SAFETY AND HEALTH IN THE NORTHERN CAPE BLUE ASBESTOS BELT

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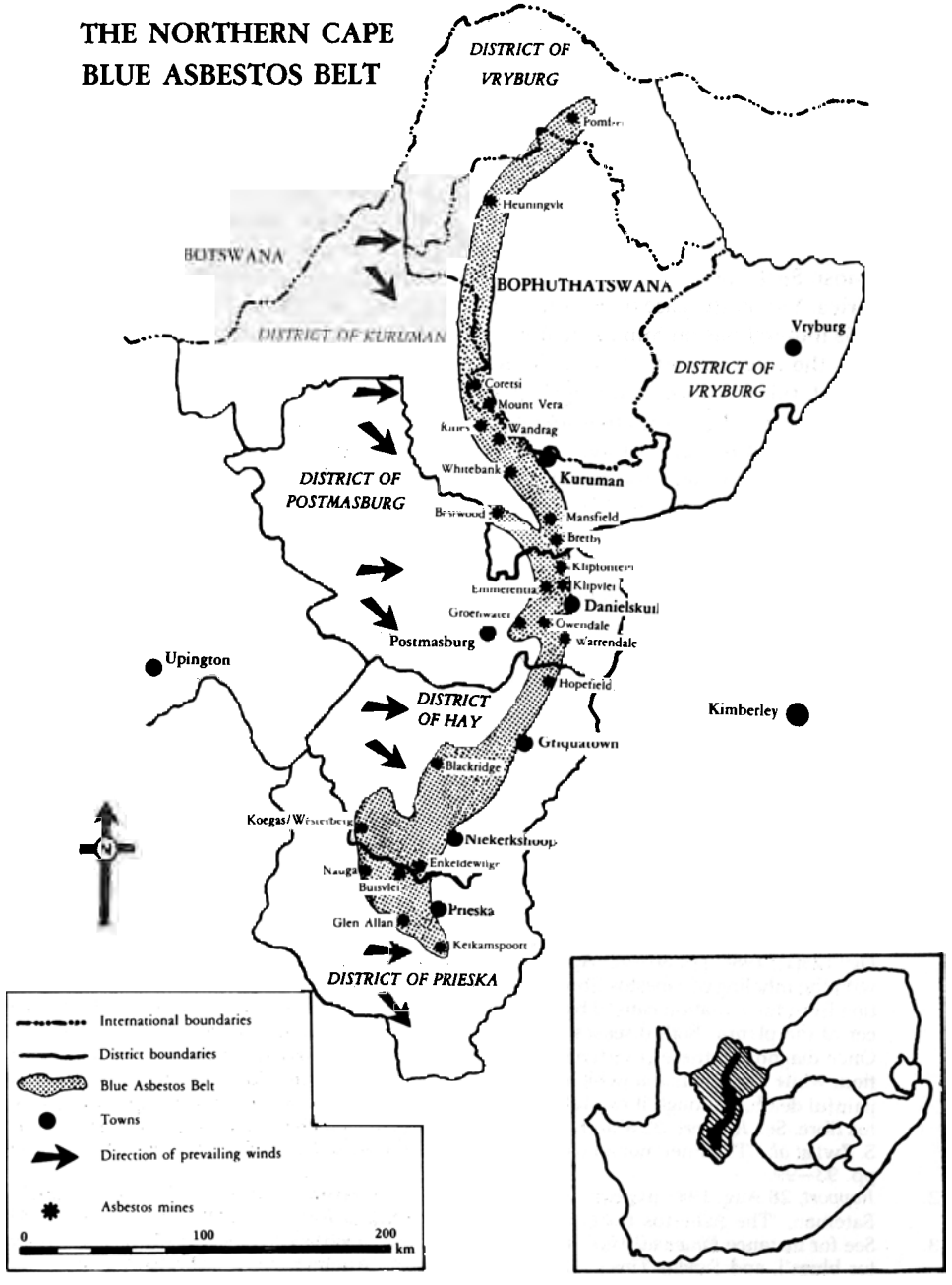
Introduction

South Africa's base mineral industry is coming increasingly under pressure because of unfavourable economic conditions abroad as well as foreign reaction to local politics. Domestic consumption of base minerals is still limited, with the result that those which are to a large extent dependent on export, such as iron ore, coal and asbestos, have suffered the most. Social issues as a reason for decline in the mining industry have been rare in South Africa. Yet, in the case of asbestos, reaction to the harmful effect which the exploitation of this mineral has on human health, has established itself firmly over the last decade as perhaps the most important obstacle facing the industry.

At first, this so-called 'campaign against asbestos' was attributed merely to a clash of business interests in the world market between South Africa and other asbestos-producing countries such as Canada. But evidence based on scientific, medical and environmental research gradually brought the health hazard to light. In the early 1980s a survey by the South African Medical Research Council found excessive mortality from lung-diseases, like asbestosis and mesothelioma, in the blue asbestos producing districts of South Africa which could be directly connected to exposure to asbestos.[1] Evidence of this nature triggered a world-wide emotional crusade against asbestos which was fanned by the media and a visiting American environmental consultant who questioned government mining and industrial safety regulations. This led inter alia to a ban on the use of certain varieties of asbestos in a number of Scandinavian countries, the Netherlands and the United Kingdom.[2]

Locally, production slumped from 379 000 tons in 1977 to 163 000 tons in 1985 (nearly the same as in 1960) having been drastically curtailed from 1982 onwards. For a long time it had been thought that the exceptional properties of asbestos were irreplaceable. But by 1987 users of asbestos, such as the producers of fibre-cement products, began to switch over to alternative products such as cellulose pulp to replace asbestos.[3]

1. J.L. Botha *et al.*, 'Excess Mortality from Stomach Cancer, Lung Cancer, and Asbestosis and/or Mesothelioma in Crocidolite Mining Districts in South Africa', *American Journal of Epidemiology* 123(1), 1986, pp. 30—40. Apart from lung cancer, two other major diseases are connected with the inhaling of asbestos fibres, i.e. *asbestosis,* which is a hardening of the lung tissue resulting from the irritation caused by microscopic asbestos fibres, and *mesothelioma,* which is cancer of the pleura. Both diseases effect the functioning of the lungs and eventually the heart. Once diagnosed, there is virtually no chance of recovery. Asbestosis leads to slow deterioration, while mesothelioma (which is specifically connected with blue asbestos) results in a fast, painful death, although it can take up to 40 years to contract after the first exposure to asbestos fibre. See *Rapport,* 22 March 1987 (report: 'Só breek vesels die menslike liggaam'). See also S. Zwi *et al.*, 'The Pneumoconioses', *S.A. Journal of Continuing Medical Education* 4, Aug. 1986, pp. 93—99.
2. *Rapport,* 28 Aug. 1983 (report: 'Aanval op asbes is ongegrond — Hart'); S.R. Benatar and E.D. Bateman, 'The Asbestos Hazard', *South African Medical Journal* 62(24), 4 Dec. 1982, p. 882.
3. See for instance *Financial Mail* (supplement: 'Mining: a survey'), 24 Oct. 1986 (article: 'Asbestos blues'), and *Sunday Times,* 31 May 1987 (report: 'Another nail in asbestos coffin').


THE NORTHERN CAPE
BLUE ASBESTOS BELT
DISTRICT OF VRYBURG
BOTSWANA
DISTRICT OF KURUMAN
BOPHUTHATSWANA
Vryburg
DISTRICT OF VRYBURG
Coretsi
Mount Vera
Wandrag
Whitebank
Kuruman
DISTRICT OF POSTMASBURG
Mansfield
Danielskuil
Postmasburg
Upington
Hopefield
DISTRICT OF HAY
Kimberley
Blackridge
Niekerkshoop
Enkeldewitje
Buisvlei
Prieska
Glen Allan
Keikamspoort
DISTRICT OF PRIESKA
International boundaries
District boundaries
Blue Asbestos Belt
Towns
Direction of prevailing winds
Asbestos mines
0
100
200
km

The asbestos industry regards the negative publicity it receives largely to be the result of ignorance. Hence it has aimed at educating the public about the uses and potential dangers of asbestos. In an effort to put the health risk into perspective, emphasis has been placed on the fact that it takes approximately 30 yaers after a person has first been exposed to asbestos under uncontrolled conditions for the diseases to be contracted. They also maintain that it was only in about 1950 that it was first realized that asbestos posed a major health hazard.[4]

This paper focusses on the mining conditions in the Northern Cape blue asbestos belt. An attempt is made to establish when the health danger first became known in the region and the precautions taken to combat this danger. It also examines whether it was in fact true that the detrimental social effects of the exploitation of asbestos were the result of ignorance and whether the asbestos industry and the government actually did something to combat it after the health hazard first became known. It poses the question why deaths caused by asbestos-related diseases increasingly occur, when in fact they should have decreased if the danger had actually been combated since 1950, as is generally asserted. The intention is not to judge whether the campaign against asbestos has been exaggerated or can be justified — but rather to establish which of the economic or the social advantages brought about by asbestos mining, outweighed each other in the eyes of the industry, the labour force and local inhabitants.

The Northern Cape Blue Asbestos Industry: A Backround Review 1893—1987

Blue asbestos or crocidolite is a substance found almost exclusively in the Northern Cape. Production from this area accounts for almost 100 per cent of world output. Its economic importance lies mainly in its higher tensile strength, lighter weight, higher elasticity and greater resistance to acids, alkalis and sea-water than other varieties, i.e. brown amosite and white chrysolite asbestos. Asbestos has more than 3 000 uses, such as in the manufacturing of breaklinings, packings, insulating material, heaters, and in asbestos-cement products. The Northern Cape blue asbestos belt stretches over a distance of some 450 kilometers, starting just south of Prieska on the Orange River and running up to the Botswana border which is the Molopo River (see map).[5]

The presence of crocidolite was first noticed by the German traveller Hinrich Lichtenstein in 1805 near the present-day Prieska, but he did not really know what it was. The Griqua, who established themselves in the area from 1801 onwards were also aware of this extraordinary substance, calling it *Doeksteen* (cloth-stone) because it resembled their cotton handkerchiefs. It was the naturalist-traveller William Burchell (1812) who first recognised crocidolite for what it is and called it asbestos. Most of the early missionaries and travellers like John Campbell (1813), John Philip (1820) and Robert Moffat (1821—) left descriptions of blue asbestos between the Orange and Kuruman Rivers. The name crocidolite was given in 1831 and means 'woolly stone'.[6]

Volkshandel, May 1986 (article: 'Die veldtog teen asbes'); *Rapport,* 12 Apr. 1987 (report: 'Asbes in perspektief').

J.J. le R. Cilliers and J.H. Genis, 'Crocidolite Asbestos in the Cape Province', in S.H. Haughton (ed.), *The Geology of some Ore Deposits in Southern Africa II* (Johannesburg, 1964), pp. 544—5.

6. *Ibid.*, pp. 543—4; W.J. Burchell, *Travels in the Interior of Southern Africa I* (London, 1953), pp. 233—4; J. Campbell, *Travels in South Africa, undertaken at the Request of the Missionary Society* (London, 1815), p. 261; J. Philip, *Researches in South Africa II* (London, 1828), pp. 97—8; R. Moffat, *Missionary Labours and Scenes in Southern Africa* (New York, 1846), pp. 294—5.

Exploitation of the Northern Cape blue asbestos began in the early 1880s in the district of Hay. Solomon Weingarten, a German Jew, arrived at Griquatown in 1879 taking up the position of clerk for the merchants Lilienfeld. He soon held prospecting options over many asbestos-bearing farms, started small-scale mining and began exporting to Germany. Weingarten is regarded by many as the father of the blue asbestos industry because he was the first who tried to introduce the product on the local and overseas markets. The well-known Sir David Harris of Kimberley mined asbestos between 1883 and 1884 south-west of Griquatown and also exported small quantities to Germany.[7] A market for blue asbestos did exist, but a lack of working capital was initially a problem. This was solved when the first large-scale venture, the Cape Asbestos Company Limited (registered in Britain) came into being in 1893 through the efforts of Francis Oats and Ludwig Breitmeyer, both directors of De Beers Consolidated Diamonds in Kimberley. Cape Asbestos commenced operations at Koegas and Prieska in the south and exported virtually their whole output to their own factories in Britain, Italy and France, and also to other consumers.[8]

From the outset blue asbestos mining was left in the hands of so-called 'free-lance tributors' who did the actual mining while the company only supplied tools and dynamite, and bought the tributors' output. Local farmers as well as Griqua and Tswana families were soon involved in asbestos mining as it provided relief to the depressed agricultural sector. The new industry was soon termed 'asbestos farming' rather than 'asbestos mining'. Production reached 1 345 tons in 1895 but the subsequent economic and political instability caused by rinderpest and the Langeberg Rebellion (1896—7), and the South African War (1899—1902) forced the industry to a standstill.[9]

Normal production was only resumed in 1905 and although there were labour and transport problems, the Cape Asbestos Co. was soon joined in the field by numerous private enterprises, smaller companies, as well as the African Salpetre Company (established 1895), which in 1927 became the Griqualand Exploration and Finance Company — today the larest producer of crocidolite asbestos in the world. From 1910 asbestos mining operations expanded northwards to the Danielskuil, Kuruman and even the Vryburg areas.[10] These smaller producers, however, could not compete with the Cape Asbestos Company in the limited world-market. Although the demand for asbestos increased in Britain, Japan and the USA as a result of World War I, the outbreak of war also signified the loss of the German and Austrian markets, while shipping space became practically unobtainable. In addition, the opening up of the rich Kuruman area threatened to flood the world market with an inferior product, as the smaller companies and individual producers had no uniform grading system. Production reached a peak in 1916 with 4 203 tons, but declined

7. Cape Archives Depot, Cape Town (CAD), Archives of the Department of Lands (LND) 1/360 (Folio L5017): Weingarten — Blenkins, 15 Jan. 1891; *S.A. Mining and Engineering Journal*, 23 May 1931; D. Harris, *Pioneer, Soldier and Politician* (London, 1931), pp. 80—90.
8. *Cape Asbestos: the Story of the Cape Asbestos Company Limited 1893—1953* (London, 1953), pp. 11—17.
9. *Ibid.*, pp. 19—29.
10. U.G.37-'16 Union of South Africa. Department of Mines and Industries, *Annual Report of the Government Mining Engineer for the Calendar Year ended 31st December, 1915* (Pretoria, 1916), pp. 76—82 ('Memorandum on the Asbestos Industry in the Cape Province', by G.E.B. Frood). See also 'A History of Asbestos Mining in South Africa: Mining in the Good Old Ways', *Coal, Gold and Base Minerals of Southern Africa* 24(4), April 1976, p. 81.

sharply thereafter.[11]

This decline was caused by a number of factors. To ensure that British imperial resources were not channelled to the enemy, the export of minerals was limited to the Allies. In 1918, therefore, the export of asbestos from the Union was prohibited, except in cases where permits were obtained. There was also prejudice against blue asbestos as it was believed that its high abrasive characteristics caused machines to wear down more quickly than if white chrysotile asbestos were used. It was also thought to be too friable for spinning and weaving. Finally, the end of the war and the subsequent post-war depression of the early 1920s caused lower asbestos prices, which made mining uneconomical and many Northern Cape producers were hard hit. The smaller concerns, particularly in the Kuruman district, were forced to close down and more than 4 000 workers were affected.[12]

Following a number of petitions, the government contributed to the improvement of transport facilities but did not favour a government-controlled grading system. It was left to the asbestos producers to solve their own problems. The formation of a Blue Asbestos Producers Association in Kuruman in 1921 on the initiative of J.P. Frylinck and W.H. Addison, contributed much to the standardization of sorting and grading and better cooperation between producers and also aimed at establishing a central selling organization. However, backing by large capital concerns, as had been the case with the Cape Asbestos Company (which did not partake in these negotiations to protect its established interests), was still required for the industry to flourish.[13]

This was only realised in 1927 when the Dominion Blue Asbestos Mines Limited, an offshoot of the powerful Turner and Newall conglomerate, took over the most payable propositions in the Kuruman district and also started to buy fibre from the independent producers. From 1925 the demand for blue asbestos had increased steadily and reached such a peak two years later that even the Cape Asbestos Company had to replenish its stock by buying from smaller producers. The new boom also led to the introduction of new mining methods in the asbestos belt. Sorting plants, and mills (for the treatment of short fibre) were erected, while the big companies started to hire their own miners to replace the tributors.[14]

Like most other mining sectors, blue asbestos mining was hard hit by the world-wide economic depression of the edarly 1930s. Dominion Blue closed down in 1932 which

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Central Government Archives Depot, Pretoria (CGAD), Archives of the Governor General (GG) 588, File 9/51/87: Telegram, Secretary of State — Governor General, 1 Aug. 1916; GG 588, File 9/51/88: Forman — Buxton, 24 Aug. 1916; GG 1927, File 62/1008: Greene — Buxton, 2 Feb. 1918; Archives of the Secretary of Mines and Industries (MNW) 331, File MM1696/16: Report on Asbestos Mining in Cape Province, 27 March 1916.

12. CGAD, GG 1927, File 62/979: Brown to Secretary of State for the Colonies, 29 Oct. 1917; GG 1927, File 62/983: Pigott — Under Secretary of State, 9 Jan. 1918; MNW 414, File MM1481/18: Deputy Controller of Imports and Exports — Under Secretary of Mines and Industries, 14 Feb. 1918.
13. CGAD, MNW 417, File MM2891/15: Frylinck to Minister, 24 Oct. 1917, and Deputy Inspector of Mines — Government Mining Engineer, 5 March 1918; MNW 586, File MM2798/21: Frylinck to Inspector of Mines, 1 Oct. 1921, and Inspector of Mines — Government Mining Engineer, 21 Oct. 1921.
14. CGAD, MNW 847, File MM2012/26: Inspector of Mines to Government Mining Engineer, 13 Aug. 1926; *S.A. Mining and Engineering Journal*, 17 May 1924 and 20 Dec. 1930. See also A. Hocking, *Kaias and Cocopans: the Story of Mining in South Africa's Northern Cape* (Johannesburg, 1983), pp. 67—8.

brought blue asbestos mining in the northern section to a halt. In the south Cape Asbestos had to cut back drastically on its production which left virtually all the smaller companies and private producers without an outlet for their production. This decline in the industry was further aggravated by an oversupply on the world-market of Russian chrysolite asbestos, which was produced much more cheaply, as well as a decrease in consumption. This resulted in a price drop of 30 per cent. An adverse exchange rate caused by South Africa remaining on the gold standard added to the problems.[15]

The economic recovery from 1936 onwards also saw Cape Asbestos switching to more mechanised mining, although a large number of manual labourers for cobbing and sorting was still retained throughout the asbestos belt. Cape Asbestos almost acquired a monopoly when, in 1937, it took over all Dominion Blue's assets. Numerous independent producers re-emerged in the late 1930s, but most of them sold their output to Cape Asbestos. The only other producer operating in the export market was the Griqualand Exploration and Finance Company (Gefco) which expanded its operations to the Kuruman district in 1939.[16]

World War II initially disrupted the asbestos industry but from 1942 production was increased when the Combined Allied War Materials Board asked for stepped-up shipments of amosite and crocidolite. Nearly 20 mines soon employed about 2 000 people. A world-wide market after the war led to large-scale expansion in the blue asbestos industry. In this connection, the development of uses for lower grades of fibre played a key role. By this time surface deposits of blue asbestos had been worked out and this signified the end of the independent producers and some small companies. High production costs of underground mining with its vertical shafts brought about a rationalization in the industry. Only the strong companies such as Cape Blue Mines (as the blue asbestos production arm of Cape Asbestos S.A. was known from 1948) and Gefco were able to adapt to the new requirements. They were joined in 1952 by a third producer, Kuruman Cape Blue Asbestos (KCB) which, together with a subsidiary, operated around Kuruman and Danielskuil. Gefco, however, soon became the market leader.[17]

After ESCOM power lines were extended to the Northern Cape in the 1960s, the last of the manual labourers, the hand cobbers, were replaced by mechanical milling. The blue asbestos industry reached a peak in 1977 when 379 000 tons of fibre were produced but production then declined to 163 000 tons in 1985 mainly because of a lower overseas demand coupled with the negative effects of the health campaign. Further rationalization in the industry occurred in 1981 when in quick succession transactions on controlling company level saw Cape Blue Mines and KCB disappear from the asbestos scene leaving Gefco as the only big producer. A further result of these take-overs was that all activities in the southern and central sections of the belt were stopped and mining became concentrated around Kuruman and at Pomfret in the Vryburg district. By 1987 only one Gefco-owned mine was still in production in an effort to keep stock levels down.[18]

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15. CGAD, Archives of the Secretary of Native Affairs (NTS) 2043, File 54/280: Closing down of asbestos mines 1922—36; *S.A. Mining and Engineering Journal,* 16 May, 11 Jul. and 24 Oct. 1931, and 16 Jan. and 27 Feb. 1932.
16. 'A History of Asbestos Mining', pp. 81 and 85; Hocking, *Kaias and Cocopans,* pp. 79—81.
17. CGAD, NTS 7684, File 212/332: Jannasch — Secretary of Labour, 21 Oct. 1947; *S.A. Mining and Engineering Journal,* 10 May 1952; 'A History of Asbestos Mining', pp. 85—7.
18. Hocking, *Kaias and Cocopans,* pp. 118—21, 127 and 161—2. See also *Beeld,* 8 Oct. 1984 (report: 'Gefco gaan minder asbes produseer') and 8 Aug. 1986 (report: 'Gefco kry dit hotagter').

Safety and Health During the Period of Non-Awareness 1893—1942

Occupational hazards: working and living conditions at the mines

The first 50 years of the blue asbestos industry are characterised by ignorance about the potential health hazard posed by uncontrolled mining as well as the almost entire absence of government involvement in the industry. From the start asbestos was produced under extremely unhealty conditions, especially as far as the Griqua and Black so-called 'free-lance tributors' were concerned. In contrast with other South African mining sectors (where the individual male labourer was predominantly engaged) the production unit on the blue asbestos mines consisted of the whole family. The men did the drilling, blasting and extracting operations while the women and children were responsible for the cobbing (i.e. removing the rock from the fibre with small hammers), sorting, grading and bagging. All this manual labour was done in the open air and in close contact with the asbestos. Operations were scattered and not subjected to any governmental control with the result that pollution of the environment inevitably occurred. The tributors were attracted to the industry because family disruption was limited, wages were relatively good, livestock was allowed on the mine properties, and they could to a large extent work independently. The only disease which struck during the early years was scurvy which was caused by a lack of fresh fruit and vegetables resulting from the isolation of the asbestos mines.[19]

In 1915 a deputy inspector of mines, visiting and reporting on the then almost unknown blue asbestos belt, was struck by the extent to which the industry was in the hands of and dependent on Black manual labour for the recovery of asbestos. There were remarkably few accidents and deaths as a result of disease. Workers' grievances were mainly connected to wages and exploitation by mine shops. In 1916 a police investigation (following complaints by farmers of stock-lifting) mentioned that in case of an accident, the mining company would provide free medical aid and rations, though in the case of illness the Blacks were responsible for doctors' fees.[20]

A government survey of 1917—8 throws some light on the nature of working conditions in the belt. Practically the whole production process was performed in dusty conditions: unventilated adits, drilling by hand with chisel and hammer, and opencast blasting. Limited mechanization was involved in the further treatment of the fibre. After cobbing it was put through either a cylindrical trommel or horizontal sieve (both constructed of wire netting) where, by shaking or turning, the waste was removed from the fibre — a similarly dusty process.[21] In addition, the tributors usually lived in the immediate surroundings of

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19. G.80-'99 Cape of Good Hope. Department of Agriculture, *Report of the Inspector of Mines on the Mining and Production of Coal, Copper, Asbestos and Crocidolite* (Cape Town, 1899), pp. 18—20. See also G.19-1909 Cape of Good Hope. Department of Native Affairs, *Blue-book on Native Affairs, 1908* (Cape Town, 1909), p. 1.
20. CGAD, MNW 331, File MM1696/16: Report on asbestos mining in Cape Province by J.E.B. Frood, 27 March 1916; NTS 2043, File 55/280: Glisson — Magistrate, 10 Aug. 1916; U.G.37-'16 Union of South Africa, *Annual Report of the Government Mining Engineer ... 1915* (Pretoria, 1916), p. 78.
21. A.L. Hall, *Asbestos in the Union of South Africa* (Geological Survey memoir No. 12, Pretoria, 1918), pp. 41, 47, 53, 58, 62—3 and 69. This publication contained photographs of early asbestos mining conditions. For another contemporary report on mining in the primitive way, see *Cape Times*, 13 Feb. 1926 (report: 'The Blue Asbestos of the Cape'). The reporter inter alia states: 'Presently a series of explosions issues from behind one of these heaps, accompanied by clouds of dust, proof that work is going on'.

Above:
Two of the freelance tributors cobbing asbestos, i.e. removing the fibre from the rock with small hammers, at Koegas, c.1917.
Below:
After the Asbestos fibre had been cobbed, it was put through a cylindrical trommel, like this one at Koegas, c.1917, which was then rotated to remove the waste from the fibre.
[Source: A L Hall, *Asbestos in the Union of South Africa* (Geological Survey memoir No. 12, Pretoria, 1918.]

the operations. There was even a case where female workers did the cobbing while their babies lay pillowed on asbestos dust nearby.[22] Whites had the advantage of being mostly employed in supervising capacities.

Mining companies and individual producers did nothing in the early years to improve existing mining and living conditions as they were accepted as being standard for the whole industry. The system in operation was viewed as the only way in which the blue asbestos industry could be run profitably. When in 1922—3 the government made the Location Act applicable to the districts of Hay and Prieska — whereby licences for private locations had to be obtained and ten shillings for every adult male had to be paid — producers strongly objected and some even ceased operations.[23] By 1935 the Cape Asbestos Company refused to pay their fees because they managed, on the grounds of a technicality in the Act — to have their Black workers classed as servants or labour tenants rather than miners, and were therefore exempted from the workings of this particular Act. The government had to concede, and they were probably influenced by the fact that asbestos mining provided a living to thousands of Blacks in the difficult post-depression years. These people would otherwise have looked to the government for support. Work in the asbestos belt was even considered as a solution to the socalled 'poor white' problem. It seems that during these years safety and health matters had to take a back seat to bread and butter issues.[24]

The first systematic governmental inspection was conducted in 1937 when an assistant health officer, the director of native labour, the inspector of mines and the mining commissioner visited the properties of the Cape Asbestos Company around Koegas. Health was apparently good, although cases of tuberculosis and venereal disease were noted. The company still did not have its own medical officer, with only first aid equipment under the auspices of White supervisors being provided while the district surgeon from Griquatown visited the mines once a month. Only one or two of the supervisors possessed first aid certificates. Serious cases were transferred to the hospitals at Upington and De Aar. The company attempted to establish a 'sick benefit fund' to which each worker had to contribute a shilling. However, the workers soon objected and it was abandoned.[25]

As a result of this inspection the company was *asked* to provide a small first aid station which should contain a few beds, an operating room, sterilizer, instruments and a dispensary. It was also arranged that the district surgeon should visit Koegas twice a month. Of importance here, however, was the application of Section 40 of Act 15 of 1911 to the asbestos mines whereby monthly returns of labourers and health had to be submitted to the authorities. The Cape Asbestos Company did not favour government interference and control in the asbestos industry, an industry in which they had had a free hand for over 40 years. They applied several times for exemption from these regulations as this practice was considered impractical owing to the widely scattered operations and the 'essentially

22. Hocking, *Kaias and Cocopans*, p. 69.
23. CGAD, NTS 2036, File 39/280: Secretary of Mines and Industries — Secretary of Native Affairs, 10 Jul. 1924, and Orpen — De Villiers, 5 Feb. 1926; *S.A. Mining and Engineering Journal*, 12 May 1923 and 26 Jan. 1924.
24. CGAD, MNW 995, File MM2242/29: Palmer to Fourie, 30 Aug. 1929, and Secretary of Mines and Industries — Palmer, 10 Sept. 1929; NTS 2043, File 54/280: Marquard — Secretary of Mines and Industries, 6 Aug. 1932; NTS 2036, File 39/280: Commissioner of Inland Revenue — Secretary of Native Affairs, 22 Aug. and 10 Oct. 1935.
25. CGAD, NTS 10011, File 188/408F(1): Assistant Health Officer — Secretary of Public Health, 13 May 1937.

rural conditions' under which the labourers worked, and also because there was no hospital. This the company was reluctant to erect because the conditions did not favour such an undertaking. Instead, they established a small 'clearing station' at Prieska (where a large amount of fibre was processed) in 1938 but it consisted only of a small room with three beds and a kitchen. At that stage the company had more than 1 000 labourers in its service. Against this background the company's reports usually read: 'Labour conditions are satisfactory and there were no complaints', and 'The health position is also very satisfactory'.[26]

There was thus no change in actual health and working conditions. It came, therefore, as no surprise when during an inspection in 1941 a visiting senior government health officer found health conditions unsatisfactory and for the first time recorded that mortality 'especially from chest diseases' was very high. Living conditions were appalling: workers had to provide their own housing which was constructed from sacking, wood and corrugated iron, no sanitary facilities existed and only the widely scattered operations saved them from gastro-intestinal diseases. Unbalanced diets were common because food such as fresh vegetables was not supplied. Apart from the sick-bay at Prieska and first-aid kits at the mines, there had been no improvement in health facilities. New employees did not have to undergo a medical examination. The necessity of a hospital at Koegas and provision of rations by the company were recommended. The manager refused, saying that the workers preferred the system, that it would have been hard to change a system which had been in use for 50 years, and that a hospital would be too expensive. For more than half a century the Cape Asbestos Company had indeed done little to improve the welfare of its workers.[27]

Conditions in the central and northern parts of the asbestos belt (where the first inspection took place in 1941) were much the same, except that the workers around Kuruman had the advantage of the nearby Batlaros mission hospital as well as the Kuruman provincial hospital. Health in these parts was also reported to be generally good. X-ray fcilities, however, were not available throughout the belt.[28] The dust problem in asbestos mining and milling was well-known by 1940 — not only as a contaminating element in the fibre but also as a potential health hazard. Even the manager of the Cape Asbestos Company realized this, stating that underground shovelling had been reduced to a minimum because it diminished 'the dust problem, which is only kept from being seriously troublesome in overhead stoping by the perfect natural ventilation conditions in all parts of the [Westerberg] mine.'[29]

As far as it could be ascertained it was in the central part of the belt that an asbestos-related disease was first noticed. In July 1942 Dr J. Smyth, additional district surgeon at Danielskuil reported: 'A few cases of asbestosis from the neighbouring asbestos mines were seen'.[30] It seems thus that the detrimental effects of asbestos on the human health was known for nearly a decade earlier than is now presumed.

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26. *Ibid.:* Assistant health officer — Secretary of Public Health, 13 May 1937; Director of Native Labour — Secretary, Cape Asbestos, 28 May 1937, and Inspector of Native Labourers — Director of Native Labour, 15 Jan. 1938, 27 Apr. 1939 and 30 Dec. 1940.
27. *Ibid.:* Senior Assistant Health Officer — Secretary of Public Health, 11 Jul. 1941, and Inspector of Native Labourers — Director of Native Labour, 5 Nov. 1942.
28. *Ibid.*: Assistant Native Commissioner — Native Commissioner, and Senior Assistant Health Officer — Secretary of Public Health, 11 Jul. 1941.
29. W.E. Sinclair, 'Development of the Crocidolite Industry in the Cape Province', *S.A. Mining and Engineering Journal,* 29 March 1941, p. 127.
30. CGAD, Archives of the Secretary of Health (GES) 225, File 253/1A: Annual health report for 1941—2 by Dr J. Smyth, 25 Jul. 1942.

Environmental exposure: the Northern Cape hinterland

Although the harmful health effects of asbestos were at first not known, the dustiness of asbestos processing was a nuisance from an early stage, especially in urban areas. Large-scale cobbing, grading and milling operations were performed in towns such as Prieska and Kuruman. As early as 1921 the town council of Kuruman received complaints in connection with Gillanders and Campbell's asbestos mill and shed which was situated in the centre of Kuruman. An inspection was conducted but the council found that only one person was affected and took no action. Complaints continued and by 1923 Gillanders and Campbell moved their works out of the centre of town. The dust and noise from the mill and shed, however, remained a source of irritation — particularly to dairy owners whose milk was polluted. A second inspection by the local sanitary commission found that Gillanders and Campbell had done everything to stop dust from escaping while 'the cylindrical sieves and other contrivances were a tremendous improvement upon the machinery previously in use.' Thus the dairy owners' complaints were dismissed.[31]

After 1910 asbestos mining provided widespread relief to the depressed agricultural sector — the economic basis of the Northern Cape agrarian society. Long droughts and multiple animal diseases harassed the farmers and forced many from their farms and out of the reserves. The broadening of the area's economic base through mining therefore provided employment to these people. The Northern Cape towns were characterised by restricted commercial sectors and the poor communities — a result of the earlier crisis in the agricultural sector — were not particularly attractive to prospective entrepeneurs — especially during the post-war depression of the early 1920s. Against this background the economic advantages of the new blue asbestos industry outweighed any possible negative social effects. Thus local authorities were not in favour of excessively drastic steps against the asbestos mining companies which could scare them off. The only measures taken were that land for asbestos works was eventually allotted on the outskirts of the towns and that the companies had to undertake to make their buildings dustproof.[32]

It seems that dust was experienced as the only detrimental by-product of blue asbestos mining — not so much in connection with human health but rather with regard to environmental pollution. Apart from the towns, the various Tswana reserves and farms on which asbestos was mined, had the same problem. Many farmers bought asbestos fibre from Blacks and cases are known where children had the job of weighing the asbestos. Children also played on the asbestos fibre after the bags were emptied in a shed or store. Asbestos was such a useful material that it was (in ignorance) widely used by people outside the industry. There are, for instance, many examples of asbestos waste being used as road gravel around Kuruman in the 1930s because it gave a compact top layer, but vehicles passing over it stirred up the fibre. It was similarly used as a paving material in towns and as a substance in brickmaking and plaster. The Prieska golf course was originally laid out with asbestos waste. Children at Prieska and Kuruman had an unrestricted playground on old mine dumps.[33]

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31 CAD, Archives of the Town Council of Kuruman (3/KMN), Minute Book (unarranged): Minutes of meetings, 5 Oct. 1921, 11 Jan. 1922, 7 Dec. 1922, 7 Feb. 1923, 4 Apr. 1923 and 14 May 1923.

32. *Ibid.:* Minutes of meetings, 17 March 1926, 5 May 1926, 7 Sept. 1927 and 23 May 1928.

33. See for instance P. Metelerkamp, 'Asbes: Vesel van die Dood', *Huisgenoot* 3339, 6 Apr. 1984, pp. 20–22; *The Star,* 31 Oct. 1983 (report: 'Doctor warns of Cape's killer towns'); *Rapport,* 22 March 1987 (report: '2 000 afvalhope ...').

The wind played an important role in spreading asbestos by blowing fibre from the mines, treatment plants and the uncovered mine dumps. The prevailing winds in the Northern Cape are predominantly from the west and north-west, thus causing the windy months of August and September to be the worst for the spreading of fibre. Towns like Prieska, Niekerkshoop, Danielskuil and Kuruman are situated directly in the path of these prevailing winds (see map). Sometimes a cloud of grey dust embraced a town like Prieska and was described as 'sifting down like morning mist'. It penetrated everywhere — even food in hotels was contaminated.[34] The hardships of a Gefco mine manager's wife, as described in a poem, could readily be applicable to the average miner's family:

> '... Meek, speechless, clad in khaki shorts and shirt,
> She took her place in the asbestos dirt.'
>
> '... While the Wan Wife, conditioned, eats her crusts
> And cuts her cloth of blue asbestos dust.'[35]

During the period of non-awareness of the health dangers, asbestos — with both its advantages and drawbacks — indeed became part of everyday life in the Northern Cape. Because it meant so much economically to the workers, towns and local business it was tolerated while the potential health danger was ignored or overlooked.

Combating the Hazards of Asbestos, 1942—1987

Resistance, state intervention and improvement

Although it appears that the danger of asbestos to health was known in the asbestos belt as early as 1942, nothing was done during the war years to improve safety and health conditions. This was made subordinate to strategic considerations with asbestos production being increased. The annual inspections of the Cape Asbestos Company's properties indicated time and again the need for hospital facilities, better housing requirements, higher wages and the provision of rations by the company. In spite of promises of an own vegetable garden, single quarters, enlargement of the Prieska hospital and higher wages nothing was done until 1944 when a vegetable garden was established and boreholes were sunk. The company used the shortage of building material during the war years as an excuse. Regarding medical facilities at the mines, the district surgeons of Hay and Prieska visited the mines every fortnight while the company supplied first aid books to the overseers. At Klipvlei mine in the central part of the belt Cape Asbestos erected a stone and iron shed for the cobbers, but they refused to occupy it before chimneys were added.[36] But instead of these measures combating the health hazard it was found that lung diseases such as 'labour pneumonia and influenzal bronchio-pneumonia' were on the increase.[37]

In 1944 the manager of Cape Asbestos recommended that their mines should close down rather than spend thousands of pounds on improving living conditions such as

34. *Ibid.*
35. Hocking, *Kaias and Cocopans*, pp. 81—2.
36. CGAD, NTS 10011, File 188/408F(1): Inspector of Native Labourers — Director of Native Labour, 5 Nov. 1942, 14 Jan. 1943 and 22 May 1944, and Falck — Director of Native Labour 28 Jul. 1944.
37. CGAD, GES 225, File 253/1A: Annual health report 1942—3 by Dr J. Smyth, 30 Jul. 1943.

health services, better housing and the supply of food. He even stated that the economic life of the Koegas-Westerberg mine was nearly at an end (it was in fact worked until 1978). Complaints about the unsatisfactory conditions at the mines had no effect and this gave rise to open resistance, such as hampering of the police in the execution of their duties. Eventually a non-violent strike by 350 Black workers took place at Koegas-Westerberg in January 1945. Their calls for higher wages were dismissed. But with regard to living conditions the company undertook to supply sacking, a better water supply and firewood. The summary dismissal of fourteen strikers forced the remainder to return to work — which was scarce during the war years. Safety and health matters were not even mentioned but were obviously so inadequate that even a Black Methodist minister from as far as Upington pleaded for the protection of workers involved in dangerous work, as well as for compensation in cases of accidents.[38] Apparently no steps were taken in compliance with the provisions of the Workman's Compensation Act (no. 30 of 1941). Compensation for accidents was available although the procedures were complicated and time-consuming. Concerning health dangers, asbestos mines were, however, neither scheduled nor was asbestosis included as an occupational disease.[39] The Silicosis Act (no. 47 of 1946) made provision for the registration of non-scheduled mines where dust levels endangered workers' health. The government mining engineer in co-operation with the newly established Medical Silicosis Bureau started a survey of these mines from 1947. Although silicosis 'means any form of pneumoconiosis due to the inhalation of mineral dust', only silicosis and tuberculosis were made compensatable diseases.[40]

By 1947 a shortage of labour was being experienced on the asbestos mines, but the absence of 'social amenities' resulted in miners from other areas not being interested in the blue asbestos mines. Even the payment of cost-of-living allowances (which were made compulsory in 1945) were only introduced in 1947. It seems that although the government intervened quite often and pressed for better conditions, no enforcement of laws and regulations took place. Government officials were thus not prepared to compel the mining companies to pay arrear allowances.[41] Because the mining companies did not supply rations, scurvy among workers in the central and northern parts increased (eight workers died), in contrast to the bordering manganese mines where rations were given and no scurvy cases were recorded. To combat the disease, the asbestos companies only supplied lemon juice free. Sometimes mine managers were aware of the urgent need to improve working and living conditions, but their boards of directors were unwilling.[42]

It was only in 1947 that the government eventually proclaimed special regulations whereby the asbestos companies were compelled to improve the living and working condi-

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38. CGAD, NTS 2043, File 55/280: District Commandant — Deputy Commissioner, 15 Sept. 1944, Inspector of Native Labourers — Director of Native Labour, 8 Nov. 1944, and Tsangela — Resident Native Commissioner, 8 Oct. 1945; NTS 7684, File 212/332: Deputy Commissioner — Commissioner, 21 Feb. 1945, and Inspector of Native Labourers — Director of Native Labour, 26 Apr. 1945.
39. *Die Unie-wette 1910—1947*, 8 (Pretoria, 1951), pp. 1110—1232. See also Zwi *et al.*, 'The Pneumoconioses', pp. 98—9.
40. U.G.64-1949 Union of South Africa, *Report on the Work of the Medical Silicosis Bureau for the Years ...* 1944—8 (Pretoria, 1950), p. 1; *Wette van die Unie van Suid-Afrika 1946* (Cape Town, 1947), pp. 555—733.
41. CGAD, NTS 7684, File 212/332: Jannasch — Secretary of Labour, 21 Oct. 1947.
42. CGAD, NTS 10011, File 188/408F(2): Ackerman — Native Commissioner, 16 Jan. 1946, and Additional Native Commissioner — Chief Native Commissioner, 28 Apr. 1947; NTS 2036, File 39/280: Native Commissioner — Secretary of Native Affairs, 18 Jan. 1946.

tions of their 'non-white' workers.[43] Attempts to improve conditions were thereafter made but there was little progress in safety and health matters, and at some mines was totally absent. At Koegas a room for a clinic was made available, while the district surgeon of Prieska began visiting the mines weekly. However, no sanitary and refuse removal facilities existed at any mine throughout the belt. An inspection by a departmental health officer in 1947 revealed that health matters were still unchanged. The large majority of the workers were underfed and underweight, no maternity care was provided, no X-rays were taken, no initial medical examinations took place, and not a single company employed an officer to look after the workers' health and welfare. Above all, he stated: 'All these forms of mining [by hand or by machine] are very dusty occupations. How far this affects the health of the workers concerned ... is not known.'' He also indicated that considerable research work was necessary. He further recommended that each mine should be treated on merit and should be inspected individually by a qualified governmental health inspector.[44]

The visit of a British director of the Cape Asbestos Company (the market leader) who realized the appalling conditions and supported improvements gave further impetus to the provision of better housing, water and sanitary facilities. Cape Asbestos appointed a Prieska doctor on a part-time basis to visit Koegas twice a week, established dispensaries at both Koegas and Westerberg and appointed qualified Black first aid orderlies at every mine. At some mines, like those of Union Asbestos at Hopefield, conditions even began to satisfy government inspectors.[45]

Although living and general health conditions improved, attention was still not given to working conditions where were so closely related to asbestosis. The survey of the Medical Silicosis Bureau in fact confirmed the ill-effects of asbestos dust on the workers' health when officials visited the Northern Cape in 1949—50. This resulted in the importation of better mining and milling equipment. Already in 1950 an inspection at Heuningvlei in the north found a new patent mill which was not so 'dusty'. Yet at other mines such as Pomfret an inspector suggested that the 'mining inspector should be asked to advise about the amount of dust generated in the mine and at the ore crushing works in order to comply with the regulations on the subject as well as on general safety of labourers'. Following the government mining engineer's survey of dust levels, exhaust shutes from mills were improved and dust masks put into use.[46] It could not be ascertained if legislation regulating dust levels were in force on the blue asbestos mines; fibre levels in the atmosphere were estimated at about 120 fibres per millilitre.[47]

The fact that asbestos dust produced asbestosis was well established by 1950 but the government seemed reluctant to implement control measures. Chest disease, a vague definition of the obstruction of the cardio-respiratory functions, was recognised under the Sili-

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CGAD, NTS 2036, File 39/280: Secretary of Native Affairs — Director of Native Labour, 26 Apr. 1947.

44. CGAD, NTS 2043, File 55/280: Inspection of asbestos and manganese mines by A.L. Ferguson, deputy chief health officer, 21 Jul. 1947.

45. CGAD, NTS 7684, File 212/332: General Manager — Director of Native Labour, 26 May 1948, and Minutes of meeting in the office of the Director of Native Labour, 23 Apr. 1948; NTS 2043, File 55/280: Chief Native Commissioner — Director of Native Labour, 29 Jan. 1948, and Wronsky — Director of Native Labour, 28 March 1949.
CGAD, NTS 10011, File 188/408F: Survey of asbestos mines in the Vryburg district by labour officer, 6 Aug. 1950, and Deputy Chief Health Inspector — Secretary for Health, 29 Apr. 1953.

47. See M.R. Becklake, 'Control of asbestos-related disease in the RSA', *South African Medical Journal* 71(4), 21 Feb. 1987, p. 208.

cosis Amendment Act of 1952 as a compensatable disease. The health hazard was first used by the government as an argument in 1954 when the government mining engineer wanted to prevent Cape Blue Mines from using child labour (children of 13—16 years who were employed as sorters) on their Pomfret mine. The Mines and Works Act of 1911 made no provision to prohibit the employment of children in surface work, except where their health was endangered. The government mining engineer thus reported: 'Dust surveys indicate that persons doing work of hand-cobbing, sorting fibre, etc., are exposed to harmful concentrations of dust and I suggest, therefore, that you refuse the application in regard to youths under the age of sixteen years.' This led to the dismissal of all workers under the age of sixteen and the inclusion of a regulation in the new Mines and Works Act (No. 27 of 1956).[48]

It was only in 1954 that the government took steps in connection with the health danger of asbestos when the first blue asbestos mines were declared registered mines in accordance with Section 29 of the Silicosis Act (No. 47 of 1946). In terms of this section first examinations (before a worker could be signed on) as well as regular periodical examinations were made compulsory while affected miners could apply for benefits if they had been exposed to mine dust for at least eight years. Between 1954 and 1955 31 mines, representing 10 companies, were registered in this way.[49]

The Silicosis Act which made provision only for silicosis and tuberculosis as occupational diseases soon proved to be outdated. Following a commission of inquiry into this Act, the Pneumoconiosis Act (No. 57 of 1956) was passed with effect from 1 August 1956, whereby asbestos mines were now termed 'controlled mines'. Regulations under this Act made clinical and radiographical examinations part of the first examination. With regard to Whites and Coloureds annual clinical examinations and radiographical examinations every six months were applicable. For the first time radiographical examinations became part of Blacks' first examinations. Periodical radiographical examinations every three months were also introduced for the asbestos industry (in contrast with once every seven months applicable to other mining sectors). At the same time the new Mines and Works Act of 1956 made it possible for the government mining engineer to lay down regulations with regard to safety and health (such as acceptable dust levels).[50]

When radiographical examinations were made compulsory, the asbestos companies had to provide X-ray facilities — either at their own mine hospitals or by means of arrangements with general hospitals. At the same time the Department of Mines established subbureaus of the new Pneumoconiosis Bureau at various centres in South Africa. The Northern Cape, however, did not get one; a mobile unit consisting of medical and X-ray facilities was allotted to the Vryburg-Kuruman-Prieska asbestos belt to serve the estimated 380 Whites and Coloureds, and the 4 320 Blacks in the asbestos industry.[51]

With the registration of the asbestos mines, asbestosis was added to the Pneumoco-

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48. CGAD, NTS 10011, File 188/408F: Government Mining Engineer — Director of Native Labour, 30 Jan. 1954, and Director of Native Labour — Chief Native Commissioner, 4 Feb. 1954; U.G.19-1955 Union of South Africa, *Report of the Medical Silicosis Bureau for the Two years ...* 1951/2—1952/3 (Pretoria, 1955), p. 1.
49. *Government Gazette of the Union of South Africa,* 19 March 1954 (government notice 548), 16 Jul. 1954 (government notice 1455), and 27 May 1955 (government notice 1083).
50. *Wette van die Unie van Suid-Afrika 1956, II* (Parow, 1956), pp. 1369—1511; *Extraordinary Government Gazette of the Union of South Africa,* 27 Sept. 1957 (government notice 1519).
51. U.G.41-1959 Union of South Africa, *Report of the Pneumoconiosis Bureau for the Period 1 August 1956 to 31 March 1958* (Pretoria, 1959), pp. 4 and 8.

niosis Bureau's certifiable diseases but because of the definition in the Act it was, for statistical purposes, still included under pneumoconiosis which was defined as '... a disease of the cardiorespiratory organs which has been caused by exposure to dust ...''. Cases of asbestosis which were referred to the bureau increased so dramatically that it considerably reduced the previous average time duration of 23 years, which it took to contract pneumoconiosis. The average time-span for the development of asbestosis was calculated at only eight years. The director stated: 'Exposure to asbestos dust in industry is more wide-spread than is generally recognised and this factor, in itself, has introduced a complication in Bureau certifications.'' He suggested that asbestosis should be treated and studied as a separate entity. This was, however, only done in 1966 in terms of the Pneumoconiosis Compensation Act (No. 64 of 1962).[52] Still more alarming statistics were revealed when, by 1960, a great increase in cases of pneumoconiosis in Coloureds was noticed. Work done in the Northern Cape by the Pneumoconiosis Research Unit of the Council for Scientific and Industrial Research brought to light many cases of asbestosis in workers who were formerly employed in the asbestos mines but never applied for compensation.[53] This suggested that workers were uninformed of the health danger and of possible compensation.

Although the risks of asbestos mining were limited because of new legislation and improved mining conditions, such as better ventilation in the mines, the use of drills and jackhammers with internal water supply and the installation of dust filters, surface plants like the mills and bagging tables sometimes 'had so much dust coming out that you could'nt see the operator.' During the early 1960s at least two strikes with health related grievances occurred in the blue asbestos belt. In terms of the Mines and Works Act of 1956 the limitation of 48 hours work per seven days in an asbestos mine was also applied to surface work. In 1962 the dusty bagging tables were replaced by screw baggers.[54]

Asbestos exposure and mesothelioma

In the meantime research into asbestos brought a further health hazard — apart from asbestosis — to light. In 1954 a 50 year old woman, who was born in the asbestos belt, had been employed in an asbestos warehouse in Kimberley and had visited the belt later with her husband (a mine owner), was admitted to the West End Hospital in Kimberley for treatment of a chest complaint. Dr C.A. Sleggs found mesothelial cells and a thoracoscopy at the Pneumoconiosis Research Unit in Johannesburg confirmed her condition — mesothelioma (cancer of the pleura). She died a little more than two years later. A second case involving a Black mine worker who was employed in the Rand gold mines for 36 years but was born near Kuruman was recorded in 1955. He died less than a year later and mesothelioma was found during the autopsy. Sleggs examined a further 14 cases with pleural thickening from the Northern Cape during 1956—8 and the increasing incidence of mesothelioma led him to conduct a survey in collaboration with Dr J.C. Wagner of the Pneumoconiosis Research Unit and Dr P. Marchand of the Department of Thoracic Surgery at the

52. U.G.60-1960 Union of South Africa, *Report of the Pneumoconiosis Bureau for the Period 1 April 1959 to 31 March 1960* (Pretoria, 1960), pp. 8—10; *Extraordinary Government Gazette of the Republic of South Africa*, 25 Nov. 1966 (government notice R1874).
53. R.P.18-1961 Republic of South Africa, *Report of the Pneumoconiosis Bureau for the Period 1 April 1960 to 31 March 1961* (Pretoria, 1961), pp. 14 and 18.
54. Hocking, *Kaias and Cocopans*, pp. 127—8; *Government Gazette of the Republic of South Africa*, 29 Jun. 1962 (government notice 988).

University of the Witwatersrand. Sleggs suspected that asbestos might be involved because fibre was found in one case and ten cases were referred from the asbestos belt for alleged tuberculosis.[55]

The results of this survey proved to be confusing because not a single person actually worked on the asbestos mines but had been employed in diverse occupations. The group included servants, housewives, farmers, herdsmen, an assurance agent and an accountant. However, by investigating their occupational history, connections with asbestos were found in each case. The three researchers eventually examined 33 occurrences of diffuse pleural mesothelioma — 32 with exposure to Northern Cape blue asbestos — and published their findings in 1960. For the first time a link between mesothelioma and exposure to blue asbestos was established. It was also ascertained that it could take between 20 and 40 years to contract the disease after exposure, and that the patient lived an average of only fourteen months after diagnosis. Not one of the patients recovered. The survey indicated for the first time that environmental exposure to blue asbestos also posed a health risk. Today it is widely accepted in medical circles that relatively little exposure may be required to produce mesothelioma and that blue asbestos is the fibre most strongly associated with this disease.[56]

The resultant reaction of the asbestos industry and the government to this survey was that they, together with the Chamber of Mines, made funds available for further medical research. This took the form of random tests on the Northern Cape population in 1960. This research also confirmed the existence of environmental pollution caused by asbestos mining. It has been alleged that the release of these research results was restricted by the industry for at least three years. The industry reputedly used this time to improve dust levels and safety conditions.[57]

It has in fact been implied by academics that an alliance exists between state and capital where safety and health matters are concerned. Capital allegedly uses the long time required by researchers to produce irrefutable evidence against asbestos, to promote positive propaganda. The state, on the other hand, guarantees capitalist production and because of its reliance on income from taxes is more inclined to favour the mining industry. In contrast labour is defenceless against this alliance as it cannot provide money for research nor check the actions of capital and state.[58]

In applying this framework to the blue asbestos industry, a number of arguments are relevant. The labour movement was still weak in the early 1960s, examples where workers were ill-informed did occur, and government was indeed sometimes slow to take steps. Thus, when the Minister of Mines, Dr Carel de Wet, opened a sub-bureau of the Miners' Medical Bureau (which succeeded the Pneumoconiosis Bureau in 1962) at Kuruman in 1967, he used the industry's arguments that the health danger was exaggerated, that in the past knowledge thereof had been lacking, and that there was no chance of contracting asbestosis in future.[59] This sub-bureau was established to do routine examinations

55. J.C. Wagner, C.A. Sleggs and P. Marchand, 'Diffuse Pleural Mesothelioma and Asbestos Exposure in the North Western Cape Province', *British Journal of Industrial Medicine* 17, 1960, pp. 260—65.
56. *Ibid.*, pp. 260—71. See also Zwi *et al.*, 'The Pneumoconioses', p. 97.
57. *The Star,* 31 Oct. 1983 (report: 'Asbestos hazards "covered up" claims surgeon').
58. See for instance J. Myers, in 'The Social Context of Occupational Disease: Asbestos and South Africa', *International Journal of Health Services* II(2), 1981, pp. 231—3, who outlines a conformable theoretical framework, without substantiating it satisfactorily in practice.
59. *Kuruman Bulletin,* 6 Oct. 1967. The task of determining exactly to what extent state and capital collaborated at the expense of labour, remains for future archival research.

which were formerly performed by mine doctors and the mobile unit. A research clinic of the Pneumoconiosis Research Unit was simultaneously commissioned to co-ordinate continuous research on asbestosis.[60]

A further example was the fact that nothing was done to prevent environmental pollution. In 1973 following repeated complaints by local inhabitants of Danielskuil of contamination caused by open asbestos lorries, which used a street through the town, the village management board asked the asbestos company concerned to cover the lorries with tarpaulins and to use an alternative route. Nothing was done and a year later the village management board laid the issue before the senior government health officer. This official asked the company to intervene but the manager passed the responsibility on to the transport contractor and matter remained unchanged. Even a decade later (1985), this problem remained unresolved. A local doctor warned against this continuing state of affairs while the town council applied several times for the road to be tarred. But the issue drifted between the divisional council, Department of Health, Member of the Provincial Executive Committee for Roads and the provincial road engineer, and nothing was done. Eventually the request for tarring of the road was rejected with the reason given being a too low traffic count.[61] Also at Kuruman, complaints by the local *Afrikaanse Sakekamer* against pollution caused by asbestos lorries passing through the town produced no results.[62]

Complaints by local inhabitants, however, usually represent only a small health conscious group who pursue this seemingly futile cause mostly from outside the industry. The Northern Cape's dependence on the mining sector for economic growth which started in the 1920s continues till this very day. Because of this, the health hazards of asbestos were never a controversial issue in the Northern Cape as thousands of workers and their families were caught up in this system of dependence on blue asbestos mining. Equally, local business, development associations and local authorities looked past the potential dangers and chose rather to rationalise in an effort to prove that the advantages of asbestos mining outweighed the drawbacks. The traumatic effects of mines curtailing the numbers of their workers are an important factor in a region like the Northern Cape with limited employment opportunities. Local authorities of places like Prieska and Kuruman were not favourably disposed towards the negative publicity surrounding the health hazards of asbestos and were quick to stress the ignorance of the past and the precautions taken since. Inhabitants and mine workers, who had so far escaped the diseases, sometimes came out strongly in support of the industry, while the local press regarded it as its duty to inform the public that asbestos had been made the scapegoat while products such as fibreglass and other mineral fibres also involve a health hazard.[63]

The lack of sufficient statistical data makes it difficult to establish the extent to which asbestosis and mesothelioma occur in the Northern Cape. Deaths from the two

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60. R.P.25-1969 Republic of South Africa, *Report of the Miners' Medical Bureau for the Period 1 April 1967 to 31 March 1968* (Pretoria, 1969), p. 2.
Municipality of Danielskuil, File 11/8/2/1: Secretary (Village Management Board) — Manager (Danielskuil Cape Blue Asbestos), 13 Nov. 1973 and 28 March 1974; Manager — Secretary, 23 Nov. 1973 and 16 Apr. 1974, and Petition of 22 inhabitants — Village Management Board, 26 March 1974; File 7/11/8: De la Porte — Town Clerk, 19 Jul. 1985, Pienaar — Poggenpoel, 5 Sept. 1985, Secretary (Divisional Council) — Town Clerk, 7 Dec. 1986, and Secretary (Divisional Council) — Regional Director, 9 Dec. 1986.
62. Kuruman Afrikaanse Sakekamer, Correspondence: Jooste — Town Clerk, 26 Apr. 1978.
63. See for example *Rapport*, 2 Feb. 1986 (report: 'Kanker-dorpe skrik nie vir slegte nuus'), and 2 Aug. 1987 (letter: "n Lansie vir Asbes'); *Kuruman Bulletin*, 29 May 1987 (report: 'I would rather breathe asbestos!').

diseases combined have only been recorded since 1968 (and separately since 1977). A survey of deaths between 1968 and 1980 nevertheless shows that although the districts of Prieska, Hay, Postmasburg, Vryburg and Kuruman contain less than one per cent of South Africa's population, 21 per cent of all deaths from asbestosis and mesothelioma have occurred there.[64] Another limiting factor in collecting data is that the medical profession does not report mesothelioma cases to the authorities. A survey shows that only two per cent of cases between 1976 and 1984 were reported by doctors. Cases handled by the Miners' Medical Bureau (the Medical Bureau for Occupational Diseases since 1973) are recorded properly but only since 1968. There are, however, large discrepancies in the statistics as far a Blacks are concerned. Between 1968 and 1986 only 32 cases (14,3 per cent) of mesothelioma were diagnosed in Blacks, who made up about 90 per cent of the labour force, in comparison with the 191 cases (85,7 per cent) of Whites and Coloureds. The bureau cases nevertheless only represent those diagnosed during routine examinations and examinations for compensation and not all the cases of asbestosis and mesothelioma in South Africa.[65] Thus, the national mesothelioma register recorded 668 cases in 1979. Also here the majority of the cases (51 per cent) are attributed to Whites and only 28 per cent to Blacks.[66]

In 1973, the Occupational Diseases in Mines and Works Act (No. 78 of 1973) replaced the Pneumoconiosis Compensation Act of 1962, and is still in force today. The work of the Medical Bureau for Occupational Diseases as well as compensation are, however, still based on race. The bureau handles radiographical examinations only of Whites and Coloureds (both first and annual periodical examinations). Although the Act provides for radiographical examinations for Blacks every nine months, these are being performed by the mine doctors.[67] Compensation for first-degree asbestosis amounts to a lump sum of R20 126 for Whites and R2 052 for Blacks, and where mesothelioma is concerned R33 207 for Whites and R2 052 for Blacks, whereas the Act provides for the classification of Whites as second-degree asbestosis patients this is possible for Blacks only when they already have tuberculosis. When it became known that compensation could be claimed by affected workers previously employed in the asbestos mines, certifications for asbestosis rose sharply from 15 to 36 per cent between 1975 and 1978.[68]

Dust levels in asbestos mines are still regulated in accordance with the Mines and Works Act. The government mining engineer lays down guidelines for dust levels under the supervision of the air quality section which carries out spot inspections at the mines. Until 1975 the guideline stood at 45 fibres per millilitre but it was reduced to 12 fibres by 1981.[69] Although fines could be imposed, there appears to be no strict enforcement of dust

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64. Botha, *et. al.*, 'Excess Mortality', p. 34.
65. *Rapport*, 22 March 1987 (report: 'SA se medici meld "sluipende dood" nie aan nie'); R.P.89-1969, 73-1970, 87-1971, 25-1973, 42-1974 Republic of South Africa, *Report of the Miners' Medical Bureau* ... 1967/68—1973/73 (Pretoria, 1969—74), and R.P.87-1974, 100-1975, 91-1976, 16-1978, 14-1979, 120-1979, 112-1980, 95-1981, 104-1982, 31-1984, 87-1984, 99-1985, 37-1987 Republic of South Africa, *Report of the Medical Bureau for Occupational Diseases* ... 1973/74 — 1985/86 (Pretoria, 1974—87).
66. Myers, 'The Social Context of Occupational Disease', pp. 234 and 239.
67. *Government Gazette of the Republic of South Africa*, 5 Oct. 1973 (government notice R1813).
68. Becklake, 'Control of Asbestos-related Disease', p. 210; R.P.14-1979 Republic of South Africa, *Report of the Medical Bureau for Occupational Diseases for the Period 1 April 1977 to 31 March 1978* (Pretoria, 1979), p. 5.
69. See S.R. Benatar and E.D. Bateman, 'The Asbestos Hazard', *South African Medical Journal* 62(24), 4 Dec. 1982, p. 882.

levels. Before 1978 dust sampling was performed irregularly at some mines but as the results were apparently shocking, managements intervened to improve matters. This was done by means of own air quality sections, combating dust pollution through modern mechanisation at bad areas such as the hammer mills, sieves, conveyer belts and bagging sections. In spite of extensive improvements dust levels of up to 100 fibres per millilitre and even as high as 168 fibres at the Owendale and Klipfontein mills were common by 1978. Through persistent efforts on the part of the company levels were, however, reduced to acceptable standards.[70]

Economic decline and stepped-up control measures

The improvement of dust levels must be seen against the background of growing resistance to asbestos in medical and environmental circles as well as in the media. Firstly, the report of the Erasmus Commission, which investigated occupational health of industrial workers in 1975, focusses on some unsatisfactory conditions in the Northern Cape.[71] In the second place events such as the International Asbestos Symposium in Johannesburg in 1978 (which was attended by 40 scientists from twelve countries) contributed further to put asbestos in the limelight, and it eventually became one of the most intensively researched minerals. Together with a decreasing world market for asbestos the health issue activated the industry to take rectifying and preventative action. One of the first steps was the establishment of the South African Asbestos Producers' Advisory Committee, a liaison body between the industry, government, research institutions and foreign countries. One of its aims was to collect information about the occupational and health dangers of asbestos and it allegedly also took care that regulations were strictly enforced. Information and education services also form part of the activities, and publications such as *The Case for Crocidolite Asbestos* and *Asbestos and You* originated there.[72]

By the injection of some twelve million rand for the improvement of safety and health matters by the industry much has in fact been done since 1980. Old mills were shut down, new dust-sucking and filtration equipment installed, dust-free bags were put into use and dust was contained by keeping working levels wet. Information about potential health dangers is continuously supplied to the workers while regular clinical and radiographic examinations are maintained.[73] Environmental clean-up operations were also commissioned and in this regard the Institute for Ecological Research at Potchefstroom University — together with industry and the state — has already made a valuable contribution towards environmental rehabilitation since 1982. Old asbestos dumps in the Northern Cape are for instance covered with soil and plants.[74]

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70. Danielskuil Cape Blue Asbestos (Pty.) Limited: Summary of dust control at the mills, May 1978 to March 1980. See also P. Marinovich, 'Extensive Mechanisation Drive at Kuruman Asbestos, *Coal, Gold and Base Minerals of Southern Africa* 25(1), Jan. 1977, pp. 38—9. R.P.55-1976 Republic of South Africa, *Report of the Commission of Inquiry on Occupational Health* (Pretoria, 1976), pp. 7, 13, 14, 42 and 106.
72. R.P.14-1979 Republic of South Africa, *Report of the Medical Bureau for Occupational Diseases for the Period 1 April 1977 to 31 March 1978* (Pretoria, 1979), p. 4; *Volkshandel*, May 1986 (article: 'Die veldtog teen asbes'); *Rapport*, 21 Oct. 1984 (report: 'Gefco, Msauli oor asbes en gesondheid'), and 12 Apr. 1987 (article: 'Gevaar so groot soos twee vuurhoutjies op rugbyveld').
73. *Financial Mail* (supplement: 'Mining: a survey'), 24 Oct. 1986 (report: 'Asbestos blues'); *Rapport*, 21 Oct. 1984 (report: 'Gefco, Msauli oor asbes en gesondheid'), and 12 Apr. 1987 (articles: 'Asbes in perspektief').
74. 'Redders van die Natuur', *PU-Kaner* 4(1), 1987, pp. 36—9.

Better governmental control and enforcement of safety and health measures contributed further to the elimination of asbestos hazards. In 1981 the fibre levels for mines and mills were reduced to five per millilitre and the current guideline is two fibres per millilitre over a period of eight hours, with which most blue asbestos mines comply. Although it was in South Africa that the first definitive report of association between asbestos exposure and mesothelioma was presented, this country has lagged behind for nearly 30 years in controlling fibre levels and enforcing safety and health standards. The abovementioned measures came nearly a decade after they had been enforced in a country such as Britain.[75] It thus seems that the risk of contracting an occupational disease like asbestosis has been largely eliminated, but the view that no entirely safe levels for preventing mesothelioma (which can be contracted anywhere where asbestos is handled) exist, still remains. Even research done by the Epidemiological Research Unit of the Medical Bureau for Occupational Diseases confirmed this.[76]

It is striking that improvements in asbestos mining and processing go hand in hand with the development of Black labour organisations. Not only did trade unions like the General Workers Union and the Black Allied Mining and Construction Workers Union start to organise own safety and health training courses, and research; in one case in 1984 an anti-asbestos campaign was launched in reaction to unsatisfactory conditions at asbestos mines. Through union efforts a more satisfactory system of diagnosis was instituted in 1984 whereby a joint panel of doctors from the Medical Bureau for Occupational Diseases and the National Centre for Occupational Health (which by means of autopsies also undertakes research into asbestos-related diseases) could get a diagnosis only on evidence from medical reports and chest X-rays. In the same year, 70 compensation claims for asbestosis and mesothelioma were initiated by the General Workers Union.[77]

Conclusion

In the Northern Cape where blue asbestos was mined since 1893 safety and health affairs were to a large extent neglected and not at all aimed at combating asbestos-related diseases. The existence thereof was at any rate not known for the first 50 years. Thus exposure to asbestos dust — both occupational and environmental — was common as ignorance about the potential health danger dominated the industry and region till 1941. From 1942 the negative influence of asbestos on the human health became known in the Northern Cape when the occupational disease asbestosis was diagnosed — nearly a decade earlier than has now been asserted. In the 1950s it was realized that asbestos also involves an environmental health hazard when the link between mesothelioma and blue asbestos was established.

Economic advantages, brought about by asbestos mining, outweighed any possible negative social effects since the early days — not only as far as the state and mining companies were concerned, but also with regard to the local population. Consequently the passing of sufficient statutory controlling measures and the enforcement thereof were slow

75. Becklake, 'Control of Asbestos-related Disease', pp. 208 and 210; Myers, 'The Social Context of Occupational Disease', pp. 236—8.
76. R.P.99-1985 Republic of South Africa, *Report of the Medical Bureau for Occupational Diseases for the Period 1 April 1984 to 31 March 1985* (Pretoria, 1985), p. 5.
77. South African Research Service (editor and compiler), *South African Review III* (Johannesburg, 1986), pp. 80—82, 84, 89—90 and 93—4.

and South Africa lagged far behind other industrialized countries in implementing fibre control levels. In contrast to information currently circulated by the asbestos industry, the mining companies also took a long time to comply with acceptable safety and health standards.

It was only when the health campaign (which gradually grew in intensity) together with a decline in the demand for asbestos and the growth of the labour movement were reflected in the companies' financial statements that corrective action was evoked. Measures that have since been taken eliminated the health danger of asbestos to some extent — especially with regard to occupational health (asbestosis), but not, however, in the case of mesothelioma for which there appears to be no safe exposure levels. Environmental pollution by asbestos is also not yet under control and still threatens many people outside the industry in the Northern Cape. Since the measures taken were only instituted during the past decade, the appearance of asbestos-related diseases could continue well into the next century because mesothelioma can take up to 40 years to develop after exposure to asbestos.