The Asbestos Hazards Handbook
A guide to safety at work, in the community and at home

More people than ever are dying from asbestos-related disease. Over 3000 will die in 1995 from past exposures, the death rate will increase for another 15–30 years, and could reach a peak of 10,000 per year. Everyone is at risk and children are especially vulnerable. Victims face years of agony and their chances of adequate compensation are poor as companies try to avoid the settlement of claims. UK buildings are still stuffed with asbestos and the building industry is swinging away from substitutes back to asbestos-containing materials.

If you have to deal with asbestos in your workplace, community or home, The Asbestos Hazards Handbook will tell you about:

- the hazards
- how to counter the myth of 'safe' asbestos
- dealing with asbestos: identification, sealing, removal, disposal
- asbestos waste
- alternatives: how safe are they?
- the law and why it must be strengthened
- compensation and benefits
- how the industry put profit before safety
- organising a campaign

This book is a vital tool in the fight to control and get rid of the asbestos killer

FUNDED BY
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£12 (£5 to trade unions, community groups, tenants' and resident's associations when ordered directly from London Hazards Centre)

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London Hazards Centre, Interchange Studios, Dalby St., London NW5 3NQ; tel 0171 267 3387

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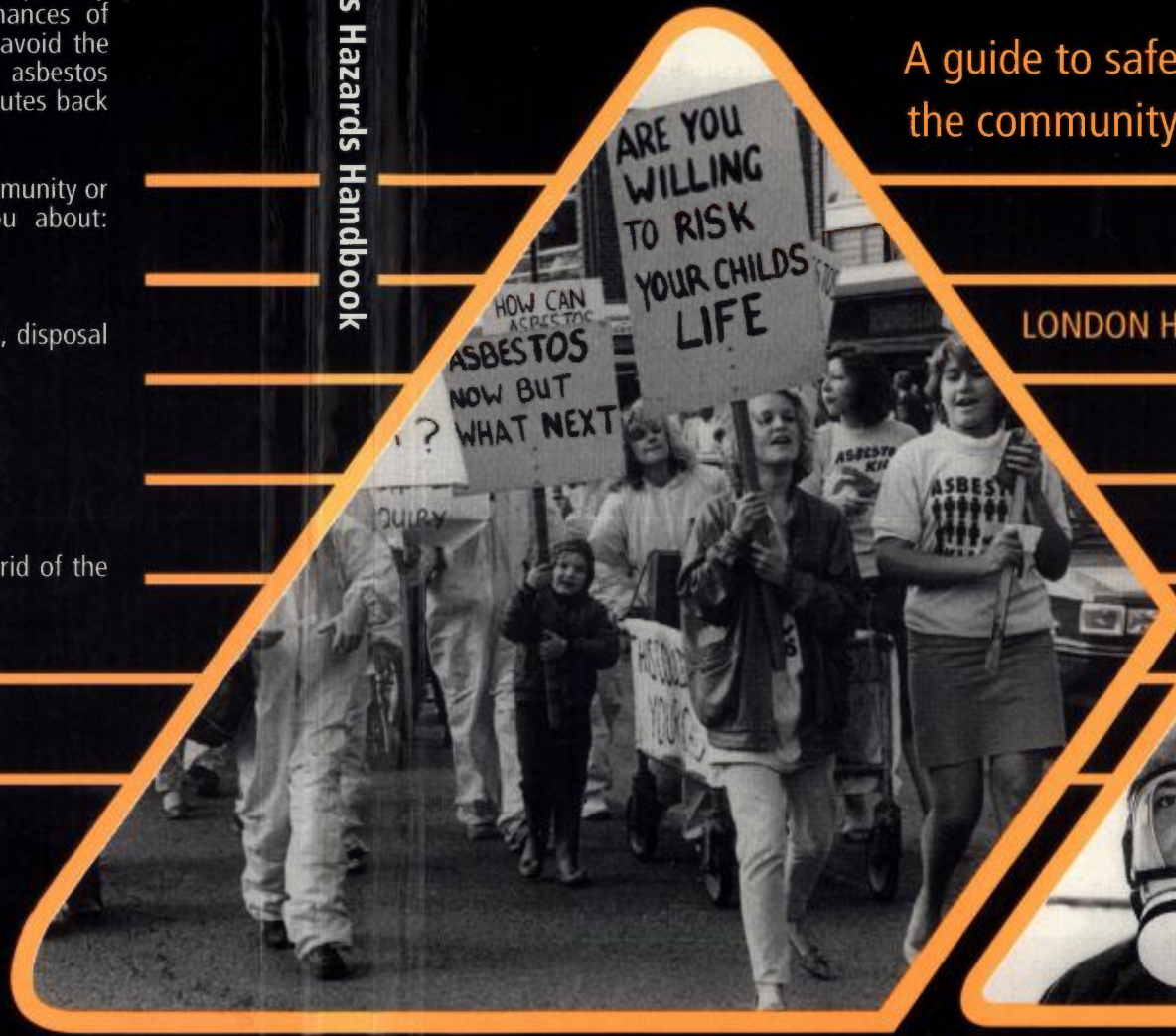

LONDON HAZARDS CENTRE

A London Hazards Centre Handbook

Front cover photo: London Hazards Centre

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ABOUT THE LONDON HAZARDS CENTRE

Advice service

The London Hazard Centre provides a free advice and information service on occupational and environmental hazards to workplace and community groups in London. We aim to help those Londoners who do not have access to commercial or academic resources. We give priority to those with the most dangerous living or working conditions.

Information resources

The Centre's library contains information from workplace and campaign groups, as well as official and scientific publications. We receive bulletins from health and safety organisations all over the world. The collection is backed up by our computerised catalogue *HAZLIT* (accessible via e-mail) and by major technical databases in easy-to-use compact disk form. The library has been designated a WHO *Practical Information Centre* under the International Programme on Chemical Safety.

Research and briefing service

We offer a research and briefing service to trade unions, local authorities, solicitors, journalists, media researchers and others working to combat hazardous working and living conditons.

Training

The London Hazards Centre offers training on basic health and safety law, procedures and good practice. We cover general health and safety, the control and substitution of hazardous substances, VDUs and RSI, safety representatives' rights, violence at work, and lifting and handling.

DEDICATION

This book is dedicated to the memory of Dick Jackson (1923-1994), a fearless campaigner against the tyranny of asbestos until he himself died of mesothelioma.

Dick is a role model for us all. He helped hundreds of victims and their families gain recognition of their claims. And through his work as a GMB activist and as a cornerstone of the People's Asbestos Action Campaign he publicised the 'ban asbestos' message out from Hull, his home town, to Westminster, into Europe and across the world.

In the last year of his life he was seen addressing the first major Brazilian conference on asbestos, attending six or seven inquests a month, visiting tenants on asbestos-ridden estates around the UK and challenging Julian Peto on his mortality rates at a key lecture given at the London School of Hygiene.

Dick always found time for his family and to support others. He liked to be known as the 'hazards grandpa' and at Hazards Conferences was an instant creche success! He is hugely missed by everyone in the Hazards Movement and will be a continual source of strength and inspiration in the fight for the right to a healthy environment.

ACKNOWLEDGEMENTS

This book started out as an update of the Asbestos Factpack, originally published by the Peoples' Asbestos Action Campaign in 1985. On the cover, it said that 12 people in Britain will die of asbestos disease every day for the next 15 years. Now we know it will be closer to 40 a day for the next 30 years. In fact, the book has been completely rewritten. The great bulk of the work was carried out by Margaret Sharkey. The chapter on international developments was written by Cora Roelofs of the New York Committee on Occupational Safety & Health during a summer sojourn at the London Hazards Centre. Others who made significant contributions were Maurice Birch, Alan Dalton, Vic Heath, Charlie Kavanagh, Bill Lawrence, Tony O'Brien, Rory O'Neill, Roslyn Perkins, Nancy Tait, Phil Smith and Ross Udall. Many others too numerous to mention took the time and trouble to provide information on their experiences of dealing with asbestos or to comment on the manuscript. It would not have been possible to produce the book without all this help.

While this book was in the planning stage, the London Hazards Centre lost a crucial slice of its funding in the Barings crash. It looked as though we might have to abandon the project but an emergency appeal brought the finance and confidence we needed to continue. A list of the donors is given overleaf.

Any imperfections that remain are the responsibility of the London Hazards Centre. It is not a definitive book on asbestos. There is a lot more of the asbestos story still to unfold. But it is a handbook for ordinary people to act to reduce the toll of asbestos victims, based on the best available knowledge at the time it was written. If it succeeds to any extent in achieving this, then all the effort will be justified.

Hugh MacGrillen
London Hazards Centre
November 1995

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MSF Wellcome & Murex Dartford
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NGA East Anglian Daily Times News
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NUCPS Department of Health London
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NUT Croydon Teachers' Association
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INTRODUCTION

We face a massive and totally preventable epidemic of early, painful death and suffering caused by asbestos. Its evil effects have been known for nearly 100 years, yet in the next 30 years 150,000-250,000 UK citizens will die of lung cancer, mesothelioma and asbestosis.

In the last 20 years, action by trade unions and tenants' groups has saved lives. Inspired by campaigners like Dick Jackson, the Hazards Campaign did not swallow the myths that blue asbestos was the only real killer, that fibres in cement were 'locked in', that non-occupational exposures were not sufficiently high to cause disease, or that the relatively rare mesothelioma was the only cancer to worry about. Ahead of decent legal controls, many workers refused to work with any asbestos, insisted that substitutes be found, developed safe procedures for removing asbestos from buildings, fought for the law to be toughened, and tried to get adequate compensation for the victims.

But there are still huge quantities of asbestos in buildings, much of it in poor condition. Though legislation is now more favourable than in the past, there are not enough inspectors to enforce it and penalties for offenders are minimal. There is a need for new regulations that specifically require all building owners or long-term lease holders to identify, record, make good, label and manage asbestos in their buildings.

Wherever asbestos is found, it is vital to:

- identify it by bulk sampling by a reputable analysis company
- record where it is and its condition (the record should be in a publically available document)

- make safe all asbestos identified (by removal, preferably, or enclosure)
- label it and institute a management control programme so it is not disturbed (e.g. during maintenance or refurbishment) or damaged (e.g. by vandalism, wind, fire or water)

Risk assessments required by the Management of Health and Safety at Work Regulations 1992 should include all asbestos in a building. The Construction (Design and Management) Regulations 1994 require both clients and contractors to prepare a health and safety plan. This must consider any asbestos present. Union safety representatives are entitled to see, by law, both the risk assessment and the health and safety plan.

There is an urgent need for political action. There is currently very low awareness of the risks from this deadly dust. There are six key demands which have to be fought for. Demand:

- a public enquiry — get your union, MP, MEP or community or environmental group to help expose this public health disaster
- a ban on the importation and use of all asbestos — 5,000 tonnes of white asbestos is still imported every year
- all asbestos in buildings be identified, recorded, labelled and a management control programme instigated with all asbestos locations recorded on a public register
- all work on asbestos is done by licensed contractors and that the Health and Safety Executive is given the resources to enforce safe practice
- the imprisonment of asbestos licence holders who break the terms of their licence
- all victims of asbestos disease are fairly compensated by the state and through common law, and that government clawback of benefits should be from the company or insurer, not the victim.

These demands will not be easily won. The information in this book will, we hope, contribute to increasing the pressure for the necessary improvements. But ultimate victory will only be secured by serious and committed organisation. We hope that when you have finished this book, you will be motivated to become involved in one or more of the organisations listed below. If that is the outcome, we will have achieved our aim.

Contacts and Resources

Hazards centres, advice and support groups

Asbestos Related Diseases Association, c/o Tony Huggett, 80 Raymead Drive, Bestwood, Nottingham.

Ban Asbestos Network, c/o Patrick Herman, Algues, 12230 Nant, France; Tel: 33+6562 2302.

Birmingham Health and Safety Advice Centre (HASAC), Unit 304, The Argent Centre, 60 Frederick Street, Birmingham B1 3HS; Tel: 0121-236 0801.

Bradford Occupational Health Project, 23 Harrogate Road, Bradford, South Yorkshire BD2 3DY; Tel: 0274-626 191.

Clydeside Action on Asbestos, 245 High Street, Glasgow G4 0QR; Tel: 0141-552 8852.

Construction Safety Campaign, 255 Poplar High Street, London E14; Tel: 0171-537 7220.

Health and Safety Project, Trade Union Studies Information Unit, Mari House, Old Town Hall, Gateshead NE8 1HE; Tel: 0191-478 6611.

Hull Asbestos Action Group (HAAG), 169 Cranbrook Avenue, Hull HU6 7TT; Tel: 01482-804 739

Keighley Trades Council Health and Safety Campaign, Keyhouse Project, Low Street, Keighley; Tel: 01535-691 264

Leeds Occupational Health Project, Leeds Family Health, Brunswick Court, Bridge Street, Leeds LS2 7RJ; Tel: 0113-245 0271.

Liverpool and District Victims of Asbestos Support Group, 74 Victoria Street, Liverpool L1; Tel: 0151-236 6006.

London Hazards Centre, Interchange Studios, Dalby St, London NW5 3NQ; Tel: 0171-267 3387; E-mail LONHAZ@MCR1.geonet.org.uk or lonhaz@gn.apc.org.

Lothian Trade Union and Community Resource Centre, Basement, 26/28 Albany St, Edinburgh EH1 3QH; Tel: 0131-556 7318; E-mail: LOTHIAN-TUCRC@geo2.poptel.org.uk.

Manchester Area Asbestos Victims Campaign, c/o Greater Manchester Hazards Centre, 23 New Mount Street, Manchester M4 4DE; Tel: 0161-953 4037.

Portsmouth Area Work Hazards Group, 1 Balmoral Drive, Purbrook, Portsmouth PO7 5EL.
Sheffield and Rotherham Asbestos Group, c/o Sheffield Occupational Health Project, Mudford's Building, 37 Exchange Street, Sheffield S2; Tel: 0114-275 5760.
Society for the Prevention of Asbestosis and Industrial Diseases (SPAID), 38 Drapers Road, Enfield, Middlesex, EN2 8LU; Tel: 0181-360 6413.
Occupational & Environmental Diseases Association (OEDA), Mitre House, 66 Abbey Road, Bush Hill Park, EN1 2QH; Tel: 0181-360 6413.
South West Action on Safety and Health, 16 Woodwater Lane, Exeter, Devon EX 5LL.
Southampton Area Hazards Group, 2 Cranberry Close, Marchwood, Southampton SO40 4YT.
Walsall Action for Safety and Health, 7 Edinburgh Drive, Rushall, Walsall WS4 1HW; Tel: 0922 25860.

Trade unions

Trades Union Congress (TUC), Congress House, Great Russell Street, London WC1B 3LS; Tel: 0171 636 4030.
Scottish TUC, Middleton House, 16 Woodlands Terrace, Glasgow G3 6DF; Tel: 041 332 4946.
Wales TUC, Transport House, 1 Cathedral Road, Cardiff CF1 9SD; Tel: 0222 372345.
Irish Congress of Trade Unions, 19 Raglan Road, Dublin 4, Ireland; Tel: 0001 081 680641.
Irish Congress of Trade Unions, Northern Ireland Committee, 3 Wellington Park, Belfast BT9 6DJ; Tel: 0232 681726.

Enforcement agencies

Health and Safety Executive (HSE), National Information Centre, Broad Lane, Sheffield S3 7HQ; Tel: 0114 892345. Contact the Information Centre for details of your HSE area office. Environmental health officers are employed by local authorities. Phone your Town Hall or Civic Centre and ask for the Environmental Health Department.

Other contacts

Asbestos Removal Contractors Association (ARCA), Friar's House, 6 Parkway, Chelmsford, Essex CM2 ONF, Tel: 0125-259 744.
British Asbestos Newsletter, 9 Tintagel Drive, Stanmore, Middx HA7 4SR, Tel: 0181-958 3887.
United Kingdom Accreditation Service (UKAS), Queens Rd., Teddington, Middlesex TW11 0NA; Tel: 0181-943 7135. Provides list of laboratories accredited for asbestos evaluation and sampling (publication D25) under NAMAS (National Accreditations of Measurement and Sampling).
Particle Analysis, Units 1-3, Blackheath Business Estate, 78 Blackheath Hill, London SE10; Tel: 0181-469 0276. Environmental and occupational health consultants.
Thermal Insulation Contractors Association (TICA), Kensway House, 388 High Road, Ilford, Essex, IG1 1TL; Tel: 0181-514 2120

General information on hazards and health and safety

Daily Hazard, newsletter of the London Hazards Centre (four issues per year).

HAZLIT is the London Hazards Centre library database. For more information about on-line access, contact the London Hazards Centre. *Hazards*, a magazine for safety representatives, (four issues per year), PO Box 199, Sheffield S1 1FQ.

Labour Research and Bargaining Report, monthly magazines from Labour Research Department, 78 Blackfriars Road, London SE1 8HF.

WHIN (Workers' Health International Newsletter), c/o Hazards, PO Box 199, Sheffield S1 1FQ. Covers the international hazards movement.

HSE free leaflets and priced publications can be ordered from:
HSE Books, PO Box 1999, Sudbury, Suffolk CO10 6FS; Tel: 01787 881165.

2

ASBESTOS: THE WORST INDUSTRIAL KILLER

The medical profession, construction employers and architects got it badly, dangerously wrong. Asbestos is killing thousands more people today than they ever predicted possible and the numbers, particularly among construction workers, are rising.

In the first part of the next century at least 30 people will die each day of an asbestos related disease. We are facing a massive and *totally* preventable epidemic of early, painful death and suffering. In the next 30 years at least 150,000 UK citizens will die of lung cancer, mesothelioma and asbestosis, yet the "evil" effects of asbestos were first documented by HM Factory Inspectors nearly 100 years ago.

Current official estimates announced in March 1995, by Professor Julian Peto of the Institute of Cancer Research and the Health and Safety Executive (HSE) are that asbestos now kills between 3,000 and 3,500 people in Britain every year and that this death rate will increase to between 5,000 and 10,000 in the first quarter of the 21st century.[1]

This recognition of the scale of the epidemic comes 10 years too late. Many people warned that Peto's previous work grossly underestimated the extent of the risk from asbestos.

In 1982 both Nancy Tait of SPAID (Society for the Prevention of Asbestosis and Industrial Diseases), and David Gee, National Health and Safety Officer, GMB, had letters printed in the *New Statesman* arguing that Richard (brother of Julian) Peto's prediction of 50,000 deaths from asbestos, which he knew

could be lower or higher, was an underestimate and argued the total would be nearer to 70,000-75,000. Richard Peto had predicted a peak of 2,000-3,000 deaths per year occurring sometime in the 1990s. Nancy Tait said of the impending controls, "SPAID does not accept that to halve the amount of dust which workers are allowed to inhale will halve the number of cancer deaths ... cancer, especially mesothelioma, attacks those with slight, short and/or intermittent exposure to asbestos, and non-smokers and the very fit do not escape."[2] Gee said: "Whatever the figure (of deaths) it represents a public health disaster which was predictable and preventable ... Most readers will be more interested in the politics ... whereby known preventive measures were not adopted, than in the exact size of the tragedy."[3]

Milton Keynes residents make their opinions clear Lionel Grech

In 1984 *Hazards Bulletin* was sued and made bankrupt after the publication in 1979 of *Asbestos Killer Dust: a worker/community guide.* This book warned of the impending disaster. The dedication reads, "This booklet is dedicated to the many working class people who have been murdered by the asbestos industry and to those beginning to fight back for the right to a healthy and safe workplace."

Alan Dalton, the author, now National Health and Safety Co-ordinator of the TGWU, was also sued for libel and made bankrupt by a doctor. He

defended himself, but lost the case. The jury awarded the doctor just £500 after a 10-day High Court trial, but his court costs were £13,000. Alan says, "It gives no pleasure that history proved *Hazards* right."

In 1985 Richard Doll and Julian Peto produced a report for the Health and Safety Commission (HSC) that confirmed no safe limit exists for exposure to asbestos. They believed the then permitted levels of exposure to asbestos dust would kill one in 100 workers. They then went on to make a series of speculative assumptions and produce a dangerously misleading estimate that the risk of dying from asbestos would be "only" one in 100,000 or one death per year in the UK.[4]

At the time, this speculation led to headlines like *Asbestos Panic Can Stop* (*Sunday Times*, 21 April 1985) and sighs of relief from cost-conscious/about to be rate capped local authorities faced with a relatively militant and organised tenants' movement demanding asbestos be removed safely from council estates and other public buildings.[5]

ASBESTOS PANIC STARTS NOW

The muted headline of the HSE's press release, announcing the new estimates, "HSE Campaign warns plumbers, carpenters and electricians of fatal asbestos danger", should read, "Asbestos Panic Can Start Again — Now."

For men born in the 1940s, one in 100 will die of mesothelioma. They will die of a condition that the medical textbooks describe as an extremely rare cancer. The current mesothelioma mortality levels can be directly attributed to inadequate worker protection in the past. The long latency period for the development of the disease, anything between 10 and 50 years, means that the death rates for these cancers will not be affected by subsequent improvements in working conditions. The new figures show increases in the number of cases under 45, a trend Peto describes as "extraordinary and very worrying".

Mesothelioma has been the most frequent occupationally induced cancer among males for many years. The numbers are rising at a time when many

other industrially induced cancers are in decline. The highest rates are in the North, Scotland, London and the South East. Peto and other experts say that the natural background levels were less than two per million, or 100 cases a year.

A TIME BOMB

For men born in the 1940s deaths from mesothelioma will account for almost 1% of all male deaths. This represents a real increase in mesotheliomas, not just an artefact of improved diagnosis. Peto is "surprised" by the fact that the worst effects of asbestos exposure are to be experienced by men (mainly), who started work in the 1960s, after the carcinogenic effects of asbestos became widely known.

Previous HSE studies looked at samples of workers covered by the 1969 Asbestos Regulations and the 1986 Asbestos Licensing Regulations, which required some workers to have medical examinations. 183 mesothelioma deaths occurred between 1971 and 1991 among this group. However, in the same period there were 10,985 mesothelioma deaths nationally. This figure comes from the HSE's Mesothelioma Register. Since 1968, the HSE has maintained a register of deaths in England, Wales and Scotland for which mesothelioma is mentioned in the death certificate. In other words, for 20 years the HSE has only been looking closely at 1% of those at risk. They did not study the vast majority of workers dying from asbestos. According to Peto, "The vast majority of workers actually at risk from asbestos were not employed in occupations where this risk was recognised."

The Building Workers' Plague

At least a quarter of those dying are construction workers though the true proportion of deaths due to exposure in construction may be much higher. The mesothelioma register records occupation as it appears on the death certificate. Men leaving the building industry, through sickness, accidents or inability to find a construction job, will often be classified under other occupations.

A year earlier, speaking at a British Occupational Hygiene Society conference, Peto referred to another study: SWORD — Surveillance and Work-Related Occupational Disease. This shows that among younger men about half the mesotheliomas occur in workers in the construction industry.

> Peto's new statistical analysis is straightforward. He looks at male death rates from mesothelioma. The rates of mesothelioma form a clear pattern related to the date of birth of the dead men and their age at death. There is a long period of time between exposure to asbestos and onset of mesothelioma, therefore the death rates are highest for men in their 70s. Because the use of asbestos in Britain increased dramatically through the twentieth century, peaking in the 1970s, there are higher death rates for people born later in the century — there was (and is) so much more asbestos around during their lifetime. The curve plotting death rates against age is the same shape for all "age cohorts" (group of men born in the same decade). It is just a lot higher for more recent age cohorts. The full curve for death rates can be seen in the statistics for men born in the 1890s and 1900s — with rising numbers of deaths in ages 50s and 60s reaching a peak in their 70s and dropping off again for 80-90 year olds. Peto expects the pattern to be the same for all age cohorts. The death rates now amongst workers in their 30s and 40s gives early warning of what the overall death rate is going to be amongst workers born in any given year. You can look at the death rates of men aged under 50 now and predict death rates in their 60s and 70s for people born in the same decade. This is what Peto has done — the predictions are horrendous. The relatively new phenomenon of large numbers of people dying in their 30s and 40s from mesothelioma is only half the story — they foreshadow even greater carnage amongst the same age cohort when they reach their 60s and 70s.

One in 40 building workers now in their 50s may die of the cancer mesothelioma. One in 10 building workers in this age group are at risk of dying of asbestos-related disease. This is using the HSE estimate that there

are, on average, at least two asbestos-related lung cancers for every case of mesothelioma, a conservative assumption.

According to Peto, "most exposures (not the most intense, but affecting large numbers) occurred in occupational settings, particularly in the building industry, which were and are still unmonitored." When asked how this medical disaster had come about, in a recent discussion on BBC Radio 4,[6] he said, "This is a mistake that I'm as guilty of as everybody else and I've been involved in asbestos research for some time."

Construction Trade Union UCATT called for a ban

Not everyone is guilty. In 1976 the building workers' trade union, UCATT, passed an emergency resolution that called for a complete ban on asbestos use. The resolution was moved by Vic Heath, then convenor of Camden Direct Labour Organisation (DLO) Shop Stewards Committee, now an active campaigner with the Construction Safety Campaign (CSC). It was prompted by information about the deaths of South African asbestos miners. It was not well received by the UCATT Executive at that time. They brought in a speaker from the Health and Safety Executive who trotted out the official myths of the day: some asbestos is not so dangerous; there is only about 2% in most construction products; it is sealed in. Despite this obvious pressure from the Executive, there was uproar at the conference and the resolution was passed overwhelmingly.

The Executive, however, did not at this point issue a statement to all UCATT members saying, "Ban Asbestos." Back at Camden DLO they banned asbestos once it was UCATT policy. Everybody stood by the decision. After about six months a substitute was introduced, Supalux. This has caused health problems as well but not so grave as those of asbestos. Some other local authority DLOs followed.

Says Vic, "We could have enforced a ban in those days. The industry was 50% organised, 100% in local authorities who were still building. Imagine the difference and the lives that would have been saved."

Another UCATT member Tony O'Brien, CSC secretary and convenor of Southwark DLO, adds, "In the mid-1970s there were numerous disputes throughout London over asbestos. One was the Barbican Arts Centre dispute described in *Asbestos Killer Dust*, Jim Franklin who went on to found the CSC was involved in that. Another big dispute over asbestos was at a hotel opposite Russell Square. They happened all over London, it was common."

By the early 80s UCATT did issue a letter to all branches calling for asbestos to be banned and inserted a statement into UCATT diaries which clearly states that all asbestos is dangerous and that there are no safe levels. George Brumwell the current UCATT General Secretary says that over the years UCATT members have often stopped work over asbestos. Usually the matter has been resolved very quickly, and often the dispute has not been recorded.

If in doubt — stop the job

In 1994, labourers working for sub-contractor Bomac Construction on the refurbishment of St John's Hospital in south London refused to work with a substance they thought was asbestos. A BOMAC foreman told the men: "If you don't work, you're sacked." They refused and were sacked. Only swift action by UCATT got the men reinstated. They threatened to take BOMAC to an industrial tribunal using the new rights under the Trade Union Reform and Employment Rights Act 1993 which allow workers to claim damages for unfair dismissal if sacked for health and safety offences.

There are important lessons to learn from this case. Your employer may act responsibly, but you can't rely on it. And not all employers will react kindly to you following the HSE's advice and avoiding contact with asbestos materials. In situations like that you need protection — and membership of UCATT provides that better than a mask ever could.

UCATT Viewpoint February 1995

EARLY WARNINGS OF THE PUBLIC HEALTH DISASTER

Nancy Tait undertook a study at Hackney Hospital 13 years ago. She recalls, "SPAID identified and then reported to Parliament in 1982 that young electricians, carpenters, and roofers using asbestos cement were suffering from mesothelioma."

She has copies of some 1982 correspondence between S. Marks of TBA Industrial Products, representing the asbestos industry, and the epidemiologists Doll and Peto. Their debates about future deaths missed the mark and are now irrelevant: their predictions were wrong: actual deaths are now far higher. Some of their comments are interesting in the light of the current debate:

S.Marks to Doll 13.10.1982
"SPAID, in pursuit of their laudable objectives frequently appear to adopt an uncompromising and extremist stance without taking into account current conditions in the asbestos industry today, nor the overall balance of risk in a modern industrial society."
Doll to S. Marks 15.10.1982
" ... my personal view is that the 'Alice' programme was far and away more harmful than anything it could be claimed to counter."
Peto 19.10.1982
"Far from being 'more up to date' or 'more accurate and detailed', SPAID's information is so biased and selective that it is worthless for the purpose of assessing the magnitude of the risk in particular occupations.

Because so many "experts" dismissed her findings, a new generation of building workers and those who live and work in the buildings have been condemned to preventable asbestos diseases because an asbestos awareness campaign and tough enforcement were not launched at the right time.

On 30th April 1982 Nancy Tait wrote to Doll at the Cancer Epidemiology Unit at Oxford, "SPAID has been saying for some time that ... asbestos kills more people using it or exposed indirectly to it, than workers who profit

by being employed in the primary asbestos industry. SPAID's study of all the mesothelioma patients seen so far at Hackney Hospital shows that not one patient has worked in an asbestos factory and that when investigated adequately, the association with asbestos can be established in mesotheliomas previously reported as unconnected with asbestos.

... We find in many instances that our patients report relatively short periods of employment in secondary asbestos using industries, those industries which would generally be considered to have low or insignificant exposures. These findings support my contention that asbestos users are at greater risk than workers producing the asbestos products they use, yet the major studies on which safety regulations are based, refer to asbestos manufacturing companies.

One of our Hackney cases was responsible for the amendment to DHSS Booklet NI226. (cutting and sawing asbestos, especially with high speed power tools, previously said to be 'little risk'). As a result of SPAID's work to help the Hackney patient, local DHSS offices are accepting more claims from carpenters, roofers, and joiners and this will in time remove some of the bias from PMP (Pneumoconiosis Medical Panels) statistics ...

Men are still working asbestos cement products without protection. We are beginning to document cases of mesothelioma amongst carpenters, joiners and similar workers.

Our paper reports mesothelioma in four dockers ...

Whilst asbestos is now imported in containers, so that the risk to dockers will have been reduced, similar protection is not yet afforded to other workers and the general public. I know of no means of controlling the exposure of the vast majority of the population. 'Control Limits' are of little use. It is not possible to prevent the careless use of asbestos outside the asbestos manufacturing industry, and SPAID has shown very clearly that it is the careless use of asbestos that kills."

Enfield Council fined

The type of exposure to asbestos dust which occurs in construction and maintenance work was brought out in a recent case. Those who work near such workers are also potentially at risk of exposure.

On 25 July 1995, Enfield Council was found guilty of exposing two sub-contracted employees to asbestos. The Council was fined £12,500 plus almost £11,500 in costs after the Court determined that the Council violated two important regulations requiring employers to protect non-employees from exposure to asbestos and risks to their health and safety. "No one ever mentioned any asbestos. No one told us to use precautions or gave us any safety instructions," said one of the exposed workers who had been given the job of drilling holes in the amosite (brown asbestos)-laden walls of the Enfield Civic Centre in December 1993.

Less than a year before the incident, Enfield Council had no legally acceptable policy and plan for managing asbestos. It was only in March 1993 after the expiry of an enforcement notice that a plan was produced. HSE inspector Rosalind Roberts says she considered prosecuting the Council and the Chief Executive personally at the time, but the Council quickly produced an implementation plan and the HSE "trusted them to implement it."

Then, on 3rd December, Civic Centre workers walked in to find a snow storm of dust containing asbestos on their desks and papers. Following an HSE investigation, the Council shut down the Civic Centre air conditioning system, evacuated part of the building and brought in a licensed contractor to clean up the asbestos dust. The HSE says "we just don't know" if anyone else in addition to these two workers was exposed to asbestos dust at dangerous levels.

Although Civic Centre employees feel that the Council now has a good safety policy, they have doubts on whether it will be fully

implemented. "We're concerned that the same thing could happen again," said Paul Bishop, UNISON Enfield Branch Secretary. Bishop says that their demand for comprehensive asbestos labelling was agreed by the Council years ago, but it still hasn't happened. UNISON is aware of another incident of a contractor drilling and releasing asbestos in an Enfield Council sheltered housing property. "If these accidental releases are going to continue to happen, we've got a serious problem."

IMPORTANT AND FRIGHTENING

Alan Dalton has recently criticised the medical profession for ignoring earlier warnings in the medical literature that an epidemic was on the horizon[7] but says, "Do not get me wrong. This latest Peto report is both *very* important and *very* frightening; as much for what it does not say as for what it does."

The report draws out the risks to building workers and effectively launches an official, although low key, awareness campaign. It highlights the fact that inadequate regulation of the asbestos removal industry has contributed to the burden of future occupational disease. It implies this was just an initial problem. The Asbestos Removal Contractors Association have said, however, that bad removal jobs generate much of their work.

Also, it does not address the realities of life on construction sites. Tony O'Brien of the CSC said at the HSE launch of this latest Peto report, "Workers who complain about asbestos do not get controls or masks — they get the sack."

Peto has said that, "The asbestos industry regulations were not really enforced at all in the groups at greatest risk. It's quite clear that the exposures were in occupations that were not monitored." He does not base his predictions on exposure to asbestos during removal operations. This began on a large scale during the 1980s and he is unable to say how much exposure occurs now.

Keith Morris, HM Principal Inspector of Factories at the HSE's Field Operations Division (FOD), with particular responsibility for asbestos, has admitted that the "standards we were applying in the 1970s were not as good as they could have been."[8]

OTHER HIGH RISK GROUPS

Metal-plate workers which includes shipyard workers continue to be the group with the highest current death rate for mesothelioma. This is why campaigners in Glasgow, Tyneside and Liverpool have seen so many deaths and got involved at an early stage with asbestos victim support work. The next highest category is vehicle body builders which includes those who built railway waggons. Most other high risk groups in the Mesothelioma Register are building trade workers, including plumbers and gas fitters and construction managers and other professionals. Other groups which figure are chemical and electrical engineers and scientists; welders; dockers; draughtsmen; laboratory technicians.

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3

ASBESTOS AND YOUR HEALTH

WHY IS ASBESTOS DANGEROUS?

When asbestos is separated into very fine fibres, it becomes a serious health hazard. These fine fibres enter the body mainly through breathing. Fibres which cannot be coughed up or breathed out become trapped, causing cancers and irreparable scarring of the lungs. The killer qualities are associated with the length, diameter and strength of the fibres. The risk of disease is dose related. There is no safe level of exposure but increased exposure increases the risk. Generally signs of disease do not appear until 10 years after exposure and it can take up to 50 years.

A typical fibre is approximately 2,000 times thinner than a human hair. It is believed that smaller, thinner, "respirable" fibres, measuring less than 0.3 microns (a thousandth of a millimetre) in diameter and less than 5 microns in length are the ones which do the most damage. These fibres are invisible to the naked eye. Fibres up to 0.5 microns in width are not even visible under the optical microscope, the instrument used to analyse samples.

Some of the small fibres remain in the lower parts of the lung for years. Some work their way through the lung lining. The fibres can induce cancers though it is not known how. There is speculation that macrophages, white blood cells which are part of the body's defence mechanisms, try to engulf the fibres, but fail because of their shape. In the process they release powerful chemicals which may do the damage.

THE MAIN TYPES OF ASBESTOS DISEASES

Asbestosis

A disabling and ultimately fatal scarring of the lungs causing severe breathlessness and chest pains. The term was first used in 1924 by Cook in the *British Medical Journal*. The destructive effects of asbestos cause the slow replacement of healthy lung tissue, responsible for the exchange of oxygen and carbon dioxide, by fibrous or scar tissue, which cannot "breathe". Lungs have a natural reserve capacity which means the disease will develop over many years without any symptoms showing. By then the damage is well and truly advanced. The victim will be short of breath, unable to walk very far, will have coughing, general weakness and chest pain. The damaged lungs strain the heart and can lead to congestive heart failure.

X Rays detect the damage at an early stage: a routine medical examination will not. Often a fine fibrosis is seen at the base of the lungs unlike the effects of other silicas.

This disease is most common among those who have had regular and high exposures to fibres: laggers, asbestos textile workers, and those involved in the manufacture of asbestos products. There are, however, documented cases where relatives of workers have died of asbestosis and where people have worked for only short periods in the asbestos industry. Because controls reducing fibre levels and bringing in respiratory protective equipment were introduced in these high risk areas many years ago asbestosis should now become less frequent.[1]

Lung Cancer

A painful and nearly always fatal disease. The evidence that asbestos could cause lung cancer was available in 1934. In the early 1940s there were reports in Germany. In 1949, the Chief Inspector of Factories reported finding lung cancer in 13.9% of UK asbestosis cases. This increased risk of lung cancer was then confirmed epidemiologically in 1955 in Britain by Doll.[1]

Asbestos and Smoking

Lung cancer is generally associated with smoking. Recent figures by the Cancer Research Campaign show that in the UK almost 40,000 people a year die from lung cancer, the most common cancer in men, and second most common in women. Smoking is assumed to be the main cause, but Peto's figures show that some 6,000 lung cancers a year may yet prove attributable to previous asbestos exposure.

In 1966 a US study estimated that the risk of lung cancer in a non-smoker exposed to asbestos is five times the expected rate. Smoking alone would increase the risk of lung cancer by a factor of 11. Asbestos and smoking together would increase the risk to 52 times that prevailing in the general population.[2] The International Agency for Research on Cancer has quoted a study of asbestos workers suggesting that asbestos workers who smoke have eight times the risk of lung cancer as compared to all other smokers, and 92 times the risk of non-smokers not exposed to asbestos.[3]

There is an easily identifiable group with an enormous risk of developing lung cancer: smokers who have been exposed to asbestos. A survey by the Liverpool Occupational Health Project involving 2,601 interviews in 1992 found that one in eight men had been exposed to asbestos and of these one third were still smoking. Does this not call for urgent health education campaigns?

In Telemark County in Norway an intervention programme was set up to reduce asbestos lung cancer by reinforcing stop smoking campaigns. It is still in progress so final results are not available. In a study of insulation workers who had stopped smoking before 1967 and who were observed from 1967 to 1976, the risk of dying from lung cancer was reduced to one third.[4] An American stop-smoking programme targetted at asbestos workers persuaded 34% of them to give up. It was important to tell them about the extra risk of lung cancer caused by asbestos, and that the risk is reduced by stopping smoking.

Mesothelioma

A rapidly fatal and painful cancer of the lining of the chest around the lung (pleura), abdomen (peritoneum), or heart (pericardium). Until the 1960s this form of cancer was unrecognised. More than 10 times as many deaths are due to pleural mesothelioma than to peritoneal mesothelioma. Some people develop both.

Pleural Thickening

The lung walls thicken because of the scarring caused by asbestos. This is seen on X-ray examination. Extensive thickening may cause severe shortness of breath. It can be described as on one side of the lungs, or both sides (bilateral) or it can be described as widespread (diffuse).

Pleural Plaques

Also show up on X-rays. They are dense bands of scar tissue, different from pleural thickening. Plaques are usually seen on both sides of the lungs. People with pleural plaques may run an increased risk of developing lung cancer. The lung cancer rate in a group of shipyard workers with plaques was double that of shipyard workers without.

Other Types of Cancers

In 1982 the International Agency for Research on Cancer (IARC) said there is sufficient evidence of increased risk of gastrointestinal cancers and cancers of the larynx in workers exposed to the three main types of asbestos.[5]

In a 1985 review for the HSC[6] Doll and Peto concluded asbestos probably caused cancer of the larynx. They are more hesitant about agreeing with American research, mainly that of Irving Selikoff, about the increased risk of gastrointestinal cancer. They considered 16 studies which together showed the relative risk of gastrointestinal cancer was generally about 20% of the excess

risk of lung cancer. They say, "These findings could arise because asbestos is a cause of cancer in practically every organ..." but then conclude these excess gastrointestinal cancers might really be misdiagnosed cancers of the lungs and mesotheliomas of the pleura and peritoneum (except in the case of cancer of the oesophagus). They note that in the studies special efforts were made to make sure there was no misdiagnosis. In failing to agree with IARC that there is an increased risk of gastrointestinal cancer they appear to be placing a great deal of weight on animal experiments which have failed to reproduce these cancers.

They noted in conclusion that three out of five studies found an increase of cancer of the ovary but that in these studies there could have been some misdiagnosis (which presumably also means there may not have been).

This report records the fact that a number of small studies have shown an increased risk of cancer of the kidney and large cell lymphoma of the oral cavity related to asbestos exposure. The studies are too small to draw definite conclusions but add to the overall picture that asbestos is lethal.

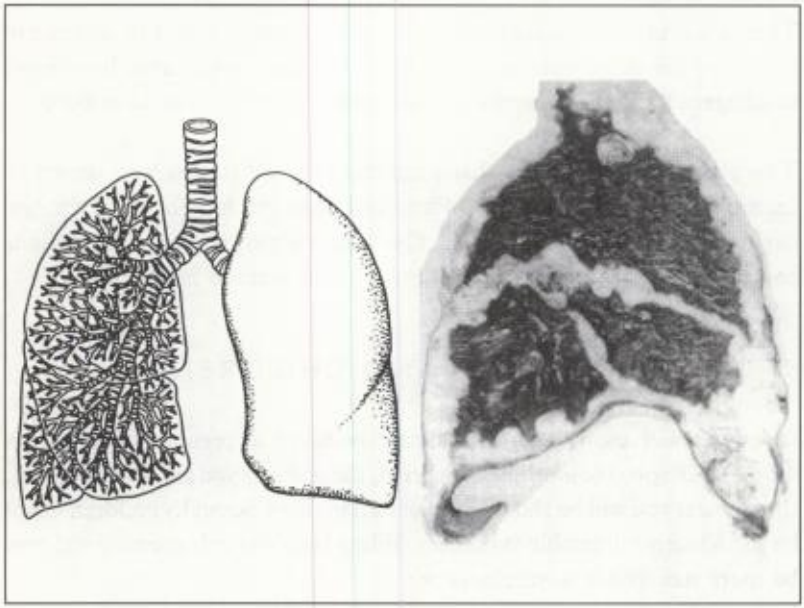
ASBESTOS AND CHILDREN

Certain factors mean extra care should be taken to protect children from asbestos. Despite the long latency period, the younger you are when exposed, the younger you will be should disease start to show. Secondly children might be particularly vulnerable to cancers. Young body tissue is growing and may be more susceptible to carcinogens.[7]

The 1960 paper by Wagner, which first described mesothelioma in South Africa, refers to eleven cases where the disease resulted from exposure in childhood. The children lived in the vicinity of a blue asbestos (crocidolite) mine.[8] Several cases of children developing mesothelioma are described by Paul Holt in *Inhaled Dust and Disease.*[9] One asbestos factory near London seems particularly guilty of killing children in its neighbourhood, though this might only mean that other factories have not been studied so thoroughly. 12 cases of mesothelioma are known, all of people who lived near the factory during their childhood; 11 of them were women.

Asbestos has been found in the lungs of very young children (three weeks-25 months) when examined after they had died.[10]

A 1983 US Consumer Product Safety Commission report expressed concern about the risk of exposure to levels of asbestos fibres at or below the environmental action level of 0.01 fibre/ml. It is worrying that schools may be declared safe and uncontaminated at this level. The Commission added, "Because of the rapid increase of risk with time, the lifetime effect of exposure in childhood is likely to be much greater than if exposure begins in adulthood."



(a) Healthy lungs and pleura (b) Lungs gripped by mesothelioma
LHC Professor Roderick MacSween

The Commission attempted to quantify the risk to children's health. They estimated that three children in every 1,000 exposed to 0.01 fibres/ml (the "acceptable" environmental level) for 10 years would die of asbestos-related cancer. This figure although frightening in itself, takes no account of the increased risk from "peak" exposures or the fact that many children, particularly the disadvantaged, live in homes containing so much asbestos they can be described as asbestos boxes.

WOMEN AND ASBESTOS

A recent *New Statesman* article by Sally Moore, a partner at solicitors Leigh, Day and Co., and Joanne Lenaghan, a former researcher for Clydeside Action on Asbestos, highlights the fact that many women die of asbestos-related diseases, yet they are ignored by the system, especially for state benefits.[11] They do not dispute that there is a much higher level of these diseases among men. They argue, however, that there tends to be a lack of adequate investigation into the possibility that asbestos may have caused these illnesses in women. They point to "a combination of ignorance and prejudice in the medical, social and legal professions."

A lot of the problem is due to the mistaken belief that only a very large dose of asbestos can cause cancer or asbestosis. The way in which women tend to have been exposed in the past confirms that there is no level below which exposure to asbestos can be considered "safe".

Women who have died recently include two teachers, Jeanette Sawyers from Glasgow and Shirley Gibson from London, a cleaner in a bus garage, and many women who worked in the manufacture of asbestos-containing products. 70 female former employees of Boots, producers of gas masks in the war, have died from mesothelioma. Hannah Meres worked to "do her bit" for the war effort at Boots in Nottingham. Because she was pregnant it was only for five weeks, yet 53 years later she died of mesothelioma. Liverpool Occupational Health Project has highlighted the deaths of women warehouse workers who recycled asbestos sacks, a problem likely to be found in other warehouse workers.

Alice Grace Jefferson, the subject of *Alice: a Fight for Life*, worked with asbestos at Cape industries, Hebden Bridge for only nine months when she was a young woman aged 17. She died aged 48, after being ill for eight years and in great pain for the last year of her life. Many other women who worked in this factory also suffered and died prematurely.

Alice: a Fight for Life was a Yorkshire TV documentary first shown in July 1982. It changed society's view on the hazards of asbestos in a way no other

programme has ever achieved. Alice's death was unnecessary because the factory was covered by Regulations introduced in 1930. Yet a 1976 Ombudsman report showed the factory inspectorate was complacent about the 107 deaths that had taken place at that point.

The Liverpool Women

Hundreds of Liverpool women may have been exposed to high levels of asbestos while working in sack repair warehouses. Used cargo bags were sent up from the docks to be recycled. Some of the sacks contained a residue of dusts including nuts, grain, flour and asbestos. To clean the bags of dust, women would place the bags under huge static blowers and blow the used bags inside out. Women have described the levels of dust as so great, they could not see further than a few paces in front of them. In 1928, Ellen Wilkinson M.P. raised questions in Parliament, "After a few hours at this work the women become choked with grain and mineral dust". Illness among such workers was reported in the 1960s and 1970s.[12,13]

The Liverpool and District Victims of Asbestos Support Group have been contacted by over 80 women who did such work. Most of the women have severe breathing problems. So far the project knows about 15 such sack repair warehouses in Liverpool. One warehouse operated up to the early 1970s. There are likely to have been similar warehouses elsewhere in the UK, whose ex-workers need help.

Washing work clothes seems an innocent enough activity, but for many women it has led to their death. The SWORD scheme mentioned earlier, reports for 1993, 25 cases of mesothelioma, 16 of benign pleural disease and one of pneumoconiosis (asbestosis); all these were from domestic exposure to asbestos.[14] Domestic exposure is rarely described further in the SWORD scheme, but it generally means cases which resulted from workers bringing home dust on their clothes, and the victims of such exposure are usually, but not exclusively, women.

Cryptogenic Asbestos

Julia Campbell worked as a school cleaner in Glasgow for more than 30 years. As a non-smoker she never had any health problems until recently when she began to experience shortness of breath and pains in her chest. A chest consultant has diagnosed cryptogenic fibrosing alveolitis. This means Julia is suffering from a fibrosis of the lung tissue, exactly what occurs as a result of asbestos exposure, except that cryptogenic means "of unknown cause". A post mortem is needed to distinguish between the conditions. Julia has been exposed to asbestos. 15 years earlier she regularly cleaned a science lab with a damaged ceiling. Every day for six months she would clean up asbestos dust that had fallen from insulation material. She also has pleural plaques, accepted as evidence of asbestos exposure, yet the Department of Social Security has refused her claim for benefit. Her work history is said to be insufficient to cause asbestosis.[12]

ENVIRONMENTAL EXPOSURES

According to Julian Peto, "Every single person in the UK has some asbestos in their lungs. It is the level of exposure and the frequency that's important. All the established cases (of mesothelioma) so far have been due to high and regular exposure. What we don't know is if the lower levels due to environmental exposure cause mesothelioma. Since the risk to men is six times higher than the risk to women (who are seldom exposed to asbestos at work), environmental exposure is clearly not as significant as occupational exposure."[15]

There is a great deal of resistance to the idea that low level exposure to asbestos is a risk to health. In actual fact people with evidence of lower levels of exposure to asbestos do develop mesothelioma but they then have a harder time gaining compensation because experts go into court and say the environmental risk is negligible.

It is not natural to have asbestos in your lungs. If it is truly the case that everyone now has some, then the prospects are terrifying given the long latency for the diseases.

Environmental exposures have caused disease as the deaths of many women prove. Deaths caused by such exposures are likely to rise in the future because much asbestos in buildings is totally uncontrolled. Asbestos has blighted the lives of whole communities in the industrial centres of the UK, not just in shipbuilding cities and towns.

J.W.Roberts Factory Leeds

In 1990 doctors in Leeds published a study of 180 Leeds mesothelioma deaths among workers, plus those of 30 people born in the city. Nearly one-quarter of the sample worked at the former J.W. Roberts factory, or a relative or another close contact had done so. 87 had worked in other jobs where there was a probable contact with asbestos. Nearly a quarter had been in occupations with no currently recognised asbestos exposure such as the non-asbestos textile industry in Leeds. Detailed family occupational histories were not taken so conclusions cannot be drawn from this about this industry. For 23 deaths the occupation was unknown, or described as housewife. For 19 cases described by the coroner or the media as due to "environmental" exposure, links with the factory were found, mainly because someone close worked there. These people might have had problems obtaining compensation because of the environmental tag. Two others had high risk jobs for asbestos exposure, engineer and electrical engineer. 15 people seemed not to have occupational exposure to asbestos. The authors conducted personal interviews with next-of-kin for eight of this group and found no evidence of occupational exposure. Seven of the eight, however, lived within 250 yards of the factory.[16]

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4

USES AND ABUSES OF ASBESTOS

Asbestos is a mineral, mined from the earth in much the same way as any other mineral, for example, copper, iron or coal. It has been known for thousands of years. Finnish potters used it to strengthen their clay over 4000 years ago. The Egyptians made funeral shrouds from it and the Romans used it to make napkins which could be cleaned by throwing into the fire. Asbestos is made up of strong silky fibres which can be separated out and spun into 'cloth'. Generally speaking asbestos resists heat, acid and alkali. These properties account for its wide use.

In the UK the use of asbestos peaked first in 1965, when 180,000 tonnes were imported and then again in 1973, with over 195,000 tonnes. It fell to 40,000 tonnes in 1984, and 25,000 tonnes in 1989. The UK has imported approximately 6 million tonnes of all types of asbestos since the turn of the century.[1]

WORLD PRODUCTION AND CONSUMPTION

Although million tons of asbestos are still being mined and made into products every year, world asbestos consumption is declining. World consumption ranged from 4.1 to 4.4 million tonnes per year throughout the 1980s, but by 1993 it was down to 2.8 million tonnes.[2] The former Soviet Union leads in production with 58% of world-wide asbestos, although 90% is used locally. Canada is the leading exporter of asbestos. Zimbabwe, Brazil, China and South Africa are also asbestos producers and exporters. While demand for asbestos products is declining in North America and Europe, consumption is increasing in Africa, Asia and Latin America, according to the Swedish group Working Environment.[3]

Asbestos is used primarily in buildings. As late as 1976, however, the asbestos industry was advertising the fact that it was present in over 3,000 products. Many of these are still around because the laws prohibiting the use of asbestos did not apply to existing products.

Types of asbestos

There are six different types of asbestos split into two groups. Both groups have the same hazards and occur as fibres. They are different in their chemistry and in the way they formed millions of years ago.

Amphibole group

Crocidolite (blue asbestos), amosite (brown asbestos), anthophyllite, tremolite (can occur with talc and white asbestos), actinolite

Serpentine group

Chrysotile (white asbestos)

Only chrysotile (white), crocidolite (blue), amosite (brown) and anthophyllite have been in common industrial use. The colours are obvious when freshly mined, but ageing and heat turn all asbestos a similar colour and only by scientific tests can asbestos be identified and classified by type. By the end of the 1970s, 95% of all asbestos mined was chrysotile and it is the only type still being exploited.

Uses of asbestos: cheapness not fire resistance

Much has been made by the asbestos industry of the fire proofing or enhanced safety properties of the mineral. The 1970 Fire Precautions Act encouraged heavy use of asbestos insulation board. The main use, however, had nothing

to do with fire protection: 70% of asbestos in Western Europe has been used for reinforcing asbestos cement in construction.

Cement mixed with about 15% asbestos fibre makes a rigid sheet less than five millimetres thick. If iron was used instead, the sheet would have to be three centimetres thick in order to have the same strength. Without asbestos, rigid cement pipes need to be three centimetres thick and only one metre long to avoid breaking. With asbestos, pipes can be produced at a thickness of only one centimetre. For construction companies, asbestos saves on the amount of cement used and on transport costs. Its lightness make it easier to handle — always providing that the health risks are discounted.[4]

Asbestos substitutes

Substitutes exist for all uses of asbestos but themselves present health hazards in almost all cases. There are, broadly speaking, three types of substitutes:

1. other naturally occurring and manufactured mineral fibres
2. synthetic plastics, both fibrous and non-fibrous
3. naturally occurring organic fibres, e.g. cellulose

As with asbestos, the toxic properties of these materials can be related to the dimensions of the fibres. Even for non-fibrous materials, dust inhalation may lead to bronchitis or emphysema. It can never be assumed that any of these materials is safe. Any uncontrolled dust is potentially hazardous and exposure must be prevented. Many of these products are also mixed or contaminated with other dangerous chemicals.

Manufactured mineral fibres are made from glass, rock, slag or clay and are widely employed as insulation materials in addition to other uses. There has been a long running controversy on whether manufactured mineral fibres cause respiratory cancer. This is denied by most mainstream authorities but evidence continually emerges which reinforces the possibility of a link. There is also a tie-in with other cancers and non-malignant respiratory

illnesses. There is no doubt that manufactured mineral fibres cause skin irritation and eye damage.

Aramids are the main plastic fibrous substitutes for asbestos and find application where resistance to fire and friction is important. Non-fibrous plastics used for insulation purposes are polystyrene and polyvinyl chloride. These materials are inert in use but dust exposure should be avoided. They will produce toxic degradation products upon combustion.

Cellulose, from wood or other natural sources, is used to enhance friction resistance. The dust may have a variety of toxic properties depending on the source. Dry cellulose is highly flammable.

Non-asbestos substitutes are subject to completely different control procedures than asbestos. They are covered by the Control of Substances Hazardous to Health (COSHH) and Chemical Hazards (Information and Packaging) (CHIP) Regulations. Under COSHH employers must:

- assess the risks arising from materials used at work before work commences; this may also extend to carrying out measurements of dust levels
- eliminate hazardous materials or processes, control exposures, e.g. by enclosing processes or by providing appropriate ventilation equipment or when every thing else has been tried, provide suitable personal protective equipment
- provide workers with information and training on the hazards of materials and processes and on safe working methods
- in some circumstances, survey the health of workers to find out if there are any health effects caused by the job

Under the CHIP Regulations, manufacturers and suppliers of materials sold for use at work must provide a safety data sheet. This should come in a standard format and identify the chemicals in the product, possible health effects, safe methods for use and disposal and the action to be taken in the event of an accident

or emergency. Workers and their representatives are entitled to receive the information in data sheets.

Contractors are obliged under the Health and Safety at Work Act to safeguard anyone affected by their operations. They should inform members of the public in advance of works starting and be prepared to provide information on materials and methods. Members of the public are entitled to obtain information on these from the Health and Safety Executive and in some cases from the local council under the Local Government (Access to Information) Act.

Action Points

- Find out what materials are being used as substitutes for asbestos — get hold of safety data sheets
- Find out if the materials or methods are hazardous — don't rely completely on the employer/contractor for this, seek independent advice and evaluation of the information you obtain
- Involve your safety representative/trade union if you think the job is unsafe
- Complain to the Health and Safety Executive or the local Environmental Health Department if you have reason to believe a job is endangering members of the public

Main uses of asbestos in buildings

Sprayed coatings on steel work, concrete walls and ceilings, for fire protection and insulation

Lagging: insulation on pipework, boilers and ducts

Insulation boards: in partitions, fire doors, and ceiling tiles. Common brand names are Asbestolux, Turnabestos, LDR, and Marinite

Asbestos cement products: sheeting on walls and roofs, tiles, cold water tanks, gutters, pipes and in decorative plaster finishes

Sprayed Coatings and Lagging

Sprayed coatings are probably the most lethal way in which asbestos is used. It was common for many sprayed asbestos products to contain up to 85% asbestos, much of it the blue form. Between 1935 and 1971, it was used extensively in public buildings for acoustic and thermal insulation and fire protection of structural steel work. It was common in system-built council housing, in boiler houses and ceilings to balconies and walkways. It is not unusual to find this material to be soft, friable and therefore extremely dangerous.

Lagging is frequently just as deadly. It was used around heating pipes and boilers especially in factories, hospitals, and other public buildings. It has been found to give very high dust levels in service ducts where it is easily disturbed during maintenance activities.

Airborne fibre levels expected close to operator's breathing zone for different processes

Process	Concentration (fibres/ml)
Dry stripping of crocidolite	100-1000
Dry stripping, except crocidolite	>20
Stripping with water sprays	5-40
Controlled wet stripping (thorough soaking of insulation)	1-5
Breaking and ripping out	5-20
Abrasive disc cutting	15-25
Hand sawing with ventilation	>1
Hand sawing without ventilation	5-10
Rough handling of insulating board and removal of pieces	>15
Careful removal of whole boards	>5

Taken from HSE Guidance Note EH 35. These figures are generally for work carried out to a high standard; in other cases these levels may be exceeded

Insulation Boards

During the 1950s, 1960s, and 1970s amosite (brown) was the main type in insulation boards which were used in stairways, curtain walling, partitions, and fire proof panels. They are found in system-built council housing, hotels and schools. Other uses include heating ducts, linings to doors and meter cupboards, and in heating units. Insulation boards from this period typically contain 16-25% asbestos. Often they have a soft greyish appearance.

Asbestos Cement Products

These have been extensively used in buildings and mainly contain white asbestos in concentrations of about 10%. Asbestos slates, tiles and linings behind fires are of similar composition. Fibres are released from such materials with age, when the material is damaged, and during routine maintenance activities such as drilling, sanding, wire brushing, and machine sawing. All these activities can produce dangerous concentrations of asbestos dust.

ASBESTOS IN PUBLIC BUILDINGS

Asbestos is still present in vast quantities in buildings. A major problem for caretakers, maintenance workers, and also for safety representatives is that it can be difficult to obtain information on its whereabouts and condition. Sarah Copsey, UNISON National Health and Safety Officer says, "In the public sector we have had over a decade of changes including compulsory competitive tendering, local management of schools, the transfer of hospitals from health authorities to Trusts. As each change has occurred information has effectively been lost, if it existed at all. Budget cuts in all service sectors have added to the problems." "Asbestos management programmes" require that all the asbestos in every building is located and listed. Tenants should be told where it is and what to do in order to be safe. Any maintenance or building work should be checked for asbestos risk and controlled by a permit-to-work system. The condition of the asbestos should be checked every six months. Potential buyers should be informed of the presence of asbestos.

The theory is fine but breaks down in the real world. There are many reasons why asbestos management fails. Tenant populations change. Information may be badly presented or incomprehensible. In emergencies such as burst pipes, asbestos procedures get overlooked. Fibre releases from children's play, fire, vandalism or break-ins are beyond Councils' control.

Local Authorities

In 1985 the Association of Metropolitan Authorities (AMA) conducted a survey of member authorities to assess the revenue and capital costs associated with asbestos in its properties.[5] AMA authorities had then between them over 2.2 million council houses when the total local authority stock of houses was about 4.5 million. It was estimated that 1.9 million AMA properties could contain asbestos, implying that overall 4 million council houses could be contaminated. However, metropolitan areas were likely to have proportionately more properties at risk because they have more industrialised and system-built dwellings, which relied, purely for cheapness, on lightweight materials such as asbestos.

The AMA produced a policy statement which it proposed local authorities adopt. Some of the main points were:

- prohibiting asbestos use in local authority premises
- surveying properties and creating registers of the location of asbestos.
- informing users, occupiers, and managers of buildings of the location of asbestos
- informing the emergency services and Direct Labour Organisations of the location of asbestos in all buildings
- progressive removal of asbestos (the AMA did not advocate the immediate removal of all asbestos, because of costs: it said, however, "Nevertheless, progressive removal is thought to be both the safest and most cost effective solution ... Further, asbestos will have to be removed separately at some stage, even if this is immediately prior to demolition")
- maximum scrutiny and supervision of contractors and the greatest use of direct labour teams.

Unfortunately, the survey has not been reviewed and updated so it is not possible to say how much asbestos located in local authority property in 1985 has actually been removed. But some of the costs identified by AMA are worth repeating to give an idea of the scale of the problem. Overall the report identified the need for at least £1.5 billion to be spent on housing, and a further £460 million on other properties, in the metropolitan areas of England and Wales. These figures could be doubled to cover all local authorities, including those that did not participate in the survey.

To put the figures in context, in the period 1979-1990, especially after the 1980 Housing Act was introduced, 1.5 million council homes were sold (many containing asbestos), with capital receipts of £18,616 billion. Financial discounts to purchasers were around £16 billion. Mortgage tax relief rose five-fold in the 1980s and cost the Treasury about £40 billion.[6]

Rate capping introduced with the 1984 Rates Act, strictly controls the ability of Councils to raise money above levels set by the Department of the Environment. It does not mean that money for safe removal is not available. Councillors must be persuaded that removal is a high priority. Money can be provided from existing budgets or can be voted from reserve council funds. Local authorities may also apply for grant aid from central government for large-scale asbestos removal on council estates and other property.

THE CASE OF SOUTHWARK

The Heygate Estate

This typical 1960s council estate in Southwark is riddled with asbestos. In April and May 1995 Adamson Laboratory Services, a NAMAS accredited firm, surveyed three different types of property. They found asbestos everywhere. Products containing asbestos included artex, cement-based products, asbestos insulation board, floor tiles, bitumen products and rope packing.

The asbestos varied in condition: some was painted or papered over, some was raw. Asbestos debris was found. The Adamson report recommended immediate remedial or removal action by an approved contractor.

The report said that although some asbestos could remain in place if maintained in its present condition, consideration must be given to any future activity, especially plumbing, rewiring or decoration, which would release fibres. Even rubbing down the surfaces for painting is dangerous. Tenants must be informed how to "manage" the asbestos.

This highlights an immediate problem which unfortunately is not unique to Heygate. Tenants have lived in these properties for 30 years and in that time have decorated and carried out other maintenance activities without protection.

Scaremongering

The Heygate Tenants Association did not see the Adamson report until the middle of June and were then extremely alarmed. They sought advice from London Hazards Centre who involved Alan Dalton in a public meeting. Southwark Council's response was to issue a statement saying, "scaremongering like this can only worry the tenants unnecessarily."

Alan accused Southwark Council of gross negligence for suppressing the report and said that "unless the council risked scaring the tenants with a warning, residents would carry on with the home improvements that put them most at risk. Even minor jobs like knocking in a nail are dangerous."

Tenants' Victory

In response to pressure from the Heygate Tenants' Association, Southwark Council surveyed 10% of the homes on the estate and agreed to remove asbestos from some high risk areas at a cost of £250,000.

The HSE's Asbestos Alert leaflets were circulated to all dwellings on the estate; these leaflets clearly advise against DIY where asbestos is present. The Council agreed to tell tenants where asbestos is located in their properties.

Council Found Negligent

Southwark Council was criticised by the Local Ombudsman in 1989 for,

amongst other things, failing to inform tenants adequately about the asbestos risks in their homes.[7] This followed a complaint by a single mother of two young sons about damaged asbestos in her flat. Some was found in warm air heating ducts which were in use the first two years they lived in the property. She was extremely concerned that asbestos had actually been blown into their living areas. The Ombudsman ordered that Southwark apologise and pay her money for the unnecessary anxiety she suffered over an eight-month period waiting for asbestos in her flat to be dealt with.

The judgement added, "The Council have not been able to trace the Committee minute formally adopting their Asbestos Policy (of 1983). This lack of basic information on an issue of such importance is a matter of great concern and casts doubt on the seriousness with which the Council deals with problems caused by asbestos ... it is clear that the measures set out are not being implemented, *particularly the programmed survey of Council-owned property to assess the extent and condition of asbestos products and the labelling and monitoring of asbestos found* ... I do not consider the Council's agreement to write only to new tenants (on one particular estate) to be an adequate response to this problem."

Southwark DLO and asbestos removal team

Southwark Council owns the largest number of council properties in London, 55,000 dwellings. It is the sixth largest owner of council property in England. The manner in which it now deals with asbestos removal is illuminating. It still has a direct labour asbestos removal team set up because of pressure from the building worker trade unions. It is the only DLO in the Asbestos Removal Contractors Association (ARCA) but it is very small and only able to carry out emergency removals. Three people were employed in 1995 when formerly there were 15. Large scale asbestos removal jobs are contracted out to commercial organisations.

In the 1989 Ombudsman report it states that a Senior Technical Officer told them that the asbestos team had never had sufficient staff to undertake the programmed survey proposed in the Council's asbestos policy. There were only three out of seven officers actually in post.

The problem of inadequate in-house resources to identify asbestos and supervise its removal is likely to be repeated across the country, especially where direct labour asbestos removal units have never been set up.

Schools

Shirley Gibson died from mesothelioma in October 1993. She was only 37, a single parent, and had taught home economics for 10 years at Plumstead Manor School, in the London Borough of Greenwich. The inquest into her death ruled that she had been exposed to asbestos in the classroom.

The National Union of Teachers (NUT), who will sue for damages on behalf of Shirley Gibson's estate, is demanding that the asbestos is surveyed in all 26,000 schools in England and Wales, and all the asbestos that is vulnerable to damage be removed as a matter of priority. Like all public buildings, schools contain tonnes of asbestos. In 1995, 385 of the 6,473 schools responding (5.9%) to the NUT's *Crumbling Schools* survey reported buildings had been shut because of asbestos.

In Greenwich alone the cost of removing all asbestos in the borough's schools has been estimated to be £60 million. Greenwich Council's total budget for 1994 is £213 million. Greenwich Council applied for £8 million to cover structural repairs in schools, but only received a £300,000 grant for all building works, including asbestos removal.[8]

The Inner London Education Authority (ILEA), abolished by the Conservatives in the late 1980s, had already surveyed the majority of schools in London. The London Hazards Centre worked closely with the staff side of the ILEA asbestos joint working party, although it did not carry out the technical work. Eddie Rowe, staff side representative on the ILEA working party, visited hundreds of London schools and said virtually every one contained damaged asbestos, "In almost all cases staff, children and parents were unaware of even the presence of asbestos."

Now the schools have been handed over to the London boroughs, all that work appears to have been lost. No records remain and local authorities are

having to do the work again. Greenwich is now undertaking a new comprehensive survey, and it has taken a tragedy for it to do so. Other Councils continue to remove asbestos, but often in a piecemeal fashion.

Toddlers exposed to the dust

Although ILEA devoted greater resources to its asbestos problem than many other local education authorities, there were still problems and cost saving exercises led to dangerous economies. At Hague Primary School in Tower Hamlets badly damaged lagging material was sealed rather than removed. The seal failed within two days. Ten 3-5 year olds were present in a room when the sealing was checked with smoke tests. Later that day tests showed up to 0.32 fibres/ml, well above the clearance limit of 0.01 respirable fibres/ml of air.

In one asbestos removal job in a Birmingham school in 1994, asbestos that had fallen off pipes under a wooden stage had simply accumulated. Terry Jago, ARCA secretary, said that his company was originally called in to encapsulate some pipework. When they actually inspected the job there was so much loose asbestos debris that a full decontamination job was necessary. He commented, "We took away more asbestos from that school than we do from most factories. It was particularly worrying because props and other items were stored beneath the stage and people were regularly going down there. Also performances would generate a considerable level of vibration. Almost every ARCA member would have a story like that."

The experience in the UK compares badly with that in the US. In 1986, the federal government recognised the special hazards of asbestos in schools and made funding available to states for identification, repair, management programmes, education and removal.[9] A very detailed 1991 US report, *Asbestos in Public and Commercial Buildings,* prepared by 17 world experts on asbestos, including Julian Peto, concluded, "measurements in school buildings show that, on average, there are higher airborne concentrations than found in public buildings. This is probably due, in part, to the much higher levels of activity, which will wear and resuspend asbestos containing materials."

Writing in *Occupational Health Review*, Alan Dalton describes how over 20 years he has visited over 50 schools and seen "the best and strongest asbestos cladding removed and seriously damaged." He also refers to recent US studies finding that one in three school caretakers had early signs of pleural plaques and to reports of more UK teachers suffering from mesothelioma, made by Dr Robin Rudd of the London Chest Hospital in a BBC TV programme.[10]

Other Council Property

It is difficult to calculate the costs of asbestos removal from care facilities for the elderly and children but the 1985 report guessed that AMA members could face a total bill of around £60 million.

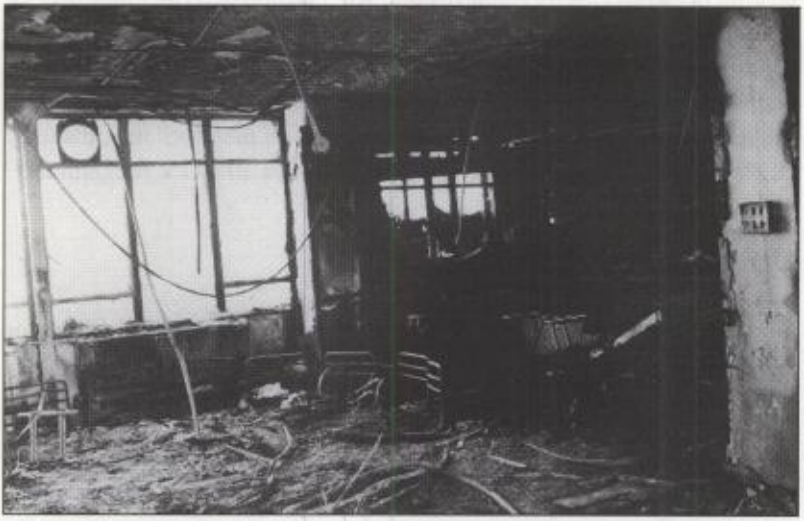
It is harder to estimate the total costs for other council buildings such as council offices, recreational facilities, stores, depots, boiler houses and so on. But AMA did think final costs would be close to those for educational premises. That would be another £400 million.

The Federation of Local Authority Librarians reported in 1995 that more than £600 million is needed to repair and update libraries around the country. Like schools, many were built in the 1960s when local authority services expanded rapidly. Many were of poor quality design and asbestos was used in large amounts. Now they have leaking roofs and crumbling walls. Librarians are up in arms that National Lottery money is not being used to fund libraries despite billions being earmarked for the performing arts.[11]

The Civil Service

2000 civil servants were sent home from work for three days in May 1995 when asbestos was disturbed in a canteen fire at St Christopher House in central London. The building is shared by the Departments of Transport and Environment and the Ministry of Defence. The canteen was gutted. No-one was burnt, but initially it was not realised that asbestos was involved.

Contractors clearing the canteen noticed it two days later. It had been bagged up with other damaged waste and placed in a skip in the car park.



Canteen in St. Christopher House after the fire IPMS

At this point bags, the skip and the canteen were sealed. Air monitoring and safe removal began. This took three days when the building was closed to staff.

Water used to put the fire out entered the electricity service ducts and asbestos fibres could have been washed out and then blown all over the building by the fans used to dry out the electrical system.

Fortunately monitoring indicates this did not happen. The fire broke out early on a Friday, the damaged asbestos was found and begun to be dealt with safely on a Sunday. There is an obvious gap during which time some people were at risk.

The incident reveals the potential dangers of leaving asbestos undisturbed in a building.

Asbestos Registers

The worst fears of civil service unions, that asbestos registers are incomplete, where they exist at all, were confirmed. The asbestos at St Christopher House

had not been identified in the Register drawn up in 1993. The building is typical of a large number of civil service properties built during the 1960s.

Since the 1990-91 financial year civil service departments and agencies have had to assume responsibility for their buildings. Before this the Property Services Agency (PSA) had responsibility for management and maintenance of asbestos registers. The civil service unions have pressed the Central Advice Unit of Property Holdings (set up after the privatisation of the PSA) and the Civil Service Occupational Health and Safety Agency to take steps to alert all government departments about the St Christopher House incident and to ensure the asbestos registers are complete and up to date. The Institution of Professional Managers and Scientists (IPMS) has been assured that guidance will be issued to departments.

Ironically, the Department of the Environment, which is responsible for issuing guidance on asbestos in buildings, is the civil service property with the biggest asbestos problem of all. It will cost £1 million to put it right. Asbestos needs to be removed from the Marsham Street HQ before it is demolished in 1997. Department of Transport staff will be moved into parts of the building which have been decontaminated.

The Answer to Asbestos in Buildings

The essential steps are:

- identify the asbestos. This will need bulk sampling by a reputable asbestos analysis company
- record where the asbestos is and its condition. This should be a public document
- make safe all the asbestos identified by removal or in the short term by enclosure
- label asbestos and institute a management control programme so asbestos is not disturbed during maintenance or refurbishment or damaged (e.g. by vandalism, wind, fire or water)

NEW LEGISLATION FOR BUILDING OWNERS

New regulations are needed that require all building owners or long-term lease holders to identify, record, make good, label and manage the asbestos hazard in their buildings. In the US, this is already a requirement for many buildings, e.g. schools.[12]

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ASBESTOS AND THE LAW

This deadly dust should never have been allowed into our workplaces and homes. Despite this, the current regulations for controlling asbestos related diseases would be essentially adequate if reinforced by robust enforcement. The enforcement would need to be backed by banning the importation and use of the remaining asbestos products allowed in construction. Additional legislation to this effect would be useful and would focus the minds of construction companies and their suppliers. Substitutes are readily available. Therefore, existing laws could ban the use of asbestos. Other areas of enforcement that particularly need strict policing are asbestos removal, refurbishment, maintenance and demolition work.

CURRENT UK LEGISLATION ON ASBESTOS

Since the 1980s the UK's official policy has been to:

- Prohibit the most hazardous forms and activities, namely the importation, supply and use of blue and brown (crocidolite and amosite) asbestos, asbestos spraying and the installation of asbestos insulation
- License most work with asbestos insulation or coatings
- Strictly control the remaining risks to anyone working with asbestos (and others affected by them)

The controls on work with asbestos are set out in three main pieces of legislation, the Asbestos (Licensing) Regulations 1983, the Control of Asbestos

at Work Regulations 1987, amended 1992, and the Asbestos (Prohibitions) Regulations 1992.

Banning Asbestos

From 1970 the asbestos industry maintained a voluntary ban on the import into the UK of raw blue asbestos. Then from 1980, they agreed to a similar ban on brown asbestos. The bans did not cover the import of products. The UK government finally imposed a legal ban on both blue and brown and any products containing them in 1986. An attempt to introduce a phased ban on the use of asbestos in the European Community was narrowly defeated in March 1987.

Does the law protect them properly? LHC

The reasons the industry volunteered a ban on blue asbestos are not hard to identify. The evidence of the dangers of asbestos mounted as its use increased. Blaming blue asbestos was a tactically useful ploy. At the time of the ban, blue asbestos represented about 3% of total world production and

it was mined only in South Africa, by Eternit and General Mining & Finance Corp, not by the UK-based Turner and Newall. Banning only blue made very little difference to the world trade in asbestos. Similarly brown asbestos was a much smaller proportion of world production, about 2% if that, at the time of the voluntary ban.

If in Doubt do not Work with Asbestos

Tony O'Brien, National Secretary of the Construction Safety Campaign, said at the launch of the HSE's asbestos awareness campaign, "Ordinary building workers have no protection at all and should not work with asbestos ... When asbestos is found on a site its not a question of "get a mask" it should be "stop working and leave the site" ... The law should be changed ... It's time to put these rogue contractors in prison and out of business completely."

Dr Peter Graham of the HSE responded,[1] "That's the reason we started this campaign. We need a high profile to contact and create awareness with these workers. The message is clear: if you find material you suspect to be, or to contain, asbestos, you should stop work immediately."

There are problems with this due to the hostile attitude of employers and the government itself to anything construed as industrial action. We have already described how a group of labourers at St John's Hospital in London got sacked and then reinstated for doing just this.

In theory, the Trade Union Reform and Employment Rights Act 1993 protects workers against being victimised for raising health and safety questions and refusing to work because of immediate danger. It is not as strong as it ought to be. It does not guarantee reinstatement. It does, however, allow the trade union or individual to go to an industrial tribunal and claim damages for unfair dismissal.

Asbestos is affected by legislation that has been introduced under a number of different Acts of Parliament. These are:

The Health and Safety at Work Act 1974

The Asbestos (Licensing) Regulations 1983
The Control of Asbestos at Work Regulations 1987, amended 1992
The Control of Asbestos in the Air Regulations 1990
The Asbestos (Prohibitions) Regulations 1992

The Environmental Protection Act 1990
The Water Act 1989

The Trade Effluents (Prescribed Processes and Substances) Regulations 1989

The Consumer Safety Act 1978

The Asbestos Products (Safety) Regulations 1985

The main ones of interest to safety representatives and anti-asbestos campaigners are described in more detail in the text. The information on the three main regulations comes from a very clear MSF Factsheet on Asbestos updated where necessary. Information provided by trade unions is easy to understand and generally provides an ideal summary of the legal position.

THE CONTROL OF ASBESTOS AT WORK REGULATIONS (CAWR) 1987 AMENDED BY THE CONTROL OF ASBESTOS AT WORK (AMENDMENT) REGULATIONS 1992

These Regulations have general application and provide the statutory protection for everyone who may be exposed to asbestos from work activities. They cover any activity which may result in exposure to asbestos dust. They

cover *all* types of asbestos and all mixtures. They lay down *control limits* and *action levels.*

They replace the Asbestos Regulations 1969 which set a standard of 2 fibres/ml of air for white asbestos. This legislation only applied to certain groups of workers in factories and power stations, and the level was supposed to be one at which "only" one in 100 workers would be at risk of asbestosis if exposed to this level of dust over 50 years.[2]

Control Limits

Control limits describe the upper level of dust allowed in the atmosphere, measured by an approved method described in HSE Guidance Note EH10.[3]

The control limits depend on the type of asbestos, and set two levels depending on the time of exposure. *They are not safe limits and the HSC does not say that they are.* Exposure to all forms of asbestos should be reduced to the minimum reasonably practicable, that is, well below the control limits. They apply only to people working with asbestos, not to other employees or to members of the public. For these categories, exposure should be kept below the clearance limit of 0.01 respirable fibres/ml of air.

At this accepted clearance level for removal work, there are still 10,000 fibres per cubic metre in the air. A human requires one cubic metre of air to breathe per hour so there is still considerable risk. American research suggests that a person breathing this level of asbestos for ten years would stand a three in 1000 chance of developing an asbestos cancer.

Control Limits

For blue and brown asbestos

i) 0.2 fibres/ml of air averaged over any continuous period of 4 hours

ii) 0.6 fibres/ml of air averaged over any continuous period of 10 minutes

For white asbestos

i) 0.5 fibres/ml of air averaged over any continuous period of 4 hours

ii) 1.5 fibres/ml of air averaged over any continuous period of 10 minutes

Action Levels

These apply to exposures over a 12 week period. Cumulative exposure is calculated by multiplying each airborne fibre level measurement by the time for which it lasts and adding up the readings over the 12 week period

The action levels are:

For blue and brown asbestos

48 fibre-hours/ml of air

For white asbestos

96 fibre-hours/ml of air (originally 120 fibre-hours/ml of air)

Where both types of exposure are involved, the action level is calculated on a proportionate basis. This is only when the types of exposure occur at different times. If both types of asbestos are present, the mixture must be treated as if it were all blue or brown

The Clearance Limit

0.01 respirable fibres/ml of air. This applies to other employees or to members of the public

Employers' Duties

Before work begins employers must:

1 identify the type of asbestos. The employer should assume that it is not just white asbestos, they should provide for a worst case scenario (Regulation 4)
2 assess the likely exposure and set out steps to prevent or reduce this to the lowest level practicable. Assessments must be reviewed and/or revised regularly, particularly when there has been a significant change in the work (Regulation 5)
3 prepare a "plan of work" before asbestos removal from buildings, structures plant or installations (including ships) and keep it until the work is over. It must describe the location, nature, duration of the work, the handling methods, the protection and decontamination equipment for the asbestos workers and the protection equipment for any others affected. The client has responsibility under the Health and Safety at Work Act 1974 for ensuring that plans of work are sufficient and adequate to meet site specific requirements, and protect staff and public. For asbestos removal, responsibility is imposed jointly and severally on the contractor.
4 notify the enforcing authority 28 days before work begins if the action levels are likely to be exceeded, unless the employer is licensed under or exempt from the Asbestos (Licensing) Regulations 1983 (Regulation 6)
5 inform, instruct and train employees who may be exposed, of the risks and of the precautions (Regulation 7)

When work is being carried out employers must:

6 prevent exposure or reduce it to the lowest level reasonably practicable by control measures other than the use of respiratory protective equipment (Regulation 8)

7 substitution: the 1993 Amendment to the Control of Asbestos at Work Regulations requires exposure to asbestos to be prevented by substitution, whenever this is technically possible (Regulation 8)
8 provide respiratory protective equipment (RPE) where it is not reasonably practicable to reduce exposure to below the control limits. RPE must comply with the requirements of any relevant design or manufacturing legislation (Regulation 8)
9 use and maintain control measures in a clean and efficient state, in efficient working order and in good repair and ensure the regular examination and testing of exhaust ventilation equipment by a competent person (Regulations 9 and 10)
10 provide adequate and suitable protective clothing and arrange for its regular cleaning or its disposal as asbestos waste (Regulation 11)
11 prevent the spread of asbestos (Regulation 12)
12 clean thoroughly all premises and plant where work is in progress or has taken place (Regulation 13)
13 designate areas as respirator zones where action levels or control limits are likely to be exceeded. These areas need notices, restricted access and clear instructions not to eat, drink, or smoke (Regulation 14)
14 monitor exposure of workers to asbestos and keep records (Regulation 15)
15 maintain health records and provide medical surveillance of any employee exposed to more than the action levels for 40 years (originally 30 years) (Regulation 16)
16 provide washing and changing facilities for any employee exposed to asbestos and separate storage facilities for personal clothing and protective clothing, including respiratory protective equipment (Regulation 17)
17 label properly raw asbestos or asbestos waste and ensure that it is stored or distributed in a suitable sealed container (Regulation 18)

The CAWR are supported by two Approved Codes of Practice (ACoPs) and by a number of HSE publications which give practical guidance on various aspects of work with asbestos.

THE ASBESTOS (PROHIBITION) REGULATIONS 1992

These replaced the Asbestos (Prohibition) Regulations 1985 though many of

the previous prohibitions are re-enacted, expanded and consolidated. They prohibit the import, supply and use of amphibole asbestos, principally blue (crocidolite) and brown (amosite), and products containing them and the spraying of asbestos and installation of asbestos insulation. But products containing blue and brown asbestos in use before 1986 are not banned and similarly with the rarer amphiboles, products in use before 1993 are not banned.

The supply and use of any product containing white (chrysotile) asbestos is specified in the Schedule to the Regulations except for those in use before 1993.

BANNING ASBESTOS PRODUCTS IN CONSTRUCTION

Asbestos cement products, roof sheets and pipes, and asbestos slates are still marketed in the UK and in other parts of the European Union. They should not be used in construction according to the HSE.

All types of asbestos are classified as carcinogens and the EC Carcinogens Directive is implemented in Britain by the CAWR. Regulation 8 states:

"Every employer shall prevent the exposure of his employees to asbestos; ... where employees may be exposed to asbestos in any product, prevention of such exposure, where it is practicable, by substituting for asbestos a substance which under the conditions of its use, does not create a risk to the health of his employees or creates a lesser risk than that created by asbestos."

Guidance on this is then given in the ACoP:

"Asbestos-containing products should only be used where using a less hazardous substitute is not reasonably practicable, eg where substitutes cannot meet a technical performance requirement of an application. It is also important when considering substitute materials for asbestos, to take into account all the potentially harmful properties of any proposed replacement, and to balance any new risks they might present against the possible benefits."

Further, the Construction (Design And Management) Regulations 1994 (CDM) will reinforce the message that from now on, only asbestos-free materials should be used.

THE ASBESTOS (LICENSING) REGULATIONS 1983

These cover the most hazardous jobs such as asbestos stripping or removal. They require all employers or self-employed people carrying out work with asbestos insulation or asbestos coating to have a licence from the HSE and to comply with the terms of that licence. There are three exceptions to this requirement:

- work of short duration: a total of two hours or less and no more than one hour in seven consecutive days for an individual person
- work by an employer on their own premises with their own workers which has been notified to the HSE 28 days in advance
- work which consists solely of air monitoring or collecting samples for identification

All work must be done in compliance with the Control of Asbestos at Work Regulations, and in accordance with the ACoP for work with asbestos insulation, coating and insulation board. The ACoP gives detailed guidance on assessment, control measures, personal protection, cleaning, monitoring, information, instruction and training, health records, and medical surveillance.

The revised insulation ACoP contains several important revisions which improve the minimum legal standard of asbestos removal techniques and practices. The more significant parts are:

- a switch to "controlled-wetting" stripping techniques as a primary method for reducing dust concentrations inside enclosures
- personal monitoring of removal operatives during work to determine routine exposure levels

- differential pressure testing of enclosures is considered to be useful, not essential, in monitoring the effectiveness of containment structures and air extraction equipment
- 6-monthly testing of vacuum cleaning equipment
- compliance with the Personal Protective Equipment (Safety) Regulations 1992
- a recommendation that visual inspection of the site be conducted by an independent organisation that is without financial or other interest. Contractors are allowed to conduct their own visual inspections
- laboratories used for sampling should be accredited by NAMAS, except when employers carry out such works on their own premises with their own staff

When the ACoP and the Regulations were updated there was a strong lobby, by some employers' organisations and laboratories, arguing that the visual inspections of enclosures at the end of asbestos jobs, should be by an independent organisation. Bad practice at this stage is common. The opportunity to tighten up was ignored mainly because of the influence of Scottish Power and the Confederation of British Industry.

Currently asbestos contractors are only licensed, not accredited or assessed on quality grounds. The more professional consultancies and laboratories can demonstrate and maintain an acceptable level of quality.

Plan of Work

For those who have the condition imposed on their licenses enforcing authorities may demand a copy of the plan of work or method statement for evaluation during the statutory 28-day notification period. The HSE and local authorities are often unable to police these plans due to lack of staff. About 20% of contractors do not have this condition imposed on their "Class A" licences and are normally allowed to make a simple notification to be followed up with a method statement or specification. The TUC has suggested it should be the absolute responsibility of contractors to submit detailed plans of work in every case.

It is left to Area Principal Inspectors to prioritise work. Preventative inspections, in which category asbestos removal fits, have often taken a back seat, especially, in areas such as Inner London which has a high level of construction activity.

Regulation of Subcontractors and the Self-employed

A licensed contractor may only subcontract asbestos removal work to another licensed contractor or to a self-employed person who individually holds an asbestos-removal licence.

The main contractor must accept full responsibility for compliance with health and safety legislation in respect of any operative who works for him on licensable asbestos work, irrespective of whether the operative has a licence.

Adrian Griffin, head of the HSE's Asbestos Licensing Unit, has admitted that relying on widespread use of subcontractors and self-employed "may have disadvantages in respect of health and safely standards," but says, "it is a commercial fact of life."[4]

OTHER RELEVANT LEGISLATION

The Health and Safety at Work Act 1974

The Health and Safety at Work Act 1974 makes it the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all employees.

There are five specific duties placed on the employer:

a) to provide and maintain plant and systems of work
b) to ensure safe use in the handling, storage and transport of articles or substances
c) to provide such information, instruction, training, and supervision as is required

d) to ensure a safe place of work free from risk to health
e) to provide adequate facilities for the welfare of employees. This duty is extended by the Act to third parties, i.e. tenants, visitors to council premises and other public property

The Asbestos Police

HSE: The Health and Safety Executive (the factory inspectors) are responsible for licensing contractors, enforcing the Asbestos Regulations and for enforcement of the Health and Safety at Work Act 1974 in factories, construction sites and farms. They have powers to investigate, stop work taking place, and prosecute offenders.

EHO: Environmental Health Officers, employees of the local councils, are responsible for enforcing the Health and Safety at Work Act in shops, offices, places of entertainment and communal homes. They have powers to control "nuisances" which are "prejudicial to health". These powers cover emissions of dust caused by any trade or business, and asbestos waste disposal. It is the duty of Environmental Health Departments to investigate complaints promptly.

The Management of Health and Safety at Work Regulations 1992

Risk assessments are required by the Management of Health and Safety at Work Regulations 1992 and should include all asbestos in buildings.

The Construction (Design and Management) Regulations 1994

The Construction (Design and Management) Regulations 1994 require both clients and contractors to prepare a "health and safety plan." This must consider any asbestos present.

Union safety reps are entitled to see, by law, both the risk assessment and the health and safety plan. The real answer, though, is for new regulations that specifically require all building owners or long-term lease holders to identify, record, make good, label and manage the asbestos hazard in their buildings. In the US, this is already a requirement for many buildings (e.g. schools).

HSE publications

The HSE provides a mass of free and priced information on the hazards of asbestos and mineral fibres. HSE Public Enquiry Point tel: 0114 289 2345

Approved Codes of Practice

The Control of Asbestos at Work (2nd edition): Control of Asbestos at Work Regulations 1987 (ISBN 0 7176 0450 0)
Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulation Board (2nd Edition): Control of Asbestos at Work Regulations 1987 (ISBN 0 7176 0460 8)

HSE Guidance Notes:

EH10 Asbestos — Exposure Limits and Measurement of Airborne Dust Concentrations (ISBN 0 11 885552 2)
EH35 Probable asbestos dust concentrations at construction processes (ISBN 0 11 885421 6)
EH36 Work with asbestos cement (ISBN 0 11 885422 4)
EH37 Work with asbestos insulating board (ISBN 0 11 885423 2)
EH41 Respiratory Protective Equipment for use against asbestos (ISBN 0 11 8835122 2)
EH47 Provision, use and maintenance of hygiene facilities for work with asbestos insulation board (ISBN 0 11 885567 0)
EH50 Training operatives and supervisors for work with asbestos insulations and coatings (ISBN 0 11 885400 3)

EH51 Enclosures provided for work with asbestos insulations and coatings and insulating board (ISBN 0 11 885408 9)
EH52 Removal techniques and associated waste handling for asbestos insulations and coatings and insulating board (ISBN 0 11 885409 7)
MS13 Asbestos (ISBN 0 11 885402 X)
L11 A guide to the Asbestos (Licensing) Regulations 1983 (ISBN 0 11 885684 7)

HSE free leaflets:

Asbestos dust — the hidden killer! Are you at risk? Essential Advice for Building Maintenance, Repair and Refurbishment Workers, leaflet IND(G)187L
Asbestos alert for building maintenance, repair and refurbishment workers — pocket card IND(G)188P
Asbestos and you — revised leaflet IND(G)107(L) (rev) contains the Asbestos Code
Asbestos alert for garage workers, revised pocket card IND(S)13 (rev);
Asbestos in paper and board mills, revised leaflet IAC(L)12(rev)

OTHER AGENCIES WHICH HELP CONTROL ASBESTOS

ARCA, Asbestos Removal Contractors' Association

This is the contractors' trade association. This organisation tries to maintain high standards of work and are keen to hear about bad practices. Out of the 768 asbestos removal companies licensed by the HSE only 85 contractors are ARCA members at the moment. ARCA also has a number of associate members who are involved in providing equipment, protective clothing, monitoring, and other related activities.

The training requirements, inspections, standards of record keeping, and quality of work standards are much more stringent than those required by

the HSE's licensing scheme. In the last five years ARCA has expelled about half a dozen companies for failing to abide by its code of conduct.

ARCA companies recognise trade unions, usually GMB in England and Wales and TGWU in Scotland, and are generally relatively union friendly not least because the companies get a lot of business from other trade unionists demanding asbestos be dealt with properly. Ring and ask to speak to the trade union representative to check that they are happy with their working practices before agreeing to employ a particular contractor.

They regularly publish their list of members and this can be obtained from their offices at ARCA, Friars House, 6 Parkway, Chelmsford, Essex CM2 0NF; tel: 01245 259744, fax: 01245 490722.

UKAS, United Kingdom Accreditation Service, and NAMAS

UKAS gives accreditation to laboratories which analyse asbestos and other materials, under the National Accreditation of Measurement and Sampling (NAMAS) scheme. Accredited laboratories can display the NAMAS logo. All NAMAS accredited laboratories must belong to RICE (see below).

NAMAS originally assessed and accredited laboratories only for counting the number of fibres present on membrane filters and identifying the type of asbestos present in bulk samples. Since 1992 they also offer accreditation for air sampling to comply with HSE Method MDHS 39/3, and bulk sampling. Make sure you know which accreditation the laboratory holds.

There are currently over 100 laboratories accredited by NAMAS for asbestos evaluation, 12 of which are accredited for asbestos sampling. To obtain the list, telephone 0181 943 7135 and ask for publication D25. For more information on accreditation for asbestos testing and sampling, telephone 0181 943 6190.

RICE, Regulated Inter-Laboratory Counting Exchange

This is the HSE's quality control scheme administered by the Institute of Occupational Medicine. It is a national proficiency scheme for monitoring the ability of laboratories to count fibres accurately. Participation in RICE is a mandatory requirement for laboratories wishing to become accredited by NAMAS for asbestos fibre counting.

Sets of samples are sent to each laboratory four times per year and the analysts return their results to RICE. RICE categorises each laboratory into 1, 2 or 3 (where 3 is unacceptable). RICE can be contacted by telephoning 0131 667 5131.

Guidance Note EH 10 advises that laboratories should participate in RICE. But this does not always happen. Always check.

References

1 *ACADemy* (1995), 5. *ACADemy* is the journal of TICA's Asbestos Control and Abatement Division
2 Dalton AJP (1979) *Asbestos: Killer Dust*, BSSRS
3 EH 10: *Asbestos — Exposure Limits and Measurement of Airborne Dust Concentrations* gives guidance on the sampling method, filter cleaning and mounting, microscope specification, evaluation of samples, the sampling period and flow rate
4 Hatchwell P (1994) *Occ. Health Rev.*, November/December

6

GETTING AWAY WITH MURDER

It was no less than the establishment journal *The Economist* that identified one surefire way to make our lives safer. In a 1982 editorial discussing the need for new asbestos laws it commented, "Say that, after the day on which any new legislation receives royal assent, you will send to jail any corporate executives and managers who continue to endanger their employees' lives — and do it."

The mass of legislation on asbestos, with the level of detail contained in Guidance Notes and other supplementary information, exists because asbestos is the most potent industrial killer ever. Certainly because of its universal usage, asbestos is responsible for more occupational cancers than any other substance. There is no safe level to which a person can be exposed without risk. This is official policy.

It would not be unreasonable, therefore, to expect the most rigorous enforcement of the legislation and penal sentences.

The reality is very different. A typical case is the £8,000 fine following the prosecution of Derek Evans, in the Wolverhampton Magistrates Court, for allowing 14 tonnes of asbestos to be removed without a licence, then shotblasting the remaining dust and leaving the asbestos in dustbins outside nearby housing.

Derek Evans knew what he was doing was illegal. On discovery of the asbestos sheets he contacted the HSE for advice. He was told the asbestos would have to be removed by a specialist firm as he would be unlikely to get a licence himself because of his lack of experience. He was quoted a price of £23,000

for removing the sheets safely. He decided instead to advertise the sheets free for collection and someone responded, removed the sheets, and now cannot be traced.

Evans pleaded guilty to two offences and said he had been very foolish. In reality he got off incredibly lightly. He should have paid £23,000 to have the asbestos removed properly, did not pay anything, put the public well and truly at risk, and was fined only £8,000 with £366 costs. He is £15,634 better off than if he had complied with the law.

POOR TO THE POINT OF BEING PATHETIC

T.W. Ward Industrial Dismantling of Rochdale was fined £15,000 with £19,061 costs in 1994 and subsequently went into receivership for three offences. In a removal job at a large Birmingham store airborne asbestos outside the work area was measured at 400 times the permitted level. Control measures were described by the magistrate as poor to the point of being pathetic.

In January 1995 Rolls Royce Nuclear Engineering Services were fined £15,000 with £350 costs for contaminating a car park and transporting asbestos in a dangerous way.

Similar prosecutions or incidents include the Central Midlands Co-operative Supermarket in Sheldon. This was closed down in June 1993 because of the presence of friable asbestos. In Stoke-on-Trent an unlicensed building contractor was fined £1,000 for exposing demolition workers to levels of crocidolite and amosite up to 5,000 times the control limit. No respiratory equipment, personal protective equipment, decontamination facilities or other safety precautions were provided over several months.

In none of these cases does the penalty fit the crime.

Sometimes the guilty get away. Glanford council has still not been able to identify those responsible for dumping 1.5 tonnes of all three types of asbestos by the village pond in South Ferriby.[1]

In an intensely competitive market, in recession, when the lowest price wins, law breaking is common.

PROSECUTIONS FOR ASBESTOS OFFENCES

According to the HSE, 85 licensed companies have been prosecuted from 1984 to 1994 for offences under the Asbestos (Licensing) Regulations 1983. There were 38 convictions in 1986/87 with total fines of £13,700. There were only three cases and convictions in 1992/93 with total fines of £2,000.

Most cases involve contractors operating without or outside the terms of a licence, followed by failure to carry out and record results of medical surveillance of employees working with asbestos.

Prosecutions under the Control of Asbestos at Work Regulations 1987, peaked at 48 convictions during 1990/91 with total fines of £28,000, then fell to a provisional figure of 23 cases in 1992/93 with total fines of £10,302.[2]

In *The Lancet*, Peto expresses concern about the asbestos removal industry saying it "may well have increased the burden of future occupational disease," pointing out that the industry was "initially inadequately regulated." We go much further than this. We can find little evidence of the asbestos stripping industry ever being regulated.

There are good companies out there performing to high standards. The Peoples Asbestos Action Campaign, the Hazards Campaign, local authorities, DLOs, trade unions, and community groups have insisted on and enforced high standards. ARCA and the Thermal Insulation Contractors Association (TICA) are concerned that there be a level playing field and do not want to be undercut by cowboys.

LICENCE TO KILL?

There were 768 asbestos removal companies licensed to operate in Great Britain at the end of 1995. In 1987 there were 2,099. The HSE does not record comparable information for Northern Ireland.

Table 1: Inspections and Prosecutions of Asbestos Removal Contractors — 1983-1994

Year	Visits	In[a]	Pn[b]	Prosecutions	Highest fine (£)	Lowest fine (£)	Average fine (£)
1984				3	1,500	200	733
1985	2,709	9	71	31	4,500	150	843
1986	1,654	5	40	13	3,750	100	800
1987	941	1	15	8	2,000	100	810
1988	533	1	11	6	1,500	100	583
1989	677	3	14	8	9,000	250	3,237
1990	401	2	12	3	2,000	650	1,117
1991	385		6	6	3,000	250	1,348
1992	373	1	13	1	150	150	150
1993	399			4	3,000	530	1,570
1994	805			2	8,000	150	4,075

[a] IN = improvement notice [b] PN = prohibition notice

Visits: refers to the total number of visits to companies or contractors licensed under the Asbestos (Licensing) Regulations 1983. The Department of Employment does not make available figures on the number of asbestos removal companies inspected by the HSE, but it has supplied the number of visits. Some of these will be follow up visits.

Prosecutions of asbestos removal contractors: the Table gives offences under the Asbestos (Licensing) Regulations 1983, the Control of Asbestos at Work Regulations (CAWR) 1987 and the Asbestos Regulations 1969 which CAWR replaced. It also gives the number of Improvement Notices and Prohibition Notices. These are only given for very serious bad practice. An improvement notice requires standards to be improved by a certain time. A prohibition notice requires that work is stopped until improvements are made.

It is difficult to get official information on the enforcement of the licensing legislation. The information in the Tables was obtained by Ian McCartney MP by asking parliamentary questions.[3] It is not made public in HSE Annual Reports. Perhaps the reason for the secrecy is that these figures prove that on-site inspection and enforcement of the Regulations is minimal.

The information made available on visits to asbestos removal companies indicates that for much of the time they are not getting even one visit a year. There has recently been an increase in activity, but 805 visits in 1994 for about 768 licensed companies is hardly tough treatment. The fines are pathetic. The highest is £9,000. The average fines indicate that many fines are much lower and it is obviously not unusual for fines to be as low as £100 (Table 1). Although 85 licenced asbestos contractors have been successfully prosecuted and 204 have had an improvement notice or prohibition notice served upon them only 13 have ever lost their license (Table 2).

Table 2: Volume of Regulatory Activity — 1983-1994

Year	Prosecutions	Improvement & prohibition notices	Licences revoked
1983			0
1984	3		0
1985	31	80	1
1986	13	45	2
1987	8	16	2
1988	6	12	0
1989	8	17	4
1990	3	14	0
1991	6	6	0
1992	1	14	0
1993	4		0
1994	2		3

CONTROLLING THE COWBOYS

Alan Dalton of the TGWU has argued that a large part of the asbestos removal industry is out of control. At the Construction Safety Campaign AGM in

March 1995, he said that "in the current climate in industry generally, and in the public sector, competitive tendering often means that the cheapest bid wins and that this means the cowboys get the work. With fines so low there is no incentive for the cowboys to clean up their act. Contractors must not be allowed to put in bids for work which do not allow for the true costs of removing asbestos safely."

The HSE say the vast majority of the industry, well over 95% of those in the asbestos removal trade, do follow regulations. Keith Morris, from the HSE's Field Operations Division, concedes that "there is a cowboy element" which "ruins the reputation of a responsible industry." Paul Redding, who covers health and safety issues for the Building Employers' Confederation (BEC) says, "small builders will be tempted" to ignore regulations, given the cost. Geoff Rose, company secretary to the Thermal Insulation Contractors' Association, and secretary to its Asbestos Control and Abatement Division (ACAD), has said that, "there are still a number of companies out there prepared to take these chances, and get caught, and not even all those who are licensed do it by the book (notably wet stripping) ... We would like to see legislation tightened up."[2]

HSE RESOURCES CUT

Licensing companies is of little value without adequate inspection and enforcement. From 1st April 1994 the HSE planned a 50% increase in the amount of time spent on the inspection of asbestos removal work, an area of risk which at last is recognised officially as a priority. Table 1 shows that the number of site visits did indeed double from 1993 to 1994, but it must be emphasised that this is from a very low base and one visit a year is not "rigorous enforcement."

However, instead of increasing the number of inspectors engaged in inspections, the HSE has had a massive reorganisation forced upon it, which means resources have been cut.

The public expenditure survey settlement of 1993 provided for 4,599 Health and Safety Commission staff in 1994-95, a drop of 62 on the previous year.

The HSE completed five market tests of its operations since April 1992 and these resulted in the loss of 92 posts.[4]

The HSE wound up its Mineral Fibres National Interest Group (NIG) at the end of March 1994. The work of the disbanded NIG will be divided among other branches of the HSE, with a large share likely to go to the Construction NIG, although it will not take on extra staff for the purpose. There is a fear that the work will become fragmented.

Reasons HSE Refused or Revoked an Asbestos Licence

- Not observing the conditions on the asbestos licence, and not giving correct notice of the method statement, equipment specification to the Local Area Office. Proceedings under Regulations 3(1) of the Asbestos (Licensing) Regulations
- Serious failures to achieve adequate standards of work resulting in a prohibition notice.
- Contravention of the conditions on the asbestos licence
- Conviction on four accounts of contravening Regulation 6(1) of the 1983 Regulations. Poor procedures were observed and failure to notify work carried out
- No written notification given to removal of asbestos. The employee was not medically examined and no record of medical examination could be produced. Inadequate control measures during removal, asbestos contamination at the end of work, poor training and instruction of the employee
- Failure to comply with the conditions of the licence. Failure to have workers medically examined. Failure to provide adequate decontamination facilities
- Notification of intention to carry out work on site was not given. Site material containing crocidolite and chrysotile was found after work had finished. The working area had not been enclosed sufficiently to prevent spread of waste material. Training and supervision of employees was insufficient
- A member of management had not attended a training course for work with asbestos insulation and coating and a procedure for asbestos removal had not been prepared

- Further knowledge required about asbestos insulation removal
- No knowledge of assessment of exposure, did not have a copy of the current ACoP or management guidance notes, method statements submitted insufficiently detailed. For one job visited, there was no decontamination unit on the site
- Breaking the law: actual prosecution and conviction for breaches of the Control of Asbestos at Work Regulations 1987 and the Health and Safety at Work Act 1974, meant the HSE decided it was "inappropriate" to renew the licence[5]

References

1 *British Asbestos Newsletter* (1995) no. 20
2 Hatchwell P (1994) *Occ. Health Rev.*, November/December
3 Department of Employment, 9.5. 1995. Written reply to Ian McCartney, MP
4 Information provided by Ian McCartney, MP
5 Information supplied by HSE

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ASBESTOS REMOVAL

THE MODERN MYTH: ASBESTOS REMOVAL IS RISKY AND A WASTE OF MONEY

As recently as 1993 the *Financial Times* ran an article with that very headline. Julian Peto is quoted as saying that asbestos exposure is a minor risk to the general public. He said, "The last 20 years have witnessed an extraordinary shift, from neglect of a major industrial hazard to irrational exaggeration of a negligible environmental pollutant. Ripping asbestos out of schools and other public buildings is usually a waste of money and can increase the risk to the public."[1]

The HSE's Dr Trevor Ogden welcomed Peto's remarks. The best answer to this was provided by Dick Jackson, whose letter in reply was never printed, "As for removal of asbestos, it is of paramount importance that every fibre of this deadly material is removed and disposed of so that it cannot be the means of killing other generations. Most asbestos has been in place for 20-50 years, has deteriorated, and because of its make-up is a constant danger through fibre release, through draughts, vibration, and damage, and the practise of sealing in is only second best as once the asbestos is again damaged you are back to square one with the ever present potential health risk."

At the British Occupational Hygiene Society Conference in 1994 Peto went further. He did point out that exposure to asbestos dust goes on in the building trade all the time, but went on to rubbish the anti-asbestos lobby of the 1980s as "hysterical". He says industrial exposure is of the order of 10-20 fibres/ml, whereas the average levels in buildings rarely get higher than 1/1,000 fibre/ml. "The mean levels are much less than 1-2/1,000 fibre/ml and at these levels,

however inaccurate our dose-response calculations are, we can be pretty certain that the risk is absolutely trivial.''[2]

Again, in the *Lancet* in March 1995, he says that the campaign to remove asbestos from schools and public buildings was founded on ''fear rather than evidence'' and that asbestos removal might actually increase airborne levels of fibres.

The counter arguments are straightforward:

a) Asbestos can be removed safely even in the most dangerous circumstances. Proper monitoring of fibre levels while work is in progress ensures that people outside the removal enclosure will not be put at risk.

b) Rip-it-out any old how merchants do put lives at risk. The campaign to remove asbestos fights as vigorously against using cowboy contractors as it does for the removal of dangerous, damaged, friable asbestos.

c) Having failed to ban asbestos, the failure to remove asbestos from buildings is the very reason plumbers, electricians, joiners, renovation, demolition and other maintenance workers are at risk of unsuspected exposure. Peto and the HSE now admit that these workers are at great risk. Although this is to be welcomed because construction workers are a high risk group, we believe that other groups of workers are also at risk and need to be warned. Recent mesothelioma deaths have included two teachers, a post office worker and a nurse.

d) Peak exposures: air tests often miss peak exposures which occur when asbestos is disturbed. Peak exposures can be 1,000 times the background asbestos levels. The US Environmental Protection Agency (EPA) estimated that for a peak exposure of one hour you would breathe in the same amount of asbestos as you would in one year by breathing in the general atmosphere in schools containing friable asbestos.[3]

e) The 1980s strategy advocated by the people Peto dismisses as ''hysterical'' was to survey asbestos in buildings and prioritise the order in which it was to be removed. Nobody called for overnight removal of every fibre. Surveys uncovered tonnes of friable asbestos which could not be made safe by encapsulation. Much asbestos was left in place to be inspected annually. Now

organisations such as TICA are arguing for progressive removal as the only long-term answer.[4]

f) Asbestos is being removed all the time as buildings are refurbished. As long as general awareness about the hazards of removal is low, people will be at risk.

SEALING ASBESTOS

Asbestos can be removed safely from buildings and removal is the only long-term solution to making buildings safe. Official sources generally favour sealing asbestos because it is quicker and in the short term considerably cheaper. In calculating the true costs the following points need to be taken into account.

Any disturbance or deterioration of the seal allows the release of fibres. Often this occurs "deliberately". Asbestos monitoring companies see many examples of unmarked, sometimes previously sealed asbestos, damaged because it has been drilled through when central heating, telephones, computer wiring, shelving units, notice boards and so on are installed. Fire and flood damage sealed asbestos.

Ordinary paint or wallpaper is not a seal. The original Asbestos Factpack recommended Decadex Firecheck.

If a decision is taken to seal asbestos then it must be marked clearly and the sealing be checked on a regular basis as part of every routine safety inspection. The cost of a programme of managing asbestos safely, repairing it again if damaged, and ensuring a "permit to work system" is in place for maintenance staff adds considerably over the years to the initially lower cost of sealing.

Eventually, asbestos has to be removed safely before a building is demolished.

Sealing can prove to be a false economy in other ways. Once sealed asbestos is marked "DANGER ASBESTOS — CANCER CAUSING DUST", powerful emotions are unleashed in those living and working in the vicinity. In one celebrated case, the management of the then North London Polytechnic

spent thousands of pounds sealing asbestos panels in a common room only see the students refuse to enter the building. Thousands more had to be spent removing the panels completely.

SAFE REMOVAL OF ASBESTOS

The methods available for safe removal or stripping of asbestos insulation, coatings and insulation board are given in detail in HSE Guidance Notes. The basic types are 1) dry stripping; 2) controlled wet stripping; 3) high pressure water jetting; and 4) air management for hot stripping.

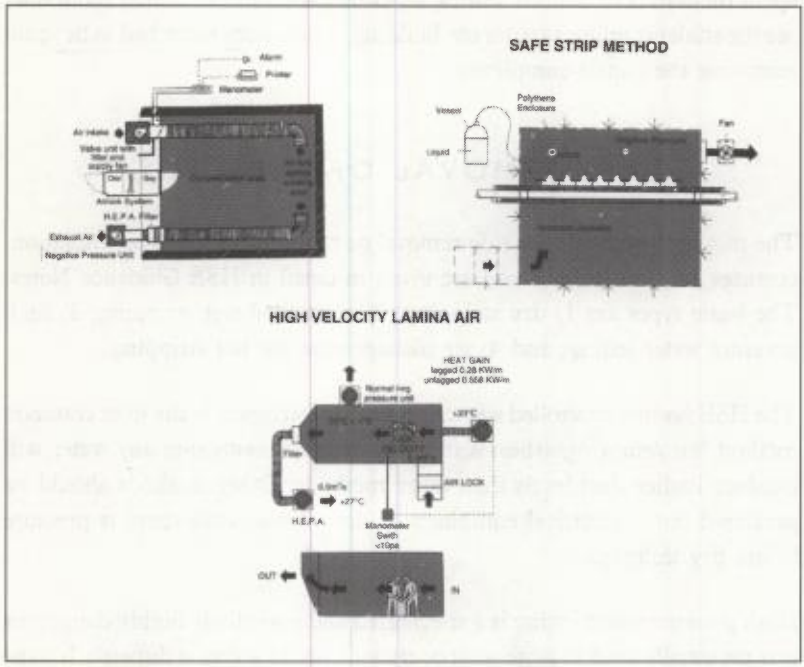
The HSE favours controlled wet stripping. Dry stripping is the most common method but removing asbestos in a dry state without using any water will produce higher dust levels than other methods. Other methods should be preferred but if electrical equipment is near the asbestos there is pressure to use dry techniques.

High pressure water jetting is a specialised and potentially highly dangerous process usually used in large scale operations where access is difficult. It must not be used with electrical equipment. Workers must be specially trained in this technique. It should only be used for removing stubborn patches of asbestos where other methods have failed. There must be large warning signs: DANGER: HIGH PRESSURE WATER SPRAYING.[5]

Wet Removal by Injection

This technique involves the use of wetting fluids which are injected under pressure through needles into the lagging material. This softens the insulation matrix, breaking down the binding agents and controlling the fibre release. The insulation is cut away in clean sections and transferred to the disposal system.

Tests have proved that, when properly saturated, the fibre release is very low so that this system offers the potential of dispensing with expensive enclosures although this is a possibility which should not be considered seriously.



Diagrams illustrating safe removal methods: (a) dry stripping in a negative pressure enclosure, (b) wet stripping, (c) stripping by air management ACADemy

The injection method is more suited to cold stripping as the choice of wetting fluid which does not vaporise at high temperatures is limited and those which are suitable give off toxic gases when heated.

Cost comparison for a job comprising cold stripping of two 200 mm diameter insulated pipes in an enclosure 36 metres long at high level in a factory environment

Dry strip £3,050
Injection strip £3,390

For a similar job but with hot stripping

Dry strip £3,300
Air management £4,700

Air Management

This method can be used for hot stripping and comprises a high velocity air flow, which directs the fibres released during cutting to a filtered exhaust at the end of a specially designed enclosure. The air flow is delivered via a flexible duct terminating with an air straightener. It is positioned along the work face.

While the insulation is cut and removed, it is sprayed to dampen the fibre release. Any residue remaining is cleaned. Heat stress is greatly reduced due to the air movement and is further curbed by positioning reusable loose insulation quilts over exposed hot pipework.

Monitoring and Sampling

MONITORING METHODS

There are three methods of assessing whether asbestos is present:

1 **Bulk Sampling:** involves taking a small sample of the material and it examining under a microscope. This is combined with a visual inspection to assess the condition of the material. This method is used in surveying buildings and sites to determine if a material contains asbestos. With this information a prioritisation system for removal and control can be developed.

2 **Wipe Testing:** involves taking a sample of dust from the area and inspecting it under a microscope. Used when asbestos has been disrupted or removed as an essential back up to air monitoring. It shows if asbestos fibres have settled out of the air onto surfaces.

3 **Air Monitoring:** involves drawing a sample of air through a filter by means of a pump, then counting the number of fibres trapped on the filter under the microscope. Used to check fibre levels in the air after removal or during disruption of asbestos materials.

WHY AIR MONITOR?

The vast majority of asbestos fibres that damage the lungs are invisible to the naked eye so air monitoring is an important method for detecting asbestos contamination. It must be carried out in a very precise way to be accurate. It is necessary in checking to see whether asbestos has been safely removed. It can also be dangerously misleading, if not done properly by reputable firms working to the highest standards.

Air monitoring can be used to "blind you with science". Many tenants groups and workers have stories of employers and councils using air tests to "prove" that the asbestos in buildings is "safe," meaning that it is well below the control limits and action levels. But air tests can only measure the fibres floating in the air at the time the sample was taken; results could be thousands of times higher seconds later if the material is disturbed.

Air monitoring is no substitute for visual inspection and bulk sampling when diagnosing and assessing risk from asbestos.

PROBLEMS OF COLLECTING SAMPLES

1 Check how many tests are being carried out, the position of sampling units and their flow rates. If sampling heads are located far from the possible source of asbestos fibres they are unlikely to pick up any useful results, particularly when out of doors. Each sample is specific to a particular location at a particular time and is therefore not representative of all conditions at all times.

2 The size of the room or area is important in determining how many pumps to run. It is best to have two pumps per enclosure and three pumps for a space of 25 cubic metres, five for 50 cubic metres room and one additional sampler for every extra 25 cubic metres.

3 Any air sampling should be accompanied by wipe tests and dust and debris sampling as the air may be within the acceptable limits but the settled dust and debris may still contain asbestos.

4. In order to collect a representative amount of dust, controlled disturbance tests should be carried out. A good policy on this is to sweep walls and floors during the monitoring period.

HOW TO READ A RESULTS SHEET

The following factors should be checked when deciding whether the results of monitoring are reliable.

Filter Reference: all samples should be labelled and have a description of their location.

Pump Rate: anything between 1 and 8 litres of air drawn through the machine per minute is acceptable.

Total Volume: the minimum volume of air which should be drawn through is 240 litres; e.g. a 4.0 litre per minute pump should be on for one hour.

Fibre Concentration: this is the key figure. It is quantified in fibres/ml. Results using optical microscopy (membrane filter method) can only give results to an accuracy of 0.01. As this is the environmental limit, anything higher should be considered as "dirty", requiring a re-clean or further consideration. For figures below 0.01 fibres/ml transmission electron microscopy (TEM) gives an accurate evaluation of the fibre concentration. TEM has to be used if accurate results to below 0.0005 fibres/ml are needed.

Comments: types of asbestos identified, other materials identified, any problems with the sample e.g. dirty.

Other information that should be provided: name of agency, place of test, Purpose of test, sources of asbestos, known or suspected.

Protocol used: this means type of microscope, disturbance tests used, number of air pumps per room, any peculiar circumstances

PROBLEMS OF MONITORING ACCURACY

1 With the membrane filter method (the normal method using approximately 400 times magnification) some fibres are missed in counting. For example, long thin fibres may be missed, which although invisible, are particularly dangerous. Consequently air sampling using this method is likely to underestimate the size of the problem drastically.

2 Only transmission electron microscopy (TEM) is powerful enough to observe all asbestos fibres accurately. This expensive method is rarely available. Demand its use if there is uncertainty about the accuracy of other tests. Good practice would be to use electron microscopy to double check when initial results are low or there is conflict. It is the only accurate way of determining the low levels of environmental contamination found in buildings during normal activities, rather than in the process of removing asbestos.

3 The membrane filter method cannot accurately measure less than 0.01 fibres/ml. There is always an environmental level of asbestos in the air and it may be difficult to assess the difference between this and the level near a particular source of asbestos fibre. For instance the general level in city air may be of the order of 0.0005 fibres ml; a 15-fold increase in this level is still not detectable by optical microscopy (the membrane filter method) yet there is an enormous increase in the number of fibres breathed in.

Checklist for Monitoring Contractors

Removing or sealing asbestos in buildings is an expensive job, if done properly. Cowboy contractors will try and undercut the responsible operators. Use the checklist to make sure this does not happen.

THE CONTRACTOR

1. Is the company licensed under the Asbestos Removal Licensing Regulations which came into force in 1984?
2. Is the company a member of the Asbestos Removal Contractors Association?

3. Are the workers unionised with at least one qualified thermal insulation engineer?
4. Has the company supplied copies of its safety policy and work methods with the tender? Ask for these.
5. Can the company demonstrate its familiarity with the HSE's ACoP on Work with Asbestos Insulation and Sprayed Coatings?
6. Has the company good references from previous asbestos removal work? Check with the previous clients and with any safety representatives who may be there.

THE WORK METHOD

7. Can the company supply a detailed method statement with all relevant points covered?
8. Where does the company propose to locate its decontamination unit (i.e. "dirty" and "clean" changing rooms and shower unit)?
9. Who will do the environmental monitoring for asbestos contamination and who will do the analysis (ie fibre counting)? Are they financially independent from the removal company?
10. What limit will be used to protect people in the building?
11. If the company uses hired vacuum equipment, how do they make sure that the equipment is free of asbestos when hired and returned?
12. Are there penalty clauses in the contract for breaches of safety procedures or failure to clean up satisfactorily?

CHECKING THE WORK DONE

13. Is the work area cordoned off and, where necessary, signposted Asbestos: Cancer Hazard — Keep Out?
14. Is the work area sealed up with heavy duty polythene sheeting, sealed air-tight with tapes? Has it been tested for leaks with a smoke bomb? Is there an air lock at the entrance/exit to the work area?
15. Are the polythene sheets billowing inwards, showing that the work area is under negative air pressure from the exhaust ventilation inside the plastic tent?

16. Do the workers wear transit overalls between the decontamination unit and the work area?
17. Are the workers wearing respirators or breathing apparatus approved for asbestos removal work by the HSE (see HSE Form F.2486 11984 updated each year)?
18. Are there monitoring instruments outside the work area checking on asbestos contamination, especially if normal work is continuing?
19. Are monitoring results given to the client's supervisors and safety representatives?
20. Is waste asbestos removed in double, heavy duty plastic sacks labelled Asbestos — Cancer Hazard, or better still by large-diameter vacuum pipes feeding directly into sealed waste hoppers outside the building?
21. How and where is the asbestos toxic waste to be disposed? Only licensed dumps should be used.

FINAL VISUAL INSPECTIONS

22. It is important to look for evidence of gross visible contamination following the final stage of cleaning the removal enclosure. It should be done by an experienced and independent person who has not been involved in the removal process. S/he should decide whether or not to conduct clearance air sampling. If any clearance air tests give adequate results it is reasonable to assume everything is safe.
23. Are surfaces where asbestos was sealed, rather than removed, conspicuously labelled Asbestos — Cancer Hazard, so that future maintenance workers are warned?
24. Is there a system for checking the safety of all asbestos sealed or left in good condition?

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8

THE FATAL LEGACY: WASTE AND CONTAMINATION

The asbestos problem is not restricted to the backstreet strip-it-and-tip-it merchants. In January 1995 Rolls Royce Nuclear Engineering Services Limited was fined £15,000 with £350 costs by Wolverhampton magistrates after pleading guilty to breaches of asbestos laws. A car park had been extensively contaminated with asbestos. A skip loaded with waste asbestos insulation material made a 40-mile round trip from Wolverhampton to Telford releasing fibres all the way. Two unlicensed cowboys were allowed to strip brown asbestos from old pipework.[1]

Waste disposal can be the weakest link in the legal chain involving the removal of asbestos from buildings. There is less legal control and few inspectors available. It is illegal to dump asbestos in anything other than official licensed sites. Restrictions are greater when the asbestos content is greater than 1%.

THE LEGAL FRAMEWORK

Asbestos waste is covered by the Control of Pollution (Special Wastes) Regulations 1980. Asbestos removal contractors must have documentary proof they are dumping at a licensed site. Work should not go ahead unless the documents can be produced. Otherwise, the Waste Regulation Agency (Environmental Agency after 1st April 1996) and the local council's Environmental Health Department should be contacted.

CONTROLLING ASBESTOS WASTE ON SITE

Checklist

In order to deal with asbestos waste safely, the contractor should:

a) remove asbestos waste at least once a shift and seal and clean the containers
b) separate fibrous and dusty asbestos waste from other material
c) put asbestos waste in suitable containers: the bare minimum is double bagging in 500-1000 gauge polythene bags, the outer bag being marked DANGER: ASBESTOS — CANCER HAZARD! For most asbestos removal jobs the contractor should provide a lockable sealed skip which is within a secure removal compound
d) not break up or cut large pieces
e) check that the site can handle drums or rigid containers
f) label containers in accordance with relevant legislation, the Control of Asbestos at Work Regulations 1987, the Classification, Packaging, Labelling of Dangerous Substances Regulations 1984, the Dangerous Substances (Conveyance by Road in Road Tankers and Tank Containers) Regulations 1981, and the Road Traffic (Carriage of Dangerous Substances in Packages etc) Regulations 1986
g) label any blue asbestos DANGER: CONTAINS CROCIDOLITE/BLUE ASBESTOS
h) avoid outside storage; a warehouse or other temporary site should be found. If outside storage is unavoidable the asbestos containers should be protected by a tarpaulin or other suitable covering.

REMOVAL OF ASBESTOS WASTE FROM THE SITE

Checklist

The following conditions should be observed to enable the safe removal of asbestos waste:

a) the local Waste Regulation Authority (from 1st April 1996 the

Environmental Agency) should be consulted to check the final disposal site can deal with asbestos

b) most asbestos waste is carried by road. The Regulations listed under f) above apply. Key questions are: Are the lorries sealed, lined with rubber and wetted down? When the lorries leave the site have they been washed down? Are the lorries carrying waste labelled? The Regulations are supported by Codes of Practice which give details of procedure

c) asbestos waste should be removed during normal working hours or special permission sought to do it at other times.

£28,000 Fine: Asbestos Strewn About the Site

Four members of the Smart family, all in business together, were each fined £7,000 in a Bristol Magistrates Court in March 1995, for failing to comply with an abatement notice served by Bristol Environmental Health Department requiring them to employ a specialist firm to remove asbestos from an old site. Inspectors discovered broken pieces of asbestos concrete sheet roofing strewn about the site when they visited it last December. The factory also contained asbestos lagging. A notice was served under Section 80 of the Environmental Protection Act which requires them to use a licensed contractor. They were required to: control the release of dust; or to remove and dispose of all the demolished materials which might contain asbestos. Roy Edwin Hill is to be prosecuted separately by the HSE for allegedly carrying out demolition work without a license.[2]

DANGER AREAS

Fly Tipping

On many waste sites vast piles of rubbish are deposited by fly tippers and often ordinary looking building sites contain lethal piles of asbestos. Recent prosecutions have occurred where asbestos has been placed in dustbins outside nearby housing. Someone dumped 1.5 tonnes of asbestos by the village pond in South Ferriby.[3]

Demolition of Old Factories, Tower Blocks, and Power Stations

Demolition is a particularly high risk activity. Two US studies published in January 1995 indicate the high risk to demolition workers. The first showed employers on demolition jobs did not provide protective equipment and failed to require simple procedures to protect workers against large dust exposures. No surprises there. The second study, involving health checks on 88 workers, each with at least 20 years experience in demolition, showed evidence of asbestos-related disease on X-rays among about 20% of those examined.[4]

Most buildings will have some asbestos which will contaminate schools, homes and all the surrounding area if it is not removed in a controlled fashion before demolition.

In the past, campaign groups have had to protest and organise locally before the HSE and other authorities have taken the risks of demolition work seriously.

Asbestos cement dumped in a skip LHC

When Fulham Power Station was to be demolished, local residents formed TERROR, an outspoken action group aimed at forcing the authorities to respond to their problems. Air tests showed high levels of fibre release from the site. The HSE issued a Prohibition Notice to stop work.

The Government introduced new measures to compel the Central Electricity Generating Board to remove all asbestos from disused power stations before sale and to supervise removal as a result of this campaign. At the time there were 24 more stations to be disposed of, so this was an important victory.

Checklist

a) Has the site been surveyed and samples taken and analysed (HSE Guidance note on demolition GS29)?
b) Have specialist contractors been employed? No-one else should deal with asbestos waste (see Monitoring Contractors)

Waste Disposal Sites near Homes and Schools

This is a relatively new area of public concern. Often people become suspicious because of endless dusty, noisy lorries which pass through residential areas. Communities have expressed fears about the effects of waste disposal. The House of Commons Select Committee on Science and Technology concluded, "clearly a significant part of the waste disposal industry is cutting corners ... and not all waste authorities are fulfilling their obligations to protect the public"

Checklist

a) Find out exactly what is being dumped, demand to see a copy of the licence in full and check to see if it has been amended or could be amended. Demand that any amendments go through a council committee.
b) Is the tip securely fenced?
c) Is monitoring being carried out frequently by the contractor and by the local authority at appropriate places on site? It should be done close to the tipping face.

d) Are the workers wearing protective equipment when dealing with unbagged waste?
e) Who are the contractors? Who are the sub-contractors? Have they informed the Hazardous Waste Inspectorate of their business and have they been inspected?

Landfill

Most asbestos waste is dumped in landfill sites. The Institute of Waste Management (in their Code of Practice for the Disposal of Asbestos Waste) are concerned about the subsequent disturbance of asbestos in landfill sites if sites are developed at a later date.

Checklist

a) Has the site been prepared to receive asbestos waste?
b) Is the asbestos waste being covered over with a minimum of two metres of soil at the end of every day?
c) Is the waste being dumped in bags? Are the bags strong and secure and clearly marked?

Redevelopment of Former Industrial or Waste Disposal Sites

Asbestos is a hazard to health for people and grazing animals when still on the surface or when buried beneath abandoned industrial sites and other types of derelict and unused land. Action may have to be taken by the land owner/developer, land users or local authorities to reduce the risk. According to the Loss Prevention Council reclamation and re-use of such land can be difficult and their publication *Asbestos Use in Buildings*[7] gives details of how to investigate sites and gives some information about remedial action which may need to be taken.

Fires and Strange Snow

In September 1994 the empty British Leather tanning factory in Birkenhead, Merseyside, was set alight and blazed out of control for hours, resulting in a wide area being covered with asbestos dust and debris. Pieces of asbestos from the old corrugated roof were found among the ashes. Soot showered the neighborhood making it look as though it had snowed. After tests on the debris prompted by a worried resident, the Council eventually issued warnings to residents. Council staff toured the area with loud hailers telling people not to clear up the area themselves. Many had already cleaned cars and window sills, some did not hear the warnings and children had played in the dust.

A debate followed in the tightly knit community. The local Environmental Health Department stated that the risk from a single day's exposure was negligible and that the only danger from asbestos was from longterm exposure in the workplace. Local campaigners, led by Wirral TUC, involved solicitors and other experts who argued that any risk was unacceptable because it could have been avoided. They were especially concerned because children's lives had been put at risk. They claimed the factory owners were negligent in not removing the asbestos from a building at risk of arson and that the Council failed to warn residents in time. Legal aid has been granted for a detailed investigation into the incident and the campaigners are collecting names and statements of those affected. They want better emergency procedures and asbestos in disused buildings to be identified and removed to prevent further catastrophes.[5]

A one-off exposure in Rotherham also demonstrates the risks for the public when asbestos is not properly controlled. In summer 1995, part of the town was covered in a fine dust which proved to be white asbestos. Again warnings not to clean it up were given only after some residents had already done so. The source of the dust was unknown. In Rotherham, as in Birkenhead, the public were told the risks to their health were low.[6]

Fires involving large releases of asbestos have occurred in Sheffield and at Brent Cross in London. All highlight the fact that as long as asbestos remains in buildings people will be at risk.

The HSE and the local Environmental Health Departments will need to be involved. Remedial action will be costly and could involve:

- excavation, removal and disposal elsewhere
- excavation, then re-burial on site at greater depth
- covering the contaminated area with inert material or permanent hard cover

Sites that may contain Asbestos

- Railway land: large workshops, depots, sidings
- Shipbuilders, ship repairers, ship breakers' yards
- Other heavy engineering sites
- Old waste disposal sites, especially those predating current legislation (1976)
- Asbestos manufacturers
- Power stations
- Scrap yards

Source: Loss Prevention Council 1993

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THE ASBESTOS PRODUCERS

As the evidence has piled up against asbestos, the producers have sold out, diversified, moved into production of asbestos substitutes, sold off some subsidiaries, acquired new ones, and even moved into the asbestos removal business.

At least 16 asbestos manufacturers have been made bankrupt since 1985 because their insurance cover and their own funds were exhausted.

THE MANVILLE CORPORATION

The Manville Corporation, formerly the Johns-Manville Corporation, with 25,000 employees and more than 50 factories and mines in the United States and Canada, filed for reorganisation and protection under the United States Bankruptcy Code in August 1982. It made front page news throughout the US because at the time it was the largest company ever to file under this legislation, and, with assets of more than $2 billion dollars (£1.3 billion), one of the richest companies ever to take such action. At the time it was 181st on *Fortune's* list of the US top 500 industrial corporations. It filed for bankruptcy because, it said, it was "overwhelmed" by 16,500 lawsuits related to the health effects of asbestos, lawsuits which were at a rate of 6,000 per year. In June 1982 record compensatory damages of $2.3 million and punitive damages of $1.5 million had been awarded to a retired boiler-maker, James Cavett, dying from asbestosis and lung cancer.

A court settlement has set up a company-funded asbestos victims' trust fund worth £2.2 million. The asbestos victims' group, the White Lung Asbestos Information Centre, feels that this fund is woefully inadequate and that the court failed to evaluate hidden assets.

Johns-Manville was described by Ronald Motley, a South Carolina attorney, as "the greatest corporate mass murderer in history." It had a long history of hiding evidence of the ill effects of asbestos from its workers and the public.

T & N

Before 1945 the UK asbestos industry was dominated totally by one firm, Turner and Newall, now known as T&N plc. The group retains its North West base and its headquarters are in Trafford Park, Manchester. Car components make up a large part of its current manufacturing operations. 70% of its £2 billion turnover in 1994 was from the car industry. The T&N group employs over 40,000 people worldwide, nearly 12,000 in the UK, 10,000 in Europe, about 7,000 in the US, and nearly 13,000 in South Africa and Zimbabwe.[1]

In January 1995 the *Financial Times* reported on T&N's attempts to "grow away" from its asbestos roots, saying it was a strictly qualified success. Later in the year *The Guardian* reported how profits and acquisition plans were nicely advanced. *The Guardian* reported how the company was in the middle of a sell-off of non-core businesses and hoped to raise £100 million. There was not, however, an intention to sell T&N's asbestos mines in Zimbabwe. The *Financial Times* noted that T&N had good growth but, regarding it as a potential investment, commented, "there are other engineering companies promising similar growth with less risk,"[2]

In 1994 profits before tax fell from £70.3 to £10.7 million and after tax and other charges the company had a net loss of £16.5 million.[1] Asbestos-related costs (compensation payments and legal costs) had risen from £22 million in 1993 to £62 million in 1994.[1] The company announced a £140 million provision for future asbestos-related disease, £100 million for US claims, in the accounts for the year ending in 1994. This has resulted in the big drop in profits, but most of it has not been paid yet. Some of the asbestos costs are recoverable in tax: in 1994 the company claimed £13 million as a tax credit, and more tax will be claimed back as asbestos claims are settled.

The trading profit before this money was set aside was over £180 million, £57.6 million higher than the previous year. Dividends were restricted to 6%

for 1995 because the asbestos claims meant that the company has to "conserve cash." This meant £3 million was paid out to shareholders compared to £34 million in 1993. During 1994 the price for an ordinary share fluctuated from a low of £1.57 to a high of £2.60. The directors received £1.8 million between them, plus share options.

The group had 433 asbestos-related personal injury cases pending in the UK at the end of December 1994 and many, many more in America.

US Claims

T&N plc and two US subsidiaries, Flexitallic Inc which makes brake linings, disc brake pads, and other friction materials, and Ferodo America Inc, which makes spiral wound gaskets, face numerous other personal injury cases and ten property damage cases in the US courts.

Chase Manhattan Bank

The company is the sole defendant in an action brought by Chase Manhattan Bank in relation to the bank's headquarters in New York. Chase Manhattan has claimed $85 million compensatory and $100 million punitive damages. T&N's Directors believe that the ultimate outcome of the actions pending is unlikely to have a material effect on the group's financial position and they have not provided for it.

AVOIDING COSTS

There have been several US initiatives to try to reduce the costs of compensation claims for the asbestos industry and its insurers. They have all aimed to avoid court procedures and settle claims administratively.

1982: The Wellington Facility

The US Centre for Public Resources set up this facility under the chairmanship of Harry Wellington, dean of Yale Law School. It allowed claims to be

arbitrated without litigation. 34 major asbestos manufacturers and 16 insurance companies took part, eventually. Some major ones refused to participate. After three years this initiative collapsed under the sheer weight of claims.

1988: The Centre for Claims Resolution

The Centre for Claims Resolution (CCR) was set up in 1988. This organisation has 20 members, including the T&N group. T&N's Annual Report says, "The CCR aims to provide comprehensive, high quality and cost effective claims handling and administration services to its members."

At the end of 1994, the CCR's members were named in approximately 50,000 pending claims and approximately 31,000 claims in the court system which had been settled but not paid.

1993: The Georgine Settlement

This was a class action settlement, filed in Pennsylvania in January 1993. Before the Court agreed the settlement, it ordered a publicity campaign allowing future potential claimants the opportunity to opt out. 267,000 requests to opt-out were received. The opt-out process is being repeated because the first effort was supposed to be faulty.

The Georgine settlement was opposed and then subject to lengthy judicial review. It is currently subject to appeal, the outcome of which is likely to be known at the end of 1995. It is likely to be upheld.

Over the initial ten year period CCR members will not be obliged to compensate more than a defined maximum number of victims. This means CCR members will have annual cash flow limits. Any extra claimants will have their claims deferred to the following year. The terms of the Georgine settlement are perpetual, but members have the option to withdraw after the 10 year period.

US BANKRUPTCIES

By the early 1990s, more than half of the 25 largest asbestos manufacturers in the US, including Amatex, Carey-Canada, Celotex, Forty-Eight Insulations,

Manville Corporation, National Gypsum, Standard Insulation, Unarco, and UNR Industries had been forced into bankruptcy. By 1990, Manville alone was involved in 149,000 liability suits. Filing for bankruptcy protects a company from its creditors.

LLOYDS AND THE INSURANCE INDUSTRY

Between 1940 and 1970 many Lloyds syndicates took on vast amounts of excess insurance business for leading asbestos companies. According to Adam Raphael, writer for the *Economist* and author of *Ultimate Risk* which examines the Lloyds insurance market collapse, the underwriters were seduced by the steady stream of premium and investment income which such business produced. They ignored the medical evidence of the risks they were running, even though insurance companies had been refusing to sell asbestos workers life insurance as far back as 1918.

The good days are over. Lloyds Names incurred huge losses mostly because of asbestos claims. Many Names have been ruined financially. Some have been made bankrupt. Some have committed suicide.

Insurers are faced with two main types of claim, personal injury claims from those exposed to asbestos at work and property claims. Owners of buildings suing manufacturers for the diminished value of properties riddled with asbestos and for the costs of removing asbestos. A third category, which may become more significant, is that of people living near asbestos manufacturing processes.

Claims have risen from relatively small numbers to 500 a month in 1985, when the London insurers first realised they had a very serious problem. By 1988 there were about 2,000 claims every month, and they continued to rise to around 2,500 per month for the year ending May 1993.[3]

So far about 100,000 claims have been settled and 125,000 left open. The London Market has paid out about £2 billion, with 60-65% paid by Lloyds. Some of it is reinsured and paid by European reinsurers. Claims are being settled at the rate of 15,000 per year. Analysts have been predicting that Lloyds

is seriously under-reserved and that Names could face losses of £8.65 billion over the next 10-20 years.

Again according to Adam Raphael, "the best estimate of what lies ahead is a study published by the Yale School of Organisation and Management in 1992. It predicts that there will be 200,000 asbestos-related deaths over the next quarter of a century at a cost to asbestos manufacturers and their insurers of $50 billion. That sum is almost 10 times the combined net asset value of the asbestos producers, and is roughly equal to the assets of their liability insurers. The net worth of the 28 leading American asbestos companies is approximately $6 billion, while the combined book value of their 45 primary and excess insurers is estimated at only $50 billion. The conclusion is inescapable. Large numbers of manufacturers and their insurers, both American and European, are headed for liquidation. For the victims of asbestos, this will mean that hundreds of thousands of them will be denied proper compensation unless governments intervene."

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10

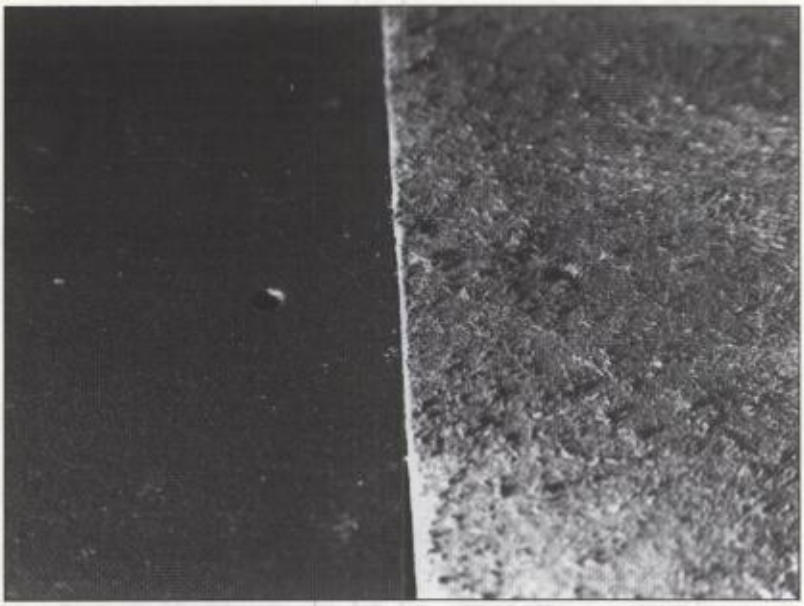
THE MYTHS ABOUT ASBESTOS

MYTH NUMBER ONE: ASBESTOS CEMENT — THE FIBRES ARE "LOCKED IN"

The main use of asbestos is in asbestos cement products. Much official advice has been that asbestos cement contains "only" around 10% of asbestos fibres, and that they are safely "locked in." It has never been particularly convincing. All asbestos mixes require sawing, drilling, transporting and handling. The "locked in" argument does not allow for routine maintenance activity, let alone removal and demolition work, damage by fire, and other types of damage.

Evidence using electron microscopes shows that asbestos cement products release fibres into the air under normal wear and tear conditions. A 1980 study showed that asbestos in the air within 20 inches of a 17-year-old weathered asbestos cement tile, was ten times higher than the background level found 100 metres from the same wall.[1] Measurements in offices in Paris with asbestos-reinforced vinyl flooring showed that under normal conditions white asbestos levels were 50 times higher than in the air outside the building. Similarly, new asbestos roof tiles have been found to shed asbestos when it rains.[2]

It is easy to disturb asbestos. Children do it all the time. Normal air movement or vibration has been enough to cause massively elevated levels of airborne fibres in buildings. Researchers have found evidence of fibre release from undisturbed asbestos cement.



(a) New asbestos cement tile (b) Similar tile after weathering for about 10 years
Oxford Construction Company

It is not only disturbance by humans that leads to peak exposures. At Ackland Burghley School, London, asbestos boards were gnawed by vermin. There were fibre levels of 0.5 fibres/ml, 50 times the clearance limit and 1,000 times the government's estimated background level.

Victim of "Locked In" Asbestos

Derrick Porter, a roofer for 12 years, died of mesothelioma aged 55. His work involved cutting, drilling, and sawing asbestos cement sheets. The DSS originally denied him benefits. SPAID helped reverse this decision when they found millions of fibres in Mr Porter's lungs, using their electron microscope. Over 95% of the fibres were of the "locked in" white asbestos type. The DSS now accepts that work with asbestos cement is dangerous and there is official guidance on such work (HSE Guidance Note EH36, Work with asbestos cement).

MYTH NUMBER TWO: BLUE IS DEADLY, WHITE IS SAFE

Throughout the 1960s and 1970s the asbestos industry stressed the dangers of blue asbestos. Their reasoning was that blue asbestos fibres tend to be smaller. This means it is easier for blue fibres to penetrate deep into the lungs. The exact relationship, however, between size of fibre and the process of triggering a cancer is not known. Modern production methods now grind white asbestos more finely. Also, ageing and wear and tear release smaller fibres.

If blue and brown asbestos are more of a risk to health, it does not mean that white is safe. Britain is unusual in making a distinction between different types of asbestos. Most countries treat all types as equally deadly.

A 1985 Health and Safety Commission report by Doll and Peto[2] said, "The four types of asbestos that have been used in industry to any material extent, the common chrysotile with its curly fibres and the three amphiboles (crocidolite, amosite and anthrophyllite) with their straight ones, all produce pulmonary fibrosis, cancer of the lung, and mesotheliomas of the pleura and peritoneum in animal experiments."

In other words in animal experiments both white and the less common types of asbestos produce the deadly diseases seen in man. They go on to conclude the animal evidence is overwhelming that, "all types produce the specified diseases with relative ease." In making this conclusion they criticise an earlier report of the Advisory Committee on Asbestos (1979).

Regarding the human evidence, they note the idea that white asbestos does not cause so much cancer. But they say, "the evidence for this is not as clear as one would like."

Their review of the studies of asbestos workers in various industrial settings contains the following information:

- blue asbestos (crocidolite) might cause more mesothelioma than the other types of asbestos

- blue asbestos causes as much lung cancer as mesothelioma
- brown asbestos (amosite) causes mesotheliomas of the lung lining (pleura) and the stomach lining (peritoneum)
- brown and white asbestos cause many more lung cancers than they cause mesotheliomas.

Nancy Tait whose work has involved many examinations of lung tissue says, "I have never believed the claims of industry that all disease was caused by crocidolite. Usually, we find a mixture. In some cases we find just chrysotile. It is rubbish to say that chrysotile cannot cause mesothelioma. Even published studies are now agreeing that in the pleura they find more chrysotile, mainly short fibres, than other types of asbestos."[4]

A variation on myth two is the idea that only asbestos fibres longer than 5 microns cause disease. This myth is an attempt to explain why white asbestos might be safer. It contradicts the earlier explanations that blue asbestos is more deadly because crocidolite fibres are smaller. It is an example of the extent to which pseudoscientific theories can be invented and reinvented to confuse those who have clearly and correctly said asbestos is dangerous and no-one should touch it.

It appears that fibre for fibre long fibres do more damage when lodged in the lungs. But short fibres also cause disease.[5]

What is completely clear is that white asbestos produces lung cancer, mesotheliomas, and asbestosis. It might be true that white asbestos does not produce as many mesotheliomas as blue and brown asbestos and that it does not produce them in the stomach lining (the peritoneum). In that strictly academic sense it is "safer". But it is irrelevant because most white asbestos is contaminated with other potentially more dangerous types, especially tremolite, which cannot be separated. White asbestos is lethal, more so precisely because many people do believe the myth that it is safe or safer. This belief is encouraged by the legal double standards in the UK which allow much higher levels of exposure to white asbestos.

MYTH NUMBER THREE: THE ''SAFE'' LEVEL OF EXPOSURE

The notion that there is a safe level of exposure to asbestos has been around for a long time. These levels are not the product of objective scientific research. They reflect a hard fought defence of the profits and defence of the industry, tempered by reluctant concessions to the health of workers and the community. Nor is ''safe'' used in its normal sense. ''Safe'' becomes the number of deaths that the industry, aided and abetted by government, deemed ''acceptable'' at the time the standard was set.

In 1960 the UK Factory Inspectorate adopted the American ''safe'' level of 1938. This standard was based on one study of 541 textile workers in North Carolina, most of whom had been in employment less than 10 years, when asbestosis generally does not show up for 20 or more years. Another 150 workers had been sacked before the study because they were suspected of having asbestosis.

This standard lasted for 30 years in the US and eight years in the UK. It permitted asbestos levels about 15 times higher than those brought in by the tighter 1969 standard.

The 1969 Asbestos Regulations set a standard of 2 fibres/ml of air for white asbestos in certain industries, mainly manufacturing asbestos products, and in power stations. The level was supposed to be one at which ''only'' 1 in 100 workers would be at risk of asbestosis if experiencing this level of dust over 50 years. Yet this level was effectively set by the asbestos industry itself.

The standard was provided by the professional and independent sounding British Occupational Hygiene Society (BOHS). Yet five out of nine experts on the asbestos sub-committee were employed by asbestos companies.

The BOHS 1969 level of 2 fibres/ml was based upon a survey at Turner and Newall's Rochdale plant by Dr Knox, the company doctor. He found three workers out of 290 with signs of asbestosis. He was succeeded by Dr Lewinsohn, who reinvestigated the same workers and discovered 140 cases.

He did not publicise his findings. It is possible that the company knew but there is no proof. The evidence came to light by chance in 1972. Turner and Newall's evidence to the 1979 Advisory Committee on Asbestos included a report which estimated there was a 1 in 300 chance of contracting an asbestos disease. Their former company doctor was later reported as saying that the real risk was 1 in 4, and that he regretted that he did not publish these results. He received a £12,000 handshake when he left the company. In 1977 Julian Peto confirmed other reports that 2 fibres/ml put at least 1 in 10 workers at risk from an asbestos-related disease.

BBA's evidence to the same committee, referring to a survey on their Mintex plant stated, "We have as yet had no cases of asbestos disease in workers who have commenced their work from 1952 onwards." Yet a BOHS study, begun in 1977 and completed in 1980, revealed that 46% of workers at Mintex showed the first signs of lung damage. This was first made known to the workers by the TV programme *Alice: A Fight for Life* and was immediately followed by a strike.

These studies were influential in setting the 1983 level for airborne white asbestos of 1 fibre/ml.

In March 1976 the Ombudsman, Sir Alan Marre, revealed the horrors at a factory in Hebden Bridge. The factory was closed in 1970. 12% of a total of 2,200 employees had crippling asbestos diseases by 1979. The Government immediately launched an enquiry, the Advisory Committee on Asbestos, referred to above. The asbestos industry launched a £11 million advertising campaign against the "unwarranted, biased and inaccurate" comments on the industry.

The Asbestos Information Committee

This was set up by the asbestos industry. In July 1976, it produced an advertisement *20 Sensible Questions you asked about Asbestos and Health and the Answers.* The Advertising Standards Authority commented, "much of the information in the advertisement was premature and unsubstantiated." The *Sunday Times* wrote a detailed criticism of this advertisement. In spite of this, it was an

> enormous success. 12,500 people replied, asking for information, including architects and local authority officials. Surveys prior to the advertising campaign showed that about 20% of the UK population thought asbestos should be banned. Several weeks after the last advertisement appeared the number was halved.[6]

By the mid-1980s there was a lot more pressure on the government to force asbestos manufacturers to clean up their act. The UK did not then ban its use, the solution adopted elsewhere, most notably in Sweden where asbestos has not been used since the early 1970s. Instead, the UK continued to push the safe level/acceptable risk argument.

The argument was advanced in a paper published in 1988, which looked at fibre levels in the lungs of asbestos workers dying of lung cancer.[7] In 14 lung cancer cases and all but one of the mesotheliomas there was moderate to severe asbestosis. The fibre levels found in such workers reflect the very high levels of dust found in asbestos factories before 1970. The 56 'controls' in this study were patients being treated in east London for lung diseases, but no occupational histories were taken so their conditions might also have been asbestos related. This study is used by defendants in court to argue that the fibre levels found in workers now coming up for compensation are too low to be the cause of asbestos-related disease. But the reference they are using to defend themselves was biased to associate very high levels of fibre with disease and to consider lower levels as normal.

Nancy Tait has put a great deal of effort into challenging this particular study and says, ''The 36 past workers were selected by the medical adviser to the former Cape Asbestos Company, Dr Kevin Browne. Muriel Newhouse sent me the raw data and from this I learnt that all but one of the mesotheliomas and all 14 lung cancers had asbestosis. It's not in the published paper. Then it was another couple of years before I received the evidence from America that Dr Kevin Browne is on record as saying that he chose the cases to be studied. The standards being quoted by defendants to say that they could not have been negligent because the counts are too low to cause disease, are skewed.[8]''

The 1985 Doll-Peto HSC report said that if the 0.5 fibres/ml level were to be enforced so that asbestos manufacturing workers receive an average exposure of 0.25 fibres/ml over a 20-30 year working life then, "this corresponds to a loss of expected life of only about one month when averaged over the whole workforce and the loss of about 12 years of expected life for the unfortunate individuals who die of an asbestos-induced disease."

Real people do not die in this neat and tidy fashion. They do not share out a month between themselves. They die of asbestos disease in their 30s, 40s, and 50s and lose a lot more than 12 years, to say nothing of the pain.

New US Standard

The US revised its asbestos standard in August 1994. The new standard halved the permissible exposure level to 0.1 fibres/ml (8 hour time weighted average) for any form of asbestos, making it one of the best standards in the world. The US government expects that lowering of the exposure level will reduce asbestos-related illnesses to four cases per 1,000 workers exposed. The standard also requires training, engineering controls and respirator specifications, prohibits worker rotation as a way of complying with the standard, and requires employers to provide medical testing for their workers. This level was first recommended by the US National Institute of Occupational Safety and Health (NIOSH) in December 1976.

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11

COMPENSATION: RIGHTING THE WRONG

"At the Asbestos Victims Support Group we offer victims emotional and practical support. Asbestos victims do not want charity or sympathy. They have been denied the right to a happy and healthy retirement. They have been disabled by a material they were told was safe until quite recently by Government Factory Inspectors. That same material is now killing them. Victims often feel a great deal of bitterness. They find it extremely difficult to gain a DSS pension. Legal aid changes have made it increasingly difficult to obtain civil compensation without risking life savings or family homes. Archive material now emerging from the vaults of Manchester-based Turner and Newall shows that the company was aware in 1954 of the health effects of asbestos exposure. This coupled with the realisation of having a terminal illness, and the perceived preferential treatment of AIDS victims, has led asbestos victims to feel a great deal of anger and bitterness towards society." Charlie Kavanagh, Liverpool Asbestos Group.

Gaining compensation for victims is financially and morally important. Financially, it is important for victims to know their families are financially secure after their death. Morally it can never make up for the loss of health, but gaining compensation is seen by the victims as a recognition by society of a wrong done to them.

ASBESTOS VICTIM SUPPORT GROUPS

There is no NHS specialist advice service for asbestos victims or their families. There are some well established organisations and projects which fill this

gap on a voluntary basis. This means that although they may get some grant aid from local authorities, health authorities, and some of the larger charities, funding is insecure, resources are scarce and the workers providing the advice are volunteers, with occasional help from paid staff. Quite often the advice workers are themselves ill with asbestos diseases.

John Ellis, Chairman of the Liverpool Asbestos Group, says, "Asbestos family members are often told by the medical profession there is nothing that can be done for the victim. We are often asked by family members of newly diagnosed victims how long has s/he got, how can I make things easier? Sadly we have not come across a single asbestos victim or family of a victim who has been offered any kind of counselling, before or after the victim's death. We have not come across a victim's family told about the consequences of living with someone who has a terminal and disabling disease."

Clydeside Action on Asbestos pioneered asbestos victim support work in the UK, as did SPAID and Dick Jackson through the Hull Asbestos Action Group. Other groups have been set up in Manchester, Merseyside, and Sheffield. The Merseyside group have produced a short pamphlet which groups elsewhere could use to raise local funds for this work (see the Introduction for details of how to contact groups).

The *Economist* recently reported that although the death rate for asbestos diseases is higher in the UK than in the US, Americans are much more likely to sue for compensation. The article quoted a study that suggested American doctors, lawyers and trade unions are all more proactive in encouraging victims to sue for damages. It also noted that where there are well organised networks of lawyers and doctors on this side of the Atlantic as in Glasgow and Belfast then there have been more claims.[1]

THE COMPENSATION MAZE

There are three types of compensation:

1 Department of Social Security (DSS) benefit (administered by the Benefits Agency), the government-run "no fault" compensation scheme, which pays a weekly pension

2 Common law compensation, also known as damages
3 The Pneumoconiosis etc (Workers' Compensation) Act 1979, often known as "the 1979" Act, a state damages scheme which provides lump sum payments when former employers or their insurers are bankrupt or cannot be traced

Obtaining any type of compensation is fraught with difficulties. Genuine cases can and do fail for want of the right advice. It is essential to get specialist help from the organisations we have listed, or trade union solicitors who have a good track record on asbestos.

Low Fibre Levels
Gerard Bray *versus* TENMAT Ltd

In this case Tenmat argued they were not responsible for the death of Gerard Bray, who died of mesothelioma in 1991, because the initial tests on his lungs when he died showed relatively low levels of asbestos fibres. But then electron microscopy revealed much higher figures. Tenmat said these levels were low and claimed that the mesothelioma was caused by environmental exposure or had an unknown cause. Gerard had worked as a painter for a firm who used to paint the Tenmat premises each year in the summer shut-down. He was not, therefore, constantly exposed to asbestos dust, but exposed he certainly was as his lungs bore witness. The judge described Tenmat as "the vaunted kings in the asbestos realm." He did not agree that Tenmat neither knew nor could be expected to know of the risk of mesothelioma from exposure to asbestos dust in their factory in the early 1960s. Damages of £29,495 were awarded to Gerard Bray's estate.[3]

Workers

Victims who have worked with asbestos should claim DSS benefit. They should sue their employer(s) for damages, and should try to do so within three years of knowing about the start of the illness. If three years are up

it may still be possible to start an action: a good solicitor can probably help. As soon as you become aware of the illness seek help. If it is likely that it is going to be extremely hard to trace former employers, the victim should make a claim under the 1979 Pneumoconiosis Act. The 1979 Act compensation is an alternative to common law damages, however, and payments are usually much smaller. A good common law settlement is preferable.

Failure to obtain DSS benefits does not rule out common law damages. Victims can make claims again at a later stage when the disease has progressed.

All workers should contact their union for help. Keep up your membership when you retire. This is frequently at a concessionary rate and sometimes completely free. Even if you think your membership has lapsed, contact your former branch secretary or your union's Head Office and check the position.

Other Victims

Exposure to asbestos does not just take place at work. But, in the UK it is very difficult for non-employees to gain compensation for asbestos-related illness. The DSS schemes do not apply to non-employees.

However, the situation may have altered as a result of an important test case in which June Hancock and Evelyn Margereson (on behalf of her deceased husband) sued JW Roberts Ltd and T&N plc. The action arose from environmental exposure that allegedly occurred from the 1930s onwards. Mrs Hancock and Mr. Margereson lived near an asbestos textile factory in the Armley area of Leeds. Their lawyers argued that the factory owners had knowledge of the dangers well before the mid-1950s, the currently accepted date of guilty knowledge (i.e knowledge which if acted upon would have prevented the illness).[3] Mrs Hancock was awarded £65,000 and Mrs Margereson £50,000 in damages and this could open the way for hundreds more claims. The companies have said that they will appeal. They were condemned by the judge who said their attitude ''reflected a wish to contest these claims by any means possible legitimate or otherwise. The defendants have remorselessly persisted in making bad points, apparently simply to obstruct the defendants' road.''

T&N's Armley factory (bottom left) and surrounding houses in 1949 Yorkshire Evening Post

The Compensation Recovery Unit

The government has managed to add financial insult to injury. The Compensation Recovery Unit (CRU) claws back benefits paid to asbestos victims who win damages of more than £2,500 through the civil courts. One Glasgow man had all but £2,000 of a £30,000 payout snatched by the CRU. The Unit recovered £81.9 million in 1994 and even pursues victims beyond the grave. In 1994, the CRU clawed back benefit from 170 deceased asbestos victims.

THE DSS INDUSTRIAL INJURIES SCHEME FOR ASBESTOS

Industrial Injuries Disablement Benefit is payable for four prescribed asbestos diseases to people whose jobs have involved working with asbestos, or their dependants. The Benefits Agency administers it. The self-employed are not

covered by the scheme. The points to be taken into account in making a claim are as follows:

1 Form B1 100, the application form for Industrial Disablement Benefit, must be filled in first
2 The examination: the Special Medical Board (SMB), the DSS medical staff, send the applicant for X-ray and lung function tests and a clinical examination
3 The assessment: in addition to deciding if a person has a prescribed disease, the SMB decides a) how disabled a person is considered to be, expressed as a percentage and b) from what date the disease began. These two factors determine how much benefit a person receives.

Current prescribed asbestos diseases

D1 pneumoconiosis including asbestosis
D3 diffuse mesothelioma
D8 primary carcinoma of the lung where there is accompanying evidence of asbestosis and/or bilateral diffuse pleural thickening; prescribed April 1 1985
D9 bilateral diffuse pleural thickening; prescribed April 1 1985

Current prescribed occupations

a) those involving the working or handling of asbestos or any admixture of asbestos
b) the manufacture or repair of asbestos textiles or other articles containing or composed of asbestos
c) the cleaning of any machinery or plant used in any of the foregoing operations, and any of the chambers, fixtures and appliances for the collection of asbestos dust
d) substantial exposure to the dust arising from any of these operations

Obstacles to claiming benefit

1. The Application Procedure: you must use the right medical term, even though your doctor might just have said "you've got asbestos in your lungs"

2. Satisfying the DSS Criteria: pleural plaques, and a great deal of pleural thickening do not currently qualify. Lung cancer qualifies only with another prescribed disease. The Industrial Injuries Advisory Committee is reviewing which asbestos illnesses are prescribed. This might mean more people will eventually obtain benefits. Evidence had to be submitted by the end of July 1995
3. Prescribed Occupations: some workers have problems proving they worked with asbestos.
4. Providing Witnesses: after 20 or more years this is not easy
5. The Delay: some victims die before their claim is settled

Appeals against a negative decision are made at a Medical Appeal Tribunal (MAT). This consists of a lawyer and two chest consultants. They examine the applicant and give reasons for the final decision and diagnosis.

The claimant should obtain an independent consultant's report. Support groups can recommend friendly consultants. The costs of this may be borne by the trade union if it is involved or by legal aid. Medical records from the GP and hospital case notes are included in appeal papers whether they support the claim or not.

Between 1980 and 1990 only 172 extra cases of asbestosis were allowed following SMB hearings (Table 1). There is a glaringly obvious problem with Table 1. Lung cancers caused by asbestos outnumber mesotheliomas by at least two to one, by the HSE's own estimates. Yet very few receive benefit in this category.

Table 1: New cases of prescribed disease as assessed by SMBs[a]

Prescribed Disease	1980	1985	1990	1993
D1 Asbestosis[b]	144	273	306	418(16)[d]
D3 Diffuse mesothelioma		245	462	608(19)
D8 Primary carcinoma of the lung with D1, D8[c]		8	58	72(2)
D9 Bilateral pleural thickening		61	146	172(2)
Total asbestos related prescribed diseases	144	587	972	1270

a Information provided by the DSS. b Asbestosis is a category in D1 pneumoconiosis. c Previously classified as lung cancer in asbestos workers. d Figures in parentheses show the number of females.

Benefit levels for industrial disability benefit

For most industrial disabilities this benefit is only paid if disablement is assessed at 14% or more for claims lodged after 1 October 1986. For D1, pneumoconiosis including asbestosis, and D3, diffuse mesothelioma, benefits are still paid if disability is assessed below 14%. In fact under a special provision a person suffering from pneumoconiosis qualifies for a pension at the 10% rate even if they have no discernible respiratory disablement arising from the disease.

In practice for both the cancers, mesothelioma (D3) and lung cancer (D8), once the SMB has agreed that the victim did work in the right industry or, for lung cancer, has another prescribed asbestos illness, s/he is usually assessed as being very disabled. S/he is almost always terminally ill. For mesothelioma, the average assessment is around 98% and for asbestos lung cancer 83%.

Asbestosis does not, however, attract the higher levels of benefit. The 1993 asbestosis figures show 29% were assessed as 10% disabled or less, 66% fell in the mid-range between 20-70% disabled, and only 4% were assessed in the top three percentage bands over 80%.

Bilateral diffuse pleural thickening (D9) is compensated if disability is assessed at 14% or more. Claims are rejected if damage is on one side only or if it is not considered to be diffuse, regardless of how disabled a person might be. Clydeside Action on Asbestos have found that although 65% of their members have pleural thickening and 47% have bilateral pleural thickening, only 9% are successful in satisfying the criteria for D9. 62% of victims diagnosed with D9 are assessed as being disabled by less than 14%, and therefore do not receive any benefit whatsoever.

Benefit levels are low, ranging up to £95.30 per week for total disability in 1995-96.

Special Needs

Useful precedents have been set by a Glasgow worker with asbestosis who has received the costs of special needs and adaptions and the family of a National Power project manager who received £280,000 compensation following his death at age 52 from mesothelioma.

Problems in obtaining benefit

Clydeside Action on Asbestos analysed 412 DSS claims made from 1986 onwards and found 88% had some form of asbestos-induced lung damage, according to one or more of the following sources: hospital case notes, independent consultants report, GP, SMB, or MAT. Less than half this figure, 41%, were compensated for their suffering by the DSS and received some benefit.

Sorry: only ill on one side

Margaret worked as a french polisher on several ships for almost five years, where she was often exposed to asbestos dust. Her husband was also employed in the shipyards and he died of mesothelioma due to asbestos exposure, as did her brother. A few years ago, she began to get pains in her chest and became

increasingly short of breath. An X-ray revealed that she had extensive pleural thickening on the right-hand side, secondary to asbestos exposure. Margaret applied for Industrial Disablement Benefit but was rejected on the grounds that she had "unilateral diffuse pleural thickening" and that it had to be bilateral in order to qualify. Margaret applied again a year later because she knew her condition had worsened. This time she was told she did have bilateral pleural thickening, but again benefit was refused because it was only "diffuse" on the one side.

Prescribed Occupations

Even when mesothelioma has been diagnosed some people still have difficulty obtaining benefit. Occupations refused Industrial Disability Benefit include: plumber, secretary, bus cleaner and teacher. Women are particularly likely to have problems. Joanna Lenaghan in *Victims Twice Over* says, "I am concerned that an occupation so obviously involving exposure to asbestos as plumbing should ever have been questioned. I suspect that this may be due to the fact that many people now working in DSS offices are young, and unfamiliar with the world of labouring and the kind of exposure different occupations may involve, and instead rely on the unhelpful regulations."

Providing Witnesses

Asbestos diseases generally take 10-50 years to develop. If the company the applicant worked for has ceased to trade, the DSS requires witnesses to the fact that an applicant worked there. Failure to provide witnesses means failure to receive benefit. Often workmates have moved, died, or the applicant cannot remember details from the past. The support groups can help trace witnesses. But the requirement is unduly bureaucratic and cruel when the applicants are often very ill.

Witnesses

Two months before he died of mesothelioma, Maurice completed his form for Industrial Disability Benefit. His wife Annie had to

deal with the claim after his death, but as he had provided the DSS with a full work history and his death certificate confirmed mesothelioma, the claim should have been straightforward. It was not. Annie was asked to provide witnesses to the fact that he worked in the shipyards between 1943 and 1950. 50 years later she was asked to provide information about a time when she did not even know her husband. This was impossible and therefore benefit was refused. Fortunately Clydeside Action on Asbestos was able to help provide witnesses and 14 months after the first application Annie received benefit backdated to three months before Maurice died.

THE PNEUMOCONIOSIS ETC (WORKERS' COMPENSATION) ACT 1979

Often known as "the 1979" Act, this provides for lump sum payments to victims of the prescribed diseases who cannot claim compensation through the courts because former employers are no longer in business, or if they are still trading, there is no realistic chance of obtaining damages from them. Dependants of sufferers who have died can also claim payments.

Claimants must qualify for Industrial Injuries Disablement Benefit and in general this also applies for a dependant to be eligible. But claims should be made as soon as people become aware that they may have one of the requisite diseases; there is no point in waiting until benefit has been awarded.

Payments have ranged from £1,766 to £50,173 up to July 1995; they are updated periodically. In general 75% of applicants are successful. Typical payments are shown in Table 2.

Table 2: Typical payments (£) under the "1979 Act"

Age	10% Disability	50% Disability	100% Disability
37 or under	20,018	44,327	49,093
50	10,654	32,792	37,940
65	2,742	8,080	13,537

COMMON LAW COMPENSATION OR CIVIL CLAIMS

Victims must establish that their condition was caused by their work and that it was due to negligence on the part of their employers or someone else. Some test cases concern environmental exposure.

Anyone suffering from an asbestos-related condition should immediately seek legal advice from solicitors specialising in this field of work. When a victim has already died a claim may be pursued by dependants.

Trade union members should seek assistance from their union who may support a case for compensation and ensure it is placed in the hands of specialist lawyers. Unions play a crucial role in providing access to the law for ordinary working people. This role cannot be overestimated.

Legal Aid

In 1991 the government announced that legal expenses paid to victims of personal injury or an occupational disease were to be limited even if they win their claim. In 1995 the proposals were finally clarified: cash limits were introduced for the first time. Anyone with a good case who passes the means test will no longer be entitled to legal aid as a right. If demand exceeds the budget for a region, funding may not be available for all winnable cases.

Legal aid is still available to pursue asbestos related claims, but the financial position of the sufferer may prevent them from meeting the tough financial eligibility requirements. Roughly speaking you have to be eligible for income support to get legal aid; this means you must have hardly any savings and no industrial disability benefit and associated allowances.

Time Limits

Proceedings should generally begin within three years of the date when the victim first knew or ought to have known that they were suffering from an asbestos-related condition. In certain circumstances this time limit can be extended but delay does make investigation of a claim more difficult. Courts have discretion to extend the three year time limit unless the employer has to prove that s/he would be prejudiced if this were to happen. If the claim is not the first against the company, which is frequently the case, that in itself helps persuade courts to extend the three-year limit. Basically anyone who has had an asbestos-related condition for three years or more should not be put off from seeking legal advice, but should do so immediately.

Defunct Companies

If you know that your employer has long gone out of business, or otherwise ceased to exist, do not be put off making a civil claim. Good solicitors with experience of asbestos work might still be able to help get damages.

Final Settlements

People with severe conditions, whose death is imminent, will usually receive lump sum damages as a once and for all settlement. Such damages include compensation for pain, suffering and disability, past and future, financial losses, for example loss of wages, and costs of nursing care.

Provisional Damages

Less serious cases, for example, pleural plaques or pleural thickening, are usually dealt with by an award of provisional damages. This award gives the

individual compensation for the condition and anxiety caused, especially the anxiety of knowing they are at greater risk of a fatal illness, and for financial losses already incurred and anticipated, on the basis that there is no significant deterioration in the condition. This type of settlement, however, allows another claim to be made in the future if lung cancer or mesothelioma develops.

Lung Cancer Battle

Joan Dodds of Wallsend fought a five-year battle to prove her husband John died because of exposure to asbestos. She eventually received an out-of-court settlement of £54,000 with legal costs in 1991. John had worked as a marine fitter with four different shipbuilders and died aged 62 of a combination of asbestosis and lung cancer. He had told his son David to ensure a post-mortem examination was carried out when he died. Damages were sought from all four employers. In the past fitters made snowballs out of asbestos: no warnings of the dangers were ever given. David Dodds has subsequently been very active in fighting to prevent asbestos diseases, setting up Tyneside Hazards Group and acting as MSF Regional Safety Officer for many years.

Compensation for smokers

Smokers with a history of working with asbestos should not be put off from making a claim. Mesothelioma, asbestosis, pleural plaques and thickening are caused by asbestos, not by smoking (or nicotine). Lung cancer is caused by both and is more problematic. A medical expert is likely to estimate the level of disability caused by asbestos and that caused by smoking (for all the diseases). Claims for smokers may be more difficult to resolve but should still be made.

George Guildford

George worked for an asbestos company from 1957 to 1962 and from 1969 to 1983. At first as a driver, he loaded and unloaded lorries, but in the 1970s he cut asbestos sheets in the open air

using a hand saw. He was a smoker but until 1982, when he started to lose weight, he was fit and healthy. By September 1983 he had died of lung cancer. The DSS pneumoconiosis medical panel reported there was no evidence of asbestosis although occasional asbestos bodies were present. From this the DSS and consultants for the asbestos company concluded that the cancer was due to smoking and that exposure to asbestos was too slight and too recent to have caused cancer. Other consultants disagreed. Specimens of his lungs were sent to SPAID for electron microscopy. This revealed clumps of brown and white asbestos and very high levels of fibres. The evidence for asbestos exposure was then accepted by the courts who ruled that his cancer was caused by asbestos and not by smoking.

Inquests and Coroners' Courts

The coroner's inquest is often the only place where the circumstances of a person's death are made public. It can be traumatic for relatives and friends, but for many it is an important part of the grieving process and the evidence presented is important in compensation claims and the fight for justice. It is important to have a good solicitor to ask the right questions or to be very well prepared.

Dick Jackson attended many asbestos inquests and developed a relationship with the Hull Coroner so that the Coroner's Office notified him of all the possible asbestos-related deaths. If there was any doubt, the case would be adjourned, so that Dick could investigate the person's history and search for a link with asbestos. He had several examples where the verdict was changed from "natural causes" to death from an industrial disease. One such verdict was changed in 1989. This was the case of 67-year old Ernest Clark, who died of mesothelioma. He had cut up asbestos sheets by machine saw in the 1970s. It is important for the records that such deaths are not said to be "natural" mesothelioma.

In October 1993, Dick's work led to the Hull Coroner Peter Gladwin calling for the banning of asbestos. It came after the inquest on docker Harry Dinsdale and was reported in the local paper. Dick said, "The Coroner must

be sick of the number of asbestos cases which keep going through his court." Sometimes coroners will put victims' families in touch with solicitors, if they are not already represented at the inquest, especially when their relative has died from mesothelioma. Other asbestos support groups have developed their own links with the local Coroner's Court.

The Post Mortem

If a relative dies of an asbestos-related disease, the Registrar should be told of this and should refer the case to a Coroner, who will order a post-mortem (PM). In many cases, the family do not understand the purpose of the PM, nor is it explained to them. Waiting for the PM results will delay funeral arrangements. It is natural for the family to want to get everything over with quickly and sometimes they refuse a PM. However, this will go against them in the courts if they later seek compensation. Registrars and other doctors should strongly encourage relatives to agree to a PM.

The Death Certificate

The doctor signing a death certificate in hospital is meant to ask if work contributed to the death. There is a box on the form to tick. In practice a lot of doctors do not tick the box because they do not read it. It might be better if there was a box saying work did not contribute to the death.

DOMESTIC EXPOSURES

Many victims did not work in the asbestos industry. Their exposure was through their partners. Coroners do not treat such exposures in a uniform way. Elsie Hunt's inquest in October 1993 described her mesothelioma as "an industrial disease", Jean Apsley's in November 1994 was described as accidental death, and another woman's death, reported in *The Times* in August 1994, received an open verdict. All were said to have contracted mesothelioma through washing their husbands' clothes.

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12

ASBESTOS INTERNATIONAL

CO-ORDINATED INTERNATIONAL ACTIVITIES

In 1991, at a meeting of the European Parliament in Strasbourg, delegates of campaigning groups established a European federation called Ban Asbestos Network. Another European-wide conference on asbestos was held in Milan in 1993. At the March 1994 international asbestos seminar in Sao Paulo, Brazil, Ban Asbestos was expanded into an international network for information sharing and mutual support. The conference passed the following declaration:

"The signatories, comprising scientists, members of trade unions and associations, government representatives and private citizens from all over the world, attending the International Seminar on Asbestos held in Sao Paulo, are convinced that the production, processing and use of all types of asbestos represents a grave danger to the health of workers and the public. We welcome the new determination shown by the various groups of affiliated trade unions, political parties, environmental non-governmental organisations, scientists and the representatives of asbestos victims at the Sao Paulo Seminar to go beyond geographical, linguistic and political barriers and bring about an asbestos-free world in the near future. We denounce with indignation the asbestos multinationals and their use of intimidation and disinformation to promote the mystifying concept of the "controlled use of asbestos." We call on those governments that have not yet done so, to place an immediate ban on the use of asbestos in any form; to promote the use of substitute products which have been proven harmless, while maintaining and creating jobs; to dismantle safely all structures containing asbestos and to put in place appropriate systems of care, monitoring and compensation for asbestos victims."

The Ban Asbestos Network (BAN) (European Coordinator, Patrick Herman, Algues, 12230 Nant, France, tel. 65622302, fax. 65621448) intends to hold annual conferences and lobby international groups such as the World Health Organization (WHO) and the International Labour Organization (ILO) to call for a world-wide ban on all forms of asbestos.

International Labour Organisation

In 1986, the ILO ratified a Convention on Safety in the Use of Asbestos. The ILO is the United Nations body responsible for employment issues and is composed of international representatives from government, employers and trade unions. The ILO's asbestos convention directs parties to establish worker protection regulations in their countries (though does not recommend exposure limits), ban blue asbestos and the spraying of asbestos, require asbestos products to be labelled, and provide medical monitoring. However, only 19 of the ILO member countries have ratified the convention. The ILO has not called for a total asbestos ban.

International Federation of Building and Wood Workers

The International Federation of Building and Wood Workers (IFBWW) has called for a total international ban on the mining, trade, processing and use of all types of asbestos. The IFBWW was organized as an international trade union body in 1934 and currently includes 5.6 million members in 79 countries. "[A ban] is the only way of protecting workers from these dangerous fibres. There is no safe use of asbestos," asserts an IFBWW manifesto produced at an international conference on asbestos in December 1991.

Until the mining and production of asbestos products has been phased out, the IFBWW calls for the immediate use of safe substitute products, the labelling as carcinogenic man-made mineral fibres with similar properties to asbestos, the banning of asbestos spraying, a halt to asbestos-based "technology transfer" to developing nations, training and protection for

workers, compensation for all occupational diseases caused by asbestos, and exposure limits which reflect the currently available control technology. The IFBWW also outlines specific requirements that should be adopted for removal of asbestos and conditions for the demolition and alteration of buildings which may contain asbestos.

International Federation of Chemical, Energy and General Workers' Unions

In 1994, the International Federation of Chemical, Energy and General Workers' Unions (ICEF) noted in their publication *ICEF Focus*, "It is imperative to ensure that industry does not unduly influence any international guidelines and standards developed by UN agencies. It is likely that, under the General Agreement on Tariffs and Trade (GATT), trade groups will increasingly look to international standards to resolve what they see as 'unfair barriers to trade,' such as differences in national health and safety laws, in this case those concerning asbestos." As an example, the union pointed out that the International Programme on Chemical Safety (IPCS), a joint programme of WHO, ILO and the UN Environment Programme, had recently selected scientists with ties to the asbestos industry to draft a new report on chrysotile. This move was denounced by such influential voices as the US National Institute for Occupational Safety and Health and Dr. Philip Landrigan of the Mount Sinai School of Medicine in New York.

Other international organizations have taken steps to discourage the use of asbestos worldwide, including the World Bank and the African Development Foundation.

ASBESTOS AROUND THE WORLD

Countries with Bans

The following countries have introduced comprehensive bans on asbestos mining, production, sale, use, import and export: Germany (1994), Italy

(1992), Netherlands (1993), Sweden (1985), Norway (1987), Denmark (1988), Switzerland.

European Union

A message for the world LHC

In 1983 and 1991, the European Union (EU) issued directives on protecting workers exposed to asbestos (83/477, 91/382). Member countries must adopt specified eight-hour exposure action levels and limit values above which workers should not be exposed even with protective measures. The directives also banned the spraying of asbestos, prohibited the use of some insulating materials containing asbestos, set out instructions for drawing up work plans, specified that asbestos should be removed prior to building demolition, specified standards for air monitoring at work and medical surveillance, and required countries to establish asbestos disease registries. The EU was scheduled to review these directives by 31 December 1995, but was unable to meet that deadline due to a political stalemate on the issue.

Following on the worker protection laws, the EU also issued directives on the marketing and use of asbestos (83/478, 85/610, 91/659). These directives

banned the import and use of the amphibole types of asbestos (including blue and brown asbestos), banned the use of chrysotile in certain products, and required labelling of legal asbestos products. These directives, while far short of a total ban, tightened the regulation of asbestos in Europe.

In 1992, the EU debated the issue of a total ban of asbestos, but the measure was defeated despite strong support from countries which have banned asbestos themselves: Germany, Italy, Denmark and the Netherlands. France, Belgium and Spain, all large producers and consumers of chrysotile products, opposed the ban. The UK representatives said that they would support a ban with a provision that anyone wanting to use chrysotile could submit a risk assessment to the EC for an exemption from the ban. The issue of the ban remains deadlocked and hasn't been taken up as an issue in committee since May 1993.[1]

Table 1: UK *versus* EU exposure limits for asbestos

	UK (4 hour TWA*)	EU (8 hour TWA*)	
	Limit Value	Limit Value	Action Level
Chrysotile (white)	0.5	0.6	0.2
Amosite (brown)	0.2	0.3	0.1
Crocidolite (blue)	0.2	0.3	0.1
Mixtures/others	0.2	0.3	0.1

* TWA = time weighted average

France

Since the beginning of 1994, there has been an upsurge in campaigning against the use of asbestos. In October 1994, the Jussieu Anti-Asbestos Committee (CAAJ) was set up to pressure the authorities to do something about the situation at Jussieu University, Paris, the biggest French building sprayed with asbestos. Thousands of staff, students and maintenance workers are exposed and 12 cases of asbestos-related disease have so far been discovered at Jussieu.

In May 1995, the National Federation of Injured and Disabled Workers (FNATH), the League Against Cancer (Val d'Oise), the Association for the Study of Work Hazards (ALERT) and CAAJ called for a total ban on the use of asbestos. They predict at least 100,000 deaths from asbestos-related diseases during the next 20 years. Deaths from mesothelioma are approximately 900 per year and the number is rising fast. Several cases of deaths caused by environmental exposure to asbestos have hit the headlines since the beginning of 1994.

The alliance of organisations called on the government to draw up a national plan to counter the threat of environmental exposure to asbestos. This should involve: a government organised national register of buildings which have been sprayed with asbestos; owners of asbestos-sprayed buildings must conduct a survey and risk assessment followed by a detailed plan of the measures to be taken to prevent exposure; building owners must provide the information to interested parties; the national programme should be subsidised by the government and big business.

Meanwhile, the powerful pro-asbestos lobby, represented by the Permanent Asbestos Committee (CPA), has suffered a significant setback. The trade union confederation CGT has withdrawn from CPA. Government representatives are expected to follow.

Italy

The Italian workers and community group, the Asbestos Exposure Association (AEA), was formed in the late 1980s to ban asbestos mining, use, export and import in Italy. In 1992, after years of tremendous struggle, the Association was successful. This was a particularly difficult battle given the considerable pressure to permit "safe" uses of chrysotile. The president of the AEA wrote in 1993, "Our struggle is far from over. It must now be extended to the whole of Europe with a view to the introduction of common legislation, which will only be possible as the result of a coherent, well-established movement ... Special attention must be paid to what is happening in the Third World, towards which the major asbestos multinationals are now directing their export efforts."[1]

United States

In the US, asbestos use has declined dramatically, but schools, residential buildings, transport tunnels, public buildings, car repair shops and industrial facilities are filled to the gills with asbestos put in place over the last 60 years. This asbestos is becoming friable and presents a major health crisis.

In the late 1980s, Dr. Irving Selikoff of Mount Sinai School of Medicine conducted a landmark survey of 17,800 US and Canadian asbestos insulation workers. He found that workplace exposure to asbestos caused 40% of their deaths. Many members of their families had also died of asbestos diseases as a result of their exposure to dust-laden work clothes. Selikoff predicted that in the US over a period of 30 years, 300,000 would die of asbestos-related diseases.

Over 200,000 US asbestos victims and their families have sued the asbestos companies for compensation. The asbestos victims group, the White Lung Asbestos Information Centre, has been vocal in demanding justice for US victims.

In 1989, the US Environmental Protection Agency issued a rule to phase out the main uses of asbestos, but the asbestos industry succeeded in getting a federal court to put a stop to the ban. Despite all the bad press, the US asbestos industry has kept its morale and in 1994 launched an asbestos resuscitation campaign with an industry leader holding a press conference to proclaim that chrysotile asbestos is "as harmless as a Cheese Doodle" (a bright orange processed snack). The point of this public relations operation was to blame other types of asbestos, which in the US make up less than 5% of past use, for asbestos disease. In response, the Oil, Chemical and Atomic Workers Union and other groups set up a campaign to counter the industry's efforts with an Asbestos Awareness Day, a media campaign and a lobbying effort to warn government agencies off falling victim to industry pressure.[3]

The US revised the asbestos standard in August 1994 to a permissible exposure level of 0.1 fibres/ml (8 hour time weighted average) for any form of asbestos, making it one of the best in the world.

Everywhere in the US, local groups are campaigning for the safe removal of asbestos from their schools and homes. In September 1993, the entire New York City school system (serving 1 million children) was delayed in opening in response to the disclosure by the Mayor that the company hired in 1988 to carry out asbestos surveys and removal efforts had badly botched the job. Although the City knew about this in 1989, it failed to remedy the situation at the time because it was afraid of the reaction when teachers and parents learned that schools they had been told were free of asbestos, in fact still contained it.

Finally, just two days before the schools were scheduled to open, the crisis erupted. Angry parents and teachers blocked the Brooklyn Bridge and tied up traffic for 4-5 hours to demand that asbestos be removed from the schools immediately. The protest shocked the Schools Chancellor into action. "It wasn't pleasant for me," he said of the protest. "But parents said they were hurting and I needed to see it. I couldn't have imagined how bad things were." In the end, the City spent £50 million to do a rush removal and inspection job on schools where asbestos had been found.[4]

Canada

Asbestos is big business in Canada. Canada is the world's leading asbestos exporter and the second largest asbestos producer. For years, the federal and provincial governments have heavily subsidized the asbestos industry, propping up its financial failures and providing resources to persuade the world that asbestos is harmless. In 1982 (Canadian) $14 million came from the federal government to revive asbestos mining in Newfoundland. When the US Environmental Protection Agency tried to ban asbestos in the mid-1980s, the Canadian asbestos industry launched a successful multi-million dollar campaign to put a stop to it. They hired the US public relations firm Hill and Knowlton to help them promote the continued mining and use of asbestos. Hill and Knowlton had some experience of cancer; their previous clients included the Tobacco Institute. In 1986, the Montreal-based Asbestos Institute received $4 million from the federal and Quebec governments to promote asbestos use around the world.

The Canadian Union of Public Employees has been very active on asbestos issues. This has included gaining an agreement with the largest utility company to allow health and safety committees to shut down unsafe work, getting the Workers Compensation Board to accept work exposure to asbestos as a cause of death in utility workers, and campaigning for the total removal of asbestos from Ontario schools.[5]

Japan

Although Japan has largely stopped mining asbestos, it imports more than 200,000 tons a year. Japan's consumption of asbestos ranks second after the former Soviet Union and it imports more asbestos than any other country. Asbestos hit the headlines in the early 1980s when a newspaper covered a hospital study showing that of 848 recent deaths in the city of Yokosuka, one-third died from lung cancer due to asbestos. Yokosuka has long been the site of a US naval base and the shipbuilding industry. Following this and other incidents, such as the discovery that asbestos from a decommissioned US Navy ship had been dumped by a roadside, public awareness grew and made asbestos a issue of major concern across Japan.

In 1990, the major Japanese unions and citizens' asbestos groups formed an organization called the Association for the Enactment of Asbestos Regulation Law. Although their efforts to ban all asbestos have not yet succeeded, they have forced the Japanese Parliament to ban amosite and crocidolite and to tighten regulations for demolition work. The Japan Occupational Safety and Health Resource Centre initiated an Asbestos Cancer Hotline in 1991 and received hundreds of calls. Another organization, the Japan Citizens' Network for Wiping Out Asbestos put out an international plea in March 1995 for protective equipment following the Kansai Great Earthquake which destroyed 160,000 buildings and sent plumes of asbestos dust into the environment.[6]

Brazil

Brazil is the third largest producer of asbestos, after the former Soviet Union and Canada. The marketing of asbestos mined in Brazil is controlled by two

Europe-based multinational companies, Eternit and Saint Gobain. Every year Brazil earns £183 million exporting about 70,000 tonnes of asbestos to Japan, India, Indonesia and other South American countries. Use of asbestos in Brazil also outstrips northern countries' consumption. In the US, average use of asbestos is 100 grams per inhabitant, while in Brazil it is 1,400 grams. Approximately 30,000 workers are employed in mostly small and unregulated asbestos businesses in Brazil.

The principal Brazilian unions, CUT and Forca Sindical, are promoting a phased-in ban of asbestos in Brazil, although proposed national legislation to that effect was recently squashed in favour of a proposal supporting the "controlled use of asbestos." However, in 1994 the unions were successful in convincing the government and an industry federation to eliminate asbestos in the car parts industry within four years. Brazilian workers struggle against asbestos hazards in an incredible environment of harassment. Trade unionists have been subjected to kidnapping, assaults and repeated death threats for their participation in efforts to eliminate asbestos hazards.[7]

South Africa

South African asbestos mines, often owned and operated by UK firms, have been in operation since 1893. South African mines produce all three main types of asbestos, including large amounts of crocidolite and amosite. Hundreds of thousands of men, women and children have been exposed to huge levels of asbestos dust in workplaces and in their communities. In 1949, a scientist investigating conditions in the British-owned Transvaal amphibole mines discovered that, "Exposures were crude and unchecked. I found young children, completely included within large shipping bags, trampling down fluffy amosite asbestos, which all day long came cascading down over their heads. They were kept stepping lively by a burly supervisor with a hefty whip ... X-rays revealed several to have radiologic asbestosis ... before the age of 12." Apartheid has until recently made the epidemics of asbestos disease invisible in South Africa.

In 1956, South Africa passed the first asbestos dust standards. Not only were these standards hundreds of times too high, they were only sporadically enforced. Current standards stand at 1 fibre/ml.

Dick Jackson at a conference in Copenhagen in 1990 Jake Jackson

Researchers have found that gold miners in South Africa, both black and white, received vastly superior health and safety protection than did asbestos miners. They attributed this difference to the fact that a greater proportion of gold miners were white. The gold miners dominated the Mineworkers Union (a whites-only union) which was politically powerful and forced government agencies to enact controls. Because few white workers were affected by occupational exposure to asbestos, the union didn't push for government intervention.

In the 1980s, community groups campaigned successfully for the government to abate hazards caused by abandoned asbestos waste tailings which are found near all asbestos mines.[8]

Australia

New South Wales has been a major asbestos mining area since the 1920s. Following the discovery of asbestos in Baryulgil, the Bundjalung Aborigine people who had been forcibly displaced from their land found themselves forced to work the mines under conditions where the dust was so thick that it ran like mud down their faces. About 350 worked at the mine from the 1940s until 1979 when it was closed. About 100 of them have died as a result of their exposure to asbestos. In 1988, the surviving asbestos miners and their families formed the NSW Asbestos Ex-Miners Aboriginal Corporation to fight for compensation and reconstruction of their community which was completely polluted with asbestos.[9]

In 1993, public housing tenants in Braybrook, Western Australia took legal action against the Ministry of Housing following the death of a tenant from mesothelioma. A tenant worked in her home where she lived for 40 years and was unlikely to have had any outside exposure to asbestos. However, an audit of her home revealed substantial amounts of amosite and chrysotile. Over 1,300 flats and houses in Braybrook are constructed from asbestos.[10]

Australian asbestos victims with a variety of exposure experiences have recently received considerable compensation awards from asbestos companies. In late 1994, a 35-year old mesothelioma victim was awarded (Australian) $823,600 in a suit against the asbestos mining company CSR Ltd. As an infant she had been exposed to asbestos fibres brought home on her father's work clothes.

In 1995, the court awarded a former health inspector (Australian) $226,000 as compensation for his mesothelioma. The health inspector sued his employer, the municipality of Nunawading, for failure to protect him from crumbling asbestos dust in the ceilings of the Civic Centre.[11]

The Third World

In response to restrictions on asbestos processing and use in Europe and North America, some companies have sent their dirty work south where there are few enforced health and safety or environmental laws governing asbestos.

For example, products such as Johns-Manville's Thermobestos, banned for use in the US, were made instead in Brazil. The Canadian asbestos industry is now promoting chrysotile use in Thailand and Zimbabwe and is building its export clientele in the Third World to make up for lost US business.[12] South African-mined blue asbestos, largely banned in the first world, maintains a strong market in North Africa and the Middle East.[8] The European Greens publication *The Dark Side of the Asbestos Story* noted that in response to asbestos regulations, the German firm Rex Industrie Produkte set up a joint venture with a South Korean firm to produce asbestos textiles there.

Several sources, including the IFBWW, predict that the use of asbestos will continue to increase in developing countries, especially in Asia and Latin America. Thus, in 20-30 years time, these countries will experience the health crisis gripping North America, Europe, South Africa and Australia.

The line promoted by the asbestos industry is that asbestos is necessary for third world development and that European and North American occupational health experts are peddling "cultural imperialism" with their warnings of asbestos epidemics in the Third World.[7] One Tanzanian government representative told a 1986 ILO conference that he believed that, "many countries have a growing need for asbestos products and that these products will play a part in improving the living conditions of many communities around the world."[13] But Third World activists aware of the asbestos toll have a different view and are working for bans on asbestos in their countries and worldwide. One international expert on asbestos observed that, "The double standard of corporations profiting by exposing Brazilian people to hazards that had come under greater control in these firms' home countries in Europe and North America would qualify as environmental racism."

Furthermore, many Third World countries are now producing and using safe asbestos substitutes. In Malaysia, wood pulp, sisal and other vegetable fibres have replaced asbestos in fibre cement manufactured there. More than 100 countries are using asbestos-free roofing tiles developed by a West Midlands firm. The proprietor of this firm has helped establish viable businesses in many countries of Asia, Africa and Latin America to produce the tiles which contain coconut coir, hemp and jute instead of asbestos. Costa Rican economic

policies required companies to develop products using native materials have kept asbestos out of Costa Rican cement products.

CONCLUSION

Trade union and citizens' groups around the world are gaining momentum and racking up successes in their fight against asbestos. International solidarity is key to completely eliminating asbestos hazards and is essential if we are to prevent the transfer of asbestos to the Third World. This issue will become more and more important in the face of economic globalisation, policy integration and as sites are sought for the disposal of asbestos removed from European and North American homes, communities and workplaces.

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ASBESTOS: THE EVIL HISTORY

1st Century AD: Pliny the Elder notes that slaves working in asbestos mines die young of lung disease

1857: The first asbestos products appear in England. Production truly begins after this, when deposits are opened up in Canada and South Africa

1880: First asbestos plants are set up in various areas in Great Britain

1898: "The evil effects of asbestos dust have also attracted my attention. A microscopic examination of this mineral dust, which was made by HM Medical Inspector, clearly revealed the sharp, glass-like, jagged nature of the particles, and where they are allowed to rise and remain suspended in the air of a room, in any quantity, the effects have been found to be injurious, as might be expected." Reported by a female inspector in the UK Annual Report of the Chief Inspector of Factories

1906: Dr Montague Murray, British physician, diagnoses death of a worker from asbestos disease. Reported to British Government enquiry into compensation for industrial disease

1918: The Prudential Insurance Company in New York refuses to sell personal life insurance to asbestos workers

1929: Leeds Coroner calls for public enquiry after death of Turner and Newall employee. Barking Council sends deputation to Whitehall about an asbestos factory based within its borough

1930: Merewether and Price, medical and engineering inspectors of factories, place before Parliament a report confirming the epidemic of asbestos disease among British asbestos workers

1931: The Asbestos Industry Regulations established. These set a 'safe' level that allowed one worker in three to get asbestosis after 15-19 years exposure

1932: Turner writes to Newall complaining of the dust exposure rules saying, "We must take a small risk by stretching the regulations to suit our own ends"

1955: Richard Doll publishes evidence that asbestos causes lung cancer, 20 years after the first reports of high levels of lung cancer in asbestos workers. Doll's paper convinces the scientists

1960: Professor Chris Wagner produces evidence of the link between asbestos and mesothelioma among South African miners and people living near the mines

1960: The UK adopts the American "safe" standard of 1938 based on a biased sample in North Carolina. This level allows exposures 15 times the 1969 levels. Up to 1960 63 papers on the hazards of asbestos had been published in the US, the UK and Canada. The 52 independent papers showed asbestos to be a dangerous source of asbestosis and lung cancer; they were largely ignored. The 11 sponsored by industry presented virtually the opposite conclusions

1968: The British Occupational Hygiene Society offers a safety standard for white asbestos of 0.2 fibres/ml. The asbestos industry conducted a single survey for asbestosis only at Turner and Newall's Rochdale plant and came up with this level which was incorporated into the 1969 Asbestos Regulations. Later work suggests that 1 in 4 workers would contract asbestos-related disease at this level

1970: The 1969 Asbestos Regulations were introduced

1976: The Ombudsman, Sir Alan Marre, revealed the horrors of the massacre at Hebden Bridge. 12% of employees had crippling asbestos diseases. The Government launched an enquiry, the Advisory Committee on Asbestos

1982: Yorkshire TV's documentary *Alice: a Fight for Life* was first shown. Richard Peto, then Reader in Cancer Studies, University of Oxford, predicts a total of about 50,000 asbestos-induced deaths in the UK in the next 30 years or so. Nancy Tait and David Gee say this is a gross underestimate but are dismissed for being unscientific

1983: The Asbestos (Licensing) Regulations are enacted. These came into force on the 1 August 1984. They cover the most hazardous jobs such as asbestos stripping or removal

1985: The Asbestos (Prohibition) Regulations were introduced and later amended in 1992. They prohibit the import, supply and use of amphibole asbestos, principally blue and brown, products containing them and the spraying of asbestos and installation of asbestos insulation. Blue and brown asbestos are about 5% of the total in use

1987: The Control of Asbestos at Work Regulations are introduced and later amended in 1992

1995: The HSE sharply revises upwards its estimates of asbestos-related deaths in the period 1995-2025 and starts an awareness campaign amongst maintenance workers

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