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Historical Perspective

The Doctors and the Dockers

Morris Greenberg*

Background *London Dockers unloading a dusty asbestos cargo in 1965, consulted an eminent Occupational Health physician, Dr. Donald Hunter who informed them that they had been at serious risk. A second, opinion provided jointly by a Consultant Chest Physician, the Port Medical Officer, and the Medical Advisor to the Trades Union Congress, declared that they knew of no disease affecting dockers, and stated that intermittent exposure to asbestos constituted an inconsiderable risk that with certain precautions would be eradicated.*

Methods *Archival material have been obtained to supplement limited published material and eyewitness accounts of the event, to provide a clearer picture of the issues.*

Results *Reassured by the Chest Physician, the Port Medical Officer, and the Medical Advisor to the Trades Union Congress that they had little to fear, London dockers resumed unloading asbestos. From time to time dockers at other ports were to express concern and interrupt work, only to be similarly reassured.*

Conclusions *Had the medical troika in 1965 considered the available health statistics, they would have had reason to take a less sanguine attitude to the cancer mortality of dockers. An analysis of data for 16 selected occupations for the years 1900–1902, showed dockers to have an unhealthy job, with deaths from 'All Cancers' of 1.09 per 1,000 years of life (the fourth highest). The Registrar General's occupational mortality report for 1951, noted excess tumors of the lung and stomach for dockers. Elevated Standardized Mortality Ratios for lung cancer had consistently been calculated by the Registrar General for the 20–64 age group of dockers; in 1931 (183), 1951 (149), and 1961 (169): by 1971 it would be 182. A total of 266 dockers were to be registered in the UK by 1999 as having died of malignant mesotheliomas, proving that Donald Hunter's concern for dockers had not been excessive.* Am. J. Ind. Med. 45:573–581, 2004. © *2004 Wiley-Liss, Inc.*

KEY WORDS: Britain; dockers; doctors; asbestos; lung cancer; malignant mesothelioma; occupational health

INTRODUCTION

While all physicians are presumed to have the best interests of their patients at heart, in the matter of giving advice on the hazards arising from occupation, an adversarial situation can arise in which physicians advising workers, interpret health data differently from physicians employed by industry. Under these circumstances it requires more than scientific acumen to distinguish between the physician as 'Attorney of the Poor' or as 'Enemy of the People.'

In 1965, a group of dockers in the Port of London, consulted Dr. Donald Hunter about the hazard to their health

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from unloading dusty asbestos cargoes. His opinion was that the inquiring dockers had been at serious risk, and recommended ways of reducing it in the future [Hunter, 1965]. Industry considered that his alarm was excessive, and presumably because no individual could be identified of sufficient authority to refute him, they appointed three physicians to review the problem. They were dismissive of the risks of the dockers' intermittent exposures to high levels of asbestos, reserving the use of respirators and protective clothing in the event of substantial spills [Perry et al., 1967]. Reassured, the London dockers resumed unloading asbestos cargoes.

Published and internal industry records have been reviewed to throw light on the roles played by the physicians who became involved in the incident, the better to equip the reader to decide where Virchow's and Ibsen's epithets are best fitted to the physicians involved in the controversy.

A BRIEF RESUME OF THE AWARENESS OF ASBESTOS AS A HUMAN HEALTH HAZARD BY 1965

Commercial mining for chrysotile asbestos started in Quebec in the late 1870s, and in 1898 it was reported in the UK to be one of the four most hazardous occupational dusts [Deane, 1899]. Shortly after, a London asbestos textile worker in his early 30s, the last survivor of ten men who had been employed together in an asbestos process 14 years previously, died from 'fibroid phthisis' [Murray, 1907]. Further alarming reports of respiratory disease and death in asbestos workers followed from France [Auribault, 1907], from Italy [Scarpa, 1908], and again from England [Collis, 1911]. A few years later, American and Canadian insurance companies generally declined to accept asbestos workers [Hoffman, 1918], and the clinical picture and abnormalities in the chest radiographs of 15 American asbestos workers were reported [Pancoast et al., 1918]. By 1924, when the first detailed clinico-pathological case report of asbestosis was published [Cooke, 1924], physicians in towns with asbestos factories were already familiar with the condition [Joss, 1924; Grieve, 1927]. In 1930, an H.M. Factory Inspectorate survey revealed the extent of asbestosis that prevailed in the manufacturing industry [Merewether and Price, 1930].

Miners and millers of Canadian chrysotile had repeatedly been given a clean bill of health by government and industry [Department of Labour, 1912; Pedley, 1930; Stevenson, 1940], though the actuaries knew better [Hoffman, 1918; Fitzhugh, 1935]. A dissenting medical opinion asserted that all the facts essential to the welfare of people exposed to the hazards of asbestos dust had been well-known in North American mining and medical circles [LeDoux, 1949]. After comparing tuberculosis rates of Thetford Mines, with inhabitants of Sorel and Granby who were not exposed to asbestos, Ledoux concluded from the abnormally high tuberculosis mortality rates at Thetford Mines, either that inhalation of asbestos dust pre-disposes to and aggravates pulmonary tuberculosis, or that many deaths certified at Thetford Mines as having been due to pulmonary tuberculosis were inaccurately diagnosed, and in reality were due to asbestosis. It was not for some time that the health hazard of miners and millers was acknowledged [Cartier, 1955].

When a causal association between asbestos exposure and excess lung cancer was confirmed [Doll, 1955], it was denied that it applied to Canadian miners [Braun and Truan, 1958]. International consensus had earlier been reached about the carcinogenicity of asbestos [Anonymous, 1953], but at the landmark New York Academy of Sciences meeting on Asbestos in [Whipple and van Reyen, 1965], industry continued to question the causal association between asbestos exposure and excess cancers, and iterated the traditional claims that improved conditions had consigned asbestos diseases to history.

The emergence of malignant mesothelioma as an asbestos associated hazard [Wagner et al., 1960], added a further dimension to the problem.

PHYSICIANS INVOLVED IN ASSESSING THE HEALTH RISKS TO DOCKERS FROM ASBESTOS

Dr. Donald Hunter

Dr. Donald Hunter's interest in Occupational Health developed after a research assistantship in 1926 at Harvard, and continued on his return to The London Hospital as Assistant Physician. In 1943 he was invited to be Founder-Director of the Medical Research Council's (MRC) Department for Research in Industrial Medicine at The London Hospital. As Founder-Editor of the British Journal of Industrial Medicine and author of a singular book on 'Health in Industry,' he received international acclaim. Of humble origins, born son of a Post Office worker and brought up in the East End of London, he metamorphosed into a Censor and Senior Fellow of the Royal College of Physicians, and Commander of the British Empire, nevertheless he rallied promptly to the call from the East End dockers.

Dr. Robert Murray

Dr. Robert Murray joined HM Inspectorate of Factories in 1947, and being based in Manchester would have gained valuable experience from the inspection of regional asbestos factories. One of them, Acre Mill, would return to haunt [Parliamentary Commissioner for Administration, 1976]. He moved to the International Labour Organisation (ILO) Occupational Safety and Health division, returning to the UK in 1961 as Medical Advisor to the Trades Union Congress (TUC), which he was to leave in 1974. Like Hunter

he was of modest origins, and achieved honors including an award of the Order of the British Empire. After the TUC he established a thriving national and international consultancy practice, receiving commissions from industry and from a number of unions. He continued to be involved in the control of asbestos after leaving the TUC, both as a consultant to industry and by his influence at the ILO.

Dr. Kenneth Perry

Dr. Kenneth Perry was a Consultant Physician at The London Hospital, who like Hunter had 'been to America' as a research fellow, a rite of passage for promising young physicians, and had worked for the MRC during the Second World War investigating occupational diseases. His obituary in the British Medical Journal (6th October 1984) described him as having a critical eye for both medical and political scenes about which he held strong views: this might have influenced his choice as an opinion to counter Hunter's.

Dr. A.M. Lawrence-Smith

Dr. A.M. Lawrence-Smith, was Principal Medical Officer to the Port of London Authority, and would be expected to have had a more extensive and intimate knowledge of the work practices of dockers and stevedores and of their health experience than the text books betrayed.

Dr. Donald Hunter on Asbestos

The young Dr. Hunter's opinion on the dangers of asbestos was presented on 10th January 1934 at a meeting in Manchester in an address entitled: 'Industrial Toxicology of Today.' A postscript to a letter addressed to the inventor of the Asbestos Spray process by an industry colleague noted:

> 'As a matter of interest, we have just learned that a Dr. Hunter of London has recently given a paper in Manchester to both the Medical Society and Chemical Society on this subject, during which, I understand he referred to the Dolbey process as "murderous" [Anonymous, 1934].'

(There was no occasion for the owners of the patent to be alarmed; sprayers were to continue to work throughout the world for some 40 years and die quietly.)

In 1965, the story as related in a personal communication by the late Alan Dalton, who interviewed some survivors a number of years later to obtain evidence in his defense of a suit for defamation brought by Robert Murray. One day a number of East End dockers, troubled by a particularly dusty asbestos cargo that they were unloading, set out for The London Hospital and on arriving asked whether there was anybody there who knew about asbestos. At which a more experienced and now eminent Hunter came out of a meeting to talk to them, a consultation for which he requested a plebeian fee of a beer and a sandwich.

A graphic account has been given by a docker of the process of transferring asbestos from the hold of a ship to a lighter in the South West India Docks (London). Four hundred to five hundred tons of asbestos were stowed in sacks in a ship's compartment measuring 18 feet square and 50–70 feet deep, that was entered at the top through a 9 feet square entrance [Stower, 1985]. The docker descended vertically into the hold and emerged by means of steel rungs welded to the wall. The physical effort of the work combined with the physiological stress arising from the temperature in the hold which was proximal to the boiler room, would have limited the ability to tolerate for long, adequately protective clothing and respirators had they been provided.

After inspecting the unloading process in the ship concerned, Hunter wrote to the dockers' representative:

> 'It is my considered opinion that the Siebe Gorman mask Mk 4, must be used by all the men, both in the hold and in the barges, in spite of the fact that the breathing resistance creates a difficulty. I realize that it will take much longer to unload a given cargo but if their health is damaged by asbestos, the process is irreversible. Further, I take the view that vacuum suction must be used on the cargo itself during the whole period of unloading, for whenever a bag breaks, the dangerous powder is scattered around and must be removed so that it cannot escape into the working environment [Hunter, 1965].

INDUSTRY'S RESPONSE TO HUNTER

The Shipowners' Joint Industrial Body responsible for working conditions within the Ocean Trades of the Port of London, claimed that Hunter's precautions would have a grave effect on the importing of asbestos through the Port of London. They commissioned what they called a Consultant Biochemist to examine the dust count in the atmosphere of a ship's hold during the discharge of various kinds of bags, though they had doubts that: '...the men will accept the conclusions reached, in face of the opinion held by Dr. Hunter...'. The "Consultant Biochemist" laboratory being situated conveniently close to Harley and Wimpole Streets, served their medical practitioners as well as conducting a more general Public Analyst service.

The Secretary of the Shipowners' Joint Industrial Body wrote to Turner and Newall: '...it would assist me greatly if you could advise me of an eminent Doctor, who might even in the face of Dr. Hunter's views, give an opinion on the

Biochemist's report' [Bennett, 1965]. The inference being that a physician could be found who was more favorably disposed to asbestos and whose opinions and recommendations would not prove so restrictive. This question was passed to Turners Asbestos Fibres Ltd., who in turn passed it to Turner and Newall (T & N) their Manchester based holding company, with the comment that:

> We have been singularly fortunate so far in that our difficulties with the dockers have not been ventilated publicly, especially as they would make excellent material for a feature on radio, television or in the press. . .it is only a matter of time before publicity overtakes us, especially if a reporter gets hold of Dr. Donald Hunter [Fell, 1965].

T & N consulted Dr. Knox, medical officer to Turner Brothers Asbestos (TBA) Rochdale who referred the matter to his Manager, who agreed with the suggestion that Dr. Walter Smither, medical officer to Cape Asbestos at Barking, whose raw material arrived at the West India Docks, would be able to advise the London Group of Shipowners [Waddell, 1965]. Cape Asbestos, Barking had been established in 1913, and from 1929 onwards its disabled workers were to find their way in increasing numbers to the local Medical Officer of Health's Tuberculosis Clinic, The London Hospital, and the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park East. Smither had been recruited from general practice, but in following up Cape employees at clinics and at Coroners' autopsies, in a short period should have gained considerable experience of diseases associated with asbestos.

On receiving the preliminary report dated 3rd August 1965 from the Chemical Analytical Laboratory of airborne asbestos during unloading [Milton, 1965], a letter was sent out on 5th August by the Joint Secretary of the Industrial Committee for a meeting of Employers on the 9th, accompanied by a copy of the Environmental Analyst's interim report.

The impression from an overall look at the interim report indicates that the analyst was unfamiliar with best practice for measuring the exposure of individuals to asbestos, let alone airborne dusts. The characteristics of the sampling instrument were not given, but the environmental measurement was of "background" airborne dust in terms of milligrams per cubic foot. The analyst's study of the literature persuaded him that the harmful fraction of asbestos was contained in particles from 10 to 50 microns. Based on the US Public Health Service's tentative suggestion for a hygiene standard in 1938, which he assumed to be a safe level, he calculated 5 million particles per cubic foot to be equivalent to 2.5 mg per cubic foot by weight. (The full report issued 12 months later, while still sanguine about the health prospects of dockers on the whole, was more guarded as to the safety of 5 mppcf). Three air samples were stated to contain 1.3, 1.4, and 1.5 mg/cu. ft. which were deemed safe. At a meeting held on 12th August 1965 at the Ministry of Labour, HM Chief Inspector of Factories and his officials met with a Commercial Councillor in the High Commission for Canada, and a representative of UK Asbestos Producers and Merchants. Prior to the meeting, a representative of the Board of Trade had written to the Ministry of Labour expressing fears that if imports of asbestos were banned, the vital motor industry and building trades would cease, and many thousands of workers would be laid off and vital export trade would be lost. In the event, the meeting resolved nothing other than that HM Factory Inspectorate would investigate the handling of asbestos in the docks. The Ministry of Labour wrote to the employers some 10 weeks later to the effect that the 5 mppcf level had been exceeded when unlined hessian sacks were used and the work rate was normal.

PHYSICIANS ON THE HAZARD OF UNLOADING ASBESTOS CARGOES

A summary account of problems with the Dockers as seen from an Industry viewpoint was given in a memorandum from TBA to its holding Company. In reference to this impending report the author of the memorandum wrote:

> "...I know Dr. Murray well personally and I have been in touch with him three times in the last few days. He told me that Dr. Lawrence-Smith and Dr. Perry and himself had prepared a report designed to allay the fears of the dockers. ...Where the bags are broken they recommend respirators, which means slow handling and special rates, but otherwise they do not think that there would be any objection by the dockers to unloading white asbestos ...Before signing and publishing this report, however, Dr. Murray was asked to attend a big meeting of dockers, along with Trade Union officials, at the West India Docks...when he hoped to get them to agree to recommence handling white asbestos...Dr. Murray also told me that he had been instrumental in settling two stoppages of work in Glasgow—one on the Q4 with 'Marinite' and one on a building site with Asbestolux."

Interest was aroused in the National Press by the dockers, and the Press in turn attracted the dockers' interest. An article in The Sunday Times of 31st October 1965 headed, 'Scientists track down a killer dust disease,' which largely dealt with malignant mesotheliomas, drew attention to the

series of cases identified by Dr. Muriel Newhouse in The London Hospital files, one of which included a docker's wife of whom it was said that her husband came home with his work clothes covered in asbestos, which she brushed down [Newhouse and Thompson, 1965].

Under the headline, 'Dockers fear health peril from asbestos,' on 30th October 1966 The Sunday Times, reported that Dr. Lawrence-Smith had made: '...a controversial attempt to assuage their (dockers') fears...' and had circulated a signed statement among the men which stated that:

> ...the Ministry of Labour arranged scientific investigations which excluded the lung disease of "asbestosis" as a risk to dock laborers, that the development of the tumor associated with asbestos-known as mesothelioma-requires similar circumstances to those causing asbestosis, and that the tumor only occurs where a particular variety and grade of dust, not found in commercial cargo, is released into the air...He has an assurance from HM Medical Inspectorate that the gangs run no risk of mesothelioma or asbestosis in handling such cargoes.

The three doctors finally reported in 1967 with the conclusion:

> Our inquiries have found no case of injury to the health of a dock worker in the Port of London that could have resulted from employment there with asbestos cargoes; and we have no knowledge of any cases of Asbestosis occurring in the Docks Industry in the country, as a result of Dock work [Perry et al., 1967].

Dockers nationwide were informed:

> We are fully satisfied as far as the Docks Industry is concerned, that no unacceptable risk at present exists and that provided the currently approved methods of work are followed, Dockers may proceed with confidence in the handling of asbestos cargoes...

The categorical statement:'...our inquiries have found no case of injury to the health of a dock worker in the Port of London that could have resulted from employment there with asbestos cargoes...' would seem to have been accepted in the absence of supporting evidence.

The assertion: 'That no unacceptable risk exists at present in the Docks Industry,' begged the question of what risk was acceptable, and was not evidence based. In the absence of demonstration that a threshold dose of asbestos existed below which it had no carcinogenic effect, the claim that: 'Asbestos can only be a risk if substantial amounts are inhaled and that it is perfectly safe to handle otherwise...,' was unjustified.

Similarly the three 'facts' included in the statement: (1) 'Scientific investigations had excluded "asbestosis" as a risk to dock laborers;' (2) '...mesothelioma occurs with asbestosis...;' (3)...(mesothelioma) results from a particular variety and grade of dust not found in commercial cargoes; were unfounded. No scientific investigation addressed to asbestosis had been conducted, asbestosis had not been demonstrated to be a necessary precursor to mesothelioma or to bronchial carcinoma for that matter, and all varieties of asbestos were to be found in commercial cargoes at that time.

The Dock Industry newspaper, under the banner headline: 'The facts about asbestos,' included several sub-texts [The Port, 1967]. Prominently, under the headline: 'A new statement signed by all sides: No unacceptable risk exists,' there was the full report of the three-doctor inquiry without critical comment. Separately, the views of Dr. Robert Murray and of Dr. Lawrence-Smith were reported. Dr. Murray was presented as largely attacking crocidolite, insisting that it was so dangerous that it would be wrong to stand the chance of the slightest amount of the dust getting into the atmosphere, and going so far as to declare that he would not be entirely happy until there was a total ban on its import. As for amosite and chrysotile, he saw it legitimate for dockers to handle palletised impermeable bags, provided masks were available in case of spillage, until containerisation was instituted. Dr. Lawrence-Smith was quoted as describing the risks to dockers as negligible, though adding the caveat: 'we have to take precautions and keep our eye on the matter.'

EVIDENCE FOR AN EXCESS CANCER MORTALITY RISK FOR DOCKERS

The statement that: 'Dockers are no more likely to get lung cancer than anybody else' was not supported by evidence readily available at that time. An earlier analysis of British mortality data for 16 selected occupations, showed dockers to have experienced a rate of deaths from 'All Cancers' of 1.09 per 1,000 years of life, which as fourth highest should have been of concern, though specific sites were not mentioned [Collis and Greenwood, 1921]. Another analysis of national mortality data had observed (O) 144 'Wharfingers and stevedores' to have died from 'All Cancers' where 101 were expected (E): among the excess tumors were, lung (O = 59, E = 37 Standardized Mortality Ratio (SMR) = 159), and stomach (O = 29, E = 18 SMR = 156) (Registrar General, 1957). In an analysis of mortality for the 20–64 age group of dockers in England and Wales, elevated SMRs for lung cancer mortality were found consistently over the course of 40 years: 1931 (183); 1951 (149); 1961 (169); 1971 (182) [Logan, 1982].

It could be argued that these findings did not necessarily represent the direct effects of dock work, and might merely be a reflection of life style; in the case of dockers the facile explanation would be to attribute it to their smoking and drinking habits. In a later analysis by the Office of Population Censuses and Surveys of data for Stevedores and dock laborers, social class standardization was applied, and where 1,365 deaths from all causes were registered 1,291 would have been expected. Proportional Mortality Ratios were significantly raised for cancers of stomach, larynx, and lung and for bronchitis, emphysema, and asthma: the excess lung cancer mortality was confirmed by cancer registration data for the years 1966–1967 and 1968–1969 [Fox, 1978]. Although the commentator did not consider that the excesses clearly represented the direct effects of work, as social class adjustment would have taken account of much of the potential effects of the cigarette and alcohol variables it would have been prudent not to dismiss the potential contribution of work.

In the period 1967–1968, in Britain four dockers were registered as dying of mesothelioma [Greenberg and Lloyd Davies, 1973], and the incidence of asbestos-associated deaths registered for male dockers was to rise subsequently. In the years 1979–1980, 1982–1990, in one analysis, 36 dockers and goods porters were found to have died of mesothelioma of the pleura, 7 of mesothelioma of the peritoneum, and 4 of asbestosis [Coggon et al., 1995]. Another analysis of data for those years, reported 57 Stevedores and dockers to have died of mesotheliomas (P.M.R. = 293.3, 95% Confidence Interval = 226.6–358.8) [Hutchings et al., 1995]. By 1999, the cumulative total of deaths from mesothelioma in occupations corresponding with dock worker, had risen to 266 [Hodgson and Darnton, 2000].

(When Murray was to offer to conduct a preliminary study for the asbestos industry, '. . .to show that people like dockers who have had intermittent and quite high exposure to asbestos have nonetheless not suffered from asbestos related disease to any extent' [Murray, 1984], Industry acknowledged that the £1,000 fee requested was reasonable but with prescience declined the offer in case the conclusions proved positive [Hardie, 1984].)

PUBLIC RELATIONS AND THE DOCKERS

The PR consultants to the asbestos industry prepared a leaflet for the Dockworkers that included the following statements:

> '. . .(asbestos) can only be a risk if you inhale substantial amounts of airborne dust. It is perfectly safe to handle otherwise. . .'
> '. . .Cancer associated with asbestos is extremely rare (this presumably refers to malignant mesothelioma). In 50 years there have been only about 200 cases of lung cancer (mesothelioma) associated with asbestos in Great Britain. This compares with the present level of 26,000 cases of lung cancer (which presumably refers to bronchial carcinoma) from all causes [Hill and Knowlton International, 1967].'

In the absence of proof for the existence of an amount of this carcinogen below which it is 'perfectly safe,' the claim that only 'substantial amounts' are harmful may be perceived as self-defining or deceptive. The leaflet posed the question: 'Is asbestos safe to handle?' to which it answered: 'Yes, provided shippers pack it in a way that dust is not emitted' (begging the question of whether this had yet been achieved). To the further question: 'Suppose some bags are damaged?' it replied that: 'A few torn bags are no cause for concern because they will not release large quantities of airborne dust.' If large numbers were damaged it suggested: '. . .respirators and overalls may be desirable. . .' In current practice, bags were not handled with delicacy and the resultant spillage was dealt with by dry-sweeping, by which exposure was enhanced.

The figure quoted of 200 cases of mesothelioma over the course of 50 years was an imperfect statistic, and its juxtaposition with 26,000 cases of "lung cancer" a year was calculated to minimize it further. While the number of asbestos workers at risk of mesothelioma amounted to thousands, the 26,000 cases of "lung cancer" a year related to the tens of millions of males and females in the general population. Although mesotheliomas are rare in the general population they are far from rare in asbestos-exposed populations. This document not only minimized the importance of mesothelioma as a risk to asbestos workers, but omitted to take into consideration the substantial additional risk of associated "lung cancer."

A PR company is not on oath when preparing a brief for its client, and its staff may not appreciate the niceties of a scientific case, however, industry's expert scientists and physicians should have been able to identify their errors and omissions.

THE DOCKERS' RESPONSE TO REASSURANCE

The three-doctor reassurance to the dockers was supported by a Labour Minister who informed Parliament, that he knew of: '. . .no recorded case of a docker contracting asbestosis from his work, and dockers are therefore no more likely to get lung cancer than anybody else [Gunter, 1967].

Notwithstanding, 2 years later Glasgow dockers were to inform Clydeside Stevedores of their refusal to handle further shipments of asbestos [Scott, 1969]. The shipping company attributed this to a television program the

previous week that suggested that the inhalation of white fiber (chrysotile) might be dangerous. A letter cited the earlier opinions of Dr. Murray and of the Minister of Labor, as well as the Code of Practice issued by the Asbestosis Research Council, declaring the safety of the process where proper precautions are taken [Gemmell, 1969a]. (Despite its title, The Asbestosis Research Council was an industry agency with a public relations function [Tweedale, 2000]).

The author of the reassuring letter of 12th August 1969 could write the same day to Bell Asbestos Mines in Canada, owning frankly to excessive dust counts having been measured during manual discharge of container loads of Bell fiber packed in both Clupak and multiwall paper [Gemmell, 1969b].

> 'You will note that the great majority of the counts taken at the various operations exceed the level at which our (government) inspectors would require improvements to be made (above 4 fcc) and that in approximately six instances they would have required operations to stop until respiratory protection had been provided (above 12 fcc)...There is one further point about dust counts which ought, I think, be looked at, i.e., how it comes about that so much dust is generated although the bags are impermeable and undamaged.'

He suggested that in the case of Clupac: '...it is possible that loose fiber is picked up by the hessian in the mill...', and as for the impermeable paper sacks, he observed: '...loose fibre clinging on the outsides was negligible, but from my own observation a good deal of dust is emitted from the bag closure during handling.' The author observed the filling of multiwall paper sacks: this was carried out by means of a hopper under less than efficient containment, following which the neck was machine stitched. It was then tipped over and trampled to flatten it to facilitate stacking, during which process dust could be seen being expelled through the gaps between the stitches.

Over the next few years, despite intermittent concern by dockers for their health, asbestos continued to be imported, unloaded and delivered to the factories. After a Port of London disturbance, following a television program that suggested that the inhalation of chrysotile asbestos might also be dangerous, Glasgow dockers who had initially been concerned about crocidolite, declined for a time to unload that too. At various stages, by way of temporizing, arrangements were made for the diversion of asbestos to more accommodating UK ports [Cablegrams, 1969], though from time to time even they, for example Manchester [Howe, 1969] and Avonmouth [Hope, 1969], came to be troubled about asbestos.

In one incident, when a cargo arriving at Manchester was noted to have been marked in South Africa as intended for Glasgow, local Union officials agreed to keep quiet about it and any similar cargoes en route [Howe, 1969], while industry arranged that in future South Africa would not mark the port of destination on cargoes.

EPITAPHS

Their work was necessary, hard, physically hazardous and dirty, the process of hiring was degrading, and their stereotyping was as a vulgar and violent group, but the guild-like conditions for admission to the labor pool and the specialized nature of the work were those of an elite. The movement of port activity downstream to the Medway put paid to London's docks and containerization would create redundancies. East London's docklands are to be remembered locally by street and pub names, dockers are commemorated by their entries in the National Mesothelioma Register, and Hunter is honored on bookshelves worldwide.

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