Chapter Twelve

The Blue Asbestos Industry at Wittenoom in Western Australia: A Short History

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THE INDUSTRY*

The crocidolite industry at Wittenoom began in 1937 with a rush of prospectors to Wittenoom Gorge on the northern edge of the Hamersley Ranges in the North West of Western Australia

*The Wittenoom crocidolite industry is regarded as the worst industrial disaster in Australian history, by common consensus. On a global scale it also ranks among the most harmful of asbestos industries, in terms of mortality and morbidity among the workforce and those who simply lived in its environment. By the end of 1986, 94 cases of mesothelioma, 141 cases of lung cancer, and 356 successful compensation claims for asbestosis had been recorded in a cohort of 6,912 former miners and millers at Wittenoom (males = 6,502; females = 410). An additional 692 cases of mesothelioma, 183 cases of lung cancer, and 482 cases of asbestosis have been predicted to occur in this cohort between 1987 and 2020 (de Klerk NH, Armstrong BK, Musk AW, Hobbs MST: *Predictions of future cases of* asbestos-related disease among former miners and millers of crocidolite in Western Australia. Med J Aust 151:616–620, 1989). See also Chapter 7.

Wittenoom has achieved notoriety in the Australian mass media, and its story has been told separately by McCulloch and Hills (McCulloch J: Asbestos—Its Human Cost. St. Lucia: University of Queensland Press, 1986; Hills B: Blue Murder. South Melbourne: Sun Books, Macmillan, 1989). Nonetheless, few accounts have appeared outside Australia. We believe that details of the Wittenoom experience deserve far wider dissemination. Remote as the industry was—in "outback" Australia—its lessons are universal. They include the weakness of the individual and even government agencies when faced with bureaucratic inertia and competitive interests within the complexities of modern government. We consider this short history—based partly on the recollections of "those who were there"—to be a significant contribution to the global record of industrial mishaps.

In this chapter, some of the protagonists and workers are designated by name. We emphasize that names have been used only when they are part of the public record in Western Australia, for example those who gave evidence in open hearings.

In Australia, asbestos (chrysotile) was also mined at *Baryulgil in the Northern Rivers region of* New South Wales. McCulloch's book also contains an account of the Baryulgil industry (pages 131–189). This venture operated from the early 1940s until 1979. The operation was very tiny, and the workforce—recruited from local Aboriginal communities, with only a few exceptions—never exceeded 40. Oral evidence from the workers and various docu-

(W.A.). High asbestos prices encouraged the prospectors to knap the mineral from the sides of the gorge, bag it, and carry it out by donkey train to the coastal port of Roebourne 320 kilometers away. Prices fell, fortunes did not materialize, and the rush faded away. Mining continued nevertheless, and milling began in a very small way under the control of Lang Hancock, a young pastoralist, and his partner, Peter Wright. In 1943 the tiny venture was taken over by Australian Blue Asbestos Ltd. (ABA), a subsidiary of the major Australian firm Colonial Sugar Refining Company (CSR). ABA managed the Wittenoom works until their closure in 1966.

The town of Wittenoom was brought into existence by the mining venture, becoming in the 1950s W. A.'s largest urban center north of the Tropic of Capricorn. It remained a single industry town. It was also isolated, being located approximately 1,600 kilometers by road or 1,100 kilometers by air from Perth, the State capital, and 720 kilometers from the railhead at Meekatharra (Fig. 12-1).

Australia had almost no experience in the mining of asbestos when CSR, a company with almost no mining experience at all, decided to develop the crocidolite deposits as an adjunct to its Building Materials Division. The federal government encouraged CSR in this wartime decision because of the strategic value of asbestos and a desire for national self-sufficiency. More than this, asbestos was hailed in the 1940s and 1950s as a mineral with almost unlimited potential. "There is a strong possibility of the value of crocidolite production eventually eclipsing the value of gold production in this State," W.A.'s Assistant State Mining Engineer declared in 1942—not an inconsiderable claim, given the preeminence of gold as a mineral export earner since the eastern goldfields rushes of the 1890s.[1] A 1943 Mines Department memo described the Hamersley deposit, of which Wittenoom was part, as "one of the finest in the world."[2] There were reserves "for at least a century" and therefore a prospective industry, the value of which would be "incalculable"—one that would make Australia self-sufficient in asbestos.[3] On the basis of the Commonwealth Bureau of Mineral Resources' assessment, Prime Minister Chifley noted in 1947 that "for all practical purposes, the life of the [Wittenoom] mine is unlimited."[4]

Consequently, CSR acquired the Wittenoom leases and primitive workings, in the expectation of a major, long-term, and profitable postwar industry. This expectation was not realized. The industry was always small in both output and value. In 1962, the peak year of Australian asbestos production, 18,416 short tons were mined, 95% of this total being crocidolite from Wittenoom.[5] However, asbestos contributed only 0.9% of the total value of Australian mineral production for that year. World asbestos production in 1962 was estimated to total 3,088,000 short tons, of which Australia produced only 0.6%. Even in crocidolite, mined in Australia only at Wittenoom (Figs. 12-2 to 12-4), the greatest annual output of 17,491 short tons in 1962 was small in comparison to 116,330 short tons mined in the Republic of South Africa in the same year.[6] Nor did Australia achieve self-sufficiency in asbestos production, even at the time of greatest domestic output. In 1962, imports amounted to 39,105 short tons, mostly chrysotile from Canada and amosite from South Africa. This tonnage was more than double that of domestic production, a disparity that was even greater for most of the postwar period (Table 12-1).

Furthermore, the venture did not prove profitable. By 1955 ABA had accumulated

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ments seem to indicate that conditions at Baryulgil were very dusty. McCulloch describes the occurrence of asbestosis among those who worked there. He also mentions 2 mesotheliomas by 1986. Mesotheliomas among former workers may be related to a disputed allegation that some hessian bags used to pack Baryulgil chrysotile had previously contained asbestos from other industries—possibly brown asbestos from South Africa and crocidolite from Wittenoom (see Chapter 7, reference 89). The consequences of this mine have, however, been dwarfed by Wittenoom, and Baryulgil has received comparatively little attention in the media, even in Australia.

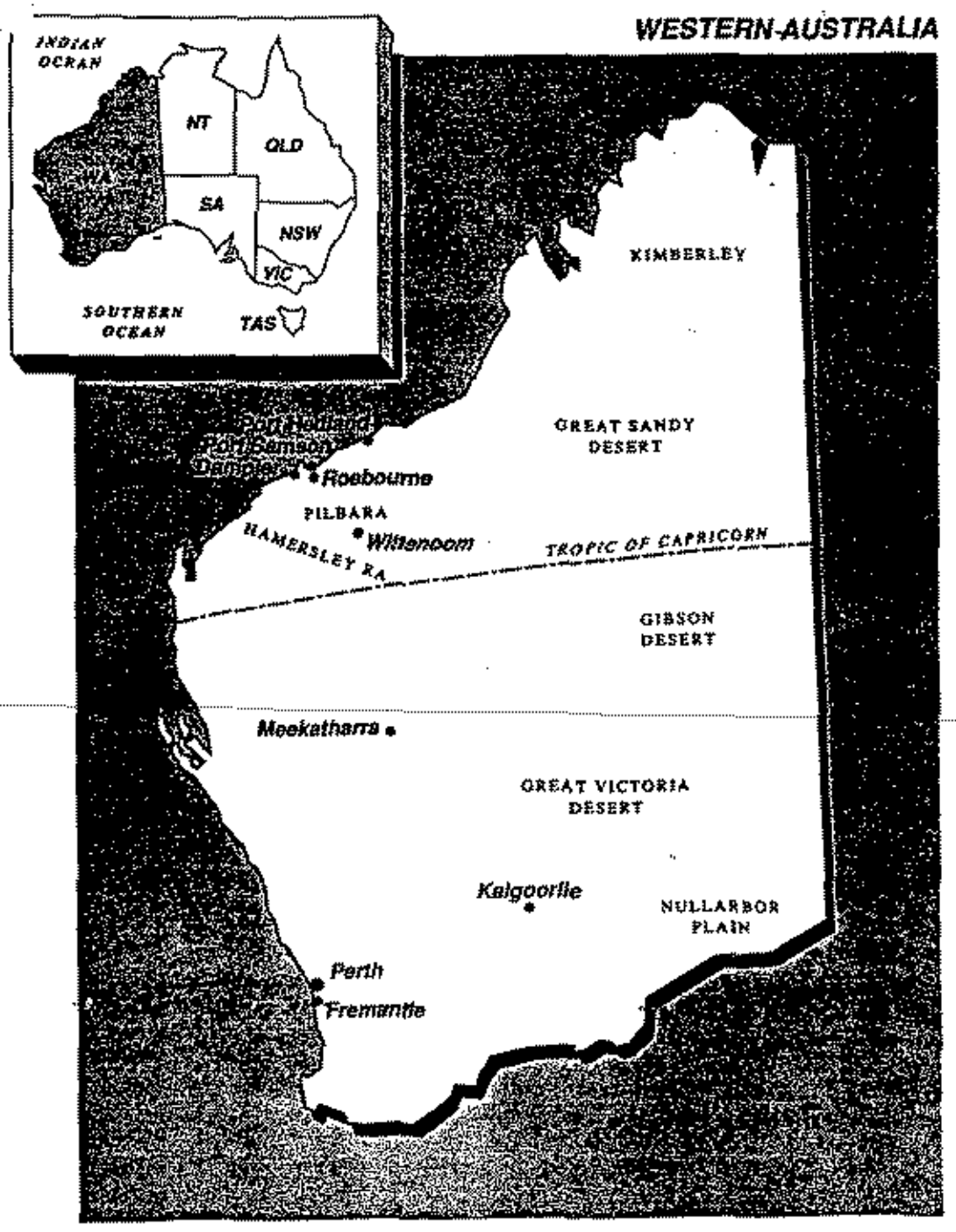

Figure 12-1 Map of Western Australia, showing the location of Wittenoom in relation to other regional centers and Perth.

Figure 12-2 Aerial view of the Wittenoom mine and mill.

losses of approximately $1.6 million. These were gradually reduced in the second half of the 1950s—primarily because of a 5-year (1955–1959) export contract with Johns Manville, the major U.S. manufacturer—and a dividend of $364,200 was paid in 1960. From 1961 until 1966, however, the company again operated unprofitably, with accumulated losses reaching $2.5 million by its last year of operation.[7]

A combination of factors produced this outcome. Preeminently, the company could not secure its markets, domestic or overseas, because it was not competitive with large scale, low-cost suppliers like the Republic of South Africa and Canada. ABA's costs remained high because of its isolated location, the abrasiveness of the surrounding rock that escalated maintenance and milling costs, and the small scale of its operations. Labor shortages, particularly of underground workers, were continuous, and the problem intensified in the 1960s

Figure 12-3 The Wittenoom mine workings.

Figure 12-4 The interior of the mine.

Table 12-1 Australian Asbestos Production, Imports, and Crocidolite Exports

Year	Total production*			Total imports*	Crocidolite exports*
	Crocidolite	Chrysotile	All types		
1948	725	399	1,486	16,675	N/A
1950	1,155	655	1,811	33,080	387
1952	3,293	1,252	4,548	31,053	N/A
1954	4,249	1,029	5,279	37,955	N/A
1956	8,160	1,549	9,709	29,579	7,579
1958	13,313	2,255	15,568	38,888	10,049
1960	14,472	1,141	15,613	41,002	8,177
1962	17,491	925	18,416	39,105	9,685
1964	11,868	1,657	13,545	42,896	7,280
1966	12,841	627	13,468	55,152	4,644
1968	—	896	896	66,741	—

*In short tons.
Source: Australian Mineral Industry Annual Review, 1949-1968.

with the attractions of the Pilbara iron ore ventures. Labor costs rose significantly in this period, and capital costs also escalated, as the company was pressured to improve fiber quality and the control of dust during milling. Furthermore, the anticipated high-fiber yields were not realized as mining penetrated further from the gorge outcrops, and the inadequacy and inaccuracy of the geological information on which planning had been based were revealed. In addition, the trend in prices was not what ABA anticipated. Strong overseas demand for long fiber asbestos did not eventuate and, although prices rose after the war, this trend was not sustained. Instead, in the early 1960s there was increasingly severe competition for crocidolite in the market place from the Republic of South Africa, with overproduction and lower prices.[8]

Thus, the asbestos industry at Wittenoom was always marginal and ultimately it failed, despite the high expectations that heralded its establishment. In this process of initial optimistic planning, continued struggle for viability, and final acknowledgment of failure and consequent closure, government was deeply involved in supporting and facilitating the industry. Both State and federal governments were predisposed to assist the establishment of the industry in the 1940s, because it promised to "populate the north"—a key goal of postwar politics.[9] The size and status of the parent company, CSR, encouraged government support, as it had been recognized by 1946 that successful development of the crocidolite asbestos industry needed substantial capital investment by a single producer.[10] Consequently, throughout the life of the Wittenoom works, the State government reserved all ground outside ABA's leases from selection for crocidolite mining.[11]

This policy was just one of a package of such policies negotiated in 1946/47 between CSR and the W.A. and Australian governments. The State undertook to establish the townsite of Wittenoom (7 kilometers from the minesite in the gorge), providing the necessary surveying and the "amenities which are normally a Government function" (notably water supply and a school, police station, and hospital). It agreed also to upgrade the road to the coast and the port storage and handling facilities at Port Samson and to provide a concessional rate for ABA storage at the port, as well as a road transport subsidy for fracture (explosive) from the Meekatharra railhead. The federal government agreed to join with the State in the provision of workers' housing (a total of 152 homes by 1953), in a shipping subsidy on

asbestos carried from Port Samson to Fremantle, and in a road subsidy on asbestos carried from Wittenoom to Port Samson, as well as on most goods carried from the port to Wittenoom. Both governments shared in half the cost of construction of a bulk oil terminal at Port Samson.[12] Both levels of government were impressed by CSR's enterprise, and the marginality of the industry—perceived at the time as only short-term—determined their united supportive role.

Labor supply was another of the company's difficulties with which government assisted. The problem of obtaining underground labor and of retaining all categories of labor existed throughout Wittenoom's operation. Few were prepared to mine in 42-inch stopes and the entire workforce was highly transient, 59% leaving in 6 months or less.[13] In a single industry "company town" located in a sparsely populated region, ABA had no local sources of additional labor. The bulk was therefore contract labor, flown in by the company. From its commencement of operations, ABA recruited workers in Perth, paid their airfares to Wittenoom, deducted this cost from their wages and refunded it at the end of 6 months—an arrangement given legal status in 1947, in the first arbitration awards covering the industry.[14] The federal government provided some relief to the company between 1948 and 1951 by allocating 134 displaced persons to work their 2-year contracts at Wittenoom.[15] And others were redirected to Wittenoom by the Department of Labour and National Service when their initial placements broke down.[16] More importantly, the Australian government gave CSR permission to carry out private labor recruitment in Europe. The men recruited in this way (and their families) were accepted as immigrants after they had signed 2-year contracts with the company. The first of these trips was made in 1950 and had its greatest success in northern Italy and Holland; the last in 1965 recruited in Lebanon. Overseas contract labor provided most of the mine's underground workforce and, without it, the works could not have remained operational.[17]

CSR did not obtain all the government aid it sought. Its requests for tariff protection in 1946/47 and 1954/55 were both rejected.[18] Low-cost workers' housing in this period was dependent on asbestos building materials; between 1950 and 1953, 25% of all new Australian houses and 50% of all those in New South Wales (N.S.W.) and W.A. were built with asbestos-cement sheeting. Indeed, in the mid-1950s Australia ranked fourth in total world consumption of asbestos-cement products and first in per capita terms. Nonetheless, asbestos-cement manufacturers continued to prefer imported asbestos because of its lower cost and, in the case of Canadian chrysotile, its superior quality.[19] In this situation the Australian government judged that the need to meet postwar housing demand took precedence over its desire to encourage northern development and a new mineral industry. Consequently, ABA did not receive the protection it sought.

Nevertheless, government assistance to the ailing industry increased after 1960, chiefly in the form of annual deferments of freight increases on the State Shipping Service.[20] It was not enough to save the industry. Pessimistic assessments of future fiber quantity and quality, together with problems of labor supply and labor costs, caused CSR to close operations in December 1966.[21] The plant was later sold to Lang Hancock, but no further production took place. It had been a failed mining venture, its legacy in illness and death among its ex-workers a massive additional negative outcome to set alongside its economic unsoundness.

WORKERS' EXPERIENCE

Approximately 7,000 people worked for ABA in the 23 years that the company mined and milled asbestos. At its peak the workforce reached over 500, but for most of the time it was less than 300. The most striking character-

ist this workforce was its transience. Over the entire period from 1943–1966, 44% of workers stayed less than 3 months, 59% had left in 6 months, and only 22% stayed longer than one year. A high percentage of these workers were postwar migrants, somewhere between 35–50% being non-British immigrant in origin. Unfortunately, it is not possible to separate British from Australian-born to establish a reasonably exact percentage of migrants in the workforce; but it is certain that the majority of workers were recent migrants. Twenty percent of workers came from southern Europe, predominantly from Italy (12%) and Yugoslavia (5%); 5–6% were eastern European, almost all of them displaced persons, whereas German (3.4%) and Dutch (2.5%) migrants were also numerous. Ex-Wittenoom people recall that "every nationality" worked there. In the parlance of the time it was a town full of "New Australians."

The workforce was young: 57% were less than 30 years of age and only 15.7% were aged 40 or older. The dominant age group was that between 20 and 24 years; it included 27.9% of all workers.[23] Almost all were male. Very few of ABA's jobs were available to women. Mining and milling was entirely male work and the closest women came to industrial employment occurred from 1960–1966, when four female bag-making machinists were engaged to sew the jute bags in which the asbestos fiber was transported. A few women were employed to do clerical work in the company office and to work as sales assistants in the company's store and in the town's hotel, which was also owned by the company. With ABA the town's sole private sector employer, women's employment prospects were very limited and almost no women came to the town except as wives of ABA workers. The exceptions were a tiny number of State government employees, mostly nurses and teachers. And so Wittenoom was a man's town with a male : female ratio of approximately 2 : 1.[23]

Housing for approximately 180 families was provided by the State Housing Commission, but most workers were single men or—more accurately—they came to Wittenoom as single men. They lived in the single men's quarters that consisted initially of small, shared hut accommodation and later of dormitories. The men gave the name "Death Row" to the latter. Conditions were primitive and maintenance lacking, such that the Regional Health Inspector commented in 1965: "I seldom see such squalor, even among the dozens or so Native Reserves that I visit."[24] Single men had no alternative to this accommodation, although a few boarded with married couples and a larger number obtained their meals on a private paying basis.

The work of mining and milling asbestos was hard, hot, and dirty. The mine was a low-back stoping operation in which face miners and scrapermen (who cleared the stopes) worked their 7½ hour shifts in a crouched position.[25] Because Australian miners, accustomed to full headroom, were not prepared to work in these conditions, ABA recruited its face miners on 2-year contracts from overseas—mostly from Italy—and trained them itself. Working conditions were worse in the mill because of the very high dust levels, and those who wanted, or were forced, to stay in Wittenoom moved to the mine at the first opportunity. Most of the mill workers were recruited in Perth on 6-month contracts.

It is not surprising, then, that this predominantly young, single, migrant, male workforce employed under contract to work in unpleasant conditions should be highly transient. In the war and immediate postwar years, before mass migration began, ABA was dependent on a class of workers it categorized as "drifters" and "no-hopers"—men who "work a few shifts and then 'snatch their time'"—as the employer's advocate at the 1947 arbitration hearings described them.[26] Representative of these men was miner Thomas Martindale who gave evidence for his union—the Australian Workers' Union—at the same hearings. He had worked at Wittenoom for 15 months. When asked where his home was he replied, "I have

been in the North for years . . . I have been here off and on, from Darwin downwards, these 40 years."[27] He liked life in the North, and his transience was a key element in his lifestyle. At later arbitration hearings in 1949, ABA manager Broadhurst told of the financial losses the company had to bear when, after paying workers' airfares, they left before the money could be recouped.

> Only recently three men arrived; one appeared in the mine for half a shift and the other two did not come in at all. They made it clear to people in the town that they only wanted to go to Wittenoom on their way to Broome meatworks.[28]

This type of seminomadic worker persisted through the life of Wittenoom. For instance, in 1953 Welsh migrant Dennis Morgan had been employed as an underground fitter for 5 months before transferring to the garage as a motor mechanic. After 2 years he left Wittenoom for Roebourne where he worked as a mechanic for 10 months before returning to Wittenoom in 1956. He had been back 9 months when he was asked in the 1957 arbitration hearings why he had returned. He explained:

> I was passing through. I was on my way south for my holidays, and there was a vacancy for a motor mechanic, and they came and asked me about it, and I just took it on.[29]

Without close personal ties, young men had no reason not to travel. One young fitter who spent 6 months on mine maintenance in 1962 could recall no particular reason for going to Wittenoom.

> I don't really know why I was there. It was round about those years that I'd done my apprenticeship as a fitter and turner . . . Wherever the work took me so to speak. I was single, didn't have a girlfriend at that particular point in time, so I just went where the work was . . . No ties really.[30]

However, the transience of most workers, particularly those categorized as "unskilled" or "semiskilled," was more commonly edged with desperation. These were economically vulnerable workers locked at the bottom of the wage structure. Laborer Cec Reem was a bagger in the mill in 1957. Although married with four children he lived in the single men's quarters, his family having remained in Perth when he moved temporarily to Wittenoom to find work.

> Naturally I did not want to be separated from them but having been here over four months I feel the cost of living generally and the cost of bringing my family from South Perth would be too great.[31]

Tradesmen could also be compelled to move by the exigencies of the labor market. In the second half of the 1950s, for instance, unemployment in W.A. was the highest in the country. When work was scarce there were always jobs at Wittenoom. Mill fitter Colin McAvan moved back to the town with his wife and two children in mid-1956. He had been "almost forced" back, he explained:

> At the time I came back there was a great amount of unemployment in Perth. I had been working with a firm and they were liquidated—and naturally I had my wife and child—also I was paying well above normal rent in Perth, and I had to go and find another job.[32]

Many men came to Wittenoom desperate to find work.

The least transient of ABA's manual workers were the stope miners, the majority of them Italian migrants. Their 2-year contracts partly explain their longer stays but these same contracts did not stop the last groups of contract workers recruited in 1964/65 in Lebanon from leaving virtually as soon as they arrived. When recent migrants found that they could save money in Wittenoom they tended to stay. For instance, one Italian couple remained for 8½

...ars. After the company's 2-week training, he became a very successful miner. She took in Italian boarders among the single men and provided three meals a day and did some laundry for them. She usually had 7 or 8 such boarders, sometimes 12 and never fewer than 4. "Just to help my husband a bit," she explained. The couple stayed at Wittenoom to save enough money to buy a small farming property on the outskirts of Perth. She saw Wittenoom as "the place where you can earn something, better than in Perth, for example, specially for migrants who just come here with nothing."[35]

For most workers, Wittenoom was a place to make money and then leave. Recent migrants, in particular, were prepared to make short-term sacrifices to secure their future in Australia or to return financially better off to their former homes. Many Australian-born workers also went to Wittenoom with specific saving goals; perhaps to overcome debt and to "get straight again," perhaps to earn the money to buy a suburban home or a car. Some succeeded in improving their financial situation; most did not and moved on. One woman whose husband was a displaced person from Latvia explained:

> He was an ex-army person and when he arrived here without education, without trade, you're really stuck. You're always chasing that extra pound.[36]

They left after a year. "There was nothing there for us", she recalled, with no prospect of advancement for her husband and no possibility of saving any money. They returned to the transient farm work from which they had been attempting to escape when they went to Wittenoom.

Some people, desperate to leave, found themselves trapped in the town. Workers were in debt to the company from the time of their arrival; for their airfares to the town, for their bedding and, if their families accompanied them, for household furniture and equipment that was sold secondhand from the company-owned store. With weekly food bills adding to the total, families often had difficulty clearing this debt. A school teaching couple who observed workers' struggles in the mid-1950s commented critically of ABA that "you had Buckley's chance* of getting out of their claws for quite a long time really."[37] When the works closed in 1966, hire-purchase debts totaling $5,500 were owed by 60 then-current workers.[38] People were deterred from leaving while still in debt, because airline tickets had to be booked at the company store. In the absence of a motor vehicle, the only other way out was to ride out to the coast—against company rules—on the asbestos trucks. It was an avenue to which the desperate resorted. One worker in the mid-1950s with 7 children and no money at all after 3 years of labor in mine and mill loaded his children and what household goods he had onto three asbestos trucks and managed to reach Roebourne.[39]

The most frequent metaphor in ex-Wittenoom workers' oral histories of the town is that of imprisonment. People make statements such as:

> "Not everybody could afford to leave: that was one of the traps . . . if you went to Wittenoom it was as good as in prison . . . I'd got to find a way of getting out."[39]

> "A lot of people only served out their time in Wittenoom."[39]

> "You were into the trap and then you were caught."[40]

> "There was no way out . . . We were right in the middle of nowhere."[41]

> "You supposed to stay two years. So at first you want to go. But after a while you say you have to stay—because there's no way out. You can't do what you want."[42]

*Buckley's (chance), no chance at all.

"Day by day you are always thinking how to run away."[43]

"No free."[44]

"All those huts in a concentration camp neatly in a row."[45]

Even those people, most of whom had been *independent of the company, who do not use* the metaphor of imprisonment about their own lives in Wittenoom, use it of the mass of workers. "You could get in but it was harder to get out," a former Wittenoom policeman observed.[46] People who had been government employees in the town stressed their "independence" of the company: "We didn't have to be beholden to them," a school teacher recalled gratefully.[47]

Not everyone was unhappy with life in Wittenoom. Some—mostly the self-employed and government employees—enjoyed the life. These people constituted a minority nonetheless. One woman remembered "a general air of discontent" pervading the town although she herself lived there happily for 13 years, and had 6 children in that time.[48] "You made your own fun," people recall. The fun included picnics, barbecues, card evenings, dances, and the weekly cinema. Pub life, two-up, card games, and s.p. betting entertained most of the single men.* These activities provided diversions from the heat, isolation, shiftwork, long hours of overtime, and unpleasant working conditions that characterized the industry.

The presence of the company was felt in all aspects of Wittenoom's life, a presence that many of its workers found oppressive. They recall:

"Whichever way you turned you came up against the company. They called the tune."[49]

"Everything was belong to company."[50]

"Nobody could do anything except the company."[51]

"They played a little bit like a tin god."[52]

Wittenoom was a company town in the sense that ABA was the sole private employer, and that management dominated residential and social life as well as the workplace. The justices of the peace were senior managers and presided over the police courts. Together with the pastoralists, they controlled local government. The company owned the single men's residences, the only substantial retail store, and the main social venue, the hotel. Even the State Housing Commission homes were thought by many workers to belong to the company because it was the agent for rent collection, water rates, and house maintenance. ABA sought to encourage community activities and provided leadership for the Race Club, the Hospital Board, Country Women's Association, and the like; indeed, its approval was needed for any community venture to be successful.[53]

Like all mining towns, Wittenoom was a rigidly stratified society. The elite were the CSR staff, the managers, responsible to CSR's Sydney head office. These career men identified strongly with the company, worked hard for it, and in turn were well looked after by it. Their workplace authority translated into social power in the community and was expressed and reinforced in the maintenance of social distance from "the workers." The managers lived in the gorge on the lease, not in the town.

The second tier of staff was the ABA employees: shift bosses, plant foremen, and clerical workers. They had "a lot of different perks" as one former ABA staffer put it.[54] They received paid annual holiday air travel to Perth for themselves an their families, as well as their initial moving costs and free housing,

*Pub, Anglo-Australian slang term for a public house or hotel, especially its bar, where alcoholic drinks are sold and consumed. Two-up, traditional Australian game of chance, in which bets are laid on the fall of 2 pennies tossed into the air. S.p. betting, illegal but commonplace off-course betting, usually on horse races; s.p., starting price.

ater, electricity, and firewood; but ABA had no superannuation fund and its staff had no career mobility within CSR beyond Wittenoom and ABA's small Perth office. Their jobs ended with the closure of the works.

ABA's wage and contract employees formed the bulk of Wittenoom's population. Best organized were the metal tradesmen, members of the Amalgamated Engineering Union. These men had a reputation among management as the only group of workers likely to "cause trouble"; they were certainly the most militant section of the workforce. Their tradesmen's "skill," acquired by apprenticeship, entrenched in workplace custom, institutionalized in the differentials of the arbitration awards, and defended by union organization, protected them from the precariousness of the laborer's situation. The regular working of overtime (paid at time-and-a-half or double time) gave them their opportunity to prosper. Most of the maintenance work, particularly weekend work on the mill, was done on overtime.[55] Wages were the equivalent of those in Perth with the addition of a district allowance that was more than absorbed by Wittenoom's higher cost of living; and so overtime was essential to boost workers' pay packets. The tradesmen benefited most from the constant labor shortages that made overtime the rule in the industry. For the mill and mine laborers it was more of a lottery, sometimes freely available and at other times elusive.

In Wittenoom's social hierarchy, the mine and mill laborers, in particular the single men, had the lowest status. Isolated in the Compound, the name by which the single men's quarters was known, frequently unable to speak English or to stomach the food provided for them, and faced with grim working conditions in the mill and mine, the single men were the most transient of Wittenoom's population. They fled on the asbestos trucks, to be replaced by others who repeated the cycle. No one much noticed; their labor was interchangeable. These men recall that working and living conditions were generally intolerable. Mill dust was an important component of this situation.

Former Wittenoom residents recall the asbestos dust vividly. In the language of their oral histories "dust" has come to stand for "disease/death." This has happened because of their current circumstances: perhaps their own ill health and/or the illness or death of close family and friends; certainly their present knowledge of asbestos-related disease, of media-reported deaths of former Wittenoom people, and of the continuing threat to their own health. Wittenoom was an extremely dusty place. Foglike dust hung over both old and new mills and could be seen 7 miles away in the town. The same dust was brought into the town with the practice of using tailings, residue from the asbestos processing, as a road surface and a covering for house yards and public venues. A former mine worker who lived for 10 years in Wittenoom explained ironically:

> If you wanted tailings in town to make a driveway or for the backyard to look nice, you ask the company and they dump a load of tailings in your backyard. The schools and the kindergarten, churches, everybody had it nice with tailings there. It's handy.[56]

Parents recall their children's first years with despair: "I've got pictures of Robin, eighteen months old, sitting in it!" one mother lamented,[57] whereas a father of 3 exclaimed "I suppose all the babies even ate the bloody stuff!"[58]

When people describe Wittenoom's asbestos dust the dominant image is of a thick, suffocating covering:

> "Within five minutes [in the old mill] you were covered with all the dust . . . You were grey."[59]

> "He [a mill worker] was like a snowman, all covered with dust."[60]

> "As bad as any work [night shift maintenance] because everything was just smothered in dust . . . It would stick to you."[61]

"The dust was just engulfing the whole crushing plant."[62]

"I only knew him with having blue fingernails, blue lips—he was full of dust."[63]

"The gorges used to be so thick, full of it; it looked like a big fog at night time."[64]

"It was just impenetrable; it was like walking into smog."[65]

When people talk of the dust's enveloping asphyxial form they are doing so in the context of asbestos-related disease (asbestosis, lung cancer, and pleural mesothelioma) among their families or friends or other ex-Wittenoom residents, about whom they hear and read. What requires explanation is the failure of occupational health controls in this asbestos industry.

OCCUPATIONAL HEALTH IN THE INDUSTRY

Asbestos was mined and milled at Wittenoom under conditions that were wholly inadequate to protect either the workers themselves or the town's residents from asbestos-related disease. *Why was this so? After all, medical science had* discovered a great deal about asbestos-related disease by the 1940s (see Introduction, pages 2, 4, 7, and 8).[66,67] In North America the health threat to asbestos workers was sufficiently well known by 1918 for U.S. and Canadian insurance companies to cease selling them life insurance.[67] What was not fully understood until the 1950s, however, was the rapidity of onset of the disease after heavy exposure and the speed of its progression. In 1968, Dr. Jim McNulty of the State Department of Health reported surprisingly short intervals from first exposure to clinical onset of disease, on average 5 years among Wittenoom mill workers and 6½ years among mine workers. At the same time, he reported the rapid progression of the disease:

> A man with two years exposure in the mill might have a normal chest x ray and no symptoms in one year, but have dyspnoea, finger clubbing, basal crepitations and an abnormal chest x ray the following year.[68]

An increased incidence of lung cancer among asbestos workers was established by the 1950s, and the association of pleural mesothelioma with exposure to asbestos was recognized in *1960 in South Africa (see Introduction, page 7)*. The first case of mesothelioma outside South Africa—in an ex-Wittenoom mill worker—was reported by McNulty in 1962.[69] Thus, medical knowledge of asbestos-related disease increased substantially during the life of the Wittenoom works, particularly from the mid-1950s onward, and this reinforced existing knowledge of the other health hazards of asbestos.

At one level, Western Australia's particular historical experience made it aware of the danger of dust in the mining industry. Dust had been identified as the major occupational health hazard from mining in Australia, from the beginning of the century. By the 1940s/1950s, there was a long-standing set of procedures to monitor dust levels in the gold and coal mines and to check miners for pneumoconiosis. These procedures were effective for gold miners in Kalgoorlie and coal miners in Collie and in other settled, long-established mining towns. Not surprisingly, they were much less effective in the smaller, more scattered and isolated mines, particularly of the North West, where the workforce was transient and the mines mostly marginal and ephemeral. X-ray screening of North West miners was organized from Kalgoorlie, and in the 1940s a Commonwealth mobile unit made the Marble Bar-Yilgarn-Wittenoom trip biennially.[70] Until 1948 this unit also carried out initial medical checks and issued certificates.[71] Given the high turnover of the workforce at Wittenoom, these procedures were clearly inadequate. When the plant grew larger in the early 1950s, annual x-ray examination was instituted, and in 1958—as a result of the first diagnosis of asbestosis—clinical examination was added to the annual

check.[72] The x-ray changes in asbestosis had been found to be very subtle (see Chapter 9) and therefore difficult to detect, and it was hoped that additional clinical examination would enable earlier diagnosis.[73]

It took some time for public health authorities to adjust to the particular problems of asbestos—a mineral with which they had no experience. In this situation the Health Department (and the Mines Department for that matter) applied traditional procedures that had been found to be appropriate to gold mining. One doctor stationed in Roebourne and serving Wittenoom as a flying doctor in the period *1952–1953 explained that:*

> At this stage they were not concerned about lung disease caused by asbestos. They were more talking about dust on the lung which a miner usually gets. They were concerned about the miner that worked directly in the mine.[74]

Experience suggested to officials that it was the men with a history of mining behind them who were the group in danger and therefore to be watched closely. The greater danger facing the mill workers who were almost all newcomers to, and transient in, the mining industry was not fully recognized until the mid- to late 1950s.

First to realize the extent of the threat posed at Wittenoom was Eric Saint. One among a group of doctors recruited in Britain by the Health Department in the postwar period to ease the medical shortage *in remote areas*, he was appointed to Port Hedland and serviced Wittenoom as a flying doctor from 1948–1951. What made him unusual in W.A. at the time was his extensive knowledge of industrial health. He had recently gained his doctorate in the Department of Industrial Health at Newcastle University in England. Furthermore, asbestos manufacture near Newcastle had given him an understanding of the dangers of asbestos.[75] Consequently, he was horrified by what he saw on his first visit to Wittenoom and wrote immediately to Perth, stating that:

> In a year or two ABA will produce the richest *and most lethal crop of cases of asbestosis in the* world's literature . . . Naturally I think some of *these chests should be looked into.*[76]

The Commissioner of Health responded positively, acknowledging that "these workers could easily incur a greater hazard than do workers in our gold mines."[77] He explained that x rays in Perth would be required of all workers before the commencement of employment, and that the Department was endeavoring to arrange for the Commonwealth Mobile Laboratory to make annual (rather than biennial) visits to Wittenoom.[77]

Saint tackled the company at the same time:

> I said "Look, you've got problems." . . . They pooh-poohed me and in fact they labeled me as a troublemaker . . . They didn't listen. I was just a young man, a flying doctor . . . I'd only just come out from England and they thought "Who's this jumped-up fellow?"* That was the attitude.[78]

And so he made no impact on ABA, and the Department seemed to *him uncomprehending* of the scope of the potential disaster:

> It was the local experience. They'd never encountered asbestos; they'd never had occasion to look it up in the literature. It wasn't in the front of their consciousness. All they were thinking was what they knew, that there's a certain amount of silicosis among the miners in Kalgoorlie . . . The mining people were looking at the morbidity amongst miners; what interested them was silicosis.[79]

At this stage the Health Department did not have an Occupational Health Division. The State's small population and lack of secondary *industry, together with* the abolition of the Commonwealth Department of Industrial Hygiene in 1932, resulted in ignorance and neglect of the area.[80] It was not until 1958 that

*Jumped-up, self-important.

Dr. D. Letham (tuberculosis physician at the Perth Chest Clinic) was offered the opportunity to establish either an occupational health or geriatric division in the Department. He chose the former because of an interest in preventive medicine, developed during his years as a physician at Wooroolоo Sanatorium, where he treated former gold miners for silicotuberculosis. The division was set up in 1959 with a staff *of one; there was no second physician until* 1963, although a nurse and health surveyor were appointed in the interim.[81]

Increased interest and expertise in occupational health and growing W.A. knowledge about asbestos-related disease were expressed throughout the 1960s in stronger pressure on ABA to reduce the dust menace. In 1961 Letham informed the company that dust counts were too high and a meeting of company, Health Department, and Mines Department representatives agreed that improvements to the ventilation of the mine and mill would be made and a system of dust counting begun.[82]

In this period the Department also condemned the use of tailings in the township. When the Commissioner of Public Health, Dr. W. S. Davidson, visited Wittenoom in 1965 he "rebuked" the state school headmaster "in vigorous terms" for covering the school yard with tailings, and he informed the Shire Clerk that:

> Over the past years our attitude has been made perfectly clear to the Mines Department and the management of the mine on the use of tailings . . . The management of the mine has been given the opportunity to examine all the literature we have available on the subject.[83]

In answer to the Secretary's complaint that the Shire had not been informed officially of the Department's views, Davidson replied:

> As your Council has always contained members associated with the management of the mine, I cannot accept a suggestion that the Council as a whole is ignorant of the Health Department's attitude in this matter.[84]

This evidence suggests that, although the Department took an increasingly strong line in the 1960s, it was not always politically astute or effective. To assume that information detrimental to the company and supplied to management would be disseminated on even a limited scale can be considered naive.

A further area where the Department's doctors attempted to intervene to protect workers was in their advice to leave Wittenoom, which they offered to individual workers during the yearly clinical examinations. There were problems with this, however, as the doctor most involved, Jim McNulty, describes:

> Perhaps the only medical advice one could have ever given, in view of the dusty conditions and history was "If you are thinking of going—don't!" and "If you are there—leave!" but this is not the advice they wanted . . . If there were no signs of clinical disease, one could not advise them to leave.[85]

Few workers appear to have followed the advice to leave when it was given. Many workers "didn't want to be told" and some even tried to dodge the examination.[86] There were probably a number of reasons for this response, but a major one was workers' perception of their lack of choice. They faced unemployment and loss of housing if they left Wittenoom; some were in debt to the company; others did not have the fares out for themselves and their families. In material terms, many did not have a choice.

The Health Department also struggled through the period to achieve more accurate dust counting in mine and mill. In 1959 the Commissioner complained that the konimeter used by Mines Department inspectors (who took the readings) "is not regarded as an effective instrument for dust counting in the asbestos industry in Canada."[87] Nevertheless, it was not until 1966 that an industrial hygienist, ex-

[illegible] in the use of more sophisticated equipment, was brought across from New South Wales to take more reliable readings. His report showed unsatisfactorily high dust concentrations in both mine and mill, but by the time it was completed the plant had closed.[88]

The isolation of Wittenoom made adequate occupational health supervision and servicing a difficult task for the Health Department until closure of the plant. A far greater impediment to its effectiveness was the legislative inadequacy and bureaucratic division of authority within which it worked. W.A. had no occupational health legislation that could have provided the Department with the necessary power to effect change. Wittenoom was deemed a mine. Therefore, it came under the provisions of the Mining Act[89] (which did not touch on health at all) and the Mines Regulation Act,[90] which vested in the Mines Department the powers of inspection and supervision and of framing regulations relating to sanitation, safety, and health. The latter Act defined "mine" widely to include not only the place of extraction of a mineral/metal but also "a place . . . where the products of any such place are being treated or dealt with."[91] Thus the mill at Wittenoom was a mine for the purposes of the Act. The Health Department had no right of inspection or power to intervene and insist on change. It could only liaise with the Mines Department; it could advise but not direct. Knowledge and expertise were thus separated from authority over occupational health matters.

There is archival evidence that for the entire postwar period the Health Department was conscious of the inadequacy of this administrative arrangement. Although Dr. Saint was not aware of it, his letter in 1948 warning of the asbestosis danger spurred the Department to propose in 1949 that an area within 5 miles of ABA's works be excised from the jurisdiction of the Mining Act and brought within that of the Factories and Shops Act, so that the Factory Inspector could "inspect the works and enforce improvements."[92] The attempt was blocked when the Solicitor General, on the advice of the Mines Department, ruled that Wittenoom was a "mine" and therefore not a "factory."[93] The Department tried again in 1953, in response to Kwinana's industrial growth, with a report that called for coordination to replace the piecemeal approach of the past. Industrial health, it argued:

> . . . has largely been neglected in W. A. Hitherto this neglect has been of comparatively small importance but the recent and potential rapid expansion of local industry requires us to take immediate steps to close this gap in public health defence measures to protect the health of our growing industrial population.[94]

What was needed was legislation and organization that would place control of industrial hygiene in the hands of the Health Department, with representation provided for other departments. The response was again negative; the Assistant Parliamentary Draftsman and Chief Conveyancer advised that such legislation would cut across at least 10 Acts, as well as industrial awards. And it was unnecessary as "ample legislative power already exists to bring about what is desired without further expense to the State."[95] The Commissioner of Public Health protested that it was not possible under existing legislation for his Department to maintain "adequate medical supervision" of other authorities who were "without the medical knowledge required to appreciate the problems involved."[96] Nevertheless, nothing more was heard of the move. The Department had failed again.

Thus liaison and cooperation remained the only tools the Department had at its disposal to achieve its occupational health goals, and it used them on the Mines Department and Factories Department, the two authorities that controlled the bulk of the State's workplaces. Relations with the Factories Department were close and cordial as evidenced by the 1949 attempt to bring Wittenoom under its jurisdiction. The Mines Department was more difficult

to influence and relations were often more distant, though apparently not embittered. Bureaucratic divisions of authority produced by legislative inadequacy were most marked in the mining industry. Here, the Mines Department had statutory responsibility for health and safety in the mines whereas the Health Department was responsible for the medical examinations of mine workers. The situation was further complicated by federal involvement; in the period before 1953 it was the Commonwealth Department of Health that carried out the x-ray program, a task that the State Department assumed only after that date. Such divided authority, and particularly that between the Mines and Health Departments, impeded effective action on occupational health.

Furthermore, the Mines Department was a large and traditionally oriented organization with a powerful ideology of development fueling its actions. In this it reflected the views of successive W.A. governments, both Labor and non-Labor.[97] One health official labeled Mines Department officers "engineers who knew everything," a description that points to two major characteristics of the Department: its developmentalism and its optimism. These determined the department's fundamental and continuing response to Wittenoom's asbestos production—that it was a valuable industry to be fostered and preserved.

The Mines Department did not lack concern about the health hazards of mining, in particular those of dust and inadequate ventilation, but this concern was tempered by a pragmatic view about what was reasonable in a marginal industry and by a strong desire to encourage new mining ventures. And, without callousness, its officers knew that a certain measure of dust disease was always associated with the mining industry. Dr. McNulty, who worked first as Mines Medical Officer in Kalgoorlie and then as Occupational Health Physician in the Health Department in Perth, explains that:

> When Cassandras . . . advised that dust was a problem and predicted the development of disease [at Wittenoom] it didn't ring any alarm bells in the people concerned in the mining industry because they were used to it; they expected it.[98]

Nonetheless, it would be wrong to portray the Mines Department and its inspectors simply as lax and ineffective. In the area the Department knew best, underground mining, standards were enforced firmly. It insisted initially that ABA find "a competent mining man" to take charge of underground operations.[99] After the introduction of low-back stoping as the most efficient working procedure, the mine functioned smoothly, with a low accident rate[100] and no major engineering setbacks, apart from an underground collapse in 1962.[101] The Department ensured that the mine was worked in accordance with regulations, although it made two concessions that illustrate its pragmatism: first, it allowed ABA to install diesel locomotives in the mine in 1945 because they were cheapest[102]; and second, it studiously ignored the employment underground of non-English speaking migrants, although this contravened the Mines Regulation Act. The Department's awareness of the company's constant labor shortage explains the oversight.[103]

The Department was confident that it understood and could handle the problems of the industry—a view reflected in the District Inspector's report in 1945:

> The problem to be faced in the future development of the asbestos industry in this State is purely a mining one. The metallurgical requirements of the undertaking are comparatively simple, since the separation of the fibre is an entirely mechanical process, and since the deposits are so large and regular the geological aspect is also relatively simple.[104]

Such optimism proved to be misplaced, for satisfactory quality and dust control in milling was never achieved and unexpected variations in the length and quality of fiber revealed the deficiency of geological knowledge.[105] With

Department's assistance, the mining problems were the ones most easily and immediately resolved.

Satisfactory dust control (especially in the dry milling process of crushing, grinding, aspirating, and bagging) was never achieved, although the Department knew of the problem and tackled it every year. Its basic premise was sound:

> The solution of the dust problem resolves itself into the willingness of the Management to accept the responsibility of seeing to it that the various machines release as little dust as possible into the atmosphere . . . Anyone constructing a dry treatment plant of any description must realize that dust control is the major principle around which the rest of the plant is designed.[106]

Respirators were not an answer. The Department knew from experience that the men could not (and would not) wear them in hot and hard mining conditions.

Faced with this problem, the Department's response was to take the optimistic view. Year after year its inspectors ruled that dust control was unsatisfactory, and year after year they reported that conditions were *about to improve* because of some planned change. Thus in 1945 it was noted that:

> The plant is equipped with a carefully designed dust collection system. Dust escapes at certain points, but these are minor matters and can be corrected. The collection of dust at the final discharge is not satisfactory. This is to receive further attention.[107]

The 1946 inspection recommended "a slow current of air distributed over a large area" to solve the continuing problem but concluded that "when this is carried out, and it can be done easily and cheaply, the dust nuisance will disappear."[108] In 1949 the erection of a new milling plant was noted with the *addendum* that "dust nuisance and similar defects will now be overcome."[109] Dust extractors were installed in 1950 in the mill resulting in "a general improvement in conditions all round."[110] Mill extensions brought renewed concern in 1952, but the inspector reported that "at my request the mill building is being totally enclosed and a great improvement can already be seen in dust control." By the close of the year he noted that "the dust is now controlled by extractor fans and cyclones placed in the roof."[111] Nonetheless, a tour of inspection the following year by the Assistant State Mining Engineer found conditions much less pleasing:

> Mill operation, at the time of our visit, was very dusty being brought about by the installation of new plant and the removal of dust curtains. The mill staff advises that the dust will only be a temporary nuisance and should be well under control within a week or two.[112]

Dust control did not eventuate, however, and the 1954 inspection reported a "disgraceful" situation in the mill with "severe dust (or fiber) concentration polluting the entire plant." Nevertheless, the inspector had yet another solution, stating that "the most effective remedy would be to exhaust large volumes of air through the roof of the mill building."[113]

Thus, after more than 10 years of milling, dust levels had not been brought under control. What had seemed to the inspector in 1945 a "minor matter" was proving an intractable problem. It was to persist until the closure of the plant in 1966, despite some improvement after the new mill in Colonial Gorge began operation in 1957. What is significant, however, are the common strands in the attitudes of Mines Department officials: (1) that the problem was capable of a simple solution that they could identify; and (2) that conditions, though bad at the time, were about to improve. The N.S.W. industrial hygienist who took dust readings in the plant in 1966 just before its closure concluded that the task of dust control in such an installation was one on which a determined and skilled industrial hygienist would need to spend a good deal of time to accomplish. It should not, he concluded "have been

the responsibility of busy mines inspectors."[114] Even so, the fact remains that the Mines Department believed it had the time, experience, and expertise to handle the problem. It clearly did not.

Given that government controls did not operate effectively to police the conditions for occupational health at Wittenoom, why were such controls so necessary? Why were the company's own standards so inadequate? CSR has been found legally "negligent" in its management of asbestos dust in ABA's works, making asbestos-related disease among ABA's former workforce its responsibility. This "negligence" had several causes. Like any private sector enterprise, CSR was concerned with profitability and therefore with cost containment. Health costs were not, however, part of the company's calculations, being externalized in the public health system. Two additional factors further determined the company's behavior. The first was CSR's inexperience and apparent incompetence in managing the mining works, and the second was the continual weakness of its market position. Although the W.A. government was delighted in 1943 that such a large and prestigious Australian company as CSR should be interested in developing Wittenoom's asbestos, ABA did not live up to expectations. The parent company had virtually no mining experience; it was a sugar company, and its only other mining venture was at Zeehan in Tasmania, where small quantities of white asbestos were produced. CSR had become interested in asbestos fiber because it had entered the building materials field in 1938, with the manufacture of cane fiber insulation board, a by-product of its sugar milling.[115] To this mining inexperience was added the absence of any Australian precedent for blue asbestos mining or milling. The process would be one of trial and error and its success would depend on the expertise and innovativeness of management. ABA did not prove equal to the task.

Almost immediately on the company's establishment, in 1944, the Mines Department began commenting critically on its inexperience and labeling its management "amateurs."[116] One man who went to Wittenoom in 1946 to work as a fitter in the mill recalled that:

> CSR didn't know very much about crushing ore. They knew a lot about sugar cane and were trying to apply the same principles and it didn't work . . . I think they tried to do their best but they were forever experimenting.[117]

He worked for ABA until 1950, becoming a mill shift boss and finally draughtsman. In this last capacity he joined in the experimentation, writing to the National Safety Council for "guidance as to the rules and regulations" on the designing of safeguards for mill machinery.[118] This level of managerial expertise had more in common with the traditional *ad hoc* practices of outback mining than it did with the effective operation of a large corporate enterprise.

The inefficiency and ineptitude of these early years were repeated throughout the life of the mine, and stories illustrating the company's low standards are a common element in workers' recall of their time in Wittenoom—whether they worked there in the 1940s or the 1960s. The description of the work process in 1966 given by the industrial hygienist, Major, to accompany his dust readings confirms the picture of continuing inefficiency: unskilled modifications to machinery, spillages, leakages, and cut-away duct work. One metal tradesman, who worked from 1964–1966 as a leading hand underground, drew sharp contrasts between ABA and his later employer, Mount Isa Mines*:

> Mount Isa was different. When you went there you went to school for a week . . . It was all safety, you know; learning all about safety. At

*Located in the northwestern region of Queensland, the Mount Isa Mine is a major producer of lead, silver, copper, and zinc.

> Mount Isa they were very strict, you know. You had glasses and goggles and safety belts and they had blokes going around all the time there. If you didn't abide by the rules they'd suspend you. It wasn't as strict there [at Wittenoom] as what it was at Mount Isa.[119]

Casual inefficiency multiplied the dust hazard both inside the mill and in the surrounding environment, which was grossly polluted as the exhaust system continued to discharge to some degree into the atmosphere. Inadequate maintenance, the use of poorly adapted worn-out machinery, and constant improvisation and cost-saving were characteristic management practices, which became more noticeable in the 1960s as comparisons began to be drawn with the new Pilbara iron ore ventures.

Because Wittenoom was an isolated company town, where management had prior knowledge of official visits, ABA was able to disguise the extent of these health hazards, especially in the mill, by cleaning up especially for inspections.[120] This action undoubtedly saved the company from greater departmental ssure. Also important was ABA's weak market position. The industry was always marginal and ABA recorded a loss in all years 1943–1966 except those from 1956–1961.[121] By 1955 it had accumulated losses of $1.6 million, which had grown to $2.5 million by 1966.[122] Although these losses were absorbed in CSR's larger bookkeeping, the effect in W.A. was to remove some of the pressure from the company on the issue of dust control improvements. Few wanted to see the industry close altogether; more than 200 jobs were at stake and another mining ghost town would be created. Thus a weak market position helped to limit health improvements.

Organized labor complained of the "dust nuisance" at various times across the whole period of Wittenoom's operation. In 1946, when the first award for the asbestos mining industry was being negotiated, the Australian Workers' Union (AWU) argued for the inclusion of a dust allowance on two grounds:

> The question of silica would be involved here . . . But it is the discomfort caused by working in the dust that is why we are claiming it. Very often when men are working in the dust they have to wear respirators to keep the dust from clogging their mouth and nose, and if they have to wear something it is very uncomfortable.[123]

So, initially, although there was some suspicion of the threat of silicosis, the AWU perceived the dust essentially as discomfort that justified extra remuneration for workers. This claim was not granted, and the initial AWU award gazetted in 1947 went only so far as to declare that "no dry crushing plants shall be operated unless under such conditions as obviate dust as far as is reasonably practicable."[124]

The unions displayed a much greater awareness of the dangers of the dust by 1949. Like the health authorities, however, they stressed the silica content in the rock containing the asbestos fiber and the danger of silicosis in mine workers. Asbestos was seen as dangerous primarily in its capacity to accelerate silicosis.[125] The company in 1949, though claiming that it was in the process of eliminating the "dust nuisance," was still not prepared to concede its danger. The employer's advocate insisted that:

> The Company does not admit that that [Wittenoom's] dust is dangerous. Merely because there are clouds of dust, it does not mean that that dust is dangerous.[126]

The Award in 1949 was amended to include provision for a dust allowance, should a Board of Reference recommend it.[127]

A Board of Reference held in 1957 confirmed the poor working conditions in the mill:

> Conditions within the mill were extremely dusty and . . . mill workers were begrimed with dust . . . A thick pall of dust was present in the near vicinity of the mill.[128]

The Board ruled that "the asbestos mining industry is necessarily associated with some de-

gree of dust nuisance," but that at Wittenoom the nuisance was "excessive." Mill workers therefore received a 6d per hour dust allowance (to add to the 1/6 already being paid by the Company).[128]* Seven months later, because dust-reducing equipment had been installed, the allowance was reduced to 3d or 4d and restricted to workers in the bagging and crushing areas, and in the dust rooms. In 1959 a union attempt to have the allowance increased was rejected.[130]

The trade unions representing Wittenoom's workers had very limited success in reducing the levels of asbestos dust in the workplace. Above all, they lacked knowledge, and they remained unaware of the degree of danger. Though they certainly struggled to have the dust recognized as a problem, they did so in the context of arbitration in an endeavor to gain monetary compensation for their members exposed to dust. Union influence was weak in Wittenoom itself. Many workers were only nominal members of their unions, and the high labor turnover meant that the unions had difficulties keeping local branches staffed with office bearers. Few workers supported industrial confrontation; either they could not afford it, or they wanted to save money quickly to get out. Thus, Wittenoom sustained no strong rank and file union presence to challenge the power of management and to effect improvements in working conditions at the plant level.

A mesh of conditions determined the enormity of occupational ill health and death that resulted from Wittenoom's asbestos industry. A company with insignificant mining experience and deficient safeguards was locked into an uneconomic venture in a State with an inadequate regulatory framework for occupational health, combined with a fiercely developmentalist ideology. Especially powerless workers, hungry to survive in an isolated and harsh environment, compounded the situation. Within this complex of determinants, individual fate was cast.

*Predecimal coinage, based on the old British imperial system. At about the time of conversion to dollars and cents, 6 pence (6d) was roughly equivalent to 10 cents, and one shilling and 6 pence (1/6) was worth about 30 cents. In terms of currency exchange, one Australian dollar was then worth slightly more than its U.S. counterpart.

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58 Interview with former ABA staff member, English-born male, resident 1962–1963.
59 Interview with former electrician, Dutch-born male, resident 1950–1954.
60 Interview with Polish-born housewife, resident 1950–1953.
61 Interview with former mill worker/mine

worker, English-born male, resident 1953–1955.

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