

The silent scourge? Silicosis, respiratory disease and gold-mining in South Africa

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At the beginning of August 2002, in a blaze of publicity and to much media approval, South Africa's largest mining conglomerate, the Anglo American Corporation, which has long prided itself on being the progressive face of mining capital in the subcontinent, announced its intention to extend anti-retroviral treatments to all its employees infected by HIV. There were immediate pressures on Anglo-American for some such gesture. In the previous April, Anglo-Gold had estimated that 29 per cent of its workforce was HIV positive, while a more limited pilot scheme of supplying anti-retrovirals to permanent, largely white, employees exposed the corporation to accusations from the National Union of Mineworkers of racial bias, and threats of strike action.¹ The Company had discovered that, despite the cost, it was cheaper to support its workers on anti-retrovirals than to face the loss of skilled manpower to HIV/AIDS – or to strike action. Anglo American's response, announced the Financial Times, was pointing the way for other South African companies in the face of the devastating pandemic in the sub-continent.

This moment has its historic resonances.² The mining industry has long been wont to publicise its benevolent concern for the lives and limbs of its workers, and its sophisticated health care system. A more cynical and historically-minded observer might note rather less disinterested motives than the press release suggested. It is perhaps no co-incidence that the news releases came in the wake of the legal victory in the British House of Lords won by asbestosis and mesothelioma sufferers in South Africa against Cape plc – the asbestos mining giant in South Africa, itself largely owned and controlled by Gencor a major gold-mining company and its associates³ - a

¹ *Mail and Guardian* Online Archive, 12 October 2001, and April 2002 'Aids Barometer'. See also Johannesburg Business Report 6 Nov 2002, 'Anglo American faces heavy AIDS bill'.

² There was also some irony in the Corporation's grand-standing in relation to the government's tardiness in providing anti-retrovirals for HIV/AIDS sufferers. In 1932, the Committee on Tuberculosis (formed jointly by the state and the Chamber of Mines) pointed to the contrast between 'the generous provision of hospitals and efficient whole-time medical staffs by the mining industry for its Native workers on the Rand with the almost complete absence of a public medical service of any kind for the natives in... throughout South Africa' and pointed to 'the fact that industrial concerns often set an example to governments in the care of their dependents'. Then, as now, the government's neglect was unquestionable, the industry's benevolence questionable. (SAIMR, *Tuberculosis in the South African Native with special reference to the Disease amongst the Mine Labourers on the Witwatersrand*, no. xxx, vol.V, [Published by SAIMR, Jhbg, 1932], p.289.)

³ Richard Spoor, 'Workman's Compensation and the Prevalence of Occupational Injuries and Disease in South Africa', unpublished paper, April 2002, p.8. Both Gencor and Gefco were part of the Anglo-American stable until the 1960s when they were disposed of to Federale Mynbou.

victory of historic consequence.⁴ The implications could not have been lost on Anglo-American and other members of the Chamber of Mines. As one of the lawyers representing the community and workers in Cape plc, Richard Spoor, remarked, the Cape decision

has changed the way we look at occupational disease in this country. The case against the [mining] industry is a strong one and a wave of litigation against the industry should be anticipated. It is no longer a matter that we will be prepared to tolerate. It is clear to us that someone is responsible and that someone will be made to pay. The industry should ... be aware that its stock of credibility is about used up.⁵

If accidental, the timing of Anglo-American's announcement was fortuitous. It came as the mining industry faced mounting demands for greater black participation in its activities with the publication of a controversial socio-economic Charter⁶ and as the true health costs of its activities since the mineral discoveries in the last third of the nineteenth century were being revealed more generally. As Spoor himself noted, '... asbestosis is only a small part of a much bigger problem', so that the Cape decision is also likely to 'to be followed by an epidemic of industrial litigation, as former miners and their advocates turn to the courts for compensation.'⁷

⁴ Although the out of court agreement that Cape plc would pay £21 million concluded in London in December 2001 was said to be in jeopardy by July 2002. (see 'South African asbestos victims win £21m', *Guardian*, 22 Dec 2001 and 'Cape plc's £21m settlement with local asbestosis sufferers hangs in the balance', *Star*, 24 July 2002). Of greater importance than the actual settlement was the Law Lords' landmark decision that South African workers could pursue their claims against a British owned firm in UK courts. (I am grateful to Dr James Sanders for the newspaper clippings to back these statements.)

⁵ Richard Spoor, 'The Cape Asbestos Claims', unpublished paper presented to colloquium on asbestosis held in London on 16th and 17th April, 2002, p.16. (I am grateful to Richard Spoor for giving me a copy of this paper and allowing me to cite it.)

⁶ According to press reports, the Charter, leaked in late July 2002 and approved in modified form, on 9 October 2002, created 'a new system under which mineral rights are owned by the state and leased out. It requires all mines to be 15% black owned in 5 years and 26% in ten years ... with industry agreeing to help raise R100bn to aid the funding of the transfer.' The agreement followed 'fraught discussions between industry and government' and called for the transfer of 30% of existing mining operations and 51% of new mining projects to black empowerment groups within ten years. This prompted fears about the future of South Africa's mining sector amongst the world's financial markets, with listed mining stocks losing more than R100bn in a very short space of time' ('Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry').

⁷ Spoor, 'The Cape Asbestos Claims', p.17. Since this was written, Gencor has also reached an out-of-court settlement with the asbestosis claimants. (Reuters English News Service, 3 Feb 2003. I am grateful to Dr George Frynas for sending me this reference.)

The extent of the problem should not be underestimated. Dr Tony Davies, former Director of the National Commission on Occupational Health has been quoted as saying last year that 'there is a pandemic of silicosis among South African miners',⁸ while according to the leading South African pulmonologist, Professor Neil White, there are indications

that rates of occupational lung disease have [currently] risen to the same high levels that were experienced during the early part of the 20th century. There appear to have been only insignificant reductions in dust exposure, particularly in gold mining in the second half of the 20th century.⁹

Two recent studies on the incidence of legally compensable (but uncompensated) occupational lung disease in ex-mineworkers have begun to reveal the dimensions of this 'bigger problem'. In Thamaga, in Botswana, in a random sample of 234 underground mineworkers, T.W. Steen and his fellow workers found that some 31 per cent (310 per 1000) had pneumoconiosis, but that only a 'very few' had received any compensation. 6.8 per cent of these workers had 'progressive massive fibrosis, the most crippling form of silicosis that rapidly leads to complete respiratory failure and death'.¹⁰ Similarly, in a study of a random sample of ex-mineworkers, in Libode in the rural Transkei (Eastern Cape), Anna Trapido and her co-researchers found a pneumoconiosis prevalence of 22 per cent and 37 per cent. Of this number, two-thirds had received no compensation, and only 3 per cent had received full compensation.¹¹ Preliminary results of a study in Lesotho of a similar but larger cohort of former mine-workers suggest an incidence presently of 40 per cent. On the basis of these studies, it is estimated that there are almost half a million ex-mineworkers in southern Africa suffering from compensable lung disease, and that the total amount of unpaid compensation is of the order of 2.8 billion rands. Next to these daunting figures, the

⁸ Pers. Comm. Dr Jock McCulloch, 3 Sept. 2002.

⁹ 'Occupational lung disease', in R. Guild, R.I. Ehrlich, J.R. Johnston and M.H. Ross, eds. *SIMRAC Handbook of Occupational Health Practice in South African Mining Industry* (Johannesburg: the Safety in Mines Research Group, 2001), p.122. I am most grateful to Professor White for alerting me to this source and for allowing me the benefit of his knowledge and wisdom on respiratory disease among miners more generally.

¹⁰ See T.W. Steen, N.W. White, K.M. Gyi et al, 'Prevalence of occupational lung disease among Botswana men formerly employed in the South African mining industry', *Occupational Environmental Medicine*, 54, 1997, pp.19-26. The words in quotation marks are from Spoor, 'The Cape Asbestos claims', p.11.

¹¹ Trapido, A.S., Magogi N.P., Williams B.G. White N.W. et al. 'Prevalence of Occupational Lung Diseases in a random sample of former mineworkers, Libode district, Eastern Cape Province, SA', *American Journal of Industrial Medicine*, 1998. I am grateful to Anna Trapido for an advance view of this paper in MSS. See also Business Report 3 Nov 2002, which reported a University of Transkei study revealing that 78 per cent of former miners tested at Umtata General Hospital suffered from 'lung disease'. The figure includes TB and 'chronic obstructive pulmonary disease' as well as silicosis in platinum as well as gold miners. According to this report many of these workers have not been paid compensation because 'no link has been made between their illnesses and their occupation' (<http://www.queensu.ca/samp/news/202/nov.htm>) but the story may be more complex – see below.

sum volunteered by Anglo for anti-retrovirals no longer looks quite so magnanimous. At best, it represents in small measure the industry's bleak and overdue recompense for its ravages on the bodies of hundreds of thousands of southern Africans, white and black, but mostly the latter. At worst, it is a brilliant ploy by a mining company which has long been adept at publicising its benevolent paternalism towards its black workforce.

In many ways, HIV/AIDS can be seen as only the most recent if also the deadliest legacy of southern Africa's migrant labour system.¹² As my introductory paragraphs suggest, it is today being played out against the sombre backdrop of epidemic tuberculosis and endemic respiratory disease, a consequence in large measure of the peculiar form taken by South Africa's mineral revolution. These are mutually reinforcing and intertwined epidemics. Not only do we now know that both HIV/Aids and silicosis each dramatically increase the susceptibility of workers to tuberculosis; we also now know that 'the combined effect of silicosis and HIV infection ... is an example of interaction or synergistic risk, in which the two risks do not merely add to each other, but multiply each other.'¹³

In 1991 Solly Benatar and Gerry Koovadia wrote,

Tuberculosis is a time bomb in Africa. The high prevalence of infection which in most people remains dormant and never gives rise to disease, threatens to erupt in response to many causes of reduced immunity. Poverty, malnutrition, overcrowding, alcoholism and measles seem pale shadows against the dark spectre of HIV infection, which may trigger millions of people infected with *Mycobacterium tuberculosis* into frank clinical disease, often well before other manifestations of AIDS become apparent.¹⁴

If the burden of tuberculosis on the health of black miners and their families has long been appreciated, however, the 'epidemic' of pneumoconiosis seems to have taken many people, including it seems the mining companies, by surprise. This paper is a first attempt to look at why this should be so: it raises questions, to which so far I have no firm answers.

The first of these questions is whether what we are seeing is actually a new pandemic of silicosis, or simply the discovery (or re-discovery) of a disease with far deeper roots which was not widely appreciated before 1994. It is, of course, true that, as a

¹² This is, of course, not to suggest that the whole explanation for the HIV/AIDS epidemic is to be laid at the feet of the mining company. I have discussed the part played by mining and migrant labour system in creating the conditions for the devastating incidence of HIV/AIDS in South Africa in a recent paper, 'An Epidemic Waiting to Happen? The Spread of HIV/AIDS in South Africa in Social and Historical Perspective', *African Studies*, 61, 1, 2002, 2002, pp. 13-26. This was originally given as a keynote address to the conference held at the University of the Witwatersrand in April, 2002, on 'HIV/AIDS in Social Context'.

¹³ G.J.Churchyard and L. Corbett, 'Tuberculosis and Associated Diseases' in Guild et al. (eds) *SIMRAC Handbook*, p.161.

¹⁴ *A Century of Tuberculosis. South African Perspectives*, edited by H.M. Coovadia and S.R. Benatar (OUP, Cape Town, 1991), p.vii.a

number of researchers have suggested, that the stabilisation of localised migrant labour in the gold-mining industry in the last quarter century has been responsible for an increase in the number of Africans suffering from silicosis, which is only now coming to light.¹⁵ This at least was the view of Jean Leger who warned some ten years ago that the stabilisation of labour may result in what he already called 'a neglected epidemic' of silicosis, as it had been for the rising tide of TB in the 1980s.¹⁶

As is well known, from its earliest days, the South African mining industry depended on migrant workers from an ever-expanding labour market in the sub-continent. Since the mid-1970s, however, the pattern of recruitment to the South African mines has been transformed, with the independence of Mozambique, political intervention in the release of labour from Malawi, and the toll of HIV/AIDS in neighbouring territories. This led the industry, under pressure from the apartheid state to recruit South Africa's rural unemployed and in its own interest in establishing a more experienced workforce, to recruit an increasing number of local Africans, for longer and longer periods. The average length of a mine contract increased from 4.5 to 13.4 months. Moreover in order to overcome what was seen as local labour's distaste for mine labour and its unreliability, the mines developed a strategy of ensuring its control over skilled miners through a sophisticated call-back system. This meant that the average age of the workforce also increased – an added risk factor in the contraction of occupational lung disease.¹⁷

As Packard has remarked, stabilisation does not only mean that the mines 'beat the cost of creating a permanently settled workforce ...[it also] represents an intensification of worker exposure to the adverse conditions of mine work without any significant change in terms of employment or an increase in the industry's financial responsibility for the welfare of the worker of his family.'¹⁸ Thus, although under apartheid black miners remained 'migrants' with no urban residence, trade union or political rights, in fact an increasing majority of mineworkers spent most of their working lives on the mines,

¹⁵ White, 'Occupational lung disease'; Trapido *et al.* 'Prevalence of occupational lung disease ...in Libode'; Steen *et al.* 'Prevalence of occupational lung disease among Botswana men'.

¹⁶ J-P Leger, 'Occupational diseases in South African mines - a neglected epidemic?', *SAMJ*, vol. 81, 15 Feb 1992, pp. 197-201; Randall M. Packard, *White Plague, Black Labor. Tuberculosis and the Political Economy of Health and Disease in South Africa* (University of California Press, Berkeley and Los Angeles, 1989) sees this as the third wave of epidemic TB to hit South Africa: the first occurred before about 1915; the second in the 1940s. The first wave was associated with the beginning of deep-level mining, the second with the rapid influx of impoverished rural Africans into South African cities in the 1940s.

¹⁷ It also meant an increase in the incidence rates of TB on the mines after a decline in the 1960s and early 1970s, perhaps because as Packard and Coetzee point out, the mines have been forced to recruit workers who were less fit from regions within South Africa where background levels of TB are exceptionally high. In fact the incidence of TB on the mines is higher than that of the general population, although 'all things being equal, mineworker rates should be lower'. (R.M. Packard and D. Coetzee, 'White Plague, Black Labour Revisited. TB and the mining industry', in J.Crush, et al. *Crossing Boundaries* (199?), pp. 109-111).

¹⁸ Packard, *White Plague, Black Bodies*, p. 314-6.

and often on the same mine, before retiring to their homes in South Africa's so-called Bantustans. The longer contracts and, more importantly, the longer total time they spent on the mines exposed black miners to those conditions which not only greatly increased their chances of reactivating tuberculosis infection (as Packard points out); it also greatly increased their likelihood of contracting silicosis.¹⁹ But while the improvement in TB surveillance efforts meant that the epidemic of TB from the mid-1970s was a subject of acute concern, the industry seems to have paid little if any attention to the scourge of silicosis.

With the focus on TB, silicosis remained under-diagnosed, a silent and creeping disease which was only to manifest itself after the miners had retired to their remote villages, beyond the gaze of the state's complex epidemiological and compensation machinery. In the rural areas, the necessary medical facilities to check lung function were few and far between. And although pneumoconiosis has been compensable for black miners as well as white since the passage of the Phthisis Acts in the second decade of the twentieth century, the rates were markedly different for white and black miners. Moreover, black miners were rarely informed as of right about the possibilities of compensation.²⁰ Even when they were so informed, many preferred to remain silent lest they lose their jobs on diagnosis. Thus on Anglo-American mines in the Orange Free State in the 1980s, for example, in the context of high unemployment, low compensation and relatively high wages, it was 'quite exceptional for a man with silicosis to elect to have compensation or repatriation or a change to a non-mining occupation'; indeed black miners 'were obsessed with continuing their work, were unaware of and unconcerned about silicosis and continued to believe that a decision to report their disease for compensation was punitive, no matter how diligently the matter was discussed with them.'²¹ What changed this situation were the widespread retrenchments of miners in the 1990s and the equalisation of compensation payments for black and white miners in the run up to the 1994 elections. After 1994, it was possible for progressive medics and social scientists to look at what had happened to the health of retired and unemployed miners once they returned back home – and they now had a real incentive to do so.

If this seems a plausible account of the extent of the current 'pandemic' however, it is equally possible that the toll from silicosis/ pneumoconiosis has been far higher and far more important among black miners in the subcontinent for far longer than has

¹⁹ Ibid. 316.

²⁰ This reluctance can be traced in the earliest discussions on the operation of the Phthisis Act, when it was decided not to publish a regulation 'providing for the compulsory examination of all Native labourers before they were discharged from mine employment' on the grounds of expense which neither the mine owners nor the state were prepared to pay. It was also decided not to publish notices explaining Africans' rights under the Act 'in the various Native languages ... This, however, was not done as it was considered that Natives might be encouraged to put in claims for compensation when they were suffering from pulmonary or similar diseases' (GNLB 69/ File 2257 Memorandum on the Miners; Phthisis Act no 19 of 1912 and regulations published in 1912 and 1913). The vast number of uncompensated cases being discovered now suggests that not too much changed over the course of following ninety years.

²¹ R.L.Cowie, 'Silicosis, pulmonary dysfunction and respiratory symptoms in South African gold miners', M.D. UCT, 1987, pp.29-30.

been generally appreciated. There has been a strange dichotomy in the literature on respiratory disease in South Africa. While historically white miners have been seen to have suffered from silicosis, black miners have been regarded as peculiarly prone to a particularly virulent form of tuberculosis, somehow associated with their racial vulnerability. Thus, the impact of silicosis on the first generation of white miners on the Rand has been described in graphic detail by Gillian Burke and Peter Richardson in a pioneering article in 1978 and by Elaine Katz in her fine study, *The White Death*, published in 1994; the spread of tuberculosis among black South Africans in the twentieth century has been brilliantly told by Randall Packard. As they and others have shown, the emergence of respiratory disease as a major occupational health hazard was intimately related both to the population movements and the technological innovations that made deep-level mining possible in South Africa. The huge influx of white single male migrants from the mining frontiers of the world, coupled with an even greater migration of hundreds of thousands of their black counterparts from as far afield as Malawi (Nyasaland), Zambia (Northern Rhodesia) and Mozambique provided a fertile terrain for the exchange of pathogens.²² Above all, however, until the 1930s, when indigenous whites contracted tuberculosis in alarming numbers,²³ it was the 'deadly dust' that eroded men's health, both in its own right as silicosis and in gravely increasing their risk of contracting tuberculosis and pneumonia..

Burke and Richardson suggest that the introduction of three new technologies were crucial both in making the exploitation of deep level mines possible and dramatically raising the levels of dust in the mines: the introduction of the steam driven pumping engine to control water in the mine and to serve as winding engine, the large-scale application of cheap dynamite and the widespread application of machine drilling. In combination this new technology made the mining of hitherto inaccessible levels of ore possible – and dramatically raised the amount of dust in the mines, thus creating the dense concentrations of fine silica particles in confined spaces that so adversely affected the lungs of workers, white and black.²⁴ As Burke has pointed out,

To work a rock drill in Cornwall or South Africa during the 1890s was to risk almost certain death. The only difference between the two places was the length of time involved. In 1902 it was calculated that a rock drill worker in Cornwall

²² The publication of *The Health of Cornish Miners* in 1904 – which revealed that those who had worked in the Transvaal were suffering from the highest death rate from phthisis of all miners' investigated – arose out of the discovery that miners at the Dolcanth mine in Cornwall had contracted Ankylostomiasis (Hookworm) in the Transvaal. (See Gillian Burke and Peter Richardson, 'The Profits of Death: a comparative study of miners' phthisis in Cornwall and the Transvaal, 1876-1918', *Journal of Southern African Studies*, vol.4, no.2, April 1978, p.148.) Pneumonia, TB and influenza as well as sexually transmitted infections were also part of this exchange.

²³ Elaine N. Katz, 'Silicosis of the Witwatersrand Gold Mines. Incidence and Prevalence; compensation 1902-1978', *South African Labour Bulletin*, 'Focus on Industrial Health in South Africa', March 1979 vol.4, no.9 & 10, pp.69. I must admit that I only ran across this in the final stages of writing. Our conclusions – apart from her sanguine remarks on p.80 - are remarkably congruent.

²⁴ Burke and Richardson, 'Profits of Death', pp. 156-7.

had an average of eight years work before dying of phthisis. In South Africa it was four years.²⁵

Added to the dust were arduous work and tremendous fluctuations in temperature below and above ground, especially in the highveld winter; together with overcrowded and filthy barracks and poor nutrition; the mix was lethal.²⁶

In the first two decades of the twentieth century the toll of death and disease on South African gold-mines was immense. Initially the burden of ill-health was borne by white as well as black workers. As Elaine Katz has shown, the impact of 'miners' phthisis' or silicosis (or silicosis plus tuberculosis) on the lungs of the skilled white miners who came to South Africa from the mining frontiers of the world was little short of catastrophic. The death rate was inordinately high: the death rate of underground miners from the 'white death' over two and half years was higher than that in the British army from all causes during the 1899-1902 South African war, and the working life of a white miner on the Rand was on average twenty-eight years less than that of the white male population as a whole.²⁷ Of the eighteen men who led the white miners' strike in 1907, thirteen died from miners' phthisis and another from an accident before the next miners' strikes of 1913-14.²⁸ The militancy of white labour and the explosion of strikes in these two decades need to be understood in the context of this highly dangerous work environment where death from accidents and disease was a daily reality for men working in a punishing environment.²⁹ By the 1920s, however, white workers had begun, through their political muscle, trade union organisation and strike action, to improve their wages and living conditions, and win a degree of protection and compensation from the industry. Between 1912 and 1918, the state enacted a series of laws which provided the basis for the compensation for victims of miners' phthisis, and a system of regular medical inspections before a specially constituted Government Dust Inspectorate was established. A sanatorium was built for white miners suffering from phthisis³⁰ and a system of paid annual leave was instituted. Technological changes also made some difference as the axial-feed water drill of the hammer type came to replace the dry drills formerly in use, dust levels were more carefully monitored, the

²⁵ Burke, 'Disease, labour migration and technological change: the case of the Cornish Miners', in Paul Weindling ed. *The Social History of Occupational Health* (London, Sydney, Dover, New Hampshire, 1985), p.81.

²⁶ Packard, *White Plague, Black Labor*, pp.84-7.

²⁷ Elaine Katz, *The White Death. Silicosis on the Witwatersrand Gold Mines, 1886-1910* (Witwatersrand University Press, Johannesburg, 1994), pp.2-5; Burke and Richardson, 'Miners' Phthisis', pp.151, 163-4.

²⁸ H.J. and R.E. Simons, *Class and Colour in South Africa, 1850-1950* (Harmondsworth, 1969), p.271.

²⁹ David Rosner and Gerald Markowitz make a similar point in talking of the explosion of labour unrest in turn of the century USA. See *Deadly Dust. Silicosis and the politics of occupational disease in twentieth century America* (Princeton University Press, Princeton, NJ, 1991), p.27.

³⁰ Katz suggests this was something of a 'white elephant', built by the mine magnates as 'a monument to commemorate their own self-importance and self-interest'. This was not to be the last such public relations exercise (*White Death*, p. 188).

general use of water for laying dust was inaugurated and blasting time was reduced.³¹ Ironically, while the water-fed drills may have reduced dust levels, they may also have 'further facilitated the transmission of tubercular bacilli ... by increasing the humidity of the air in the stopes'.³² Nevertheless by the 1920s the role of South African scientists pioneering silicosis research and of the South African legislation in setting new standards for mining was widely recognised.³³ By the late 1930s, South Africa had attained dust levels which were considered internationally acceptable fifty years later, although there is some dispute as to whether they rose again between 1950 and 1969 and the validity of South African dust measurements.³⁴ According to the Leon Commission of Enquiry into Mine Health & Safety in 1994, which took a more critical view, death rates amongst South African miners from disease had 'not changed substantially between 1940 and 1980'; it believed that 'dust levels ... remained roughly the same over a period of about 50 years. This constitutes a priori evidence that the absence of a downward trend in the official figures for certification is correctly interpreted as a failure to control dust related disease'.³⁵

Improvements for white miners brought no similar benefits for black workers, however. As Burke and Richardson point out, the changing proportion of white miners 'both relative to black miners and absolutely meant that the costs of compensation measures could be effectively controlled'. As fewer white miners worked at the rockface, it also meant that the 'major burden of phthisis could be passed on to the black work force'.³⁶ For the successive waves of African migrants from the whole of southern Africa who were drawn to the mines by rural impoverishment and the absence of alternative economic opportunities, the impact of respiratory disease was disastrous. Such improvements as there undoubtedly were came more slowly and were more meagre. Tuberculosis, pneumonia and silicosis took a fearful toll, while in the early years hookworm, scurvy and typhoid were testimony to appalling living conditions in the compounds. So ferocious was the death rate from respiratory disease among so-called 'Tropical labour' that in 1913 the South African government banned the importation of labour from north of latitude 22° south.³⁷ It has been estimated by Julie Baker that between 1902 and 1930 some 108,000 black miners died of disease and injury on the mines. These were young men recruited in the prime of life, who had been medically examined – if admittedly somewhat cursorily – both at the point of recruitment and on arrival at the mines. It is, moreover, a conservative estimate for these figures do not take into account the large numbers of sick or injured men who fled the mines in the early years to die among their

³¹ Burke and Richardson, 'Profits of Death', pp. 166-9

³² Packard, *White Plague, Black Labor*, pp. 75, 86.

³³ Cowie, 'Silicosis, pulmonary dysfunction and respiratory symptoms', pp.7-8.

³⁴ Ibid. p.148.

³⁵ Leon Commission of Enquiry into Mine Health & Safety in 1994.

³⁶ Burke and Richardson, 'Profits of Death', p.169

³⁷ In terms of the Immigrants' Registration Act.

kin, or who were repatriated by the mining industry, anxious to avoid the costs of their ill-health.³⁸

So far this is conventional wisdom. While white miners died of pneumoconiosis often complicated by tuberculosis, black workers died of pneumonia and tuberculosis, although sometimes it in turn was complicated by silicosis. Yet as Cowie has pointed out, 'silicosis and pulmonary tuberculosis have been so closely associated that it is difficult to establish their separate identities in the published reports on disease in gold miners prior to 1940'.³⁹ The term 'miners' phthisis' itself was used in confused and confusing ways, at times apparently meaning 'tuberculosis', at other times 'silicosis', and at yet others some combination of the two. The social constructions involved in labelling suggest that there is perhaps a different story to be told – a far more complex story of the ways in which for black miners, exposure to silica dust triggered a variety of lung disorders and while, unlike the tubercle bacilla, not itself a major killer, prepared the way for its depredations?⁴⁰ As Rosner and Markowitz have pointed out in relation to the United States, silicosis has frequently served as a barometer for social and scientific assumptions and popular and professional understandings of disease.⁴¹ If in general, in South Africa as in the USA, 'It is impossible to understand the history of disease without understanding its social context, including the social constraints that allow for its emergence or disappearance as a problem' in the case of silicosis it is exceptionally clear that

... popular and professional awareness of disease is not necessarily due to medical advances or epidemiological changes. Rather it is shaped by social, political and economic forces as well as technical and scientific innovation.⁴²

Have these social, political and economic forces led even most medical historians perhaps to underestimate the dangers of silicosis in our preoccupation with tuberculosis, in the way that Rosner and Markowitz say US observers ignored silicosis for a long time because of their concern with TB?⁴³

There is some evidence for suggesting that this may be the case, although Ealine Katz is a notable exception. In an article in 1979 she was prescient in noting the

³⁸ J.J. Baker 'The silent crisis. Black labour, disease and the economics and politics of health on the South African Gold Mines, 1902-30', Queen's University, Kingston, Canada, 1989, pp.29-31.

<u>Year</u>	<u>Average no. employed</u>	<u>No. of deaths</u>	<u>Death rate/1000</u>
1902-3	51,720	3130	60.59
1910	207,921	5842	28.1
1920	206,394	3240	15.7
1930	245,369	2452	8.99

³⁹ Cowie, 'Silicosis, pulmonary dysfunction and respiratory symptoms', p.14.

⁴⁰ 'The very high risks of tuberculosis in the first half of the 20th century were almost certainly a reflection of the more acute silicosis which was prevalent at that time' (*ibid.* p.18).

⁴¹ Rosner and Markowitz, *Deadly Dust*, p. 6.

⁴² *Ibid.*, p.4.

⁴³ Rosner and Markowitz, *Deadly Dust*, p. 6.

prevalence of silicosis among black miners between 1902 and 1978, and she repeated these findings in *White Death*. Yet her findings were not – as far as I know – taken seriously either by the industry or her fellow historians.⁴⁴ It is perhaps no accident for one of the industry's major justifications for the migrant labour system has been that it would prevent the spread of 'miners' phthisis' by ensuring the return of the black miners to their homes where they could recoup their strength in the fresh air and good food of the countryside: this myth of rural well-being was belied by the actual conditions of rural deprivation and squalor to which the majority increasingly returned.⁴⁵ However, we now know that silicosis is a progressive disease, as 'dust particles retained within the lung continue to be biologically active'⁴⁶ even after exposure has ended, and this was already known in the 1930s.⁴⁷ Moreover, Katz notes that the intermittency of migrant labour probably provided no protection, for 'short periods of very high dust concentrations' may have meant that Africans contracted the disease more quickly than white.⁴⁸

While the state and the mining industry were forced by white worker militancy to take silicosis among white workers seriously by the second decade of the twentieth century, and to regard the spread of TB among black workers with some alarm - for like other infectious disease TB 'knew no colour bar' - it has long served the mines well to ignore the additional burden of disease and even death in the countryside as a result of silicosis contracted on the mines. Thus in 1920 before the Commission on the Miners' Phthisis Act, according to an indignant government labour inspector, W. Walker, the Chamber of Mines 'put forward no constructive policy for reducing the incidence of tuberculosis, its one object was to have deleted from the Statute Book, the disease ante-primary silicosis, and that tuberculosis should not be treated as an industrial and occupational disease, in other words, that it, the Chamber should be freed from paying compensation for tuberculosis.'⁴⁹

Not only did black miners receive far lower compensation than did white miners because it was related to earnings; for secondary stage silicosis, the former were paid

⁴⁴ Katz, 'Silicosis on the Witwatersrand Gold Mines', pp.66-84.

⁴⁵ The 'myth of the healthy reserve' was repeated ad nauseam by government and industry long after it had any semblance of reality, as Packard has shown. (*White Plague, Black Labor*, pp. 241-44 , 289, 300)

⁴⁶ White, 'Occupational lung disease', p.124.

⁴⁷ A report of the Miners' Phthisis Prevention Committee (GP-S 8072 1937: Union of South Africa, *The Prevention of Silicosis on the Mines of the Witwatersrand* [Pretoria, 1937, p.23]) noted that 'even in the absence of further exposure to dust, or of complications by tuberculous or other infections ... cases of this simple type [of silicosis] are nevertheless progressive up to a point The degree of these changes which is ultimately attained appears to depend upon the quantity and quality of the silicious dust retained in the lungs.' According to Cowie, Watkins-Pritchard 'believed that the inhalation of even a few particles of silica-dust could predispose the individual to pulmonary tuberculosis' ('Silicosis, pulmonary tuberculosis and respiratory symptoms', p.19).

⁴⁸ Katz, 'Silicosis on the Witwatersrand Gold Mines', pp.77-8.

⁴⁹ GNLB 260 427/16/108 Miners' Phthisis Act 40/10 W Walker to DNL 4 Nov 1920.

in a lump sum, while white miners or their dependants received a life pension.⁵⁰ Moreover until the mid-twentieth century, miners were only compensated for 'simple' TB if they could prove they had acquired it on the mines, or had worked on a scheduled mine for at least eight years in aggregate.⁵¹ And while there were certainly Africans who had worked that length of time on a variety of mines, this was often difficult to prove: as late as 1979, Anglo mines in the Free State (regarded as pace-setters in matters of miners' welfare) did not record men's previous work history when they appeared on the mines. As Cowie recorded in 1987,

In the past men had no identity beyond their current contract of work. They would be given new documents, a new company number and a new medical history record for each contract. There was no official distinction between a man who had spent a life-time serving the industry and a man about to start his first contract. . Although in 1927 Watkins-Pritchard noted that at least 95% of the current miners had worked on the mines before, it was still common in 1979 for men to be viewed as only a [single] period of work.⁵²

As the century wore on, it was certainly true that first-time miners often appeared on the Rand with tubercular lesions, and the nature of mine work and poor living conditions often precipitated either latent into active infections or the re-infection of already compromised lungs. Increasingly the reserves themselves were reservoirs of

⁵⁰ Katz, 'Silicosis on the Witwatersrand Gold Mines' does an excellent job of tracking the differences in compensation and shows that these were still very marked as late as 1978 when whites with 'first-degree' silicosis received a lump sum of twelve times the amount paid to Africans, and in second degree awards, it was fifteen times higher. White compensation for TB was R5000 – compared to R600 for Africans. (pp.73-5)

⁵¹ Dept of Mines Silicosis Bill 1945 Explanatory Memorandum: p. 6: Para 13: 'Benefits for Native Labourers. 'Scheduled' mines were all the larger gold mines; smaller gold, coal, copper and diamond mines were registered but not listed in a schedule. Conditions were less stringent on the registered mines. In 1953 the silicosis legislation extended the term silicosis to all dust-induced lung disease including asbestosis, anthracosis, siderosis, etc. In terms of the 1956 Pneumoconiosis Act, to qualify for compensation for TB, Africans had to have worked for at least 6 months in a dusty occupation, and be certified by the Compensation Committee to have suffered from the disease within six months from the date that he last worked in a dusty occupation. A miner with TB who had worked less than 8 years in aggregate was entitled to £125 compared to a man with silicosis in any stage who received a lump sum of £240. Lower benefits were paid to surface workers. (H.J. Simons, 'Occupational Health in the South African Mining Industry, 1870-1956. Migratory Labour, Migratory Microbes', chapter 6. This is an unpublished and unpaginated typescript in the possession of Professor Neil White, who has edited the work originally written in the mid-1950s. Chapter 6 is a superb analysis of workers compensation as applied to white and black miners up to and including in the 1956 pneumoconiosis legislation. I am grateful to Prof White for kindly lending me his copy.)

⁵² Cowie, 'Silicosis, pulmonary dysfunction and respiratory symptoms', pp. 27-8.

the tubercle bacilli. Yet there was little acceptance by the industry of its responsibility for the much of the initial spread of TB in the rural areas of South Africa.

In this they were assisted by the genuine difficulty of medical scientists in accounting for the spread of the tuberculosis through an increasingly impoverished countryside by the 1920s. Late in that decade, for example, Dr Peter Allan tried, on behalf of the Tuberculosis Research Committee, to ascertain the extent to which returned mine workers spread the disease. On hearing his evidence, the Committee judged in Solomonic fashion that:

It is impossible to take up the attitude that the repatriated tuberculous plays no part in the spread of the disease, but it seems equally impossible to believe that he is the sole, or even almost the sole agent responsible for its wide dissemination.⁵³

The Committee argued that there was now 'so much endemic tuberculosis among the Natives of the Ciskei and Transkei that it is, in many instances, impossible to be certain where the infection has been acquired, the possibilities being so numerous' and that the lengthy incubation period (two years or more) further complicated the issue. It thus concluded 'It is perfectly clear to-day that the repatriated tuberculous is returning to anything but a tubercle-free population.' This relatively liberal Committee was also satisfied that it was equally impossible to determine the extent to which repatriated miners may have been responsible for the spread of the disease in the past. Whatever the ambiguities, however, the Committee *did* conclude that there were 'certain factors connected with the mining industry' which tended, 'especially in the case of those with latent tuberculosis, to change this into active disease', and that 'the repatriation of Natives infected with tuberculosis, while often exaggerated as a cause of infection in the kraals does undoubtedly make a constantly repeated contribution to the endemicity of tuberculosis in the Native territories'.⁵⁴ Despite this verdict, the Chamber of Mines continued to insist that TB was not a mining disease and, therefore, not the responsibility of its medical system.⁵⁵

Silicosis could be related to conditions at work far more directly, even if it did not manifest itself immediately. Yet as a disease among Africans it was also persistently ignored. As Jack Simons already perceptively pointed some half a century ago, despite the great attention paid to phthisis among whites, and the general concern over African tuberculosis, there was 'not a reliable statistical base for calculating a production or prevalence phthisis rate in the African mining population or for making a fair comparison with the European rate. The general effect of [these] inadequacies is to depress the recorded African rate far below the true level.'⁵⁶ Cowie made a

⁵³ SAIMR, *Tuberculosis in the South African Native*, p.240. Dr Peter Allan was then the General Superintendent of the TB Sanatorium at Nelspruit (for whites only), and later rose to the position of Deputy Secretary of Health.

⁵⁴ *Ibid*, pp. 240-1, 280. For its relative liberalism, see pp.290, ff. This is not to say that many of its views were not profoundly racist.

⁵⁵ Cf Jonathan Crush, Alan Jeeves and David Yudelman, *South Africa's Labor Empire. A History of Black Migrancy to the Gold Mines* (Boulder, San Francisco, Oxford and Cape Town, 1991), p.44.

⁵⁶ Simons, 'Occupational health'(n.p.)

similar point in 1987 – and it remains true today: in contrast to the industry’s concern over the health of white miners, ‘no central record exists of the exposure and health status of the men who constitute 90% of the work force on the South African gold mines.’⁵⁷ In the long run this was to prove another time bomb.

A careful scrutiny of the record suggests that already in the early years of the twentieth century, long-time black miners were suffering from silicosis, as Elaine Katz has shown in her article and in *White Death*, and Matthew Smith suggested in his Rhodes Masters thesis in 1993.⁵⁸ There is a trail through the documents which points in this direction, at least until the mid-twentieth century; thereafter it seems to largely peter out until the slew of more recent studies.⁵⁹

As early as 1913 the Acting Director of Native Labour referred ‘several cases where Natives suffering from Silicosis’ had come before him, while in a memorandum in the same year on the working of the Phthisis Act the Director of Native Labour to the Secretary for Native Affairs pointed to the contrast between the comparatively large number of cases on mines employing a small number of black workers, and the relatively small number of cases on mines with far larger labour complements.

It has been suggested [he continued] the explanation ... is that a large number of reported cases of Miners’ Phthisis are incorrectly diagnosed but against this there is the fact that one of the Medical Advisers under the Act, Dr S.V. van Niekerk, examines all natives who are reported to be suffering from Miners’ Phthisis and only those cases that have been fully certificated by him are set out in the Schedule.

*The natural deduction would appear to be that the true explanation is that where the patient is suffering from tuberculosis or some similar disease in addition to the Miners’ Phthisis the latter ... is overlooked [my italics].*⁶⁰

Asked for his opinion on this apparent conundrum, Dr van Niekerk, who was employed as Medical Officer by the Native Affairs Department rather than the Chamber of Mines, commented

⁵⁷ Cowie, ‘Silicosis, pulmonary dysfunction and respiratory symptoms’, p.6.

⁵⁸ Katz, *White Death*, passim; Smith, Matthew John Smith, ‘“Working in the Grave”: the development of a health and safety system on the Witwatersrand Gold Mines, 1900-1939’, MA Rhodes, 1993, pp. 159-164; see also Leger, ‘Occupational diseases’, pp.199-201.

⁵⁹ I say this tentatively: I have not done sufficient research to be sure, although it is clear that once white miners no longer suffered from ‘phthisis’ on any scale there is nothing like the massive documentation and legislation in the first half of the century.

⁶⁰ GNLB 68 2257/12/9676/13 Director of Native Labour (S.A.M. Pritchard) to Secretary of Native Affairs, 16 Oct 1913. According to the 1912 Miners Phthisis Act, ‘Miners’ Phthisis’ was defined as ‘silicosis of the lungs’ and there was no mention of tuberculosis; in the 1916 legislation, tuberculosis was included in the Act. (See NCOH 061.76, Orenstein Papers, Draft paper for Seventh Saranac Lake Conference, 22 Sept 1952, ‘Introduction to discussion on definitions and clarification of terms concerning pneumoconiosis’.)

the only explanation we can offer for the small number of silicosis cases reported at the large mines as compared with the smaller companies is that the Natives on the small mines, as a rule, remain there for long periods, and those on the ERPM and Crown Mines are, generally speaking, Natives who have had only a short experience of underground work. As you are aware, the malady is more prevalent amongst Natives who have seen long service.⁶¹

He also maintained that 'Whenever tuberculosis and silicosis are found together in the same patient it is safe to assume that the tuberculosis is the direct result of the silicosis and for that reason in the case of such patients silicosis may be regarded as the primary cause, and compensation paid accordingly.'⁶² In that year, 83 'native labourers' were paid £1340 compensation for partial disablement and 184 were paid £5869 for total disablement by silicosis (out of a total workforce of 187, 050).⁶³

The numbers are misleadingly low. Reporting of silicosis among black miners was erratic to say the least. In its early stages silicosis was often difficult to detect without post-mortem examinations, even with full x-rays. Thus in 1920 Dr Watkins Pritchard informed the 1920 de Villiers Commission that out of 200 cases of 'simple tuberculosis' 40 per cent were found on post mortem to be silicotic, while according the Chairman of the 1935 Commission to Inquire into the Position of Miners' Phthisis Beneficiaries, post-mortem examinations conducted by the Miners' Phthisis Bureau over the previous decade also showed that some 45 per cent of 'persons who at the time of death were still regarded as cases of active or closed simple tuberculosis only' had a 'silicotic element'.⁶⁴ Most, if not all, of these 'persons' would have been white: few black miners with tuberculosis would have been accurately examined or X-rayed before the mid century, let alone been subject to lung autopsies.

An enquiry launched in 1916 by the Director of Native Labour of the Native Affairs Department into the working of the Phthisis Acts and the notification of silicosis cases, for example, led the Inspector of Native Labour in Germiston West to remark that the 'present six-monthly examination under Section 7 sub section 2 of Act no. 29 1914 has

⁶¹ GNLB 69 2257/12 D108. S. van Niekerk to DNL, 21 Dec 1914.

It is worth noting that notwithstanding their apparently lower rates of silicosis, at this stage Crown Mines and ERPM had higher than average mortality rates, perhaps because of the large number of new recruits, perhaps because of the depth of their mines. (BRA Box 44 53e 1 Rand Mines Health Department. Notes by Chief Sanitary Officer, A.J. Orenstein, for Chairman's Speech, 26 May 1920) This changed dramatically according to Orenstein on account of the establishment of the Rand Mines' Sanitation Department following the visit of Major General Gorgas to the Witwatersrand; as Packard has noted it may be as plausibly related to the cessation of recruitment north of parallel 22° south latitude.

⁶² GNLB 69 225712/D108 S. van Niekerk to Director Native Labour, Johannesburg, 21 December 1914.

⁶³ GNLB 2257/12/D108 House of Assembly 17 Feb 1914. Copy of Question by Mr Sampson (Labour) to MINA and of telegram from Natives Johannesburg to Natives Cape Town 16 Feb 1913.

⁶⁴ Cited in UG22 - '43. Report of the *Miners' Phthisis Acts Commission, 1941-1943* (Pretoria: Government Printer, 1943), p.13, para.79.

undoubtedly proved a failure and is really a farce'. He described the procedure at the Simmer Deep Mine as an example:

There were 7114 natives in the Compound on the 31st December last. Earlier in January the Compound Manager arranges for an examination to take place, a date is fixed, generally a Sunday, when all the Natives are in the Compound, and the Medical Officer attends. The natives walk past the Doctor and any doubtful cases are put to one side and examined at the Hospital a day or two later.⁶⁵

Nor was his an isolated view. W. Walker the outspoken Inspector of Labour for Johannesburg Central, believed that

the medical examination of Natives, when such examination takes place once in six months and on the one day, is no examination at all; to put it bluntly, the examination is a fiasco and nothing more than a parade and a march past. No medical man, however efficient, could possibly examine with the use of a stethoscope between 3 to 4000 Natives at one examination, if he did so, he would become dead or have his hearing impaired in a very short time.⁶⁶

Apart from making a series of detailed recommendations – neither the first nor the last of many he was to make and which do not seem to have been implemented, Walker continued:

Generally speaking the medical fraternity might do considerably more than is done at present reporting cases of Silicosis and I put down their want of keenness in eliminating this disease to the expense incurred in paying out compensation. One is given food for thought when one turns to figures and compares the ratio of Europeans who have received compensation under the Miners' Phthisis Act. The Native comes into touch far more than the Miner with the actual disease and yet there are far fewer compensated. It may be argued that the native is constantly going home and therefore creating a break in his mining life but for all this there are numbers of Natives who do not go home for years and it is generally when they are in the last stages that this Department received notification perhaps or the Native is repatriated on account of Tuberculosis.⁶⁷

Ten days later, Walker, who was unusually assiduous in pursuing the welfare and rights of black miners, had returned to the fray: 'the Medical men', he remarked, had 'their own interpretation' of silicosis and many Africans were repatriated with TB who had also contracted 'Early Silicosis', though this was unreported. He had his own explanation for this lackadaisical approach. 'As the Mines are not solely responsible for paying out Silicosis compensation ... the Medical men are naturally looking after their

⁶⁵ GNLB 68 IGW No.16/1916 RW Inspector Native Labour, Germiston West to Director of Native Labour, 15 Jan 1916.

⁶⁶ GNLB 68 I.J.C. 11/1916 W.Walker to Director of Native Labour 15 Jan 1916.

⁶⁷ Ibid.

Employer's interests and very rarely report a case.⁶⁸ On yet another occasion, Walker was moved to declare, 'In making a comparison between European and Native Labourers a great differentiation has been made in the manner of the initial and periodical examinations. With Europeans the examination is most thorough, but with the Natives it is more of a cursory nature, the difference is so striking that in these enlightened times one is horrified to think that human beings can be so treated.'⁶⁹ Importantly, and contrary to much conventional wisdom, these and other comments of the Inspectors of Mine Labour also make clear that there was already 'a considerable percentage of "old hands" on the Reef ... with many years of mining history behind them'.⁷⁰

Some indication of the extent of the problem can be gauged from the statistics given in the five months from 1 August 1916 by the three largest goldmines on the Rand of black miners sent to the WNLA hospital for examination because they were suspected of having compensable respiratory disease. Of these, Randfontein Estates with 20,649 African employees on the books sent only 13 men for examination, of whom 8 were compensated, 2 died after Bureau examination but before receipt of compensation, and 1 was certified as having no TB or miners' pneumoconiosis. East Rand Proprietary Mines with 14,193 African workers sent in 17 cases, 11 of whom were compensated, 1 died after Bureau examination but prior to receipt of compensation and 5 were declared clear of disease. Crown Mines, with 14,449 black workers on average, sent in 151 cases, 111 of whom were compensated, 5 died after Bureau examination but prior to receipt of compensation, 4 died prior to examination and 31 were certified healthy. It is no accident that other mines belonging, like Crown Mines, to the Central Mines - Rand Mines Group, the most efficient and health-conscious of the mining houses, had similarly high averages, while the less conscientious groups consistently sent in far lower numbers.⁷¹

During the interwar years, conditions on the mines undoubtedly improved for all miners. The scourge of miners' phthisis was controlled for white workers, and the death rate of Africans actually on the mines was dramatically reduced, even if, as Packard has shown, much of the vaunted drop in rates of respiratory disease in the years following World War I probably resulted as much from the state's action in banning the importation of tropical labour, changes in the composition of the workforce and the industry's increasingly efficient repatriation of tuberculous miners as from the improvement in conditions, which was uneven to say the least.⁷² So striking to

⁶⁸ GNLB 69 2257/12/108 W Walker to Director Native Labour, 26 Jan 1916. See also GNLB 260 427/16/108 Miners' Phthisis Act 14/1916 Walker to DNL 9 March 1917, GNLB 259 427/16/103 Walker to DNL 22 March 1920 and Ibid Memorandum on Miners' Phthisis Act 40/1919 (Walker, n.d. May 1920), GNLB 260 427/16/108 Miners' Phthisis Act 40/10 Walker to DNL 27 Oct 1920 and 4 Nov 1920. in which Walker argues for far more rigorous and humane procedures in relation to respiratory disease, hospital care, repatriation and compensation for black miners.

⁶⁹ GNLB 259 427/16/103 Memorandum on Miners' Phthisis Act 40/1919 (Walker, n.d. May 1920).

⁷⁰ GNLB 260 427/16/108 Miners' Phthisis Act 14/1916 Walker to DNL 9 March 1917.

⁷¹ Ibid.

⁷² Packard, *White Plague, Black Labor*, chapter VI; according to the SAIMR, *Tuberculosis in the South African Native* pp. 235-6, of the Africans 694 repatriated

contemporaries were the changes, however, that by the 1930s when the Chamber of Mines agitated for the resumption of recruiting north of parallel 32 degrees south, it met with relatively little resistance from either the South African or the imperial governments.⁷³ Indeed, the Acting Governor of Nyasaland, as Malawi then was, heartily supported the recruitment of Malawian labour for work on the gold-mines, on the grounds that Africans should be able to sell their labour in the best market possible: he assured the Colonial Office that 'the conditions under which our natives work on the Rand as near ideal as possible and cannot be approached elsewhere'.⁷⁴

These views were over sanguine. From the mid-1930s, a time of acute labour shortage in South Africa, a limited number of these so-called 'tropicals' from Nyasaland and Northern Rhodesia (Zambia) were allowed back on the mines under strictly controlled conditions. Aware that the health records of the new recruits were being carefully scrutinised by both the Union and the imperial governments, the Chamber was determined to create show-case conditions. Even so, while the conditions may have been 'satisfactory' and 'their treatment on the Rand ... exceptionally good', the mortality rates of 'tropical workers' from disease were, as the Nyasaland Native Commissioner sent to report on conditions on the Rand, recorded, 'on the high side': a total of 13.52 per 1000 per annum, of whom 11.76 died of disease, while 'the figures for Nyasa natives at 20.28 on the Rand were well above the average for other classes of labour.'⁷⁵ According to the leading medical officer on the mines, A.J. Orenstein, Chief Sanitary Superintendent for Rand Mines, this high morbidity and mortality rate was 'to be expected during the first decade when natives are working in accustomed aggregations and that experience shows that the rate gradually decreases'.⁷⁶

For a brief moment in the 1940s - South Africa's 'liberal moment' - it looked as though matters might have improved. The appointment of a progressive Commission of Inquiry into the Miners' Phthisis Acts in 1941⁷⁷ - in the context of a threatened strike by white

from the mines with TB between 1926 and 1929, 475 were traced by Dr Peter Allan; of these some 60 per cent of the first two cohorts (1926 and 1927) had died within two years of repatriation.

⁷³ And not only contemporaries. According to Maryna Fraser, 'Gradually the diseases which had intensified the hazards of mining in SA were eliminated or brought under control - the results being so spectacular that they attracted the attention of experts in preventive medicine all over the world' (SADNB, p.555).

⁷⁴ CO 525/166/ 44053/3 Part I 'Employment of Natives on the WWR Gold Mines (Johannesburg Agreement), K.L. Hall, Acting Gov. Govt House, Zomba to Calder 15 March 1937.

⁷⁵ Dominions Office H.17/1. Transcribed copy of correspondence with the Office of the High Commissioner for the Union in London regarding representations by the Transvaal Chamber of Mines on the subject of the shortage of native labour for the mining industry in the Union of SA. Report by Mr Abraham Senior Provincial Commissioner, Nyasaland, 22 Feb 1937 cited in Memo by JA Calder 5-7-37, 'Recruiting of Nyasaland and Northern Rhodesia Natives for the Rand Mines'.

⁷⁶ Cited in Ibid.

⁷⁷ The Commission was chaired by an ex-Chief Justice, James Stratford; among its members were the socialist Professor E.H. Cluver, recently Secretary of Health (1938-40) and Professor of Physiology at Wits, and the liberal economist, Professor Herbert Frankel, who drafted the Majority Report. The minority report was

miners demanding better compensation for miners' phthisis⁷⁸ - led to a number of recommendations which might have forced improvements on the industry. Indeed underpinning the majority report was 'the basic principle' that 'hazardous mines and industries should bear the cost of the disease which they create, not only for reasons of equity, but also in order to stimulate the taking of preventive measures'.⁷⁹

Thus in their majority report, Frankel, Cluver and Stratford recommended a universal scheme of compensation 'based on actual loss of earnings, whether wholly due to silicosis or occupational tuberculosis or not instead of the existing method of compensation'.⁸⁰ According to Frankel, the latter was simply a free-for-all, resulting from 'the *ad hoc* bargaining position of the parties concerned, i.e. the employers, the gold mines, and the ... white miners'.⁸¹ Moreover, the majority commissioners did not believe that economic loss could be correctly evaluated as it then was by 'arbitrary percentages of physical invalidity' as this ignored the variable ways in which disability influenced loss of earnings. Most importantly, in the context of this paper, they concluded that there was no justification for the lower compensation paid for 'simple' tuberculosis: in future it recommended that

all employees who are certified to have contracted tuberculosis should be fully compensated in accordance with their remaining earning capacity though a system of compulsory insurance ... on exactly the same principles and on the basis of the same scales of benefits as other compensatable diseases of the lungs. We can see no reason why the compensation should be based on different principles or should be less in amount in the case of tuberculosics than in the case of other sufferers from compensatable diseases of the lungs.⁸²

Nor did the majority commissioners see any 'insuperable administrative difficulties' in the way of paying all southern African miners and their dependents their compensation in the form of pensions rather than – as at the time – in a lump sum.⁸³

Perhaps the most important section of the report was that dealing explicitly with the unequal position of Africans. While the majority commissioners believed that there should, 'in principle, be no discrimination between the sufferers from such compensatable lung diseases, on the grounds of race or colour, except in so far as

signed by the two remaining members of the Commission, Herbert Edward Payne and Charles Joseph Gray who appear to have represented the mining industry. See UG22-'43., 1941-1943 (Pretoria: Government Printer, 1943).

⁷⁸ S. H. Frankel, *An Economist's Testimony. An Autobiography of S. Herbert Frankel* (Oxford Centre for Postgraduate Hebrew Studies, 1992), p.161.

⁷⁹ *Report of the Miners' Phthisis Acts Commission*, p.24, para. 134. The original is italicised.

⁸⁰ *Ibid.* p.1.

⁸¹ Frankel, *An Economist's Testimony*, p.162.

⁸² UG 22-'43 *Report of the Miners' Phthisis Acts Commission*, p.14, paragraph 79. This predated the Beveridge report but Frankel noted – and the Report included – a detailed comparison of the two documents, showing their basic similarities in an appendix.

⁸³ *Report of the Miners' Phthisis Acts Commission*, p.26, paras. 159-61.

such discrimination results from unavoidable practical exigencies of administration',⁸⁴ they were also aware that such a universal scheme would still leave Africans severely disadvantaged in view of their low wages and the poverty in the reserves. Having taken evidence from a wide range of bodies and individuals, they expressed themselves in no uncertain terms. Not only did this evidence disclose 'a disquieting state of affairs in relation to the compensation, the medical examination and the care of Native employees who have contracted compensatable lung diseases'.⁸⁵ It also revealed the poverty of the reserves. It regarded as totally 'untenable' 'the assumption that Native employees do not, owing to tribal conditions in the Native areas, generally suffer, proportionate to their standard of living, the same economic difficulties as Europeans'. They further echoed the views of the parliamentary Native Representatives that the 'so-called kinship tribal system' could no longer support the returned migrant without at the same time further impoverishing the whole community, pushing 'the already marked poverty-line still lower', and that 'the Native's wages have failed to move upwards with the rising costs of living and increased efficiency of their work.' Precluded from addressing the issue of wages by their terms of reference, they were nevertheless fully aware that

... in so far as the wage earned by the employee is in itself inadequate for the purpose of ensuring the maintenance of a subsistence standard of living, compensation based on the employee's wage loss cannot be sufficient for the purpose in the case of sufferers from industrial accident or occupational disease. Such sufferers must clearly be assisted from other sources if the social problem of indigency is to be solved among them. Where compensation is insufficient to provide for the sufferer a reasonable standard of living, it is in our opinion essential that the State should come to his assistance. [italics in original]

The Commissioners therefore 'strongly' recommended 'that at the earliest opportunity there should be instituted a comprehensive scheme of invalidity, old age, unemployment and sickness insurance for all employees registered on the National Silicosis Insurance Register' – a wide-ranging proposal which fell on stony ground.⁸⁶

In its way, as the above suggests, the majority report of the Miners' Phthisis Acts Commission was as remarkable a document as the better known and almost contemporaneous 1942-4 National Health Services Commission.⁸⁷ There can be no

⁸⁴ *Report of the Miners' Phthisis Acts Commission*, p. 25 para. 143. (original italicised.)

⁸⁵ *Report of the Miners' Phthisis Acts Commission*, p. 24-5: para 142. Frankel subsequently declared himself 'appalled at the lack of proper legislative provision for migrant workers.' (*An Economist's Testimony*, p. 162.

⁸⁶ UG 22-'43 *Report of the Miners' Phthisis Acts Commission*, p.13, para. 78.

⁸⁷ For the National Health Service Commission, see S. Marks, 'George Gale, social medicine and the state in South Africa', in S. Dubow (ed.) *Science and Society in South Africa* (Manchester: Manchester University Press, 2000), pp.188-211, and S. Marks and N. Andersson, 'with Neil Andersson, 'Industrialization, Rural Health and the 1944 Health Services Commission in South Africa' in S Feierman and J M Janzen eds. The Social Basis of Health and Healing in Africa (Comparative Studies in Health Systems & Medical Care) (University of California Press, winter 91-spring 92) 131-161.

doubt that had its recommendations been implemented, it would have marked a major shift in South African social policy. But – as in the case of the National Health Services Commission - this was not to be.

As Frankel later recalled, his report was swiftly made redundant. Invited to Pretoria to discuss it by Colonel Stallard, the Minister of Mines, who had appointed the Commission, he was informed that 'fortunately the strike had now been settled, and therefore he had no further use for the report at that time since we were at war'.⁸⁸ Doubtless the existence of a minority report signed by the mining representatives strengthened the government's case for inaction. Ironically, in 1956, when the apartheid state came to legislate on pneumoconiosis, the changes it made to the law, ostensibly in order to equalise the regulations for compensation, in practice discriminated further against black workers.⁸⁹ According to Frankel,

This long story displays the unwillingness [he declines to say on whose part] to face up to the clear responsibility of inaugurating a proper system of social insurance and compensation for the sufferers of this debilitating disease because they were black, and could not assert their rights. If a general system of earnings-related compensation on principles of insurance had been adopted discrimination against the black workers would not have been possible.⁹⁰

That 'doughty champion' of white working men's rights, H.W.Sampson, put it even more succinctly: miners 'would not be protected against phthisis' he said, 'until it was made expensive for the owners'.⁹¹ Hefty compensation exacted by worker militancy generally had the effect of concentrating the mind of mining capital on prevention; a massive social insurance bill for the state may have led it to put pressure on the industry for change. In the absence of either of these pressures, it is thus perhaps unsurprising that it was not until 1982 that the Nieuwenhuizen Commission of Inquiry into Compensation for Occupational Diseases (appointed in 1978 again at a time of state reformism) once more recommended that compensation be related to earnings.⁹² Again, its recommendations were not accepted, but in 1985, a couple of years after the formation of the formidable National Union of Mineworkers and in the context of dramatically increased black worker militancy, compensation for African miners was raised by 25 percent (compared to 12.5 per cent for whites, and 20 per cent for coloureds).⁹³ Intended as an interim measure, the full equalisation of compensation for black and white workers was to wait almost ten years until the eve of South Africa's democratic elections in 1994, as we have seen.

⁸⁸ For the Smuts government's inadequate response after the war, see WP 6-'45. Department of Mines, *Silicosis Bill, 1945. Explanatory Memorandum* (Pretoria: Government Printer) p.6, para 13: Benefits for Native Labourers.

⁸⁹ Simons, 'Occupational Health', chapter 6.

⁹⁰ Frankel, *An Economist's Testimony*, p.163.

⁹¹ Cited in Simons, 'Occupational health', chapter 6.

⁹² Peter Randall (ed.) *Race Relations Survey 1982* (South African Institute of Race Relations, Johannesburg, 1983), p.140.

⁹³ Carol Cooper, Jennifer Shindler et al. *Race Relations Survey 1985* (South African Institute of Race Relations, 1986), p.171.

Through the twentieth century, the Chamber of Mines refused to accept any responsibility for the toll of death and disease in the southern African countryside, and the migrant nature of its labour force long enabled it to do so. As Cathy Campbell and Brian Williams put it succinctly in 1997, over the years 'The mines have effectively externalised many of the long term costs of occupational illnesses which are borne by ex-miners' households and governmental health service in their regions of origin.'⁹⁴ It may be that since 1993 with the equalisation of rates of compensation for black and white miners, the decision in the British House of Lords over the liability of British registered firms in British courts, and the research on the connections between tuberculosis, silicosis and silica exposure and HIV/AIDS, the industry will be forced to pay greater attention to the costs of work-related ill-health to its labour force and their families. This is well overdue: for the millions of men whose lives have been shattered and who have already died as a result of the combination of silicosis, related lung disease, tuberculosis and now HIV/AIDS it is tragically too late.

⁹⁴ Campbell and Williams, 'Responses to HIV/AIDS in the mining industry: past experiences and future challenges' in Brian Williams, Catherine Campbell and Catherine McPhail, *Managing HIV/ AIDS in South Africa. Lessons from Industrial Settings* (CSIR, Jhbg, 1999), p. 17.

