriland Worker, 28 April, 1915. The paper reported the deaths of Waihi residents carefully and whenever a prominent strike-breaker died, the paper noted the fact (one suspects with some satisfaction), making mention of his past activities. (See, for example, "Waihi Notes," 31 March, 1915; "Waihi Doings," 9 June, 1915; "Waihi Doings," 1 Nov., 1916.)

130 "Railway Builders," Maoriland Worker, 28 April, 1915. H. T. Armstrong, former Waihi union president, also worked as an organiser for the railway builders' union. He visited the town four months after Campbell, and "found most of the men employed on these works ... old friends and good unionists, who have been victimised..." ("Railway Construction Workers," Maoriland Worker, 11 Aug., 1915.)

131 P. 859, Parliamentary Debates, Vol. 178, 1 Aug., 1917; "Victimised Miners at Waihi," Maoriland Worker, 18 July, 1917.

132 "Waihi Doings," Maoriland Worker, 16 Aug., 1916. For the size of the Waihi company's work force, see the table appended to this chapter.

133 "Waihi Doings," Maoriland Worker, 23 Aug., 1916.

134 Wesley Richards, who had moved on to become secretary of the Auckland General Labourers' Union. ("Waihi Notes," Maoriland Worker, 19 April, 1916.) For his activities in Waihi in 1912, see p. 157, Roche, The Red and the Gold.)

135 "Waihi Miners' Union," Maoriland Worker, 15 Aug., 1917. In 1919, the company issued a statement which included a brief but revealing account of the union's history

> In 1912 - after the strike - a union was formed, composed entirely of miners and battery hands who favoured settlement of industrial disputes by arbitration as opposed to the direct action of the Federation of Labour. As time passed, however, many of the original members of the union left to take up farming and other work, new members came in, and the politics of the union gradually changed till in 1916 there was a majority in the union sufficient to carry a resolution to again federate with the Federation of Labour...

- p. 6, 12 March, 1919, New Zealand Herald.

136 The dispute was covered in some detail by the New Zealand Herald, see 8 March - 7 April, 1919, passim; see also pp. 250-60, Sleeman, "Gold Town," & 19 March, 26 March & 2 April, 1919, Maoriland Worker. Bert Pipe was the union president. The company insisted that the union executive had earlier agreed to exempt the nine men when it gained the closed shop.

137 P. 4, 25 March, 1920, New Zealand Herald. The strike lasted from 19 March to 6 April; it is covered in detail in the New Zealand Herald; cf, pp. 80-81, Vol. 12, Mine Manager's Four Weekly Reports to London, Oct. 1919 - April 1922, Martha Goldmining Company Records, M 37, Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

138 P. 1, Report of the Proceedings at the Ordinary General Meeting of Shareholders ... 20th May, 1920. Reprinted from The Mining Journal. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

139 The results of the ballot were printed in the second strike circular, Secretary Hubert Akers to Shareholders, London, 28 October, 1912. (copy in Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.) 1,368 shareholders (representing 156,513 shares) voted in favour of taking up other properties; 521 shareholders (71,539 shares) voted against the idea.

140 Pp. 6-7, Report of the Directors and Statement of Accounts ... Year Ending 31st December, 1912. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

141 Pp. 2-3, Report of the Proceedings at the Ordinary General Meeting of Shareholders ... 20th May, 1920. Reprinted from The Mining Journal. Martha Goldmining Company Records, TN 428, Auckland Institute and Museum.

142 The conference was held in Wellington, from 23 May to 6 June, 1912. The Maoriland Worker later published a lengthy (92 page) Report of Proceedings. See especially the discussion of Waihi on pp. 6-9 & 26-45.

IX

The Miners of Broken Hill, Waihi and Rossland:

A Comparative Investigation

When I came here the AMA was the most militant union, miners you see? I don't know what they were like in Caesar's time but miners have always been militant. The conditions of work ... people were concerned with the dangers of mining, particularly in the Broken Hill mines because they had never experienced such wide bodies of ore.[1]

One widely recognised characteristic of the mining industry has been the frequency and intensity of its industrial disputes.[2] Broken Hill, Waihi and Rossland were no exceptions: as preceding chapters have described, at least one prolonged and bitter fight closed the mines of each area in the years before the First World War. Miners in all three communities consequently acquired a reputation for militancy, an emphasis discernible in both contemporary and later accounts of all three communities. Pat Hickey, for example, a prominent New Zealand labour activist during the years immediately prior to the First World War, described "the Waihi Miners' Union ...[as] one of the most militant bodies in the [N.Z.] Federation [of Labor] ..."[3] In 1908, the Trades and Labor Congress of Canada's Western organizer called Rossland's miners "this militant band of Labor's bravest champions."[4] Ern Wetherell recalled that he had moved to Broken Hill in 1911, while still a teenager,

"drawn [as he put it] to this so-called Mecca of Unionism." He was only one of "Many thousands of people ... [who had] been attracted to Broken Hill because of its reputation for industrial militancy."[5] This reputation for militancy reflected the miners' apparent readiness to fight in defence of certain perceived rights, their refusal to accept without complaint the unilateral actions of mine managers.

The historiography of these three communities also stresses miners' militancy, and typically sees this as a consequence of particularly harsh working conditions, although most writers also emphasize the role of a militant leadership in mobilising the rank and file. Much of the literature takes for granted the unique or exceptional character of the mining communities in question. This chapter rejects the notion that the behaviour of workers in these three communities was due in some way to special circumstances. It argues instead that the militancy which characterized miners in Rossland, Broken Hill and Waihi was largely a response to a similar process of re-structuring within the mining industry. A brief chronolgy will help to establish the validity of the argument.

*

Production mining began at Broken Hill in 1885 and the following year the town's miners established a branch of the inter-colonial miners' union, the Amalgamated Miners Association of Australasia [AMA]. Two short successful strikes in 1889 and 1890 won both a closed shop and a company check-off of union dues. These were particularly significant victories in light of the massive defeat suffered by other working people in 1890, during and after the great Maritime Strike. Broken Hill miners were unable to hold onto the fruits of their victory, however: a collapse in share values and declining prices for

silver and lead heralded a strike in 1892. Companies demanded that miners forego the traditional daily wage and accept in its stead payment for the amount of work done, that is, for tons of ore raised during a shift. The companies achieved this goal, after a long and bitter dispute which saw the wholesale importation of strike breakers, the prosecution and imprisonment of union leaders, and a decisive crushing of the union's strength. Unionism on the Barrier remained weak and ineffectual for the next decade. Its revival in the early years of this century rested largely on the protection of the state.

The New South Wales Industrial Arbitration Act of 1901 acknowledged that union recognition was essential in regulating industrial relations.[6] The Broken Hill miners' union was able to use provisions of the Act to force reluctant companies to acknowledge that it was the bargaining agent for their employees. Gradually the union re-established its authority; by 1906 it successfully rejected the companies' efforts to move to a sliding scale wage agreement and insisted on the exclusion of non-unionists from negotiations. This growing assertiveness was accompanied by a more unequivocal social analysis. In 1908, for example, the union's new preamble asserted simply that "the class struggle exists..." and argued that workers would not receive "the full fruits of their industry.... [without] the overthrow of Capitalism."[7]

In 1909 another bitter strike took place but unlike 1892 the shut down was not complete. A majority of companies signed a new agreement with the union in order to maintain production. The strike itself ended in a virtual stalemate - the Commonwealth Arbitration Court endorsed the union's position, while the intransigent companies simply refused to re-open their mines - but it brought considerable publicity to Broken Hill, fostering the town's reputation as a militant centre of industrial unrest. Young men such as Ern Wetherell

flocked to the Barrier to participate in its struggles.[8]

An anti-conscription campaign and several strikes fueled class tensions during the First World War. By the end of 1917, the situation was such that one company executive asked his fellow employers in a circular, "What is Wrong with Broken Hill?"[9] The answer, the majority agreed, was nothing less than "The whole relations between the Companies and the men."[10] Six months after the end of the war, the longest and most desperate of Broken Hill's strikes began, still remembered simply as "the Big Strike." Health and safety issues, especially a drive for a reduced working day, dominated union demands. An intensive medical inquiry in 1920 endorsed the union's claims that miners were exposed to severe health risks underground, especially pulmonary disease. With Broken Hill's elected representative, a socialist, keeping the state Labor Government in office, the political situation was particularly favourable for the miners. After eighteen months out of the mines, they finally won a seven hour day underground, a five day week, abolition of the night shift and other concessions. The state parliament enacted special compensation laws to cover the industry and manangers and miners agreed to face-to-face collective bargaining, outside of the orbit of the state arbitration machinery. Finally, a bonus system was instituted whereby miners received sliding scale payments on top of their regular wages, tied to the price of lead.

From the 1920s, employers and employed established a reasonably amicable relationship. The union's fight for a fair deal from the companies had been remarkably successful and membership became a prized possession, available only to the town's residents.

Prospectors first staked Waihi's gold-bearing quartz outcrops in the late 1870s. For fifteen years, mining was intermittent and on a small scale; the

industry did not become established until the early 1890s. Miners in the adjacent community of Thames joined the Amalgamated Miners Association of Australasia in 1890, the same union that represented Broken Hill miners.[11] The first organization at Waihi was a branch of the Thames union, an affiliation which lasted some ten years.[12] During this period, labour relations at Waihi were relatively untroubled. Miners remained content until the end of the century with the standard wage of eight shillings for an eight hour shift.

In 1901, Waihi's leading mine, the British-owned Waihi Gold Mining Company, introduced a major change in its method of payment, substituting a system of contracting for the traditional daily wage. Miners launched proceedings under New Zealand's Industrial Conciliation and Arbitration Act, objecting to the change and also demanding a wage increase. The superintendent responded by firing a dozen leading unionists, explaining later that these men "were creating a feeling of unrest, dissatisfaction and discontent."[13] The dispute first went to a Conciliation Board and then to the Arbitration Court, but the final award did not alter conditions at Waihi significantly.[14]

Despite the unfavourable outcome, the Waihi Union remained wedded to the Arbitration Act and embraced a surprisingly moderate stance, following its emergence as an independent union in 1902.[15] In 1905, for example, the president cautioned against harbouring antagonistic feelings towards the mining company and reiterated his faith in the arbitration system.[16] Other miners were beginning to doubt the efficacy of the Arbitration Court, however: early in 1908, a union meeting debated withdrawal from the Arbitration process.[17] Later that year, when other miners in New Zealand - coal miners on the South Island - launched a miners' federation with a more militant outlook, the Waihi

union decided to join.[18] The Miners' Federation quickly emerged as an ambitious and energetic organization. Their forcefulness was contagious: Waihi's miners began to pursue more aggressive policies.[19]

During each Conciliation or Arbitration hearing, Waihi miners pressed for changes in the contract system, which they had opposed since its introduction at the turn of the century.[20] In 1908 they took their complaints directly to the Waihi company, negotiating outside of the Arbitration system, although with little success.[21] In 1910, the union held two ballots on cancelling its registration under the Arbitration Act; in both cases, a majority of votes favoured withdrawal, but over 50% of the entire workforce had to cast votes in favour for the ballot to be declared successful. A third vote in 1911 passed by the necessary majority and Waihi miners were ready to challenge their employer face to face.[22] Direct negotiation soon brought the miners what more than a decade of arbitration had failed to achieve: a major pay increase and substantial changes in the system of contracting.[23] Such success proved short-lived. In less than a year, a minority of engine drivers broke away from the miners' union and formed their own organization. Miners regarded the new union as boss-inspired, and refused to work with its members. On 14 May, 1912, the Waihi strike began.[24]

The strike lasted for six months. Aided by a change in government, the company had little trouble bringing in strike-breakers and obtaining police "protection". The union's defeat was total: many of their members were coerced into leaving the area and a new miners' union re-registered under the Industrial Conciliation and Arbitration Act. Gradually, however, strikers returned to work at the mine. Five years after the conflict, when strikers once more controlled the union, one of their number proudly reported that

> Last Saturday ... the last vestiges [sic] of the men who took part in the formation of the union that broke the Waihi strike [were] removed from office... So now, once again, Waihi takes its stand amongst the militant unions of God's Own Land...[25]

The union participated again in the broader union movement, but its heyday had passed. The mine's declining output and its shrinking workforce ensured that the union never returned to its pre-strike ascendancy.

The leading mines of Rossland were staked during the summer of 1890, but four years went by before production mining began. A miners' union was organised soon afterwards, in the summer of 1895. As in Broken Hill and Waihi, the Rossland union was a branch of a larger organization; it was local 38 of the American-based Western Federation of Miners [WFM], an affiliation which had a considerable impact on Rossland's labour relations. The WFM's reputation for violence and confrontation, carefully cultivated by mine owners, private detective agencies and the press, overshadowed the more prosaic reality of its efforts to secure for hard rock miners "by education and organization and wise legislation, a just compensation for our labor..."[26]

Miners soon emerged as the dominant workers in the province's labour movement. By 1898, for example, a Nanaimo coal miner headed the Trades and Labor Congress of Canada [TLC], and the vice president for British Columbia was a Rossland miner. At the TLC conference in 1898, the Rossland delegate urged that B.C. and Ontario miners fight to establish an eight hour day. A volatile political situation allowed Kootenay miners to achieve this shorter working day in 1899, when the legislature made the eight hour day compulsory in the province's hard rock mines. Although the law provoked a lengthy strike in the Slocan, no serious disputes interrupted Rossland's production.

The first major dispute between Rossland miners and their employers occurred in early 1900. Within days of the conclusion of the Slocan strike, the two principal Rossland mines closed. Managers refused to re-open until the union accepted a fundamental change in the method of remuneration, from a daily wage to a contract wage, that is, to payment for the amount of work done during an underground shift. The employers' demand was a response to the problems besetting their companies: the legacy of the boom era - vastly over-capitalised properties - was affecting business confidence in the mines, and share values had begun to fall. Labour costs had to be reduced, and managers felt that the switch to contracting could accomplish this.[27] In exchange for greater company recognition, the Rossland union reluctantly accepted the employers' demands. Industrial relations did not improve, however, and following an uneasy eighteen months a much-anticipated confrontation began between the union and the two leading mines.

The Rossland strike of 1901-02 ended in bitter defeat for the Rossland union. Not only was it forced to accept the companies' demands, it had become heavily indebted to other unions and ultimately went into receivership after losing a Taff Vale-style court case with one of the mines. Tensions between the Rossland local and other unions, and particularly between Rossland and the WFM leadership, were another legacy of the strike. Much weakened by these events, the Rossland union forfeited its earlier leading role in the province's labour movement.

Rossland mines also went into decline in the early 1900s and were re-constructed in 1906 as part of the CPR-backed mining and smelting conglomerate, Cominco. The union adopted a conciliatory strategy as it gradually attempted to re-build. For example, while fellow miners in Cominco's

employ at the St. Eugene mine at Moyie tackled management under the new Industrial Disputes Investigation Act in 1907, Rossland miners opted for a voluntary wage rollback rather than run the risk of a lockout.

B.C.'s WFM locals formed a separate district within the larger organization. In 1912, they agreed to try to establish an industry-wide agreement in the province. The Rossland union, however, broke ranks and signed an individual agreement with Cominco, much to the annoyance of their fellow unionists. Further work is necessary to determine the reasons for this split, but Rossland's more permanent workforce, in contrast to many other of the province's mining camps, appears the most likely explanation.[28] Relations with District 6 continued to be tense for a number of years, although Rossland miners remained committed unionists.[29]

A severe labour shortage during the First World War offered unionists the chance to win significant gains from employers. Trail smelter workers' fight for improved working conditions ultimately involved Rossland miners in a strike in late 1917. Senior union officials opposed the strike and called upon workers to honour their contracts. Bitter at this perceived betrayal, Rossland miners as well as the smelter workers left the re-named WFM (now Mine Mill) to join the One Big Union. Both Cominco management and the federal Department of Labour refused to recognise the OBU, and the new union ultimately collapsed. A company union represented Cominco employees until it was made illegal during the Second World War.

The preceding summaries establish that while each area did experience industrial unrest, the timing, intensity and outcome of these struggles varied considerably. Simply measuring or comparing the number and length of work stoppages tells us little of significance. To understand the labour movement's

separate yet similar evolution at Rossland, Broken Hill and Waihi it is necessary to press the comparative examination further, surveying developments related to the outbursts of militancy.

The miners' struggles were not isolated events, separate from wider society. Mining played a crucial role within the economies of B.C., eastern Australia and New Zealand. It provided both jobs and government revenue, stimulated the construction and expansion of transportation networks, and encouraged many backward linkages from the industry to banking, manufacturing and services. The mining industry's prominence encouraged governments to intervene in industrial relations, since strikes or lockouts within the mining industry were viewed as particularly harmful to the progress and development of the regional economies. In Canada the most comprehensive piece of federal labour legislation, the Industrial Disputes Investigation Act of 1907, covered at first only miners and transportation workers. Miners also figured in the genesis of the arbitration systems of New Zealand and Australia, although the relationship between the mining industry and legislation was not as direct as in Canada.[30]

The state's intervention in industrial relations affected the activities of miners in all three regions at approximately the same time. Waihi miners, as members of the Thames Miners' Union, were first covered by an award under the Industrial Conciliation and Arbitration Act on October 19, 1901; Broken Hill miners came under New South Wales' similar arbitration legislation on November 1, 1903; and Rossland miners felt the effect of the Industrial Disputes Investigation Act in December 1907, when they accepted a wage cut during the "St. Eugene arbitration."[31] Not only was the timing roughly similar but in each community miners went through the same stages of initial

allegiance to arbitration, then disaffection and finally opposition, to complex rules and procedures, to compulsion and especially to penalties for strike action before exhausting all appropriate channels. Although opposition to state intervention became unanimous, the nature and outcome of the struggle with both state and employers differed in Rossland, Waihi and Broken Hill.

Broken Hill miners had an arbitration clause in their 1890 agreement with the mining companies, but the companies simply ignored its provisions during the 1892 strike. Political representatives from Broken Hill then pushed for compulsory arbitration, although once this had been achieved, the anticipated benefits were slow in coming. The 1903 New South Wales arbitration hearing, for example, gave the AMA a form of union recognition, but no other concessions from employers.[32] In 1909 the AMA took its case to the Commonwealth Arbitration Court, whose president, Judge H. B. Higgins, was widely recognised as a friend of labour. When Higgins brought down a favourable award, the Broken Hill Proprietary Company appealed to the High Court. Although the substance of the award survived the appeal, its modification angered militant unionists.[33] Adding insult to injury, the same company side-stepped the Court's award by closing down its mine for two years.

During the First World War, underground workers broke with their own union over their tactics to win reduced hours.[34] Adopting the motto, "If you want a 44-hour week, TAKE it," they simply quit work early each week, to the dismay of both companies and the federal Arbitration Court.[35] Although the Court subsequently gave its belated approval to the forty four hour week underground, the miners' successful defiance illustrated the value of industrial action over legal proceedings. The 1916 Arbitration case was the miners' last;

in the wake of the 1919–20 strike, they created their own industrial system: collective bargaining face to face with their employers, with no state sponsorship or control, a system that survives to this day.[36]

From 1894, the Industrial Conciliation and Arbitration Act dominated New Zealand's industrial relations. The summary already provided indicates just how closely this legislation shaped events at Waihi. Opposition to the Act generally and to the Arbitration Court especially coalesced around the miner-dominated "Red" Federation of Labour.[37] The Red Feds' strategy aimed at disentangling its membership from the provisions of the Act, but at Waihi the tactic of cancelling registration failed disastrously. Strike breakers registered their own union, the Ohinemuri Mines and Batteries' Employees, in the place of the Waihi Miners and Workers' Union. Following a brief but exceptionally violent period of intimidation, the Waihi Miners and Workers' Union collapsed. When its former members took over the leadership of the strike-breakers' union during the war, they consistently refused to re-enter the arbitration process.[38]

In British Columbia, Rossland miners invoked the provincial government's conciliation procedure in the summer of 1895 as they tried to win higher wages from employers.[39] The legislation only provided for voluntary participation, however, and the mining companies simply ignored the miners' initiative.[40] The application of two labour laws, a statutory eight hour day underground and a law prohibiting the importation of contract labour, was central to two disputes at the turn of the century, and B.C. locals of the Western Federation of Miners actively lobbied both federal and provincial governments for various legislative changes and improvements. In March 1900 a WFM official met the Prime Minister and argued for "a Dominion arbitration act by which difficulties between employers and employees could be

adjusted."[41] In 1903, the annual convention of B.C.'s WFM locals spent considerable time discussing compulsory arbitration, finally rejecting it and recommending instead a provincial Conciliation Act.[42] The most encompassing of Canada's labour laws, the Industrial Disputes Investigation Act, was enacted in 1907, and after their first experience with this legislation Rossland miners joined with other miners throughout B.C.'s interior in bitter denunciation:

> Whilst [the Industrial Disputes Investigation Act] prevents the Workers from ceasing work as a body in an effort to improve his condition, the Employer can evade the operation of the Act by closing down his property... we ... recognise in this Act another instrument in the hands of the Employing class for the subjugation of the working class...[43]

The opposition of Rossland miners continued: when a Provincial Labour Commission toured the Kootenays five years later, they "decided to go on record as unanimously opposed to the Lemieux Act, known as the Industrial Disputes Act, 1907."[44] In 1919, discontent with the conservatism of their union leadership led B.C.'s WFM locals to affiliate with the syndicalist "One Big Union." As the federal Department of Labour refused to recognise their new union, miners' efforts to invoke the state's conciliation apparatus failed. They ended up being represented by a company union in the form of a workers' cooperative committee.[45]

The efforts of miners in Rossland, Broken Hill and Waihi to opt out of the net fashioned by governments and employers to contain militancy and curtail strike activity met with varying degrees of success. This difference should not obscure the fact that all three groups of miners were united in their opposition to state efforts to contain militancy.

While miners objected to state intervention in the collective bargaining process, they never abandoned their faith in the usefulness of political action

and showed considerable interest in independent working class representation. Evidence suggests that miners in all three communities moved in the same leftward direction, becoming increasingly critical of capitalism - that is, increasingly radical - as the years passed.[46] Broken Hill returned labour members to the Legislature from 1891; two of the area's four representatives in 1894 came to the Labor Party from the Australian Socialist League; and shortly after the First World War one of the sitting Labor members (Percy Brookfield) left the party to sit as an "Independent Labor" representative. Less successful but also present at Broken Hill were smaller radical groups such as the Barrier Social Democratic Club, the Barrier Socialist Propaganda Group, and a local of the Industrial Workers of the World.[47]

Over in New Zealand, at Waihi, the miners' union became after 1908 the vehicle for radicals. In early 1912 Teddy Dye, secretary of the Waihi branch of the Socialist Party, proudly informed Harry Holland that "All [miners' union] officers [are] members of our party."[48] The miners' radicalism so irritated some of Waihi's engine drivers who operated the hoists providing access to the mines, that they separated out to form their own union. In a public statement which constitutes a discursive definition of the radicalism of Waihi's miners, the drivers explained that they could

> no longer tolerate membership of a union whose officials embrace every opportunity of insulting the Empire and its rulers, of ridiculing our traditional beliefs, of scoffing at all religion, and of bleating forth anti-militarism, atheism, and Revolutionary Socialism in season and out...[49]

Unlike Broken Hill miners, however, Waihi miners did not elect either a labour or a socialist member of parliament during the period. This was partly due to their smaller numbers within the constituency, but also because Hugh Poland, the area's long-time MP, was a staunch miners' advocate on the floor of the

N.Z. House.[50]

In Rossland, British Columbia, support for radicalism became stronger after a series of industrial defeats in the first years of the century.[51] In 1902, the miners' union had helped launch a third provincial party, the Provincial Progressive Party, an abortive coalition of reform and socialist groups. With that party's collapse, the miners followed the example of their American parent and moved further to the left. South of the border, the Western Federation of Miners had in 1902 endorsed Eugene Debs' Socialist Party of America. By 1906 the B.C. district of the Western Federation took equivalent action, endorsing the Socialist Party of Canada. In every election from 1903 to 1919, a number of constituencies throughout the mining communities of the B.C. interior saw men prominent in the Western Federation run for office as Socialists. Only two were successful, William Davidson in Slocan in 1903 and John McInnis in Grand Forks in 1907. As in Waihi, Rossland's miners were in a minority within their constituency; their riding never returned a socialist or a working miner to either the provincial or federal parliament.

The miners of New South Wales, New Zealand and British Columbia became symbols of protest and resistance within each region. They not only attracted the attention of the most prominent English-speaking labour activists and radicals of the day - for example, Tom Mann, Keir Hardie, Ben Tillett, Gene Debs, Big Bill Haywood - but also produced their own heroes and martyrs. The martyr in British Columbia was Ginger Goodwin, a prominent socialist and labour leader in Rossland/Trail. After leading a strike in Trail in 1917, Goodwin was called up for military service under Canada's new conscription law. Evading the call-up, he went into hiding and was shot to death in July 1918, "resisting arrest;" that, at any rate, was the official story.

In New Zealand, at Waihi, Fred Evans - an engine driver who remained loyal to the miners' union during the tumultuous strike of 1912 - was clubbed to death in November of that year. The inquest decided that the police constable who committed the act "had been acting in the execution of his duty and ... was fully justified in striking down the deceased."[52] Percy Brookfield of Broken Hill, mining labourer turned socialist politician, was fatally shot in March 1921 by an apparently insane gunman. Brookfield had, since his leadership of the anti-conscription forces in 1916, been something of a local hero. His funeral, like those of Evans and Goodwin, was marked by a giant procession and cathartic outpourings of public grief. These martyrdoms reinforced the popular perception of mining communities as places where the class struggle was fought with a savage intensity.

All three groups of miners established reputations for militancy and radicalism; each community attained a certain regional prominence. What explains miners' apparent readiness to challenge their employers and what led them to embrace a radical critique of capitalism? Works examining the mines and their workers offer three levels of answers: global explanations applicable to all three areas; regional or national explanations particular to specific countries; and local explanations relevant only to the individual community. The comparative approach allows for a multi-level analysis and encourages the weighing of the various factors - global, national and local - one against the other. It then becomes possible to assess the causal significance of similarities or "common denominators."

Conventional global explanations of industrial militancy focus on the nature of the work itself, citing such factors as isolation from society, dangerous working conditions, poor wages and frequent spells of

unemployment.[53] It is also argued that militancy "is translated into support of revolutionary political parties,"[54] thus militancy, especially frustrated militancy, becomes radicalism: a failure to attain objectives through industrial struggle shifts the fight to the political arena. While the distinction between militancy and radicalism deserves recognition, the two currents are nonetheless closely related. But to return to the question of why miners emerge in these three areas at the leading edge of militancy and radicalism, the global answer points to the domination of each community by the mining industry and explains miners' attitudes and intitiatives in terms of a common occupation, a variant of the "nature of work" argument cited above. This approach, in essence blaming the mining industry for the stormy nature of industrial relations, can be found in all the literature on Broken Hill, Waihi and Rossland.

Although the global explanation is persuasive, it is not without its problems. Unquestionably mining was a dangerous and unhealthy occupation, but we should be wary of the crude logic of the argument that mining was a harsh, oppressive occupation, that since such occupations spawn militancy, miners consequently were militant, and that this militancy fostered radicalism. Miners were a proud group of workers and were well-paid relative to those in other skilled labour jobs. Various itinerant workers were always trying to get hired on, to join the ranks of the profession. The image of the oppressed worker does not fit well with the self-assured testimony of the men before the various royal commissions that visited Waihi, Rossland and Broken Hill. Further, if there was, or is, any intrinsic relationship between mining and the creation of an especially militant and radical workforce, one would assume that this militancy and radicalism would continue throughout the history of each community. Such, however, is not the case and we must explain the fact that although each community was at a certain point a focus of militancy and

radicalism, all subsequently had relatively peaceful careers.

Regional and national historiographies typically place miners in a special category and argue that some exceptional quality explains their militancy and/or radicalism. Thus Broken Hill is seen as a community with unique problems, such as lack of water and generally unsanitary living arrangements, and particularly dangerous working conditions. Brian Kennedy cites Judge Higgins' observations from the 1909 arbitration award - "trying conditions on the mines, ... the intermittent nature of the work, the high incidence of accidents, and the difficulties of the night shift. Such ... [according to Kennedy] were the circumstances which helped to mould the town into a famous centre of industrial militancy."[55] In a similar "exceptionalist" vein, Geoffrey Blainey argues that "On the Broken Hill field unusual forces [made] for industrial trouble, ... entirely absent from the several hundred other mining towns in Australia."[56] Much of the New Zealand literature places militancy and radicalism at Waihi within the context of the breakdown of the arbitration system and the disintegration of the longstanding Liberal consensus.[57] But here too there is an "exceptionalist" strand to the argument: the miners' militancy is explained by the fortuitous presence of young miners whose experiences were shaped in Australia and America, men who had no direct experience of the defeat of 1890 and who therefore lacked respect and appreciation for the arbitration system.[58] Rossland's miners have been less studied than the working people of Waihi and Broken Hill, but Canadian labour historians have devoted considerable attention to the broader question of militancy and radicalism among western workers, and to the propensity of westerners to such attitudes.[59] This "exceptionalism" is explained in terms applicable to Rossland's miners, the most significant factors commonly cited being an unstable economy, especially prone to boom and bust cycles, and the absence of

established social institutions which might have reduced polarization and thus militancy.

Explanations made at the local level stress the importance of particular individuals, the policies of certain companies, and conditions in specific mines. Historians, for example, place considerable weight on the attitudes of BHP management and the prevalence of occupational disease at Broken Hill; on the policies of the Waihi Gold Mining Company and the issue of competitive contracting at Waihi; on the initiatives of mine managers at Rossland, especially the introduction of ethnic groups to dilute labour solidarity. Such local factors may be important in terms of the timing and specific manifestations of miners' militancy and radicalism but do not constitute underlying causes. Nor do local conditions explain the similar pattern of radicalism and militancy discernible in each community: that congruence suggests a global explanation.

The global explanation thus remains the most persuasive but one nevertheless needing clarification. It is too often used carelessly and with imprecision. Comparative studies provide the means of strengthening the explanatory force of such vague generalizations as "strike-prone industries." According to one sociological study of "The Interindustry Propensity to Strike," factors such as isolation from society, insecure employment and dangerous working conditions contribute significantly to industrial militancy.[60] This last point seems most applicable to conditions at Rossland, Waihi and Broken Hill: working underground in Rossland, Waihi and Broken Hill was both dangerous and unhealthy. Annual government reports chronicle in some detail the injuries and deaths that accompanied mineral production in each community. Is there any connection between dangerous working conditions and militancy; can

specific efforts to improve these conditions be linked to the various strikes at Broken Hill, Rossland and Waihi?

Rossland miners enjoyed probably the safest working conditions of the three communities.[61] As early as 1899, for example, its mines operated an eight hour, three shift system under which blasting was only done during the night shift. This gave ample time for the mine's atmosphere to clear before the next shift arrived for work. Campaigns concerning health and safety were usually handled by the B.C. District of the WFM rather than individual locals, although the most pressing concern was adequate compensation.[62] The provincial organization launched numerous legal claims under the Employers Liability Act and from 1909 retained a lawyer largely for this purpose. In partnership with the United Mine Workers, the WFM took one such case (successfully) all the way to the Privy Council in Britain.[63] With other B.C. unions, the WFM pressed for an adequate compensation act, forcing significant improvements to the bill which finally became law on 1 January, 1917.[64] While other WFM locals in the province sponsored their own hospitals, workers in Rossland obtained satisfactory health care from the nearby Catholic hospital in Trail.[65]

Waihi miners' most pressing job-related grievance concerned the dangers of pulmonary disease, especially silicosis, from machine drills' dust and from blasting.[66] Their political representatives, notably Hugh Poland and Bob Semple, fought hard and long for a decent system of compensation for victims of the disease. Since dust from drills was a major contributing factor in its onset, miners campaigned for the mandatory use of "wet" drills in mines.[67] Once this had been achieved, Waihi miners were quick to insist that the Waihi Company observe the letter of the new law.[68] New Zealand legislators, however,

frequently addressed the issue of compensation for miners and no evidence links the onset of the 1912 strike with union concerns over health and safety.[69]

Working underground in Broken Hill was particularly dangerous. The carbonate lead ores mined in the 1890s gave many miners lead poisoning, while the dust from drilling the deeper lead sulphide ores was responsible for widespread incidence of silicosis.[70] Underground subsidence and fires also claimed lives, as did miners' carelessness and mistakes from fatigue or inattention. As at Waihi, miners charged the contract system with speeding up the pace of work and thus exacerbating an already unsafe environment. In response to miners' demands, a number of royal commissions from the early 1890s examined working conditions at Broken Hill.[71] Significant improvements, however, did not come until after the "Big Strike" of 1919–20.

Working conditions at Broken Hill were more dangerous and more unhealthy than those at either Waihi or Rossland. It would be surprising if this was not reflected in a greater emphasis on health and safety in union demands. Both the 1916 fight for reduced hours and the 1919–20 strike focussed on these issues, although in 1916 the union was likely using health and safety concerns as a tactic. As late as 1918, when mine managers pondered "What was wrong at Broken Hill", only a fifth of them saw health and safety as an issue in the tensions between men and companies.[72] But by then miners were becoming aware of the toll that pulmonary disease was taking; a union-sponsored examination of miners in late 1918 revealed that eleven per cent of the men checked by the doctor had tuberculosis and "80 per cent [were] affected in the chest."[73] When, during the course of negotiations during the 1919–20 strike, angry miners raised the issue with

senior mining company officials, the latter's response was one of surprise and concern: "This comes as a great shock to us," admitted W. L. Baillieu, probably the most influential of the companies' directors.[74] With growing emphasis, miners reiterated the charge that the nature of their work justified their demands for a thirty hour week. What is surprising is not the fact that they were making such demands but rather that it had taken so long for them to concentrate upon health and safety, and also that they were so successful in winning (and later, retaining) the necessary concessions in 1920.[75] On only one occasion, then, can a direct and important link be made between a strike at Broken Hill and health and safety issues, and this resulted in major concessions from the companies.

The preceding review suggests that the frequency of accidents and the prevalence of industrial disease did not contribute significantly to a greater disposition to strike among the miners of Waihi, Rossland or Broken Hill, despite the fact that one of the most important functions of miners' unions was to assist members in obtaining health care and to provide adequate compensation in cases of disability or death. Union efforts to improve miners' health and safety - such activity as lobbying for safer working conditions, shorter hours, better ventilation and adequate compensation - do not constitute compelling proof of militancy or radicalism. Indeed, they may be interpreted as precisely the opposite, as evidence of a strong commitment to the legal system and the political process.

The class tensions evident in Broken Hill, Waihi and Rossland were largely a consequence of common problems within the mining industry. In each community the resource gradually became less valuable, the average value of a ton of ore dropping sharply following initial development. This problem was

compounded by difficulties in treating ores from the deeper levels in mines of all three areas. Mining companies reacted to their worsening financial situation in a number of ways. Revenues could be maintained or increased by expanding the scale of operations, a path adopted in all three areas. Mines possess a limited quantity of ore, however; thus increasing the scale of mining operations also quickened the rate of depletion. A related strategy involved vertical integration, expanding operations into smelting, for example. A third way to compensate for the drop in value was by reducing the cost of production. The most significant cost was the price of labour, a proportionately large share of the overall cost of mining operations. The introduction of the contract system is the most obvious example of managers' efforts in this direction. Whatever strategy companies adopted to maintain profitable production in the face of declining values, the fall in values virtually guaranteed instability in the social relations of production.

As well as this general problem of declining values, a second problem fostered instability on mining fields during the closing decades of last century. In the wake of the mid-century gold rushes, mining technology, engineering skills and geological knowledge had expanded considerably; it was, recalled one prominent mining journalist, "the Elizabethan age" of mining.[76] Frequent bursts of intense speculative activity in mining shares, especially on the London Stock Exchange, accompanied the mining industry's rapid growth and sophistication.[77] Although South African and West Australian mines were the most notorious examples of these bouts of frenzied trading, Broken Hill, Rossland and Waihi all participated in London-based booms. As the following chapter examines these developments in some detail, only the broadest outline need be traced here.

Once a mining field had proved its worth, that is, once the existence of substantial mineralization had been established, mining companies could be launched in London, although the process was much easier if it coincided with a buoyant market. The periods of speculation were especially strong in the late 1880s and again in the mid-1890s. In the short term, companies launched during these booms often returned windfall profits to vendors and promoters, but their long term impact was to encourage over-capitalization. Investors had to recognise their misplaced confidence and reassessed the value of both mines and shares. The inevitable decline in share values added to the mood of retrenchment fostered by declining ore values and increased managers' determination to reduce wages. It was no coincidence that the major strikes in each area were preceded by a period of falling share values.

A third factor also contributed to instability at Rossland and Broken Hill: fluctuations in the price of silver and the base metals. Waihi's gold was not subject to the whims of the market. These various factors underline the problems of mining companies and their employees during the period examined here. The spectre of depletion, declining ore values, stock market fluctuations, a volatile world market for mineral products: the cumulative effect of such variables made the mining industry, in common with other resource-extractive industries, a particularly vulnerable one, on occasion riding high on the crest of a boom, at other times experiencing periods of severe depression. It was within this context that the miners of Broken Hill, Waihi and Rossland lived and worked.

Mining companies in each community responded to these various economic pressures by re-structuring, adopting technological and engineering advances aimed at changing the nature of underground work. Rather than

careful extraction of high grade ore, a process which placed a premium on the talents of the skilled miner, now non-selective mining became the rule: whole vast underground areas were sent to the surface for treatment. The crucial skills became those of the metallurgist and the engineer: as a disgruntled Broken Hill miner told a Royal Commission in 1914, mining had become a navvy's job.[78]

Under these new conditions, miners remained necessary, not for their skill but only for their ability to extract the maximum amount of ore to feed the various treatment plants above ground. Managerial innovations aimed at ensuring an ore supply at the lowest possible cost. The contract system, introduced in Broken Hill, Waihi and Rossland over the objections of miners, is perhaps the most obvious of these cost-saving measures. Shrinkage stoping and the gradual abandonment of square sets were also introduced to facilitate mass ore extraction.[79] In all three areas the industry's re-structuring exacerbated the social relations of production, provoking from the miners a militant response and a radical critique of capitalism as they tried, often in vain, to defend and protect their interests. The rise of militancy and radicalism in Waihi, Broken Hill and Rossland reflected both miners' dissatisfaction with the change in the mines' organization and a more general withdrawal of working class support for the status quo. This is not to argue for a glib acceptance of economic reductionism but only to re-state the familiar axiom that a shift in the social relations of production signifies a more profound change in the forces of production.

Although the mining industry exhibited this fundamental congruency, the context in which it operated varied considerably from place to place. This brief examination of the miners' activities in each community suggests that

their experiences were similar but by no means identical. Each environment had its own influence on the course and outcome of the miners' common struggle to maintain and improve their condition in the face of challenges from a number of sources. The sheer size of the Broken Hill workforce and the political influence it exerted, in addition to the mines' continuing vitality, helped miners there gain substantial concessions in the 1920s. On the other hand, declining values and dwindling ore reserves at both Waihi and Rossland resulted in much reduced workforces, possessing little bargaining power with which to challenge their employers.

This study has tried to suggest the usefulness of the comparative approach by comparing labour relations at Broken Hill, Rossland and Waihi. The next chapter will examine the pattern of company development, focussing on the dominant mining companies of each community.

Endnotes

1 Wally Riddiford, who settled in Broken Hill during the First World War. Quoted on p. 142, Edward Stokes, United We Stand Impressions of Broken Hill 1908-1910 Recollections and photographs from the period, Canterbury, 1983.

2 See the classic article by Clark Kerr and Abraham Siegel, "The Interindustry Propensity to Strike - An International Comparison," pp. 189-212, Arthur Kornhauser, Robert Dubin, Arthur M. Ross (eds.), Industrial Conflict, McGraw-Hill, 1954; also Stuart Jamieson's "Regional Factors in Industrial Conflict: the Case of British Columbia", Canadian Journal of Economics and Political Science, XXVIII, 3, 1962: 405-16.

3 P. 29, 'Red' Fed, Memoirs Wellington, 1925.

4 The Voice [Winnipeg], Nov. 20, 1908.

5 P. 2, Ern Wetherell, Introduction, "Industrial History of the 'Stormy' Years of 1910-1921," photocopy of typescript, n.d., held at Charles Rasp Memorial Library, Broken Hill, N.S.W. Brian Kennedy makes the same point in his book on Broken Hill: see, for example, pp. 1-3, 109, Silver, Sin, and Sixpenny Ale A Social History of Broken Hill 1883-1921, Melbourne, 1978. Labour historian Ian Turner felt that by 1916 Broken Hill miners had "the most militant union leadership then existing in Australia..." (p. 86, Industrial Labour and Politics The Labour Movement in Eastern Australia 1900-1921, Sydney, 1979. Second edition.)

6 A point made explicitly by the act's author: see p. 882, B. R. Wise, "The Industrial Arbitration Act of New South Wales," The National Review, Vol. XXXIX, 1902.

7 Quoted on p. 64, Bruce John Pennay, "Industrial Disputes at Broken Hill up to 1909," MA thesis, University of Sydney, 1968.

8 In his memoirs, Wetherell described how he

> wanted to see this Mecca, Broken Hill, to be part if I could, of man's surge forward to better times and to be in the Labor movement that seemed in my teenage mind to be moving rapidy towards this goal...

P. 2, Wetherell, "Industrial History of the Stormy Years of 1910-1921."

9 The circular was sent by Colin Fraser, joint managing director of Broken Hill Associated Smelters. Both it and the responses it evoked are preserved in the archives of the Broken Hill Mining Managers' Association, Broken Hill.

10 The quotation is from H. W. Gepp's response to the circular, but is typical of the majority. The most impartial of the respondents, Broken Hill's medical officer, declared simply that Fraser's question

> might be answered in a very few words by saying ... That what is wrong with Broken Hill is that there exists in an exaggerated form ill-feeling between the Mine Employees and

the management of the Mining Companies.

11 John Lomas, a South Island coal miner, had brought the AMA to New Zealand in 1886; four years later Lomas convinced Thames' miners to form a branch of the union. (Pp. 42-43, J. D. Salmond, New Zealand Labour's Pioneering Days The History of the Labour Movement in N.Z. from 1840 to 1894, edited by Desmond Crowley, Auckland, 1950, & p. 64, Len Richardson, "British colliers and colonial capitalists: The origins of coalmining unionism in New Zealand," in Eric Fry, ed., Common Cause Essays in Australian and New Zealand Labour History, North Sydney, 1986.)

12 Just when this affiliation took on a formal character is unclear. In early 1891, five of the Waihi company's 36 miners travelled the fifty kilometres to Thames, to take part in the union's first anniversary celebrations. (entry for 7th March, 1891, Mine Manager's diary, quoted on p. 68, J. B. McAra, Gold Mining at Waihi 1878 - 1952, Christchurch, 1978.) The same source refers to the President of the Miners' Union persuading Waihi's superintendent to abandon an effort to increase the hours of work in December, 1891. (entry for 10th Dec., 1891, Mine Manager's diary, quoted on p. 70, op. cit.) Another work states that "The Waihi Miners and Workers' Union ... first came into existence about the middle of the nineties." (P. 15, H. E. Holland, "Ballot Box," and R. S. Ross, The Tragic Story of the Waihi Strike, Wellington, 1913.)

13 Testimony of Superintendent Barry at Arbitration hearing, quoted on p. 3, 27 Sept., 1901, New Zealand Herald. Barry went on to say that

> It was not so much the increase in pay asked, but it was the demand for the total abolition of contracts without any qualifications whatever that [Barry] objected to.... For men employed by a company to demand such abolition was, he considered, sufficient reason for dismissing them.

- ibid.

14 The Company's superintendent reported to the Directors that "Practically speaking, the system on which the Mine has been worked has been left undisturbed." - Superintendent Barry's Report for 1901, pp. 21-22, Report of the Directors and Statement of Accounts ... 31st Dec., 1901, Martha Goldmining Company records, TN 428, Auckland Institute and Museum. See also pp. 552-55 (Conciliation Board's Recommendation) & 1064-72 (Arbitration Court's Award) Journal of Department of Labour, 1901. The president of the Arbitration Court explained his reasons for the award on pp. 312-317, Journal of Department of Labour, 1902.

15 During the 1901 arbitration, the President of the Arbitration Court justified his refusal to grant an increase in wages by pointing to the effect that such an increase would have on the many marginal mining properties outside of Waihi. (p. 314, Journal of Department of Labour, 1902). The Waihi union severed its ties with Thames so that it would not be similarly handicapped again.

16 Quoted on p. 112, Philip Rainer, "Company Town: an industrial history of the Waihi Gold Mining Company, Limited, 1887-1912," MA thesis, 1976,

University of Auckland. The occasion of President Newth's remarks was the official opening of the new Miners' Hall, where Waihi's mayor, Thomas Gilmour, did the honours. Gilmour had been the Waihi Company's mine manager from 1891 to 1903.

17 Pp. 123-24, Rainer, "Company Town."

18 Two Waihi men attended the Wellington conference of the Miners' Federation, held in October, 1908. Both were elected to the executive of the new Federation, and their union formed over a quarter of the Federation's total membership. The new Miners' Federation was modelled closely on the American miners' union, the Western Federation of Miners. (p. 19, P. H. Hickey, 'Red' Fed. Memoirs, Wellington, 1925.) Hickey's autobiographical account suggests the power of the American example: see, for example, pp. 6, 9, 40 & 50, op. cit.

19 The best discussion of the attitudes of the Red Feds is Erik Olssen's "Some reflections about the origins of the 'Red' Federation of Labour, 1909-13," pp. 27-41, in Eric Fry, ed., Common Cause. See also Hickey's reminiscences, 'Red' Fed. Memoirs, especially pp. 30-31.

20 Some contracting dated back to 1891, although these early contracts were for development work, such as shaft sinking. A miner testified in the 1901 Arbitration case that "The alterations in the Waihi Company's work lately were that now there were not more than 15 per cent. of wages men, whereas before this dispute there were not 15 per cent. of contractors. There was scarcely any part of the mine not being worked on contract..." (p. 3, 27 Sept., New Zealand Herald.) The superintendent also testified that "Previous to March last [i.e., March, 1901] no stoping had been done by contract for two years." (ibid.)

21 Pp. 125-31, Rainer, "Company Town", & pp. 40-42, Stanley Roche, The Red and The Gold An informal account of the Waihi Strike, 1912, Auckland, 1982.

22 Pp. 19-20, Holland, et. al., The Tragic Story of the Waihi Strike, & pp. 158-60, Rainer, "Company Town".

23 Pp. 164-67, Rainer, "Company Town", & pp. 51-55, Roche, The Red and The Gold.

24 There are a number of accounts of the strike. Holland, et. al., The Tragic Story of the Waihi Strike is still essential reading, while Roche's impressionistic The Red and The Gold is a vivid social history. Rainer's account is also valuable, and perhaps the most well-researched and documented (pp. 174-273, "Company Town.")

25 "Waihi Miners' Union," 15 August, 1917, Maoriland Worker. This analysis is endorsed by a company statement printed on p. 6, 12 March, 1919, New Zealand Herald.

26 P. 4, Constitution and By-Laws of the Rossland Miners' Union No. 38, W.F.M. "Adopted at Rossland, British Columbia. October 22, 1896, November 23, 1898 and May 29, 1901." Rossland, n.d. Cf. the comments of Vernon H. Jensen, p. 55, Heritage of Conflict Labor Relations in the Nonferrous Metals Industry

up to 1930, Ithaca, 1950.

27 The clearest statement of the managers' economic difficulties is Bernard MacDonald's "Hoisting and Haulage in Mining Operations. A Description of the Plant on the Le Roi Mine, Rossland, B.C.," Journal of the Canadian Mining Institute, Vol. V, (1902): 309-42. The title is misleading; MacDonald describes much more than the Le Roi's winches. When he assumed control of the mine, for example, in December 1899, "it was quite apparent that no profit could be earned unless the conditions under which operations were carried on were modified." (p. 314, op. cit.) First on his list of changes was "Freedom of the company from dictation of the Miners' Union ... the re-establishment of the contract system..." (p. 322, op. cit.) I have found no evidence to suggest that the contract system was ever in force in Rossland before 1900.

28 Cominco's managing director complained in 1908 to the provincial attorney general that the company had found it difficult to hire "a steady lot of men" at the St. Eugene Mine, as compared with Rossland, "due perhaps very largely to the fact that there are only a limited number of miners' residences..." (W. H. Aldridge to W. J. Bowser, 17 Dec., 1908, File 1, Box 16, GR 429, Provincial Archives of British Columbia.) The B.C. Commission on Labour which visited Rossland in May, 1913 was told that about 60% of Cominco's miners were married and "Quite a number own their own homes." (testimony of M. E. Purcell, Superintendent of Cominco's Rossland mines, Provincial Archives of British Columbia, B.C. Commission on Labour, 1912-1914, File 7, Box 2, GR 684, p. 278.) Purcell added that "I have been with the Company in my present capacity for eight years and there are men still here who were here when I took charge. There are very few changes." (p. 279, ibid.) Both the percentage of married men and this apparent stability of the workforce contrasted with other B.C. mining communities. In early 1913, a Board of Conciliation and Investigation found that "at least 80%" of miners in camps other than Rossland lived in boarding houses. (p. 2, Report and Findings of the Conciliation and Investigation, 27 Jan., 1913, copy in Sandon Historical File, File 20, Rossland Historical Museum.)

29 In 1912 District 6 passed a motion censuring Rossland; Rossland then asked the WFM's Executive Board in Denver if it was forced to pay its per capita fees to District 6; and in 1916 the Rossland local appears to have unilaterally severed its connections with the District. Throughout this period, however, Rossland never questioned its allegiance to the WFM itself.

30 John Rickard's Class and Politics New South Wales, Victoria and the Early Commonwealth, 1890-1910, Canberra, 1976, and S. F. Macintyre's "Labour, capital and arbitration 1890-1920," pp. 98-114, Brian Head (ed.), State and Economy in Australia, Melbourne, 1983, are among the best introductions to the passage of Australia's arbitration laws. For New Zealand, see the two articles by James Holt, "The Political Origins of Compulsory Arbitration in New Zealand A Comparison with Great Britain," (New Zealand Journal of History, 10(1976): 99-111) and "Compulsory Arbitration in New Zealand, 1894-1901 The Evolution of an Industrial Relations System." (New Zealand Journal of History, 14(1980): 179-200.) The operation of the act is the subject of A. Williams' "Industrial Militancy in New Zealand: the Contributing Influence of the Industrial Conciliation and Arbitration Act, and its Administration, 1894-1908," unpublished PhD thesis, Massey University, Palmerston North, 1977, and R. C. J. Stone's "The Unions and the Arbitration System, 1900-1937," pp. 201-220, Robert

Chapman and Keith Sinclair (eds.), Studies of a Small Democracy Essays in Honour of Willis Airey, 1963. Also of value is the study written by the act's author: William Pember Reeves' State Experiments in Australia and New Zealand, London, 1902, two volumes, especially pp. 69-181, Vol. 2. For Canada, see Paul Craven's 'An Impartial Umpire' Industrial Relations and the Canadian State 1900-1911, Toronto, 1980.

31 For Waihi, see pp. 1064-1072, Journal of the Department of Labour, (Wellington) 1901; for Broken Hill, see pp. 525-548, The Industrial Arbitration Reports, New South Wales,,, (Sydney) Vol. 3, 1903; and for Rossland see pp. 792-796, Labour Gazette, (Ottawa) January, 1908, and pp. 989-990, ibid., February, 1908.

32 The comments of the Broken Hill Proprietary's general manager suggest that this award was of little substance: pp. 16-17, BHP Directors' Report for the six months ending 30th November, 1903.

33 Tom Mann, for example, who had been hired by Broken Hill unionists as an organiser during late 1908 & 1909, reacted angrily:

> ...I hope from this time on the men will despise the legal machinery for dealing with industrial affairs and fight the matter out by means of industrial organization. The Port Pirie comrades will be greatly disappointed at the six shifts being allowed but they will not forget that no law on earth in heaven or hell, can make them work seven days a week if they resolve they would not do so.... there must be no entering into agreements for a stated period, either through Arbitration Courts or by voluntary arrangements.

- 6 May, 1909, Labour Call, quoted on p. 219, Graeme Osborne, "Tom Mann: His Australasian Experience, 1902-1910," PhD thesis, Australian National University, Canberra, 1972. See also George Dale's sarcastic chapter, "Glorious" Arbitration, pp. 126-29, The Industrial History of Broken Hill, Melbourne, 1918, & Harry Holland's pamphlet, Labor Leg-Ironed or Liberal and Labor Party Arbitration Acts in N.S.W.,, Wellington, 1912.

34 It is difficult to assess just how genuine this break was. Union officials could not publicly sanction the breaking of any agreements, and it is quite possible that their disapproval of the militants' tactics was simply designed to protect them from legal proceedings.

35 P. 185, Dale, Industrial History of Broken Hill.

36 Since the time of writing, Broken Hill mining companies have attempted to bring the miners within the scope of a N.S.W. award. The outcome of this initiative remains unclear. Broken Hill miners' early struggles with arbitration are discussed by Graeme Osborne in his article "Town and Company, The Broken Hill Industrial Dispute of 1908-1909," pp. 26-50, John Iremonger, John Merritt, and Graeme Osborne (eds.), Strikes Studies in Twentieth Century Australian Social History, Sydney, 1973.

37 See "Arbitration, the Employers, and the Workers," pp. 185-89, Holland, et. al., The Tragic Story of the Waihi Strike; Barry Gustafson, Labour's Path to

Political Independence The Origins and Establishment of the New Zealand Labour Party 1900-19, Auckland, 1980, passim; & pp. 7-15, Erik Olssen and Len Richardson, "The New Zealand labour movement, 1880-1920," in Eric Fry, ed., Common Cause.

38 At a conference of union officials and the Waihi Company in 1918, for example, "the men's representatives made it clear to the mine-owners that they would refuse to submit the demands to the Arbitration Court..." (p. 4, 11 Nov., 1918, New Zealand Herald.) Although the agreement that was negotiated by this conference had by law to be registered with the Arbitration Court, any dispute was to be settled by the local magistrate; no allowance was made for appeal to the Arbitration Court (p. 623, Awards, Recommendations, Agreements, etc., ..., Dept. of Labour, Vol. XX, 1920.) During a brief strike in March, 1920, Waihi Company officials complained that "the immediate cause of the present strike was the refusal of both unions [i.e., the engineers and the miners] to submit the matter to the Arbitration Court..." (p. 4, 25 March, 1920, New Zealand Herald.)

39 3 Aug., 1895, Rossland Miner.

40 The act is discussed by Harold Fabian Underhill, pp. 242-45, "Labor Legislation in British Columbia," PhD thesis, University of California, 1936. See also the "Report of Commission of Labour Enquiry," pp. 589-94, Sessional Papers, British Coumbia, 1894-95.

41 P. 9, 20 March, 1900, The Globe. This was E. P. Bremner of Greenwood, who later became, briefy, an official with the new federal Department of Labour.

42 The outgoing president of District 6 (George Dougherty of the Greenwood union) had spoken strongly in favour of compulsory arbitration. He lost his bid for re-election to a Rossland delegate; it is likely that the new president, P. R. McDonald, shared the majority view of opposition to arbitration. See the typescript copy of proceedings of this convention (held in Nelson, 7-10 April, 1903), University of British Columbia, The Library, Special Collections Division, International Union of Mine, Mill and Smelter Workers Papers, Box 159, File 13. [Mine Mill Papers hereafter.] Published procceedings of this conference have also survived: see Box 34, File 15, MacInnis Collection, UBC, Special Collections. Three and a half years earlier, a conference of unionists from Vancouver Island and the Lower Mainland had also considered the question of compulsory arbitration and divided on the issue: see p. 4, 21 Dec., 1899, Daily News-Advertiser.

43 The pronouncement was a resolution passed at a convention of B.C. miners. A transcript survives in the Mine Mill Papers, Box 159, File 14.

44 "Memorandum submitted ... on behalf of Rossland Miners' Union ... May 19, 1913," PABC, B.C. Commission on Labour, 1912-1914, GR 684, Box 2, File 12, 7A. James Webb, a Cominco employee, told the commission that "There is no protection for the workingman under the Industrial Disputes Act.... The law isn't any good to the men." (p. 297, Box 2, File 7, ibid.)

45 For the creation of these committees, see the two articles by Cominco's Superintendent, Selwyn G. Blaylock, "Industrial Relationship," Transactions of the

Canadian Institute of Mining and Metallurgy and of the Mining Society of Nova Scotia, XXXVIII(1935): 243-254, and "The Co-operative Committee System of the Consolidated Mining and Smelting Company of Canada Limited," ibid., XXXIX(1936): 52-54.

46 I am using the word radicalism to mean a general ideological or political outlook that challenges the status quo.

47 On Broken Hill's radical ambience, see pp. 102-04, Verity Burgmann's 'In Our Time' Socialism and the Rise of Labor 1885-1905, Sydney, 1985; and pp. 87-101, Kennedy, Silver, Sin, and Sixpenny Ale. Broken Hill's IWW local was suppressed in mid-1917, an incident described on pp. 157-59, Frank Cain, The Origins of Political Surveillance in Australia, Sydney, 1983.

48 Archives of Business and Labour, Canberra, ACT, H. E. Holland Collection, P5 /11, E. Dye to H. E. Holland, 21 Jan., 1912.

49 Quoted on p. 34, Holland et al., The Tragic Story of the Waihi Strike.

50 Numerous examples of Poland's advocacy on behalf of miners may be found in the Parliamentary Debates during his years as the member for Ohinemuri (1905-25). In 1909, when pressing for improvements "for the good of the working-miners" in a Bill before the House, he went so far as to accuse the Minister of Mines of lying, sparking a sharp exchange between the two men. (pp. 1506 & 1510-11, 23 Dec., 1909, op. cit.) The incident was rather unusual in that both were Liberals. See also the brief biographies, p. 33, Ohinemuri Regional History Journal, Vol. 2, No. 2, September 1965, & p. 172, G. H. Scholefield, ed., A Dictionary of New Zealand Biography, Wellington, 1940, Vol. 2.

51 In a radio interview broadcast in the early 1960s, H. H. Stevens recalled the free-wheeling radicalism of Rossland at the turn of the century. The future Conservative cabinet minister read Marx and Engels in order to debate with socialist speakers brought in by the miners' union. A transcript of the interview is held by the University of British Columbia, The Library, Special Collections Division, in the Colleen Toppings Bourke Collection.

52 P. 147, Roche, The Red and the Gold.

53 The arguments are conveniently summarised by Erik Olssen, "The Seamen's Union and Industrial Militancy, 1908-1913," New Zealand Journal of History, 19(1985): 14-37. See also Jamieson's "Regional Factors in Industrial Conflict: the Case of British Columbia", and Kerr & Siegel's "The Interindustry Propensity to Strike - An International Comparison."

54 P. 110, Seymour Martin Lipset and Reinhard Bendix, Social Mobility in Industrial Society, Los Angeles, 1964

55 P. 100, Brian Kennedy, Silver, Sin, and Sixpenny Ale.

56 P. 151, Geoffrey Blainey, The Rise of Broken Hill, Melbourne, 1968.

57 For example, pp. 129 & 144-147, C. G. Sleeman, "Gold Town: The Influence of Goldmining upon Waihi, 1890-1953," Unpublished MA thesis, University of

Auckland, 1958, and pp. 59-66, Gustafson, Labour's Path to Political Independence.

58 For a recent critique of this argument, see Olssen's "Some reflections about the origins of the 'Red' Federation of Labour, 1909-13."

59 See, for examples, A. Ross McCormack, Reformers, Rebels, and Revolutionaries: The Western Canadian Radical Movement 1899-1919, Toronto, 1977; H. Clare Pentland, "The Western Canadian Labour Movement, 1897-1919," Canadian Journal of Political and Social Theory, 3(1979): 53-78; Paul A. Phillips, "The National Policy and the Development of the Western Canadian Labour Movement," pp. 41-62, A. W. Rasporich and H. C. Klassen (eds.), Prairie Perspectives 2, Toronto and Montreal, 1973; and David Jay Bercuson, "Labour Radicalism and the Western Industrial Frontier: 1897-1919," Canadian Historical Review, LVIII(1977): 154-175. An article important to this Canadian debate is the seminal piece by the American historian, Melvyn Dubofsky: "The Origins of Western Working-Class Radicalism, 1890-1905," Labor History, 7(1966): 131-154. Gregory S. Kealey's "1919: The Canadian Labour Revolt" (Labour/Le Travail, #13 (Spring 1984): 11-44) provides a dissenting view on the usefulness of the notion of western exceptionalism.

60 See Kerr & Siegel, "The Interindustry Propensity to Strike - An International Comparison;" also Jamieson, "Regional Factors in Industrial Conflict: the Case of British Columbia", and Olssen, "The Seamen's Union and Industrial Militancy, 1908-1913."

61 When the province's Labour Commission visited Rossland in 1913, miners had few complaints. When one union delegate was asked if he thought there was "a good large margin of safety," he agreed that there was (p. 286, Box 2, File 7, GR 684, PABC); another delegate came up with a suggestion for stricter regulation of the cages taking men up and down the shaft, but admitted that the company was attentive to such safety concerns, and blamed the men rather than Cominco for slipshod observances of safety rules (pp. 312-13, Box 2, File 8). Union delegates, and a mine manager, felt that relations between employers and employees were friendly; indeed, the miners' union seems to have had some difficulty in preparing a submission for the commissioners although it had been aware of the Commission's visit two months in advance. On the union's unpreparedness, see the somewhat embarassed replies on pp. 290 & 295, Box 2, File 7; for references to the friendly relations between company and men, see, pp. 291, 295 & 298, Box 2, File 7 & pp. 311 & 314, Box 2, File 8. This contrasts sharply with Waihi miners' testimony in 1911 before the N.Z. Royal Commission on Mining, as well as the evidence of Broken Hill miners to the 1914 N.S.W. Royal Commission on the mining industry at Broken Hill. All three commissions examined aspects of either health and safety or compensation.

62 Rossland miners, however, testified in 1913 that they had had no problem obtaining compensation from Cominco. P. 294, Box 2, File 7, GR 684, PABC.

63 The Privy Council case, Krzus vs. Crow's Nest Pass Coal Company, is summarised on pp. 590-98, The Law Reports of the ... Judicial Committee of the Privy Council, 1912. Several files in the archives of the Rossland Historical Museum contain letters and reports of the WFM's lawyer, Louis P. Eckstein, concerned almost exclusively with compensation cases; see especially Sandon

file 19, "Legal Cases in the Sandon Area," & generic file "Unions."

64 For the WFM's activity, see the discussions at the annual conferences, reported on 17 Jan., 1913, & 23 Jan., 1914, B.C. Federationist. On the more general topic of the introduction of compensation legislation and the role of the labour lobby, see Graham Geddes, "Agreement and Agitation: The Movement for Comprehensive Workmen's Compensation Legislation in British Columbia, 1891-1917," passim, BA Hons. thesis, University of British Columbia, 1986.

65 Rossland miners had a contributory health scheme with mining companies whereby they obtained "free" access to local doctors and the Trail hospital. Details on this system may be found in the B.C. Commission of Labour, 1912-1914, Box 2, File 7, GR 684, pp. 271-72, 291-93, & 296. Although several witnesses voiced minor complaints, the service provoked no substantial criticism, and in one case, significant praise. ("I was treated first rate," testimony of James Webb, a union delegate, p. 296, op. cit.)

66 This pulmonary disease was known by various names: miners' phthisis, miners' consumption, miners' complaint, all of which indicate its principal victims. A Royal Commission on Mining in 1911 heard much evidence on the disease: see C-4, Appendix to the Journal of the House of Representatives, 1912, passim. (For the commissions' recommendations on the disease, see pp. 29-32.) Several recent studies shed much light on this disease, as well as the efforts of unions, governments and companies to eradicate it. See, eg., James C. Foster, "The Western Dilemma: Miners, Silicosis, and Compensation," Labor History, Vol. 26, No. 2, (Spring, 1985): 268-87; Foster, "Western Miners and Silicosis: 'The Scourge of the Underground Toiler,' 1890-1943," Industrial and Labor Relations Review, Vol. 37, No. 3 (April 1984): 371-85; David M. Emmons, "Immigrant Workers and Industrial Hazards: The Irish Miners of Butte, 1880-1919," Journal of American Ethnic History, Vol. 5, No. 1, (Fall 1985): 41-64; Brian Kennedy, "The Conquest of Phthisis," pp. 49-70, A Tale of Two Mining Cities Johannesburg and Broken Hill 1885-1925, Melbourne and Johannesburg, 1984; & "Miners' Phthisis: An occupational health hazard in the Blackwater Mine," pp. 57-65, Gerard Morris, comp. & ed., Waiuta 1906-1951 The Gold Mine The Town The People, Reefton, 1986.

67 The high point of the campaign came in early December 1918, when miners demonstrated both wet and dry drills at the new Parliament Buildings in Wellington, for the benefit of members of Parliament. See 8 January, 1919, Maoriland Worker, & pp. 860 (6 Dec., 1918), 905 (7 Dec., 1918), 958-61 (9 Dec., 1918), Parliamentary Debates. Cf. pp. 256 (5 Sept., 1919) & 932-48 (27 Oct., 1919) op. cit.

68 When the Waihi Company was slow in complying with the legislation making wet drills compulsory by 1920, miners simply refused to work with the old drills. (p. 4, 4 Oct., 1920, New Zealand Herald; also pp. 136 (2 Oct., 1920) & 151 (27 Nov., 1920), Reports of Waihi Mine Manager to the London Office, Vol. 12, Martha Goldmining Company records, M 37, Auckland Institute and Museum.)

69 For an early example of politicians' sensitivity to the problem of silicosis, see New Zealand Parliamentary Debates, Vol. 124, pp. 723-38; note especially the remarks of Premier Seddon, pp. 725-26. One of the first acts of the

Labour Government elected in 1935 - a government which included two former Waihi Miners' Union officials as cabinet ministers - was to have the Department of Scientific and Industrial Research prepare a report on silicosis, later published as Bulletin No. 57, "Report of Interdepartmental Committee on Silicosis," Department of Scientific and Industrial Research, 1938.

70 A. G. Cumpston's article, "Health and Disease in the Broken Hill Mining Industry" (pp. 537-51, M. Radmanovich & J. T. Woodcock, eds., Broken Hill Mines - 1968, Melbourne, 1968), provides a good overview of the problems of health and safety at Broken Hill; see also Kennedy, Silver, Sin, and Sixpenny Ale, passim.

71 The first commission was in 1892, "to inquire into the prevalence and prevention of lead poisoning..."; another in 1897, on the frequency of accidents; a couple in 1901 & 1902 to examine specific accidents; another in 1914, to look into working conditions and the effect of the contract system; and a "Technical Commission" in 1919-20 which investigated the incidence of miners' phthisis. In addition to the veritable mountain of evidence that these commissions provide on working conditions, the various arbitration proceedings also heard evidence on the topic, especially the 1916 Commonwealth case on the 44 hour week. A typescript copy of the 1916 testimony (three volumes) is held by the Broken Hill Mining Managers' Association.

72 Curiously, even Broken Hill's medical officer, a man with little sympathy for the companies and one of twenty respondents to the circular, did not cite health problems as an issue. Appendix C in Barbara Hammond's "The Origins and Course of the Broken Hill Strike 1919-20" (BA Hons. thesis, University of Melbourne, 1970) provides a very useful analysis of these respones.

73 P. 156, Kennedy, Silver, Sin, and Sixpenny Ale.

74 Quoted on p. 165, Kennedy, op. cit.

75 Miners won a thirty-five hour week, five working days of seven hours each. Production mining on the night shift was abolished. 258 of the 4,337 miners examined by the Technical Commisssion were found to have silicosis and/or TB; they were to stop work and to receive adequate compensation from a special Compensation Bill to be introduced by the state legislature. In the wake of these and other measures introduced underground by 1922, the incidence of silicosis quickly dropped. (See especially p. 547, Cumpston, "Health and Disease in the Broken Hill Mining Industry.")

76 P. 43, J. H. Curle, This World of Ours, New York, 1921. Curle, The Economist's mining correspondent, saw 1886 - 1906 as the "golden age".

77 The best source for following this activity is through the contemporary pages of The Economist; cf pp. 66-75 & 164-86, Francis W. Hirst's The Stock Exchange, London, ca. 1911. (Hirst was editor of The Economist). Secondary accounts include A. R. Hall, The London Capital Market and Australia, Canberra, 1963, passim; J. W. McCarty, "British Investment in Western Australian Gold Mining, 1894-1914," University Studies in History, Vol. IV, No. 1, (1961-1962): 7-23; John Bastin, "The West Australian Gold Fields, 1892-1900: The Investors and their Grievances," Historical Studies Australia and New Zealand, Vol. 6, #23, (November, 1954): 282-89; H. J. Hanham, "New Zealand Promoters and

British Investors, 1860-1895," pp. 56-77, Robert Chapman & Keith Sinclair, (eds.), Studies of a Small Democracy Essays in Honour of Willis Airey, Auckland, 1963; D. G. Paterson, "European Financial Capital and British Columbia: An Essay on the Role of the Regional Entrepreneur," BC Studies, 21, (Spring, 1974): 33-47; John Spencer Church, "Mining Companies in the West Kootenay and Boundary Regions of British Columbia, 1890-1900, - Capital Formation and Financial Operations," MA thesis, UBC, 1961; and pp. 21-37 & passim, Robert V. Kubicek, Economic Imperialism in Theory and Practice The Case of South African Gold Mining Finance 1886-1914, Durham, N.C., 1979. For the British investor and U.S. mining investments, see pp. 139-210, W. Turrentine Jackson, The Enterprising Scot Investors in the American West after 1873, Edinburgh, 1968; Clark C. Spence, British Investments and the American Mining Frontier 1860-1901, Ithaca, N.Y., 1958. Robert Kubicek provides a comparative overview in "International Investment in Mining in South Africa, Canada and Australia 1890-1914," unpublished paper presented to the International Mining History Conference, Melbourne, August, 1985.

78 "...this system in Broken Hill is altogether different ... it becomes more of a navvy's job." -testimony of C. J. Bealey, 21 July, 1914; #12822, p. 331, Minutes of Proceedings and Evidence of the Royal Commission on the Mining Industry in Broken Hill, New South Wales, Parliamentary Papers, 1914. I am indebted to my friend Logan Hovis whose MA thesis, "Technological Change and Mining Labour - Copper Mining and Milling Operations at the Britannia Mines, British Columbia, 1898 - 1937," University of British Columbia, 1986, has helped me to clarify my own ideas on this topic.

79 For Broken Hill, see the five papers on "Some Features of Broken Hill Mining," Transactions of the Australasian Institute of Mining Engineers, New Series, No. 10, (1913): 129-80, and Edwin K. Beaumont, "Silver-Lead Mining and the Various Systems of Stoping and Timbering Employed in Broken Hill, New South Wales," Transactions of the Australasian Institute of Mining Engineers, Vol. IX, (1903): 117-44. For Waihi, see Jas. L. Gilmour and W. H. Johnston, "Mining Methods in the Waihi Mine, N.Z.," Transactions of the Australasian Institute of Mining Engineers, Vol. XVI, (1912): 25-52. On Rossland's techniques, see R. B. Brinsmade, "Mining Practice at Rossland, British Columbia," Mines and Minerals, Vol. 21, (March, 1901): 363-67, and Norman W. Parlee, "Methods of Mining and Timbering in Large Ore Bodies in British Columbia and Michigan," Transactions, Canadian Society of Civil Engineers, Vol. 18, (1904): 98-107.

X

The Business of Mining:

A Comparison of The Major Companies of Rossland, Waihi and Broken Hill

...of all ways whereby great wealth is acquired by good and honest means, none is more advantageous than mining...[1]

As the introduction suggested, the usefulness of comparative history stems from the notion that more may be discovered about separate yet similar events by comparison than by isolated study. An examination of the dominant mining companies of Broken Hill, Waihi and Rossland - the Broken Hill Proprietary Company [BHP], the Waihi Gold Mining Company and the Consolidated Mining and Smelting Company [Cominco] - offers an opportunity to test this assumption. What similarities are revealed by an examination of the three businesses which dominated the mining industry in these communities, and indeed which exercised a considerable influence on the economic development of their respective regions? More importantly, can a comparative analysis suggest a common trajectory of resource development in the regions of recent settlement? To answer such questions, this chapter provides a brief narrative outlining the genesis and histories of the three businesses, tracing the ways in which they moved from similar backgrounds as speculative ventures to more business-like firms; how each company adopted and developed appropriate technologies; and how specific strategies were

charted to ensure long-term operation.

*

The California gold rush of 1848-49 was the catalyst for increased mining activity around the Pacific rim. Within a dozen years, the discovery of rich gold deposits in New Zealand, eastern Australia and British Columbia sparked similar rushes to those areas. In addition, the rapid depletion of California's deposits acted as a spur to invention and innovation, leading to the discovery of new mining techniques as well as the sophistication of older methods.[2] Subsequent rushes to other areas fostered what one scholar has termed "the *genus* Pacific Man whose habitat [was] no particular country but the goldfields."[3] A predominantly male population followed the gold discoveries around the Pacific, ensuring the diffusion of techniques and knowledge pioneered on the California fields.[4]

Mining soon became a leading industry in the colonies of New South Wales, New Zealand and British Columbia. Government revenues climbed with mineral production, and at least some of this money found its way back to the industry in the form of road-building or grants for further prospecting. While such help may have been useful in some localities, the first wave of prosperity based on the rushes was receding by the 1870s. To survive, mining had to move beyond its reliance on rich placer deposits. Its resurgence - discernible in all three areas during the late 1880s and early 1890s - rested on a fundamental re-organization. Companies rather than partnerships became the norm, and reflected the industry's new requirements of complex machinery, engineering and geological expertise, a skilled and disciplined work force, and large capital outlay. The nature of the resource had also changed: extensive, low grade alluvial claims and hard rock properties, both requiring considerable

investment before any return could be realised, replaced the high grade, easily worked deposits typical of the rush era. Miners began to realise the value of other metals, too, especially silver and copper. Diversification and an increasing reliance on economies of scale were the hallmarks of the re-invigorated mining industry. Despite such signs of maturity, however, it remained a speculative and volatile industry.

Mining activity at Rossland, Broken Hill and Waihi was directly related to this resurgence: all three companies owed their existence to a renewed wave of prospecting and development initiated in the 1880s. While their progress reflected the expansion and sophistication of each region's mining industry, it also took place within a larger context, the dynamic growth of the regions of recent settlement during the late nineteenth century.[5] The burgeoning export economies of these regions, fostered by the expansion of transportation networks, attracted considerable British capital investment.[6] This complex relationship will not be described here, but one important consequence deserves attention: the share capital that a buoyant London market invested in mining companies of Broken Hill, Waihi and Rossland. This imported wealth influenced the development of each community, its impact varying from place to place. It serves as a useful starting point from which to explore in greater detail the genesis of each company.

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The Waihi Gold Mining Company was a direct result of British speculative investment during the later 1880s.[7] From 1886 to 1889, London promoters successfully launched some 992 mining companies on the Stock Exchange.[8] Although Queensland mines were the most popular, a number of New Zealand properties were also floated during the boom.[9] The Waihi

company appeared in late 1887, in the midst of this flurry of company formation.

The enthusiasm of British investors for mining companies reflected the impact of the late nineteenth century depression.[10] The decline in prices rendered investments in other industries less attractive; gold, with its fixed price, was immune from this erosion in value. The prosperous condition of several British-based gold mining companies in 1886 suggested that the industry was a good investment, serving *pour encourager les autres.* And the mining displays at the Colonial Exhibition which opened that year in London offered proof of the mineral wealth of the Antipodes. At the Queensland court, for example, a stamper battery noisily smashed hand-picked, high grade quartz, producing gold before an impressed English audience. In addition, the successful floatation of mining companies reflected the gambling propensities of the share-buying public, denied other outlets for speculative investment.[11] In a retrospective article on "The Course of Speculation in Mines," **The Economist** gave its analysis of the boom:

> Out of all the mining companies, numbering some hundreds, whose shares are dealt in on the London Stock Exchange, we can find only about 40 that have paid dividends within the past year.... It is somewhat curious that under circumstances such as we have referred to, speculation in mining shares should have extended so rapidly as it has done of late years. The reason for it, of course, is that the industry has here and there produced great wealth; but from all that we have said it will be evident that mining is a lottery, in which the blanks vastly outnumber the prizes.[12]

As the writer implied, most companies launched in London during the late 1880s brought few rewards to British investors; indeed, the majority collapsed within a few years. The Waihi company was one of the very few floated during the boom that ever returned dividends to its shareholders.

A previous chapter described the early years at Waihi, but several points bear repeating. The most important of these is that the Waihi company was not assured of success. The only asset owned by the company when it was launched in late 1887 was a mine of little value.[13] All of the capital raised by the company's formation either went to the vendors or was wasted on an expensive and inefficient treatment plant. The Waihi company's eventual prosperity rested on the Martha Mine's extensive low grade ore deposits as well as sophisticated metallurgical techniques for treating that ore, beginning with the application of the cyanide process.[14] Neither of these necessary conditions were in place until the 1890s: the purchase of the Martha Mine came in 1891 and the application of cyanide in 1893. The two events owed very little to the company's London directors: the financial resources of the local superintendent originally obtained the Martha Mine for the company, and its acquisition of patent rights to employ the cyanide process was also a result of local events and initiatives.[15] The circumstances surrounding the Waihi's formation suggest that its subsequent success was largely fortuitous. The company began as a speculative floatation, a response to conditions on the London market.[16]

Although Cominco was not formed until 1906, British mining investments in Rossland during the late 1890s had a considerable influence on the company's birth. A brief review of Rossland's early development illustrates its links with London's second mining boom, which reached its peak in the late 1890s.

Canadian prospectors staked the major Rossland claims in the summer of 1890. Rather than developing these properties, however, they preferred to sell them to American businessmen for a quick profit. It did not take long

for this latter group, based principally in Spokane, to establish the value of Rossland's mines. By 1898, they too had sold out, generating spectacular profits. In 1928, a Spokane newspaper published a number of historical articles on mining in British Columbia, based on the reminiscences of various residents who had played a part in developments north of the border. Its cryptic summary of Rossland is revealing:

> The famous mines of Rossland developed by Spokane people are as follows:
>
> War Eagle, bought 38 years ago for $17,500; earned about $600,000; sold to Gooderham and Blackstock for $800,000.
>
> Center Star, bought for $30,000 and sold for $2,000,000.
>
> LeRoi, bought for $30,000; produced for shareholders, $900,000; sold to an English syndicate for $4,500,000.[17]

The process of divestment began in late 1896, and culminated in 1898 with the dramatic sale of the LeRoi.

In March of 1897, the B.C. correspondent for **The Canadian Mining Review** noted that "the Rossland district is becoming very popular with the capitalists; especially English capitalists who now hold options on several of the well-known properties."[18] By the end of the year, the province's mines had become a favoured commodity in London. "As regards British Columbia," reported the **Engineering and Mining Journal** in its annual review of mining activity on the London Stock Exchange,

> ...it may be said that almost all the promoters in London have formed some sort or other of company to deal with mining in that province. Many of these have not yet got beyond the embryonic stage and have not done more than inquire for a suitable mine. We hear also that the leading mining engineers of London have representatives in the province on the look out for properties, but as yet their efforts have not matured to any extent...[19]

Such attention helped to drive up the price of Rossland's mines to ludicrously high levels, and also encouraged the floatation of numerous worthless mining companies. Despite warnings from the more responsible press, British and Eastern Canadian capital flowed into Rossland.[20]

A number of Canadian politicians, including British Columbia's premier and several former Conservative cabinet ministers from the recently deposed federal government, were among those actively promoting B.C. mines on the London market.[21] C. H. Mackintosh, a typical representative of this group, induced Whitaker Wright, one of London's most disreputable mining promoters, to purchase the Le Roi and several other Rossland mines.[22] The collapse of Wright's financial empire in late 1900 depressed the value of every Rossland mining company's shares; they never recovered.[23] Nearly forty years later, Canada's leading mining journal noted that

> At one time in our history British Columbia could have commanded almost unlimited capital, both from the Old Country and Eastern Canada for mine development; but one scandal after another caused our ostracization. Even today in London the Le Roi fiasco is still remembered...[24]

Not all investors abandoned the province's mining industry after 1900 however.

The Canadian Pacific Railway had been among those who had purchased mining interests in the Rossland area in the late 1890s. It acquired the Trail smelter as part of a larger deal with the Butte copper magnate, F. Augustus Heinze. The strategy of its subsidary company, the Canadian Smelting Works, was to diversify the smelter so that it could treat not only Rossland's gold copper ores but also the silver-lead ores of the Slocan. This did not prove particularly successful, however, and following the Wright crash and the subsequent fall in Rossland shares, the CPR contemplated selling the smelter, but finally decided to take the opposite course, to expand its mining interests.

In 1905 the company acquired two leading Rossland mines, the War Eagle and the Centre Star, and sponsored the creation of Cominco in early 1906.

Cominco's formation was designed to accomplish several things, but economic rationalization was paramount. This is clear, for example, in an article on "Mining Consolidations" in **The Economist** written in 1905, that is, just when negotiations were underway to create the new company:

> ... the Rossland field is now almost a dead letter. The only thing that will save these mines so far as I can see, is a general consolidation. It is true that there are two smelters serving the field, and each might be made the nucleus for a consolidation, but I doubt, on its low-grade basis, whether there is now justification for more than one strong concern. It is, of course, not demonstrable without close examination of the individual properties whether these would pay even if amalgamated, but they most certainly will not pay if worked by themselves as at present. [25]

But in addition to the need to place mines and smelter on a more economic basis by employing both vertical integration and economies of scale, Cominco fulfilled one of the CPR's corporate strategies. It helped to prevent the CPR's arch-rival, Hill's Great Northern Railway, from gaining access to the principal commerical traffic of the Kootenays. Also - more intangibly - the merger coincided with numerous other similar consolidations, thus reflecting a general trend towards larger commercial units.

The CPR went to considerable lengths to try to persuade the London-based LeRoi company to participate in the merger that created Cominco, but the London shareholders resolved to pass up the opportunity, overturning their Directors' earlier approval.[26] However, in spite of the absence of the LeRoi from the new vertically-integrated mining and smelting company, the London market did play a role in the creation of Cominco. The merger had originally been proposed by one of the LeRoi's Directors,[27] and the

purpose of the new company was to solve Rossland's chronic problem of over-capitalization, a legacy of the attention of British speculators. In the words of one contemporary journalist,

> The advent of the Consolidated Mining & Smelting Company Of Canada, Limited, into Rossland camp has been an important step towards establishing a prosperous future for this district.... One laudable feature of the consolidation was the straining off of a considerable quantity of "water" from the capital of the combined interests...[28]

The Broken Hill Proprietary Company [BHP] was not a product of the London stock exchange. A rather diverse group formed the company in 1885, in an isolated corner of New South Wales. "The Provisional Directorate," reminisced one of BHP's founders years later, "comprised a carpenter, a surveyor, a solicitor, a speculator, four sheep farmers, and a station manager."[29] But while they were perhaps unlikely executives, their managerial decisions were astute. They quickly drew upon the leading mines of the world for their senior staff, and profited considerably from mining booms in both Melbourne and London. During 1887 and 1888, shareholders agreed with the Directors' plans to sell four of BHP's seven claims, thereby creating three new companies. Two of these, Block 10 and Block 14, were little more than direct subsidaries of BHP. The third, however, was a London-based company, floated during the boom there in 1887.[30]

The richness of BHP's claims allowed the company to finance its development and expansion from the sale of its bullion and concentrates; it had no need to re-structure in order to survive. It soon rose to become one of the most profitable of Australian companies, prompting one scholar to suggest that had the government in Sydney appreciated the fact, it would probably have re-written the colony's mining law to prevent such wealth being

controlled by one company.[31] With little need for outside capital, the company only sold off claims in order to take advantage of booming markets. Its shareholders profited from the strategy: the British floatation, for example, returned £61 for each BHP share.[32] Understandably, BHP had little desire to part with the most lucrative of its claims, and the English company proved the least successful mining property of those that BHP launched from its original holdings. The failure of the "British" to live up to expectations led to some bitterness in London; British investors only reluctantly realised that mines launched on the London market during the boom did not exactly represent the best that the various colonies had to offer.[33] A South Australian explained matters succinctly in a letter to **The Economist** in late 1889:

> ...it is estimated that South Australians (the population is about 317,000) own mining shares in the Broken Hill Companies, New South Wales, to the extent of eight millions sterling, at market prices, and ... the chances are against any first-class venture ... being offered to the British public. It may happen that colonials let a good thing slip through their fingers, but if they do, it is because reports made by trusted experts are not altogether satisfactory.[34]

British investors learned from their mistakes, however, and soon recognised the wealth of Broken Hill. By 1906 they owned a majority of BHP shares, as well as those of the other major Broken Hill companies.[35]

The direct and indirect links of each company with the London market indicate the importance of British investment capital during the late nineteenth century; more specifically, these links underline the importance of British speculative capital in large-scale mining activities. All three companies either particpated in or were affected by the substantial London-based mining booms of this period.

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The enormous surge of mining activity during the late nineteenth century helped to create and sustain international bonds within the industry. The process is especially apparent among the fraternity of mining engineers.[36] The practices of each company were well known to this group, for the leading mine engineering journals of Britain and North America published numerous articles on Waihi, Rossland and Broken Hill, contributed by peripatetic mining journalists such as Ralph Stokes, J. H. Curle and T. A. Rickard.[37] In addition, standard reference works on ore extraction referred to all three areas as examples of particular mining methods.[38] This process worked in the other direction as well, for the mining and milling methods of each company reflected advances or innovations from other areas. Cominco, for example, was quick to adopt selective flotation, pioneered at Broken Hill; the Waihi company's mine manager adopted shrinkage stoping after studying Australian practise, probably at Broken Hill, where he had earlier worked; both the Waihi company and BHP dispatched officials to America in order to acquire "state-of-the-art" milling equipment, and each also hired overseas personnel to introduce square set timbering. Not unnaturally, Rossland - in many ways a child of the American "mining advance" - was more integrated into the continental *milieu* and so had less need to make such deliberate efforts to acquire necessary skills and technology.

The shared growth in knowledge and experience that flourished with the internationalization of the mining industry benefitted all three companies. They were quick to adapt mining and milling methods pioneered in other areas. The process of tailoring methods from elsewhere stimulated further research and development, and each company played a role in the advancement of metallurgy during the early twentieth century. Sophisticated technology enabled each company to survive fluctuations in the business cycle and the declining

value of their ore supply. While a similar pattern may be detected in the progress of all three companies, a closer examination of each business also reveals important differences.

BHP made the most significant contribution to metallurgy. It pioneered the development and sophistication of the flotation process, arguably this century's single most important advance in ore treatment.[39] As the following discussion suggests, flotation's discovery and application in Broken Hill demonstrates the oft-cited relationship between invention and necessity. It is a mistake, however, to focus exclusively on flotation for it was only one in a series of technological adaptations forced upon Broken Hill's mining companies by the unique nature of its massive silver-lead-zinc ore body.

The first ore won from BHP's mine in Broken Hill was rich in silver. The company's early years were prosperous ones: the price of silver was high and the ore could be mined and treated relatively easily. As the mine went deeper, however, the ore changed considerably. The sulphide ore found in depth was refractory and difficult to treat, unlike the carbonate ore that had been encountered near the surface. Originally BHP had simply concentrated the carbonate ore in its mill, a direct import from the United States,[40] and then smelted the concentrate. The sulphide ore's high zinc content meant that this system had to be changed. The traditional concentrating techniques did not separate out the zinc, and a high zinc content in the concentrates would pose serious difficulties for the smelters.

In the mid-1890s, BHP's mine staff grappled with the problem while its directors fended off anxious shareholders. It was eventually overcome by developing a more sophisticated concentrating process, largely borrowed from South Australia's copper mines. The mills now produced high grade lead

concentrate and tailings rich in zinc. The solution created a second problem, or at least another challenge: by the turn of the century enormous heaps of valuable zinc tailings were piling up along the line of lode. Concentrating rested on gravity separation but the zinc tailings contained two other minerals with specific gravities nearly identical to that of zinc. An entirely new method of treatment would be needed to unlock the zinc from this mixture. Flotation was just such a process.

The flotation process at Broken Hill relied on a relatively simple chemical reaction to separate zinc from the other less valuable minerals with which it was associated. BHP was the first company to develop a commercial application from the original idea: in early 1903 it produced fifty tons of zinc concentrate using the principle of flotation. By late 1905 this modest start had multiplied to over one thousand tons of concentrate a day.[41] During the 1890s and the first years of this century, BHP's profit margin had steadily eroded, a function of the declining value of its ore as well as the expense of developing a method of treating the sulphides.[42] Flotation ensured a far more efficient means of treatment and improved BHP's fortunes dramatically. The new technique could not prevent the steady diminution of BHP's ore reserves, however, and the general manager became increasingly concerned over the company's long-term prospects.[43] Rather than search for new ore supplies and continue with its traditional mining and smelting operations, Delprat felt that the company should use its extensive iron ore deposits, acquired in 1897 to facilitate smelting operations, to establish an Australian steel industry. Thus, although BHP had played a crucial pioneering role in establishing flotation's commercial feasibility, it did not press this advantage. It was left for others, notably the Collins House group of companies, to seize this opportunity to ensure stable and remarkably long-lived careers based on the efficient

treatment of low grade deposits that flotation made possible.[44] Although BHP continued mining at Broken Hill until 1936, its importance among the town's mines was clearly in decline from 1909 onward and in 1915 its Newcastle steelworks began production.

In Rossland the antecedent companies of Cominco were less successful than BHP in their application of metallurgical technology. This was not for lack of trying: declining ore values in the early 1900s, for example, had stimulated considerable research, as companies experimented with ore concentration in order to bring down shipping costs. They also introduced the Elmore oil process, which in some respects anticipated flotation.[45] Despite this willingness to research, other problems handicapped the companies' efforts and doomed them to failure. The greatest difficulty was over-capitalization, a legacy of the investment boom; as a result, the companies were under severe pressure to produce dividends and could not afford to spend too much time or money on research. In addition, the Rossland mines relied on independently-owned smelters to treat their ore, and thus could only tackle a certain range of metallurgical problems. BHP's more extensive, vertically-integrated plant perhaps was more conducive to research, since all stages of the treatment cycle could be improved.

The Trail smelter, owned by the Canadian Pacific Railway, did not suffer from the same difficulties as the Rossland mines. Its one problem was an insecure ore supply, since a considerable proportion of Rossland's production went to the Northport smelter south of the border. In order to overcome this difficulty, the smelter embarked upon a program of diversification. Originally equipped only to treat Rossland's copper gold ores, under CPR management the smelter soon expanded so that it could also handle the silver-lead ores of

south east British Columbia. This move was not immediately successful, however, as the price of lead fell after 1900 and the growing monopolistic control of the American Smelting and Refining Company [Asarco] made it difficult for the smelter to market its unrefined lead south of the border. After considerable lobbying from mine-owners and the CPR, the government of Canada introduced a lead bonus in 1901 to help the industry. The next year the smelter built its own lead refinery, the world's first commercial application of electrolytic lead refining. Like its later adoption of the Huntington-Heberlein roasting process, however, the smelter was simply utilizing a refining technology invented elswhere.

The organization of Cominco in 1905-1906 was intended to create a more efficient and thus a more profitable mining industry based in Rossland. Despite the high hopes accompanying its birth, the new vertically-integrated mining and smelting enterprise did not immediately prosper. While its Rossland mines were able to ship ore regularly, the company's silver-lead property - the St Eugene mine at Moyie - soon began to show signs of exhaustion. To compensate for this, Cominco first leased and later purchased the Sullivan mine at Kimberley, owned by an Asarco subsidary. Although its high zinc content created problems at the smelter, the Sullivan ore did enable lead production to continue.

When war broke out in 1914, the demand for Cominco's products surpassed its ability to supply them. Zinc was particularly sought after: German control of the zinc industry meant that Britain had few sources of supply, yet it was a necessary component in the manufacture of brass. Cominco's researchers worked hard and long to uncover a suitable process for separating zinc from the refractory Sullivan ore; they also tried to perfect a

refining process which would be able to manufacture pure metal from such zinc concentrate as the company could produce. The company ultimately adopted selective flotation, a refinement of the original Broken Hill method, and thus was able to produce zinc concentrate from the ore. Although the technology was drawn from Broken Hill it had to be tailored to the complex Sullivan ore, which differed considerably from, and was more difficult to treat than, the ores of Broken Hill.[46] Cominco's method for treating the zinc concentrate, electrolytic refining, was a product of its own research, however.[47] The combination of the two processes, although not perfected until after the First World War, enabled Cominco to utilise the enormous ore reserves of the Sullivan. Although the smelter continued to treat diverse ores, it was the lead and zinc of the Sullivan mine – unlocked by Cominco's metallurgists – that ensured the company's prosperity.

The Waihi company confronted the same problems as BHP and Cominco: the ore upon which its prosperity rested was difficult to treat, and thus applied metallurgy was critical to the company's profitability. Like the other two companies, it relied on economies of scale, and as the value per ton of Waihi ore gradually declined, the extraction of a high percentage of its mineral content became more and more important. Nonetheless, the company's future depended on fewer variables than was the case with BHP and Cominco. The gold it produced was in constant demand and enjoyed a guaranteed price, unlike lead and zinc, the mainstays of the other two companies. As long as working costs stayed low and accurate measurements taken of the company's ore reserves, profitable operation was assured. Thus, although the company made similar efforts to apply metallurgical technology, these were less sustained than those of BHP and Cominco. Like them it was a business, and used technology simply to underwrite its financial stability. Once this was

accomplished, evidence suggests that the company was less innovative. Indeed, its first efforts in mastering and then applying overseas metallurgical technology were scarcely unqualified triumphs.

Not long after the company's launching on the London stock exchange, it began construction of an expensive mill, designed to treat the mine's silver-gold ore. The equipment had been purchased from the United States and the company also hired an "American expert" to supervise its construction and operation. At first, the plant was plagued with problems, and the cost of its construction absorbed all the company's capital. Forced to issue debentures to remain solvent, its shares sank in value and its only future appeared to be liquidation. When the company's mill finally became operational, the mine lacked sufficient ore supplies to allow it to run at full capacity.[48] This difficulty was overcome when the company acquired a neighbouring mine with substantial ore reserves, and after several more years of operation, Waihi produced its first dividends for shareholders.

The company was particularly fortunate to have been able to purchase the nearby Martha Mine, and a second piece of good luck ensured a prosperous future. Not far from Waihi, the first commercial operation of the cyanide process began in 1889. This new method of extracting gold from hitherto refractory ore had a tremendous impact upon gold mining all over the world; low grade deposits which had been uneconomical to mine - notably those in South Africa - now became profitable. After an initial failure with an experimental cyanide technique, the Waihi company adopted the widely-used Cassel's process, improving its gold recovery by nearly 50%.[49] With substantial ore reserves and an efficient treatment process, the company soon became famous as one of the world's leading gold mines.

At the company's annual general meetings, the chairman extolled the virtues of the mine's senior staff and emphasised their commitment to research and innovation. In 1909, for example, he assured shareholders that

> the Waihi has been amongst the earliest in introducing the most up-to-date improvements. It was one of the first to adopt cyanide treatment. I have read that the first tube mill was started on the Rand ... in May 1904. The first tube mill was started at Waihi in October 1903. (Applause.) The Honeycomb liner system is an invention of Mr. Barry [the Waihi superintendent]. The Waihi was the first to make the vacuum filtration system a commercial success, and this success was entirely due to the improvements designed and introduced by Mr. Barry.... we are thoroughly cognisant of the necessity of keeping in touch with what is being done in other parts of the world, and from time to time we send out eminent engineers to visit our mine, and members of our staff visit different parts of the world and obtain new ideas. [50]

Clearly the company was conscious of the importance of technology, but despite the the tenor of the Chairman's remarks, most of the company's technology was adopted from overseas, at first with rather indifferent results although later with much greater success.[51]

Other, less partial observers were somewhat reserved in their praises of company staff. "They want half-a-dozen clever Yankees at the Thames," declared one British mining correspondent.[52] Harsher criticism was levelled at the Waihi company's Directors following the share collapse of 1910-1911. This crash came after reports that the limits of the mine's ore-body had been reached. T. A. Rickard described the event as "a fiasco of sensational and disastrous character."[53] Operations continued on a reduced level for another forty years, but the company never regained its once-prominent position among the world's gold mines.

The speculative climate of the late 1880s and mid-1890s had affected the three mining companies in different ways, as an earlier section has

described. By the late 1900s, however, all three had exhausted their high grade deposits and their prosperity had come to rest on the efficient treatment of low grade ore. This change emphasised the importance of technology, especially the ability to master and employ metallurgical skills. For all three companies, mass production techniques were essential to guarantee their survival. This reliance on economies of scale and applied science underlined the importance of supervisory personnel generally and engineering staff in particular.

BHP, Cominco and the Waihi company became the most sophisticated mining companies in their respective regions. Increasingly their future depended upon their managerial staff. The superintendents or general managers of all three companies, for example, played critical roles in leading investigations and conducting experiments to ensure continued success. Alfred D. Chandler, Jr has argued that this new managerial group was the vanguard of "a new type of capitalism" which he terms "managerial capitalism."[54] In Chandler's view, the creation of administrative hierarchies distinct from a business's owners was the hallmark of the new multi-unit business enterprise which emerged in the late nineteenth century. The managers' growing importance within the mining industry reflected the desires of owners to see that their mines enjoyed the benefits of the latest technology. These men were seen as conduits, picked for their ability to introduce the most recent innovations, not as part of a larger plan to re-structure the administration.[55] Re-structuring did take place, but it was accomplished less by conscious intervention than as an inevitable consequence of an industry forced to constantly reduce costs and improve production.[56]

H. W. Gepp, an engineer whose own career was linked to the revival of Broken Hill during the early 1900s, emphasised the changed role of his profession, in a speech to members of the Australasian Institute of Mining Engineers in 1928:

> Modern mining had ... to deal with ore of lower grade and ever increasing complexity, and in order to make a mining enterprise on those lines profitable, it became necessary to handle very large tonnages, which, of course, involved large capital expenditure. Modern mining had hence become, to a great extent, a problem in mass production, and, on that account, mechanical methods had necessarily been introduced extensively. That meant, however, that increasing demands were being made upon the modern mining engineer, not only in respect of his knowledge of mining, metallurgical, and mechanical details, but more particularly upon his administrative and organising abilities, mining enterprises today being vast and complex concerns.[57]

Around the world, mining companies sought to treat low grade ores at a profit, and all assumed that applied science would provide the solution.[58]

All three companies had to come to terms with geological reality, a function of their reliance upon a resource that varied in quality but was limited in extent. As innumerable writers stressed, mines were "a wasting asset"; Herbert Hoover's comments were typical:

> ...the immediate commercial result limits the mining engineer's every plan and design.... The question of capital and profit dogs his every footstep, for all mines are ephemeral; the life of any given mine is short. Metal mines have indeed the shortest lives of any.[59]

The only way for companies to transcend the mining cycle was by purchasing additional properties; the spectre of depletion haunted every mine.[60]

Both BHP and Cominco successfully overcame the exhaustion of their original properties. The long-term prosperity of these two companies contrasts sharply with the decline and eventual winding-up of the Waihi Gold Mining

Company. This contrast endorses Chandler's observation that "The continuing growth of [large multifunctional companies] rested on the ability of [their] managers to transfer resources in marketing, research and development, and production ... into new and more profitable related product lines."[61] BHP's "Big Mine" at Broken Hill did not finally close until the late 1930s, but long before then the company had lost interest in silver/lead/zinc mining. From the 1910s on, BHP devoted its energies to establishing and building up its steelworks at Newcastle and demonstrated little concern with its principal mine or the smelting/refining complex at Port Pirie. The decision to move from one resource base to another was both timely and astute, and was largely the result of General Manager G. D. Delprat's urgings.[62]

Cominco's efforts to provide for long-term operation differed from those of BHP; the Canadian company did not make such a profound shift in focus. Attempts to diversify the Trail smelter had been underway prior to Cominco's formation in 1906.[63] Rossland's gold/copper mines could not provide sufficient ore for the smelter, and the railway owners were anxious to increase their volume of traffic. By the turn of the century the smelter was able to treat silver/lead ores, and the St. Eugene Mine - a silver/lead property in East Kootenay - was included in the amalgamation which brought forth Cominco. Dwindling shipments from the St. Eugene mine forced the new company to locate an alternative lead ore supply, leading ultimately to the purchase of the Sullivan Mine. Once Cominco's research staff developed a method of profitably treating the Sullivan's complex ore, the company's future was secure.

Cominco and BHP grew to become large vertically-integrated business enterprises; indeed, both continue to play active roles in their respective

countries. Two factors explain the dynamic growth of the Canadian and Australian companies. Their reliance on base metals which constantly fluctuated in price taught the value of economies of scale, continuing research and forward planning. In addition, indigenous ownership and/or control encouraged BHP and Cominco to capitalize on potentially profitable opportunities. Head offices in Melbourne and Montreal facilitated close links between the companies' board of directors and each nation's commercial elite, which in turn guaranteed the ready support of government, most apparent during the First World War. While such ties served to cushion entrepreneurial risks, the essential ingredients of both BHP's and Cominco's success were fortuitous acquisitions and astute management decisions.

The Waihi company also profitted from a chance purchase, although it had less need to cultivate the corporate virtues essential to the survival of BHP and Cominco. For example, a ready sale at a fixed price awaited all the gold that could be produced by its New Zealand mine. The decisions of the company's London-based board were more cautious than those of Cominco or BHP. The directors and senior management did not pursue diversification and expansion with the same energy exhibited by the other two companies. This conservative approach most likely reflected prior experience: the disastrous outcome of so many of the reckless investments made by British shareholders in colonial mining ventures during the late 1880s and mid-1890s.[64] Neither the board nor company shareholders had any desire to jeopardize steady dividends by investing profits in other, less certain ventures. Thus, although the company realised that it needed to acquire additional properties to ensure its survival, no significant purchases were made.[65] The Waihi Gold Mining Company simply worked its property until depletion forced its closure.

Cominco, BHP and the Waihi company owed their prominent careers to the ownership of substantial underground wealth. National and international contexts were also important. The pattern of British speculative investment, as well as the global reach of both mining technology and the ubiquitous "American expert," influenced their evolution, as did the incorporation of the "settler dominions" into the network of world trade during the late nineteenth century.[66] Regional and national concerns - for example, the policies of specific governments, the relationship of each company to state authorities, and the relative importance of mining within the respective economies - endowed the three companies with other, more distinctive characteristics. Ultimately, however, the most significant feature remained the resource base. Ore from the Sullivan ensured Cominco's longevity and the recent sale of the company to Teck Corporation coincides with public hints that the mine at Kimberley is nearing exhaustion.[67] BHP's long-term future was guaranteed by its move into the production of steel, aided not only by its accumulated wealth from past mining activity but also by the fortuitous acquisition of a massive iron ore deposit in South Australia. The Waihi company was less fortunate, or perhaps less enterprising.

The preceding chapter argued that one of the great advantages of comparative history was the opportunity it allowed of weighing local, national and global factors, one against the other. And just as the labour movements in the communities of Broken Hill, Rossland and Waihi exhibit some striking similarities, the same holds true for the three companies examined here. Although - like the labour movements - each company evolved in separate and distinctive ways, the broader pattern is more than suggestive. This offers

considerable support for the notion of a common pattern of resource development in the nineteenth century "regions of recent settlement."

Endnotes

1 P. i, Foreword, Georgius Agricola, De Re Metallica, translated from the first Latin edition of 1556 ... by Herbert Clark Hoover and Lou Henry Hoover, New York, 1950. This translation was first published in London, 1912.

2 Hydraulicking is an example of the former, while the development of the "California stamper" illustrates the latter. See Rodman Wilson Paul, California Gold The Beginning of Mining in the Far West, Lincoln: University of Nebraska Press, 1965, second edition, passim, & Otis E. Young, Jr., with the technical assistance of Robert Lenon, Western Mining An informal account of precious metals prospecting, placering, lode mining and milling on the American frontier from Spanish times to 1893, Norman: Oklahoma University Press, 1970, passim.

3 P. 100, Philip Ross May, "Gold Rushes of the Pacific Borderlands: A Comparative Survey," in Len Richardson and W. David McIntyre, eds., Provincial Perspectives, Christchurch, 1980.

4 See especially Rodman W. Paul, "'Old Californians' in British Goldfields," Huntington Library Quarterly, XVII (1954): 161-72, & May, op. cit.

5 My analysis derives from Ragnar Nurkse's "Contrasting Trends in Nineteenth and Twentieth Century World Trade," pp. 282-90, in Gottfried Haberler and Robert M. Stern, eds., Equilibrium and Growth in the World Economy Economic Essays by Ragnar Nurkse, Cambridge, Mass., 1961, and John Fogarty's "The Comparative Method and the Nineteenth Century Regions of Recent Settlement," Historical Studies, Vol. 19, (April 1981): 412-29. Cf. Keith Ralston's "Patterns of Trade and Investment on the Pacific Coast, 1867-1892: The Case of the British Columbia Salmon Canning Industry," BC Studies, 1 (Winter, 1968-69): 37-45, and the study conducted by the Economic Intelligence Service of the League of Nations, The Network of World Trade, Geneva, 1942.

6 As Nurkse notes, the process was based on "the reciprocal stimulation of consumption demand and capital investment.... In our particular case a cumulative process of development was produced by the relation between export demand and foreign investment." (p. 288, op. cit.)

7 The mining boom on the London market is discussed by A. R. Hall, pp. 111-14 & 169-70, The London capital market and Australia 1870-1914, Canberra, 1963; pp. 11-17, Albin Joachim Dahl, "British Investment in Californian Mining, 1870-1890," PhD thesis, University of California, 1961; and pp. 53-64, J. W. McCarty, "British Investment in Overseas Mining, 1880-1914," PhD thesis, Cambridge University, 1961. The Economist provides contemporary analysis of this speculative wave: see, for example, "The Outbreak of Speculation in the Mining Market," Vol. 43, (19 Dec., 1885): 1537-38; "A Mining Promotion Boom," Vol. 45, (21 May, 1887): 650-51; "The Speculation in Mining Shares," Vol. 46, (28 Jan., 1888): 105-06; "The Speculation in Mining Shares," Vol. 46, (4 Feb., 1888): 146; "Speculation in Mining Shares," Vol. 46, (27 Oct., 1888): 1346-47; "The Floating of Mining Companies," Vol. 47, (5 Jan.,1889): 8-9; "The Growth of Speculation in Mining Shares," Vol. 47, (12 Jan., 1889): 38-39; "The Course of Speculation in Mines," Vol. 47, (29 June, 1889): 827-28.

8 P. 256, McCarty, "British Investment in Overseas Mining." This compares with 273 mining companies floated in the period 1882-1885, and 621 from 1890 to

1893.

9 Nine N.Z. mining companies were floated during the 1886-1889 boom, according to the figures provided on p. 65, H. J. Hanham, "New Zealand Promoters and British Investors, 1860-1895," Robert Chapman and Keith Sinclair, eds., Studies of a Small Democracy Essays in Honour of Willis Airey, Auckland, 1963.

10 This paragraph owes much to the arguments of McCarty, op. cit, and Dahl, "British Investment in Californian Mining."

11 See pp. 244-53, McCarty, "British Investment in Overseas Mining."

12 P. 828, 29 June, 1889, The Economist.

13 This mine was subsequently transferred to a subsidary company (the Union-Waihi), launched in London during 1894. Although development work consumed considerable amounts of the parent company's capital, the subsidary was re-absorbed by the Waihi company after a brief, inglorious career. See p. 372, footnote 28, supra.

14 See Percy Morgan "The Rise and Fall of Dry Crushing on the Hauraki Goldfield," Transactions of the Australasian Institute of Mining Engineers, Vol. IX, 2, (1903): 161-76; E. G. Banks, "Milling and Treatment at the Waihi Mine," Transactions of the Australasian Institute of Mining Engineers, Vol. XVI, (1912): 115-44; and Sybil M. Jack, "The Introduction of Cyaniding in New Zealand: A Case Study in the Role of Technology in History," Prometheus, Vol. 2, No. 1, (June, 1984): 17-37.

15 See pp. 311-13, supra, for a discussion of the Waihi company's adoption of Cassel's patented cyanide process; also pp. 52-53, Alan Lougheed, "The Cyanide Process and Gold Extraction in Australia and New Zealand 1888-1913," Australian Economic History Review, Vol. 27, No. 1, March, 1987, and pp. 27-31, Jack, "The Introduction of Cyaniding in New Zealand."

16 New Zealand scholars have largely overlooked the context of the company's formation, and stressed instead the foresight of its chief promoter, Thomas Russell. (See, for example, R. C. J. Stone, Makers of Fortune A Colonial Business Community and Its Fall, Auckland: Auckland University Press, 1973, and Philip Rainer, "Company Town an Industrial History of the Waihi Gold Mining Company, Limited, 1887-1912," MA thesis, University of Auckland, 1976, passim.) As I have argued in chapter 7, supra, this is to read too much into Russell's actions. He was a promoter, first and always; typically, he could not pass up the opportunity to float other mining companies in London during the mining boom of the mid-1890s. An earlier writer has accurately described these later efforts: "...during the nineties he turned for a time to the promotion of more or less bogus mining companies..." (p. 64, Hanham, "New Zealand Promoters and British Investors, 1860-1895.") None were successful.

17 Aubrey L. White, "War Eagle Yielded Wealth to Practical Miners," The Spokesman-Review, 22 April, 1928. This article was based on a scrapbook assembled by the War Eagle mine's first secretary, "the most orderly scrapbook I have ever seen," noted White. Throughout March and April, 1928, Sunday issues of The Spokesman-Review carried features on Rossland; the

series, which also included articles on the various Granby mines and the Sullivan, had begun in mid-January. White himself had been active in the Granby companies, and received a number of congratulatory letters on the series, exhorting him to continue his efforts. (see, for example, The Spokesman-Review, 15 April & 6 May, 1928.) I am grateful to John Fahey for the reference to these articles.

18 P. 140, "Mining Notes," The Canadian Mining Review, Vol. 16, 1897. An annual review of the London stock exchange for 1896 had noted that one of the distinguishing features of that year was "the turning of the attention of London promoters to British Columbia as a profitable field for their enterprise," (pp. 667-8, "The London Mining Stock Market in 1896." The Mineral Industry, 1896.) The preceding article on "British Columbia Mining Stock Markets in 1896," however, reported that "The attempts made to place the mines in London have not met with much success as yet, but a good deal of interest has been developed in the eastern provinces of Canada..." (p. 667, op. cit.)

19 P. 45, Engineering and Mining Journal, Vol. 65, 8 Jan., 1898. By June 1898, The Canadian Mining Review's "London Letter" observed that "Rossland and Dawson City have become as well known in London as Johannesburg or Hannan's..." (p. 169, The Canadian Mining Review, Vol. 17, No. 6, June 1898.)

20 See, for examples, pp. 247-48, 252 & 254, The Canadian Mining Review, Vol. 15, 1896; p. 57, op. cit., Vol. 16, 1897; pp. 1782-83, The Economist, 18 Dec., 1897; p. 9, Daily News-Advertiser, 23 June, 1898, quoting the Pall Mall Gazette of 4 June; and pp. 1728-29, The Economist, 3 Dec., 1898. Cf. chapter 2, supra.

21 Premier Turner was soundly criticised for his activities, which perhaps contributed to his subsequent electoral defeat. (See, for example, pp. 140-41, The Canadian Mining Review, Vol. 17, No. 6, June 1898; also p. 1782, The Economist, 18 Dec., 1897, & p. 9, Daily News-Advertiser, 23 June, 1898.) Cf. the comments of Martin Robin, p. 68, The Rush for Spoils The Company Province 1871-1933, Toronto, 1972. Former federal Conservative politicians active in Rossland promotions included Charles Tupper, T. Mayne Daly and C. H. Mackintosh.

22 P. 3, Gordon T. German, "A Million Dollar Cheque," typescript, Add. Mss. 465, Provincial Archives of British Columbia.

23 For the impact of the Wright collapse, see pp. 337-38, chapter 8, supra.

24 P. 18, The Miner, February, 1936.

25 "Mining Consolidations," p. 1405, The Economist Vol. 63, 2 Sept., 1905. The article was written by J. H. Curle ("Our Special Mining Correspondent"); he also emphasised the need for consolidation among mining companies at Waihi, Western Australia, South Africa, and Tasmania.

26 The events described in this paragraph are explored in some detail in chapter four, supra.

27 P. 1017, Engineering and Mining Journal, 25 May, 1905.

28 P. 117, Geo. A. Ohren, "The Consolidated Mining and Smelting Co. Of Canada, Limited, Rossland, B.C.," The Canadian Mining Journal, Vol. 28, 1907.

29 BHP Chairman, Harvey Patterson, speaking to shareholders at the Fortieth Half-Yearly Ordinary General Meeting, Broken Hill Proprietary Company Limited, 25 August, 1905.

30 For details of the floatations, see pp. 146-49, Roy Bridges, From Silver to Steel The Romance of the Broken Hill Proprietary, Melbourne, 1920. The new companies created by BHP in 1887-88 featured the Broken Hill Proprietary's name, doubtless to bolster prospective shareholders' confidence. The English company was the British Broken Hill Proprietary Company Limited; the other two new companies were named after their claims: Broken Hill Proprietary Block 14 Company Limited and Broken Hill Proprietary Block 10 Company Limited. The BHP lease originally comprised seven claims, Blocks 10 to 16. BHP retained Blocks 11, 12 and 13, the centre of the lode. Block 10, the most profitable of the three new companies, was re-purchased by BHP in 1924.

31 Pp. 33-34, Geoffrey Blainey, The Rise of Broken Hill, Melbourne: Macmillan of Australia, 1968.

32 BHP shareholders received a direct cash bonus of £36 per £20 share from the sale of Blocks 15 and 16, as well as five shares (£5 par value) in the new company. (p. 7, "Directors' Report," Report of the Half-Yearly General Meeting of Shareholders, 18 July, 1888, Broken Hill Proprietary Company Limited.) The £20 par value of BHP shares was subsequently reduced, first to £2 in 1889, and then to 8 s., in 1890. In both cases shares were simply multiplied, e.g., a £20 share became 10 £2 shares.

33 P. 83, R. H. B. Kearns, Broken Hill A Pictorial History, Hawthorndene, S.A., 1982.

34 P. 1576, The Economist, 7 Dec., 1889. Signed by "A South Australian," and dated 28 October 1889, Adelaide. The correspondent was writing in response to the launching in London of a South Australian mine of very dubious worth.

35 P. 46, Blainey, The Rise of Broken Hill. Blainey points out, however, that while "most of the [BHP] shares were now held by Britons, ... actual control of the company remained firmly in the hands of the Melbourne board." (ibid.) McCarty estimates that by 1913, 80% of BHP shares were held in Britain (p. 266, McCarty, "British Investment in Overseas Mining.")

36 See, for example, pp. 278-317, Clark C. Spence, Mining Engineers and the American West The Lace Boot Brigade, 1849-1933, New Haven and London: Yale University Press, 1970. Spence is concerned with American engineers, and their travels abroad. Equally important was the earlier diffusion of techniques and expertise from Cornwall and Germany. While the importance of individuals from these two areas is frequently recognised, I am not aware of any work which examines their impact upon the industry.

37 The bibliography provides an incomplete list of journal articles on the three areas; see also Walter Crane's Index of Mining Engineering Literature, New York, 1909 & 1912 (two volumes), as well as the indices of such periodicals

as (in Britain) Transactions of the Institute of Mining and Metallurgy, Mining Journal, and The Mining Magazine, and in the United States, Mining and Scientific Press, Engineering and Mining Journal, Mines and Minerals, The Mining World, and Transactions of the American Institute of Mining Engineers. Curle, Stokes and Rickard visited and wrote on all three communities; see the bibliography for titles.

38 For example, Robert Peele, ed., Mining Engineers' Handbook, New York, 1927, second edition: Rossland, pp. 591-92; Waihi, p. 628; Broken Hill, pp. 637-40.

39 The best discussion of BHP's efforts is the jointly-authored "Development of Processes for the Treatment of Crude Ore, Accumulated Dumps of Tailings and Slime at Broken Hill, New South Wales," Proceedings of the Australasian Institute of Mining and Metallurgy, New Series, No. 80, 1930: 379-444. See also Edwin T. Henderson, "The Development of Flotation at the Broken Hill Proprietary Mine, Australia," Mining and Scientific Press, Vol. 117 (21 Sept., 1918): 994-97, and the discussion in chapter five, supra.

40 See footnote 124, p. 238, supra.

41 For a narrative of these events, see chapter five, supra.

42 For an indication of BHP's declining fortunes during this period, see the table "Financial Position of the Broken Hill Proprietary Co. Ltd, 1886-1962," p. 193, Helen Hughes, The Australian Iron and Steel Industry, 1848-1962, Melbourne, 1964. By 1902, both net profits and dividends were less than 10% of what they had been during the more prosperous early 1890s.

43 See the comments on pp. 251-52 & 258-59, chapter six, supra.

44 See W. S. Robinson's reminiscences, quoted on p. 221, supra.

45 The relationship between the various Elmore processes and the "Minerals Separation" flotation process was grist to the legal mills, and resulted in a number of long and involved patent infringement court cases. Some of the literature is cited in footnote 156, p. 243, supra. On the introduction of the Elmore process at Rossland as well as the introduction of concentrating, see p. 142, supra. According to T. A. Rickard, one Rossland manager (Edmund Kirby, of the War Eagle mine) played a minor role in the development of the flotation process. Kirby registered a patent which, in Rickard's opinion,

> deserves mention as a link between the Elmore bulk-oil process and the later frothing methods. Edmund B. Kirby, in his patent of December 14, 1903, used from 25 to 75 per cent oil in a flowing pulp, but he depended upon thin oil - kerosene - and upon violent agitation, so that he departed from the Elmore type of flotation. The more interesting feature of his claim was "the injection of a gas, preferably air, into the mass", which statement, if taken with reference to "allowing the hydrocarbon-coated particles to float to the surface of the mass", seems indeed to be a forecast of froth-flotation. Kirby tried his process on a variety of British Columbian ores, but no working-plant was erected; nevertheless he deserves respectful mention in any history of

the flotation process.

- p. 404, T. A. Rickard, A History of American Mining, New York, 1932.

46 See especially the comments of R. W. Diamond, pp. 3-6, "Introduction," A Detailed Account of the Development of the Treatment by Flotation of the Ore of the Sullivan Mine, Kimberley, B.C. 1917-1923, Trail, 1961.

47 See the discussion in chapter four, supra, and note especially the comments of Blaylock quoted on p. 164.

48 See pp. 308-09 & 316, supra.

49 From an extraction rate of 65% gold per ton of ore to 90%. See the discussion of cyanidation on pp. 311-13, supra.

50 Pp. 5-6, Report of the Proceedings at the Ordinary General Meeting ... 13th day of May, 1909, Waihi Gold Mining Company, Limited. Reprinted from Mining Journal, 15 May, 1909. Cf. pp. 5-6, Proceedings at the Ordinary General Meeting ... April 30th, 1903. Both held in Martha Goldmining Company records, TN 428, Auckland Institute and Museum.

51 The only indigenous invention in the Chairman's list was Barry's liner, and this was really no more than an example of import substitution, as an editorial in the Mining and Scientific Press makes clear:

> One of the practical problems, especially to millmen operating at a distance from manufacturing centres, is the cheapest and most durable lining for the tubes. At first everyone depended upon Iceland pebbles and silex lining from Europe; and to those in charge of mills on the other side of the world - in Australia, New Zealand, and Mexico, for example - it was a serious handicap to depend upon supplies from so great a distance.... Both in Mexico and New Zealand the mill-managers have succeeded in breaking away from the tyranny of a special material.... The device invented by Mr. Barry is one of the best improvements in tube-mill practice...

- editorial of 28 July, 1906, reprinted on pp. 67-68, T. A. Rickard, ed., Recent Cyanide Practice, San Francisco, 1907. Note also the article, "Tube-Mill Lining," repinted in this volume, pp. 69-72, which describes Barry's invention in some detail. Ralph Stokes also described Barry's liner, p. 250, "The Waihi Gold Mine in New Zealand - II," The Mining World, 8 Feb., 1908. For a discussion of tube mills and vacuum filtration at Waihi, see the references listed in footnote 94, p. 328, supra; note also the list of company mistakes, pp. 316-17, supra.

52 P. 138, Raymond Radclyffe, Wealth and Wild Cats, London, 1898. James Park, from the Thames School of Mines, was similarly unimpressed. In a paper on "Cyaniding in New Zealand," delivered to the American Institute of Mining Engineers, he referred to "The practice of dry crushing, as carried on at the Waihi Co.'s mills, ... not an example to be followed.... This method has very little to commend it, and possesses many serious disadvantages." (pp. 670-71, Transactions of the American Institute of Mining Engineers, Vol. XXIX, 1899.)

See also the critical comments of the government mining engineer on p. 316, supra.

53 P. 655, Mining and Scientific Press, 4 Nov., 1916; see also the comments on p. 353, supra.

54 Pp. 473 & 503, Alfred D. Chandler, Jr, "The Emergence of Managerial Capitalism," Business History Review, Vol. 58, Winter, 1984. See also pp. 377-500, The Visible Hand The Managerial Reviolution in American Business, Cambridge, 1977.

55 Chandler's discussion of mining indicates that he recognizes the industry as something of an anomaly within his broader study of the evolution of American business: see pp. 359-63, The Visible Hand.

56 A similar point is made by Christopher Schmitz, "The Rise of Big Big Business in the World Copper Industry 1870-1930," Economic History Review, 2nd series, XXXIX, 3 (1986): 392-410. Taking issue with Chandler's analysis, Schmitz argues that "It is possible to show that in the mining industry the rise of big business resulted from the logic implied by a series of geological and technological considerations." (pp. 392-93). Cf, the comments of Mary McRoberts, who suggests that Chandler's analysis of business growth may be inapplicable to the lumber industry (p. 166, "Corporate Structures and Local Economies: The Case of the Williams Lake District Lumber Industry," in Donald H. Akenson, ed., Canadian Papers in Rural History, Vol. VI, Gananoque, Ontario, 1988.) My own analysis of the sophistication of the mining industry owes much to the work of Logan Hovis, especially his MA thesis, "Technological Change and Mining Labour: Copper Mining and Milling Operations at the Britannia Mines, British Columbia, 1898-1937," University of British Columbia, 1986.

57 Pp. lxiii-xiv, Proceedings of the Australasian Institute of Mining Engineers, New Series, No. 71. Speech of 16 Aug., 1928. Gepp himself had risen from a junior research position at Broken Hill to become General Manager of the zinc works at Risdon Tasmania. For details of his career, see the references cited in footnote 79, p. 287, supra.

The president of Britain's Institution of Mining and Metallurgy unconsciously echoed Gepp's remarks less than a year later:

> The mineral industry today is no longer symbolized by fabulously rich mines, easily worked, and belonging to to lucky individual owners, but rather by elaborately organized and widely owned industrial units in which close and capable management is the essential feature and the cardinal requirement....
>
> Management must indeed be scientifically and systematically organized if waste is to be minimized. The haphazard ways and backward equipment associated with the dominance of the practical man can have no place in any rational scheme....

> ...the greatest and most recent advance in efficiency came when less reliance was placed upon the skilled miner and more was placed upon the supervisory staff...

- Pp. xxii-xxiii, Transactions of the Institution of Mining and Metallurgy, Vol. XXXVIII, 1928-1929. Speech of May 16, 1929.

58 For example, the leading mining journals devoted much space to the thorny problem of "The Costs of Mining." See the collection of representative articles in T. A. Rickard, ed., The Economics of Mining, New York, 1905. A number of books examined the topic: James Robert Finlay, The Costs of Mining, New York, 1909; Edmond Norton Skinner and H. Robinson Plate, Mining Costs of the World, New York, 1915; Herbert C. Hoover, Principles of Mining, New York, 1909.

59 Pp. 188-89, Hoover, Principles of Mining. With some feeling, Hoover continued:

> Weary with disappointment in his wisest conception, many a mining engineer looks jealously upon his happier engineering cousin, who, when he designs a bridge, can know its size, its strains, and its cost, and can wash his hands of it finally when the contractor steps in to its construction. And, above all, it is no concern of his whether it will pay. Did he start to build a bridge over a water, the width or depth or bottom of which he could not know in advance, and require to get its cost back in ten years, with a profit, his would be a task of similar harassments.

- p. 190, op. cit. The phrase "wasting asset" is often repeated by mining engineers, journalists and others; see for example the annual meeting of the General Mining and Finance Corporation, Limited, p. 1096, The Economist, 22 May, 1909.

60 For discussions of this cycle in mining, see D. F. Hewett, "Cycles in Metal Production," Transactions of the American Institute of Mining Engineers, Vol. 85, (1929 Year Book): 65-98; Homer Aschmann, "The Natural History of a Mine," Economic Geography, Vol. 46, (1970): 172-89; & pp. 355-61, William L. Marr and Donald G. Paterson, Canada: An Economic History, Toronto, 1980. Cf. Anthony Scott's "The Development of the Extractive Industries," Canadian Journal of Economics and Political Science, Vol. 28, (1962): 70-87.

61 P. 492, Chandler, "The Emergence of Managerial Capitalism." Chandler argues that it is precisely this dynamic which faciltates the shift from a multifunctional to a multidivisional corporate structure.

62 See p. 259, supra.

63 The Canadian Pacific Railway purchased the Trail smelter in 1898, but had already hired an expert mining engineer, W. H. Aldridge, to oversee both its purchase and subsequent operation. See "Biography of Walter Hull Aldridge, Medalist for 1950," Supplement to John Fritz Medal Book, New York, 1950; also typescript of an interview with Aldridge in 1954, held in Cominco files, Rossland Historical Museum.

64 British investors in both Rossland and Broken Hill exhibited a similar caution: in 1905, for example, LeRoi shareholders refused to participate in the Cominco merger. A dozen years later, the Chairman of Broken Hill's British mine (an English company) was reluctant to cooperate with Baillieu and Robinson's plans for the Port Pirie smelter. (pp. 86-87, If I Remember Rightly The Memoirs of W. S. Robinson 1876-1963, edited by Geoffrey Blainey, Melbourne, 1967)

65 Company directors had considered acquiring additional mining properties in 1912. Some sixty properties in Australia and Canada had been brought to the Board's attention, but before any action was taken a bitter and prolonged strike closed the New Zealand mine. Before the company had recovered from the impact of the strike, the First World War was underway. Plans for diversification were not again discussed seriously until 1920. Shareholders were reluctant to see potential dividends spent on new assets, and gradually the idea was abandoned. See p. 361, supra.

66 On this latter topic, see Fogarty's "The Comparative Method and the Nineteenth Century Regions of Recent Settlement."

67 See "Teck group buys control of Cominco," A 1, 30 Sept., 1986, The Vancouver Sun; "Deal puts Teck in major leagues," C 1, 1 Oct., 1986, op. cit.; "Teck in charge at Cominco," D 5, 17 Oct., 1986, op. cit.; "Cominco vows to battle debt," C 6, 24 April, 1987, op. cit.; John Twigg, "Norman Goes Bigtime - Teck Takes Cominco with a Longterm View," Equity, Vol. 4, #8, (November 1986): 19-28; William Annett, "The Tecking of Cominco," B.C. Business, Vol. 14, # 12, (December, 1986): 24-31; and B.C. Business, Vol. 15, # 3, (March, 1987): 5-7.

XI

Colonial Development and the Mining Industry

This study has examined the evolution of mining within three regions of the British "settler dominions" during the formative years of the late nineteenth and early twentieth centuries. The purpose of this final section is not simply to repeat the findings of earlier chapters, but rather to suggest their significance.

Two organizing principles dictated the shape of the work. The first was an emphasis upon the importance of industrial development. Thus the study focussed upon a single industry and considered its various aspects in toto, an approach which owes much to a materialist interpretation of history generally and the staples thesis of Harold Innis in particular.[1] In addition, the comparative method was employed in chapters nine and ten, following detailed descriptions of the mining industry in each community. The comparative historian can choose to emphasise either the similarities or the differences in two or more cases; the focus here on the mining industries of Broken Hill, Waihi and Rossland emphasises what was shared, the similarities rather than the differences.[2] From this perspective, the three areas were not exceptional or unique but rather variants of a type.

*

Several contemporary books recognised the broad similarities of the mining industry of the Australian colonies, New Zealand and western Canada. The varying perspectives of the authors are a good indication of the industry's changing character. The first of such books was J. H. Curle's **The Gold Mines of the World**, published in 1899. It was essentially a compilation of Curle's columns that had earlier appeared in **The Economist**.[3] The book's lengthy sub-title, "Concise and Practical Advice for Investors Gathered from a Personal Inspection of the Mines of the Transvaal, West Australia, Queensland, New Zealand, British Columbia and Rhodesia," indicates its purpose. Curle wanted to provide British investors with some hard information on the mining industry. He felt that the reckless speculation in mining shares, the hallmark of the mid-1890s on the London Stock Exchange, was partly a consequence of unreliable information, and his book aimed to compensate for this deluge of exaggerations and falsehoods.[4]

A second mining journalist, Ralph Stokes, published **Mines and Minerals of the British Empire** in 1908. The book was not intended as a tool for British speculators; in the Preface, for example, Stokes stressed that it was "in no degree, let it be understood, a guide to investment."[5] While he acknowledged that the industry had acquired an unsavoury reputation, Stokes felt that this was simply because people were

> commonly inclined to view the mining world solely in the mirror of a Stock Exchange price list.... Thus, sight may readily be lost of the many fields of mineral production progressing upon steady, well-regulated principles.... Only when the speculative phase has given place to the industrial; when the prospector and pioneer, the nervous gambler and man of quick finance, have withdrawn in favour of the scientific engineer and business manager, can the true merit and influence of the new-born industry be realized.[6]

Curle's book was aimed at the British speculative investor, but Stokes wrote for another constituency, "those concerned in the practice and science of mining."[7] The shift in focus highlights the changes that had taken place within the industry in the nine years since the publication of Curle's book.[8]

Perhaps the weightiest study of the mining industry in the settler dominions undertaken duing this period was that of the Dominions Royal Commission, which inquired into "The natural resources of the five Self-governing Dominons and the best means of developing these resources..."[9] The Commission originated in proposals made at the 1907 and 1911 Imperial Conferences.[10] Appointed by the King in early 1912, the Commission spent five years examining the resources of the dominions, and issued five interim reports before submitting a Final Report in March 1917. As W. K. Hancock noted, a war-time spirit of imperial unity pervaded its later work and "the emphasis [is] laid upon a common imperial interest as distinct from separate national interests. 'The Empire as a whole' is a phrase which runs like a refrain throughout the commission's [Final] report."[11]

The Commission's view of the mining industry reflected a growing awareness that mineral supplies were becoming scarce, and that with the quickening pace of exploitation the rate of depletion was speeding up.[12] The crucial role played by minerals in modern warfare also received belated recognition, for although some military leaders refused to recognise the new industrial face of modern combat,[13] most were now aware of its demands and voracious appetite. Weapons such as the machine gun could only be used effectively with a munitions industry ready and able to supply its needs. The carnage of the First World War drove this lesson home, as the amounts of zinc, lead and copper consumed in the course of a single battle reached

incredible proportions. Britain's inability to secure adequate zinc supplies soon taught the politicians of Empire the new importance of the metal.[14] It is scarcely surprising, therefore, that the Dominions Royal Commission underlined the importance of acquiring monopoly control of minerals of strategic value and limited supply.[15] A world cast in the shadow of the Great War had much different priorities than the one for which Curle had proffered his "Concise and Practical Advice for Investors..." Despite their differing points of view, all three studies stressed the importance of the mining industry, justifying this emphasis by pointing to both the potential and real benefit that mining brought to Britain.[16]

*

Australia, New Zealand and British Columbia had come to the attention of Western Europe at approximately the same time, in the latter half of the eighteenth century; indeed, the same explorer, James Cook, had charted their coastlines for Britain. By the mid-nineteenth century all were units within the British Empire and their indigenous populations were, to a greater or lesser extent, pushed to the margins of a society dominated by people of British origin. The Imperial connection meant that judicial and political institutions were practically identical, although the contexts within which these operated varied considerably.

The three regions possessed abundant natural resources that fed export-driven economies; these, in turn, were integrated into the global trading system by the close of the nineteenth century. Although different staples dominated their respective economies, mining was a significant industry in each area, and all three experienced dramatic gold rushes in the mid-nineteenth century. At the local level, the critical feature shared by Broken Hill, Waihi

and Rossland was their resource base, whose fluctuating value reflected a common cycle of initial abundance and early boom, followed by retrenchment and re-structuring. In each case, however, this led to different results and even the process of development itself varied in important respects, despite the common backdrop of the gold rushes.

The establishment of the mining industry at Broken Hill followed the earlier settlement of western New South Wales by runholders. Agricultural workers in the mid-1870s made the first mineral discoveries in the region, a pattern followed eight years later when Charles Rasp, an employee at the nearby Mount Gipps sheep station, persuaded acquaintances to join him in staking seven mineral claims on Broken Hill.[17] The example of several small but flourishing mines in the area, as well as the neighbouring mining settlement of Silverton, had stimulated Rasp's interest in prospecting. However, the men who joined him to form the first syndicate to mine the Hill were not experienced miners but others similarly engaged in agriculture. Only four of these original seven owners possessed sufficient faith in the property to hang on to their shares. Although the membership of the syndicate changed and expanded to fourteen before being launched in 1885 as a public company, the group never relinquished ownership.[18] Inadequate transportation links handicapped the area's development in the mid-1880s and a railway linking Broken Hill with the South Australian network was not completed until late 1887. This short but enormously profitable rail line, the privately-owned Silverton Tramway Company, facilitated Broken Hill's expansion, although the mining company launched by Rasp and his partners had already begun its remarkable career.

Prospectors located Waihi's mineral wealth five years before Rasp staked Broken Hill, yet establishing a viable mining industry at Waihi took much longer than in New South Wales. The process of development owed little or nothing to the expansion of European agricultural settlement on the North Island. It was the decline of the nearby Thames goldfield which encouraged prospectors to explore the area around Waihi in the early 1870s. Their incursions were at first frustrated by the resistance of the local Maori population, but this was overcome by 1875. Miners' interest in Waihi quickly waned, however, when the first wave of prospecting failed to uncover rich finds similar to the wealth that had characterised the early Thames field. Despite this initial disappointment, during the late 1870s two groups of prospectors staked the Martha Mine, later the leading mine of the region. The mine possessed an extensive ore deposit, but its early owners experienced considerable difficulty in treating the ore successfully. A series of Auckland businessmen expressed interest in the mine, but the failure to discover a suitable method of treatment discouraged local investors. By the late 1880s the property was virtually abandoned, and was only worked by tributers.

Interest in the area was re-kindled not by any remarkable discovery nor by advances in metallurgy. The impetus for Waihi's progress during the 1890s came from several fortuitous circumstances. Thomas Russell, an Auckland financier who had re-located in London following his success in the colony, was responsible for launching the Waihi Gold Mining Company upon the London Stock Exchange in 1887, during a speculative boom in mining companies. The only asset of Russell's company was a Waihi claim of dubious value, and its initial attempts at mining proved unprofitable. Success rested upon the purchase in 1890 of the Martha Mine, and the subsequent application of the cyanide process in 1893. Although tram lines linking mine to the

treatment battery were critical to the company's operations, more extensive ties with the country's transportation network were at first unnecessary. By the close of the century, power from the Ohinemuri River was proving inadequate to supply the necessary energy for ore treatment; the chief function of the railway, opened in 1905, was to bring in coal to fuel the company's steam engines.

Rossland was the last developed of the three areas examined in this study, and its growth differed substantially from that of either Broken Hill or Waihi. Its emergence as a leading mining area was intimately linked to the mining advance that spread across the western cordillera of North America during the latter half of the nineteenth century. In addition to this continental context, two specific events encouraged mining in Rossland: the construction of two transcontinental railways during the 1880s and the sharp decline in the price of silver in the early 1890s.

Europeans had been aware of British Columbia's extensive base metal deposits for at least four decades, but the rugged nature of the province's Interior had prevented any serious mining activity.[19] The construction of the Northern Pacific Railroad in the early 1880s changed the situation. The transcontinental railway's penetration of the Columbia River basin connected, by means of joint rail and water links, Idaho, Washington and British Columbia with the smelters of the American west.[20] This improved network stimulated a wave of prospecting across southern British Columbia, leading ultimately to the staking of Rossland's principal mines in 1890.

Canadian prospectors were quick to sell their claims. Spokane businessmen, with experience from an earlier Idaho mining boom in the Coeur D'Alene, acquired the Rossland properties and began the process of

development. Progress was at first slow but when initial ore shipments yielded unexpectedly high returns, the industry began to expand rapidly. At the same time silver began to decline in price, directing the attention of numerous mining men to newly-established gold areas.[21] Rossland was seen as one of the most promising of these mining fields. By the mid-1890s the town was booming and its mines - both real and bogus - were attracting the attention of speculators in London and Eastern Canada.

While significant differences separated the way in which the industry became established, Rossland, Waihi and Broken Hill had achieved prominence within the international mining world by the turn of the century. Their separate paths owed a good deal to differing patterns of settlement, dictated largely by geography in the case of British Columbia, climate in New South Wales, and Maori-Pakeha relations in New Zealand. Although the actual process of mining, particularly large scale production mining of low grade ore, tended to reduce distinctions between the three areas, the method of discovery and the form of early ownership influenced how the major companies were formed and the way that initial mineral exploitation was carried out.

The prospectors who discovered Rossland's mines had no desire to work the properties; they wished only to reap a quick profit by selling their claims.[22] However overlaid with myth and exaggeration, prospecting was a recognised profession in the mining regions of North America; mine development was left to others. The American entry into the Kootenays reflected the structure of the continental mining industry, as well as simple propinquity and the prior experience of Spokane businessmen. These men too had little desire to create an established industry; they were content to prove the Rossland mines and quick to take advantage of a suitable opportunity to

divest with considerable profits. Ownership of both Rossland mines and the Trail smelter rested finally with the Canadian Pacific Railway and reflected the corporate strategies of a large business concerned not only with accruing profits from mining and smelting in the area but also with maintaining control over the rail traffic of the region.

At Waihi the roles of prospector and developer were not separate. Without Rossland's ready access to North America's mining expertise, men such as McCombie and Nicholl tried unsuccessfully to build a profitable mine on the Martha's refractory ore. Even injections of Auckland capital and the amalgamation of properties failed to create a paying mine. Success came only after the sale of the property to Thomas Russell's Waihi Gold Mining Company. This London-based operation had a large treatment plant but insufficient supplies of ore. The combination of the company's plant and its imported American technology with the Martha mine's extensive ore deposit ultimately led to a very profitable business enterprise.

Broken Hill's rise to prominence owed much to the canny and determined group of shareholders who first staked the property. They pooled their resources and recruited miners from nearby Silverton to develop the mine. Ironically, the group's inexperience probably dictated its strategy of slowly and methodically proving the mine's value. When rich deposits of silver were found close to the surface, the company was able to finance further developments out of its earnings.

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These brief summaries indicate the importance of the regional context of discovery in shaping the early development of mining. This was a

reciprocal process, for the rise of the mining industry exerted a profound influence upon the local and regional economies. The earlier narrative chapters described the industry in some detail, although the local focus tended to deflect attention away from the larger question of the significance of mining within the respective regional economies of New Zealand, New South Wales and British Columbia. The two comparative chapters examined the evolution of labour relations and corporate development in Broken Hill, Waihi and Rossland. The common processes identified in those chapters underlined the crucial role played by international factors, rather than local or regional ones, in determining the industry's progress in each community.

Few comparative studies have examined industrial development although novelty alone cannot justify this exercise. The comparative study of similar resource communities is only worthwhile if it offers greater explanatory power than the existing literature. Earlier chapters have already attempted the task of revision; in the case of Waihi, for example, chapter eight argued that earlier historians' failure to place events there within the larger context of the mining industry's development prevented a clear understanding of the 1912 strike. Rossland, however, received the closest attention and thus can serve as an example of the usefulness of the comparative/staples approach.

A recent review of the state of British Columbia's historiography admitted that it "is still very much in a pioneering stage," and tried to close on a more optimistic tone by asserting that it "is indeed a province worthy of serious historical study."[23] Much of the published literature stresses the distinctiveness of the province, encouraging a sense of exceptionalism which prevents much meaningful connection with wider national and international concerns. To one central Canadian observer, "The result is a curious historical

literature which makes reference only to itself."[24] This thread of distinctiveness, or self-importance, began as a naive historical boosterism in the works of such antiquarians as R. E. Gosnell, F. W. Howay, Alexander Begg and H. H. Bancroft.[25] It persists nearly a century later as wilful parochialism. The past decade offers some evidence that more sophisticated work now preoccupies scholars and students; comparative history could well aid their efforts to transcend the narrow confines of the past.

The comparison of Rossland's labour movement with parallel organizations of workers in Waihi and Broken Hill sheds some light on the question of western exceptionalism, that is, the apparent predisposition for workers west of the Great Lakes to strike and/or support radical political parties, a tendency especially strong during the period of this study.[26] The emphasis in this study is on the need to understand labour relations in Rossland within the context of the mining industry. Managerial imperatives, typically a response to the industry's structural problems, rather than workers' initiatives determined class relations. This approach supports the arguments of earlier scholars that western workers' attitudes - that is, workers within the staple industries - were a consequence of the particular structure of the western economy.[27] While Central Canadian workers might be tempted by an employer-sponsored "producer ideology," such collaborationist notions were irrelevant in regions dominated by staple production, where class relations were unaffected by the state's protective trade legislation.[28] The description of Rossland's mining industry supports this broader analysis, as does the similar trajectories of workers' movements in Waihi and Broken Hill.

Canadian historians have shown little interest so far in the shape of the economy of British Columbia or the careers of its leading resource

companies.[29] Thus, despite the important role played by Cominco within the province's economy, the company has failed to attract the attention of serious scholars. The comparative perspective provided by this study on the company's early growth indicates that it followed a broad pattern, discernible also in the progress of the Waihi Gold Mining Company and the Broken Hill Proprietary Company. Its longevity and success rested on a combination of sophisticated metallurgical technology and the ownership of an extensive ore body capable of supporting production mining for an exceptionally long period.[30]

Neither British Columbia's miners nor its dominant mining company differed in significant ways from those of Waihi or Broken Hill. This challenges existing studies of Broken Hill, Rossland and Waihi - and indeed much of each country's regional history - with their focus upon the unique and the particular. Such work buttresses an exceptionalist approach to the past, a fragmented conception of history which degenerates into a Balkanized collection of discrete studies. By contrast, this study illustrates the usefulness of both comparative history and the staples approach. The former is able to make use of detailed local studies while simultaneously employing an international perspective. Building on the strengths of an existing body of literature, it can provide a new perspective on both similar and divergent developments between the areas compared. The argument of some economic historians that colonies' reliance upon staple products fostered a common pattern of development is a particularly fruitful avenue for comparative work.[31]

This study has explored the mining industry in three colonial communities during a particularly dynamic era of growth and sophistication. The similarities explored in the comparative chapters were a consequence of the industry's international dimension. Without a broad perspective such as that

provided by the comparative approach, the meaning and significance of this global context cannot be understood.

Endnotes

1 Both the materialist interpretation of history and the staples thesis have generated considerable controversy. My grasp of the former derives from my reading of Karl Marx and Frederick Engels' The German Ideology (written in 1845-46; published in English translation, Moscow, 1976) and Marx's Preface to his A Contribution to the Critique of Political Economy (originally published in German in 1859; in English, Moscow, 1970). Subsequent writers have not added greatly to my understanding of the issue, with the notable exceptions of G. A. Cohen, whose Marx's theory of history: a defence (Oxford, 1978) sheds much light on Marx's terminology, and E. P. Thompson, whose The Poverty of Theory and Other Essays (New York and London, 1978) confirmed my ethnocentric prejudices. On staples, I have benefitted from an ongoing Canadian debate, sparked (or re-kindled) by Mel Watkin's "A Staple Theory of Economic Growth," Canadian Journal of Economic and Political Science, 29 (1963): 141-58. For examples of the debate, see Mel Watkins, "The Staple Theory Revisited," Journal of Canadian Studies, 12 (Winter, 1977): 83-95; Mel Watkins, "The Innis Tradition in Canadian Political Economy," Canadian Journal of Political and Social Theory, 6 (1982): 12-34; Daniel Drache, "Staple-ization: A Theory of Canadian Capitalist Development," pp. 15-33, in Craig Heron, ed., Imperialism, Nationalism and Canada, Toronto, 1977; Daniel Drache, "Rediscovering Canadian Political Economy," pp. 1-53, in Wallace Clement and Daniel Drache, A Practical Guide to Canadian Political Economy, Toronto, 1978; Daniel Drache & Wallace Clement, "Introduction: Canadian Political Economy Comes of Age," pp. ix-xxiv, in Daniel Drache and Wallace Clement, The New Practical Guide to Canadian Political Economy, Toronto, 1985; David McNally, "Staple Theory as Commodity Fetishism: Marx, Innis and Canadian Political Economy," Studies in Political Economy, 6 (Autumn, 1981): 35-63; and Ian Parker's response to McNally, "'Commodity Fetishism' and 'Vulgar Marxism': On 'Rethinking Canadian Political Economy,'" Studies in Political Economy, 10 (Winter, 1983): 143-72.

Discussions of the usefulness of the staples approach to Australian and New Zealand development include J. W. McCarty, "The Staple Approach in Australian Economic History," Business Archives and History, 4, (1964): 1-22; Richard Pomfret, "The Staple Theory as an Approach to Canadian and Australian Economic Development," Australian Economic History Review, 21(1981): 133-46; and M. L. Alexander, "Australia in the capitalist world economy," pp. 55-76, Brian Head, ed., State and Economy in Australia, Melbourne, 1983. The most emphatic critique is that by N. G. Butlin, "Growth in a Trading World: The Australian Economy, Heavily Disguised," Business Archives and History, 4, (1964): 138-58.

2 For a sophisticated study of the logic of comparative history see Theda Skocpol and Margaret Somers, "The Uses of Comparative History in Macrosocial Inquiry," Comparative Studies in Society and History, Vol. 22, (April, 1980): 174-97.

3 J. H. Curle, The Gold Mines of the World Containing Concise and Practical Advice for Investors Gathered from a Personal Inspection of the Mines of the Transvaal, West Australia, Queensland, New Zealand, British Columbia and Rhodesia, London: Waterlow and Sons Ltd., 1899. Given the book's title, Curle did not discuss the silver/lead/zinc deposits of Broken Hill, although he did write a number of columns in The Economist on mining in New South Wales.

For example, "Broken Hill," pp. 986-87, The Economist, Vol. 58, 14 July, 1900, & "Mining in Australasia - VII," p. 1231, The Economist, Vol. 63, 29 July, 1905. These adopt the same perspective as the book, discussing the Broken Hill mines solely in terms of their potential investment value.

4 See especially Curle's Introduction, pp. 1-9.

5 P. vii, Ralph G. S. Stokes, Mines and Minerals of the British Empire Being a Description of the Historical, Physical, & Industrial Features of the Principal Centres of Mineral Production in the British Dominions Beyond the Seas, London: Edward Arnold, 1908.

6 Pp. 1-2, Stokes, op. cit, Stokes describes Broken Hill on pp. 102-24; Waihi on pp. 192-200; & Rossland on pp. 335-43.

7 Pp. vii-viii, Stokes, op. cit,

8 J. W. McCarty charts this shift in some detail in "British Investment in Overseas Mining, 1880-1914," PhD thesis, Cambridge University, 1961:

> After 1902 the speculative mining booms gave way to more selective investment, and the flow of capital from London was stable rather than cyclical. Base metal mines required much greater initial investment than gold mines and also took several years to develop to the dividend stage. They did not attract the uninformed investors who supplied capital to the gold mining lottery of the 1890s, but finance groups who employed the best engineers in the world and were prepared to spend over L 1m. in developing a big mine....

- p. iii, op. cit,

9 P. 4, Cd. 8462, "Final Report of the Royal Commission on the Natural Resources, Trade, and Legislation of Certain Portions of His Majesty's Dominions," Sessional Papers Great Britain, House of Commons, 1917-1918, Vol. X. The five dominions were Canada, Newfoundland, Union of South Africa, Australia and New Zealand; each had a representative on the Commission, although Australia withdrew in May 1915. There were also five British Commissioners. W. K. Hancock provides a valuable sketch of the Commission's work, pp. 98-106, Survey of British Commonwealth Affairs, Vol. II, Problems of Economic Policy 1918-1939 Part 1, London: Oxford University Press, 1940. See also Suzann Buckley's "Attempts at Imperial Economic Co-operation, 1912-18: Sir Robert Borden's Role," Canadian Historical Review, LV, (1974): 292-306. For a discussion of the broad imperial context of the Commission, see Ian M. Drummond, Imperial Economic Policy 1917-1939 Studies in Expansion and Protection, Toronto: University of Toronto Press, 1974, especially chapter 2.

10 See especially p. 98, Hancock, Survey of British Commonwealth Affairs, Vol. II, Part 1, & p. 293, Buckley, "Attempts at Imperial Economic Co-operation."

11 P. 99, Hancock, Survey of British Commonwealth Affairs, Vol. II, Part 1.

12 This somewhat obvious point was repeated with considerable consternation by numerous observers. See, for example, the comments of F. L. Garrison, pp.

93-98, Transactions of the American Institute of Mining and Metallurgical Engineers, Vol. 85, 1929 Year Book.

13 As late as 1925, for example, Britain's Field Marshall Haig refused to be convinced that horses would be relegated to a minor role in modern warfare. Quoted on p. 85, 103, Douglas Orgill, The Tank Studies in the Development and Use of a Weapon, London: Heinemann, 1970.

14 See the discussions of this issue on pp. 159-63, chapter four, and pp. 263-65, chapter six, supra.

15 The United States also acknowledged the importance of "strategic minerals": see especially George Otis Smith, ed., The Strategy of Minerals A Study of the Mineral Factor in the World Position of America in War and Peace, D. Appelton and Co., 1919; C. K. Leith, World Minerals and World Politics A Factual Study Of Minerals in their Political and International Relations, New York: McGraw-Hill Book Co., 1931; and G. A. Roush, Strategic Mineral Supplies, New York: McGraw-Hill Book Co., 1939.

16 Such a self-serving approach to the resources of British overseas possessions was hardly novel; indeed, it formed the rationale of British imperialism. The literature on this topic is enormous, but for an introduction to the broad issues, see R. Owen and B. Sutcliffe, eds., Studies in the Theory of Imperialism, London, 1972; W. R. Louis, Imperialism: The Robinson and Gallagher Controversy, New York, 1976; & Anthony Brewer, Marxist Theories of Imperialism A Critical Survey, London, 1980.

17 The first mining in the area was at Thackaringa, some thirty-five kilometres east south east of Broken Hill. Thackaringa's silver lead deposit was discovered by two rural labourers "Towards the end of 1875, or in early 1876..." (p. 6, R. H. B. Kearns, Silverton A Brief History, Broken Hill: Broken Hill Historical Society, 1983, fifth edition.) Geoffrey Blainey has argued that a relationship also exists between such mineral discoveries and troughs in the business cycle; see his "A Theory of Mineral Discovery: Australia in the Nineteenth Century," Economic History Review, Vol. 23, Second Series, (1970): 298-313.

18 The Broken Hill Proprietary Company [BHP] did sell off four of its original seven mining leases during the speculative boom of the late 1880s, but the three leases that it retained were by far its richest assets.

19 See pp. 40-42, supra.

20 The best discussion of the links between mining and transportation in southern British Columbia during this era is George A. Tripp's "Transportation and Lead Smelters in the Kootenays; A Reconsideration," B.A. Essay, University of British Columbia, 1970.

21 For an amplification of this argument about the relationship between the drop in the price of silver and renewed interest in gold mining, see pp. 32-33, McCarty, "British Investment in Overseas Mining," & p. 46, supra.

22 This is clear from several sources: see, for example, the acount of Topping's acquisition of the Le Roi, pp. 4-7, Elsie Turnbull, Topping's Trail,

Vancouver: Mitchell Press, 1964. Note also S. S. Fowler's account of a conversation with one of the prospectors, Transactions of the Canadian Mining Institute, Vol. XVI (1913): 77-78. The man lamented, not having sold the property, but having sold it for too little.

23 Pp. 161 & 186, Patricia E. Roy, "British Columbia," in J. L. Granatstein and Paul Stevens, eds., A Reader's Guide to Canadian History, Vol. 2, Confederation to the Present, Toronto, 1982. Cf. the faint praise of Carl Berger in the latest edition of The Writing of Canadian History (Toronto, 1986), p. 350.

24 H. V. Nelles, referring to Western Canadian historiography generally, in a review of Hugh A. Dempsey, ed., The CPR West: The Iron Road and the Making of a Nation, in BC Studies, #71, (Autumn, 1986), p. 48.

25 See the comments of Jean Friesen, "Introduction," in Jean Friesen and H. K. Ralston, eds., Historical Essays on British Columbia, Toronto, 1976.

26 This literature is large; significant contributions include Stuart Jamieson, Times of Trouble: Labour Unrest and Industrial Conflict in Canada, 1900-66, Ottawa, 1968, especially pp. 104-09; H. Clare Pentland, "The Western Canadian Labour Movement," Canadian Journal of Political and Social Theory, 3(1979): 53-78; Paul Craven, 'An Impartial Umpire' Industrial Relations and the Canadian State 1900-1911, Toronto, 1980, especially pp. 241-70; Paul Phillips, No Power Greater A Century of Labour in B.C., Vancouver, 1967, especially pp. 160-65; Paul Phillips, "The National Policy and the Development of the Western Canadian Labour Movement," pp. 41-62, A. W. Rasporich and H. C. Klassen, eds., Prairie Perspectives 2, Toronto, 1973; A. Ross McCormack, Reformers, Rebels, and Revolutionaries: The Western Canadian Radical Movement 1899-1919, Toronto, 1977; Ross Johnson, "No Compromise - No Political Trading: The Marxian Socialist Tradition in British Columbia," PhD thesis, Universiy of British Columbia, 1975; David Jay Bercuson, "Labour Radicalism and the Western Industrial Frontier: 1897-1919," Canadian Historical Review, LVIII (1977): 154-75; Carlos A. Schwantes, Radical Heritage Labor, Socialism, and Reform in Washington and British Columbia, 1885-1917, Vancouver, 1979. There are two important dissenting voices: Gregory Kealey has argued that the notion of an exceptional west is based on a misreading of the evidence, although he has not yet buttressed this interpretation with sufficient proof. (See Gregory S. Kealey, "1919: Canadian Labour Revolt," Labour/Le Travail, 13, (1984): 11-44, especially p. 35; and Douglas Cruickshank and Gregory S. Kealey, "Strikes in Canada, 1891-1950," Labour/Le Travail, 20, (1987): 85-145, especially p. 89.) A more telling critique is advanced by Robert A. J. McDonald, "Working Class Vancouver, 1886-1914: Urbanism and Class in British Columbia," BC Studies, Nos. 69/70, (Spring/Summer, 1986): 33-69. McDonald's comparisons of Vancouver with other Canadian cities heavily discount the notion that the western city teemed with militant workers or radical politics.

27 This point is made most forcefully by Pentland, "The Western Canadian Labour Movement"; see also Phillips' "The National Policy and the Development of the Western Canadian Labour Movement."

28 For a discussion of the "producer ideology" see pp. 97-122, Bryan D. Palmer, A Culture in Conflict Skilled Workers and Industrial Capitalism in Hamilton, Ontario, 1860-1914, Montreal, 1979.

29 The work of D. G. Paterson and H. K. Ralston are notable exceptions to this generalization.

30 As late as 1972 Cominco ranked fifth among the major mining groups operating in Canada, in terms of the value of mine output. See p. 38, Elizabeth Urquhart, The Canadian Nonferrous Metals Industry: An Organization Study, Kingston, 1978. Statistics compiled in 1941 demonstrate that up to that date virtually one half of all dividends paid out by B.C. mining companies (including coal) were paid to Cominco shareholders: pp. A 18 - 20, "Table XVII. - Dividends Paid By Mining Companies, 1897-1941," Report of the Minister of Mines, Sessional Papers, British Columbia, 1941.

31 For examples of the work of economic historians using the staple approach see the references in footnote 1, above; also Donald Denoon, Settler Capitalism The Dynamics of Dependent Development in the Southern Hemisphere, Oxford, 1983; Warwick Armstrong and John Bradbury, "Industrialisation and Class Structure in Australia, Canada and Argentina: 1870 to 1980," pp. 43-74, E. L. Wheelwright and Ken Buckley, eds., Essays in the Political Economy of Australian Capitalism, Vol. 5, Sydney, 1983; Warwick Armstrong, "Land, Class, Colonialism: The Origins of Dominion Capitalism," pp. 28-44, W. E. Wilmott (ed.), New Zealand and the World Essays in Honour of Wolfgang Rosenberg, Christchurch, 1980; Warwick Armstrong, "Thinking About 'Prime Movers': The Nature of Early Industrialization in Australia, Canada and Argentina, 1870 to 1930," Australian-Canadian Studies, I, (1983): 57-69; and John Fogarty, "The Comparative Method and the Nineteenth Century Regions of Recent Settlement," Historical Studies Australia and New Zealand, 19(1981): 412-429.

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