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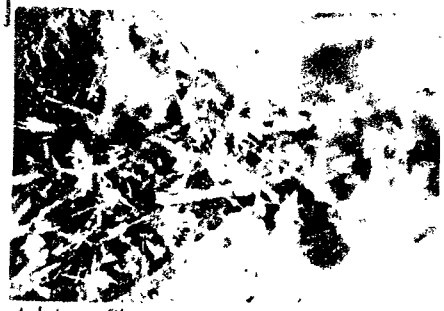
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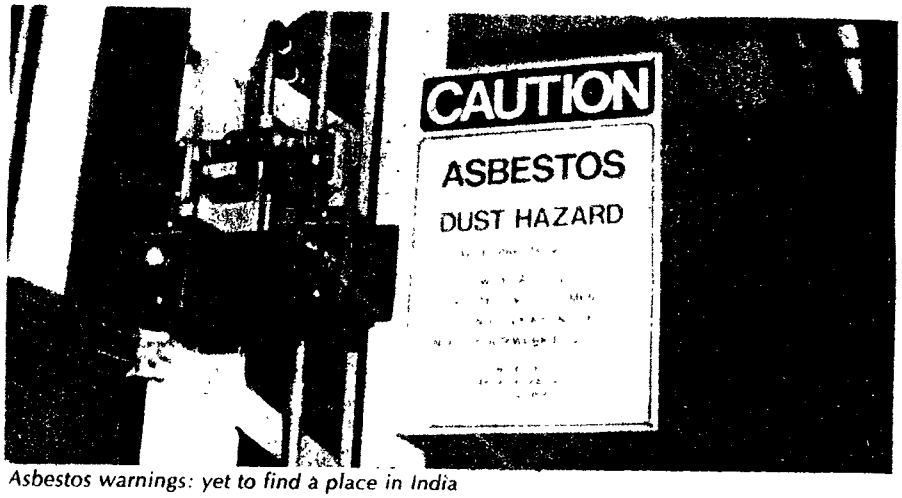
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Special Report 1

Killer asbestos



Asbestos fibres: the killer dust



Asbestos warnings: yet to find a place in India

On 10 January, Ganga Asbestos Cement Ltd. entered the capital market with a small issue of Rs. 119 crores towards equity capital for a project to manufacture asbestos cement pipes. Its good reception from investors seems almost assured as the new company has signed a technical collaboration agreement, with a Birla firm, Hyderabad Asbestos Cement Products (HACP) Ltd.

The asbestos industry in India has come a long way. When HACP itself entered the asbestos products market, it sought and obtained technical collaboration with the world's largest asbestos manufacturing company, Johns Manville Corporation (JMC), USA. Today, HACP exports not only its products, but also technical knowhow and is promoting joint ventures in Nigeria and Nepal. In the meantime, however, things have not been going so well for their erstwhile technical collaborators the Johns Manville Corporation (JMC). In August this year, it took the unorthodox step of applying for reorganisation under the US Bankruptcy Code (see box 1).

WORKERS' PLIGHT

Gajanan Dagdu Sawant died in 1982 of asbestosis. Sawant worked for a medium scale asbestos textile manufacturing unit situated in Andheri, Bombay. In the same unit there are 20 other workers who also suffer from asbestosis in varying degrees.

Rajagopal, a worker in the same factory who suffers from asbestosis, has gone to court, demanding a proper medical examination and compensation from the Employees' State Insurance Corporation (ESIC). (see box 2). But for every Rajagopal, perhaps there are hundreds of others who do not even know that they suffer from asbestosis. Jairam Sakharam, who joined Hindustan Ferodo Ltd. (HFL) at the age of 16, quietly left in 1981 after 20 years of working, with a pittance for gratuity, for probably similar reasons, and is now lost in the multitude of silent sufferers.

You have probably never seen the label shown alongside before. And the reason for this is that the people who ought to use it don't bother to. It might well have come from any one of those humerous 'pallets' or containers that bring in over 80,000 tonnes of imported asbestos fibre into India every year (see table 2). It's also probably affixed on to each little piece that HACP, HFL and others export every year. And yet at Cotton Green, Bombay, where asbestos fibre containers are being unloaded, a split sack covers a worker in dust from head to foot. Reportedly, raw asbestos is not in the list of hazardous cargo prepared by the Port Trust. In the Bombay Docks, workers can be seen eating their lunch sitting on heaps of loose asbestos. Needless to say, if you try to photograph them, your camera will be confiscated.

The one time 'magic mineral' of the 20th century, even though it has been proved to be a 'killer', continues to be used brazenly by firms that have scant regard for human lives. The fact that asbestos has been in widespread use since the beginning of this century in the building industry as electrical and thermal insulation, in brake and clutch lining for automobiles, in household and industrial floor tiling and in probably 3,000 more areas means that almost everyone of us has had some level of exposure to asbestos fibre for years.

MEDICAL AWARENESS

Asbestosis became the subject of detailed medical discussion in Britain in 1927. It became a notifiable disease in India vide an amendment in 1976 to the Factories Act of 1948. However, more dangerous diseases like lung cancer and mesothelioma continue to remain out of the Schedule. Asbestosis is a non-malignant, irreversible lung disease caused by the inhalation of asbestos dust. It is characterised by diffused scar tissue or fibrosis, which thicken the lining of the lungs resulting in a progressive breathlessness. This also tends to strain the heart. The degree of risk of developing asbestosis appears related to the duration and level of exposure to asbestos. Normally the disease takes many years to develop and thus, workers exposed to asbestos may not show the signs of the disease for a long period of time.

It is only when the evidence of the carcinogenic potential of inhaled asbestos fibres ac-

ATENCAO Contém fibras de amianto Evite criar po Respirar po de amianto pode ser prejudicial à saude Fumar aumenta consideravelmente o risco a saude	**ATTENTION** Contient des fibres d'amiante evitez de créer de la poussière, respirer la poussiere d'amiante peut endommager gravement votre santé, et fumer augmente de beacoup ces risques
CAUTION Contains asbestos fibers avoid creating dust breathing asbestos dust may cause serious bodily harm, smoking greatly increases the risk of serious bodily harm	**ATENCION** Contiene fibras de amianto Evite crear polvo Respirar polvo de amianto puede ser Nocivo para la salud Fumar aumenta considerablemente el Riesgo de contraer enfermedades

cumulated, and lung cancer with malignant tumours was observed in workers already suffering from asbestosis, that people all over the world started to take notice of the health hazards of asbestos. Along with lung cancer, instances of mesothelioma of the pleura and peritoneum among asbestos workers and their relatives only served to further emphasise the potential dangers of uncontrolled exposure to asbestos dust.

According to Dr. Irving J. Selikoff of the Mount Sinai School of Medicine, New York, an internationally acknowledged authority on asbestos related diseases, "There is no limit to the danger of asbestos dust: the more of it there is the greater the cancer risk. The less, the lower the risk." The risk doesn't disappear with lower exposure levels.

The recognition of the potential health hazards from asbestos has resulted in increasingly stringent controls on the production and sale of asbestos products in the West. Yet, in the Third World, production of asbestos products has been growing due to the largely unregulated state of production and marketing in these countries. Exports of these products back to the West often fulfills other 'national objectives' at social costs that are left largely outside the scope of open discussion and debate.



Workers unloading asbestos packs at Cotton Green (Bombay docks)

The asbestos industry in India is in this sense fairly similar to that in other developed countries (LDCs) even though almost all the large scale units in the country are either subsidiaries of western transnationals (TNCs) or have acquired technical collaboration from them, (see table 1). The industry employs over 7,000 people in 20 units spread over Andhra Pradesh, Gujarat, Maharashtra, Tamil Nadu and Haryana. Added to these are numerous small scale units, some functioning as subsidiaries of larger units.

Unfortunately, except in official circles there has been little appreciation of the problem in India. True, asbestos came into the Factory Rules in 1970, and asbestosis was added to the list of notifiable diseases in 1976 but public interest in health hazards from as-

The fall out!

"Millions of American workers are handling asbestos on their job site and medical experts estimate that because of this, 400,000 workers will die of cancer during the next half century." This cryptic warning was sounded by the Oil, Chemical and Atomic Workers Union (OCAWU) of USA in 1976 in an extremely informative slide-show that demonstrated unequivocally that "asbestos kills".

The biggest 'victim'. And quite justifiably, the biggest 'victim' of this new awareness is the world's largest producer of asbestos — Johns Manville Corporation, USA with closely held subsidiaries in Canada and others strewn over the rest of the world. Manville's interests (technical or financial) in India include Shree Digvijay Cements and Asbestos, Sud Asbestos, and Hyderabad Asbestos Cement (with which Manu had a technical collaboration when it started).

Manville Corporation is now being sued at the rate of 500 new cases per month by former employees or their survivors who, unable to receive fair compensation through normal channels, began this flood of law suits. In one of the recent judgements, a worker was awarded $2.6 million in damages.

Worried at the prospect of more such judgements, Manville appointed two consulting firms, Environ Technology Resources Inc. and Stanford Research Institute Corporation to estimate the potential size of its liabilities stemming from pending and possible asbestos related law suits. The figures are mind boggling. Against an existing 16,500 suits pending settlement, the first named consultant concluded that at least 52,000 suits may well be on their way. Subsequent estimates suggested the possibility of the number of suits reaching 125,000. With settlements being awarded at an average of $80,000 per case in 1982, litigation could well cost Manville Corporation $8 billion. On the other hand if the number and the cost of settlements go upto $6 billion if the upward revision of possible suits is considered. Setting up a fund to meet such a contingency could require the liquidation of the company's $2.2 billion assets.

But Manville Corporation is in no mood to say goodbye. On 26th August 1982, in an unforeseen move the company filed for protection under Chapter 11 of the US Bankruptcy Code, which shields a concern from creditors' law suits as it works out an orderly reorganisation including repayment of debts. Almost simultaneously Manville is also suing for $2 billion in damages from insurers alleging faulty settlement of its claims on them.

A different situation. If Manville finds asbestos choking it to death, one would expect the fate of Turner and Newall (T&N) of Britain to be no better. T&N subsidiaries in India include Hindustan Ferodo and the Asbestos Cement Co. Ltd. Last year T&N made a £13.9 million provision in its account books for asbestos disease related claims. In one case T&N reportedly paid $650,000 towards a total settlement of $1.4m. It expects, however, that in the future also these claims would not rise to more than 1% of the annual turnover. T&N's confidence stems from the fact that some of its most susceptible operational areas are located in Zimbabwe, Swaziland, Zambia, Nigeria and South Africa — all with low levels of worker awareness and high levels of government pliability.

India is also not an exception as far as lack of awareness about asbestos related diseases is concerned. The asbestos industry in India has been growing despite the increased awareness of asbestos hazards in the West. Consider, for example, the fact that between 1976 (when OCAWU first drew attention to the health hazards from asbestos) and 1980-81, the imports of asbestos fibres into India have risen by almost 50% from 56,404 tonnes to 84,264 tonnes.

Rajagopal — fighting to live!

Will writ petition No. 1316 of 1982 filed before the Bombay High Court herald a new era in employer — employee relations? On one side stand arraigned the director-general ESIC, the director-general, Central Labour Institute (CLI), the chief inspector of factories, Maharashtra, and M/s Hindustan Ferodo. The plaintiff: one dying man, dying because no one told him the job he honestly did was killing him every minute he was doing it.

S. Rajagopal joined Hindustan Ferodo in 1961 as an operator in the brake and clutch-lining department. The department uses a dry process which works with asbestos powder. It was just a matter of ten s before the trouble started.

Asbestosis. Chronic cough with expectoration and dyspnoea (difficulty in breathing), the commonest symptoms of asbestosis, continued to be treated by the ESI medical teams and private practitioneers as yet another case of asthma or bronchitis. All that lasted till September 1976, when, finally, the Sion Hospital authorities pronounced their diagnosis that asbestosis had claimed yet another victim.

Rajagopal's representations to the management of Hindustan Ferodo produced no reaction at first, and then the decision was taken to refer him to Dr. Dave, medical inspector of factories, Maharashtra. Strangely enough, the latter's conclusions turned out exactly contradictory to the earlier diagnosis. On the basis of what tests did Dave venture his opinion remains to Rajagopal's lawyer, K.P.V. Menon, "largely mysterious". In July 1977, Dave went on to suggest that it probably was a case of "acute bronchitis having an allergy component" and that it "probably was a sequel to pulmonary infection that he may have had in the past."



Menon: sceptic of outcome

Petitioning even the chairman of Turner and Newall did not help. Even as the Sion Hospital authorities advised him immediate treatment, Rajagopal resigned from HFL to enable him to collect his gratuity as he was at that time in urgent need of money for his wife's medical treatment.

Claims not met. He was claiming a writ of *mandamus* compelling the ESIC and the CLI jointly or severally to subject him to an examination of his disease by experts and to submit the report in the Bombay High Court. He was also claiming payment of an interim allowance during the petition and compensation for occupational disease from the ESIC.

The writ petition was the only alternative. It has finally been heard, and the ESI has been directed to constitute a medical board and subject him to an examination. Even though the examination was completed on 30th September 1982, Rajagopal still awaits a decision.

Menon, after pushing through the matter, remains cynically skeptic of the outcome. But he is convinced that if the workers still in employment were to approach him he would have a much stronger case in hand.

The question, however, remains — for one Rajagopal spirited enough to fight, how many more succumb?

bestos continued to be low. Then, in 1981, an article appeard in New Scientist by Barry Castleman which highlighted the double standards of TNCs operating in asbestos in India with specific instances of environmental pollution caused by Shree Digvijay Cement Company in Ahmedabad and Rane Linings. This created a flurry amongst who read this article.

PREVENTIVE MEASURES

Since the mid seventies, the National Institute of Occupational Health (NIOH) and the Central Labour Institute (CLI) have been involved in studies of asbestos related diseases.

In 1980 the NIOH conducted a study to evaluate the health hazards due to asbestos in a medium scale asbestos textile unit in Ahmedabad. The report clearly states that the "total and respirable dust and asbestos fibre concentrations were found to be much higher, than accepted norms" This, it was reported, was largely due to the absence of dust control equipment. This report also noted that 15% of total subjects studied showed the presence of asbestos bodies in their sputum. Further, 50% of the working population had respiratory symptoms, 25% of the working population had crepitations (a crackling sound detected in lungs), and 9% of workers had opaque areas in their lung X-rays.

Given these facts, what can be done to prevent the health hazards associated with asbestos? Technology in the West has geared itself to devising engineering methods such as isolation, enclosures, exhaust ventilation and dust collection equipment to serve as the prime means of controlling direct exposure to asbestos. Reverse-jet, multi-module cased filters, for instance have a proven efficiency of almost 100% in containing asbestos dust. In addition, hand operated and power operated tools with built-in dust-extraction facilities are now available for use by workers handling asbestos.

A variety of personal respiratory protective equipment has been developed for differing end-uses. Factories in the West have taken care in layout planning to ensure that the most hazardous jobs are separated from the rest in order to reduce overall dust levels. Showers and changing rooms for workers have been incorporated into plant layouts to ensure that the dusty work clothes are left behind in the factories. With all these efforts being made, dust levels have been significantly reduced inside the work premises.

Table 2:

Imports of raw asbestos

Metric tonnes

Year	Actual Imports
1978-79	62,707
1979-80	75,470
1980-81	84,264
1981-82	80,854

Portwise imports are in the approximate range of Bombay-60%, b Madras 20% and c Calcutta-20%

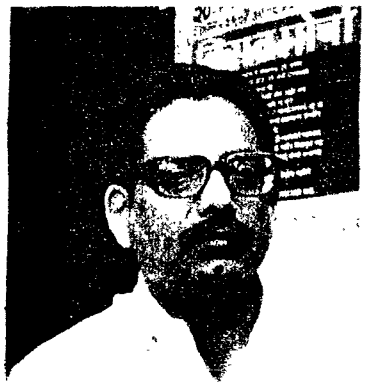
Source: MMTC

Table 3:

Sales to large companies

Name of Company	Approximate sales 1980-81	1981-82
Hindustan Ferodo	4,000	4,000
Hyderabad Asbestos Cement	30,000	23,000
Asbestos Cement	18,000	18,000
Shree Digvijay Cement	9,000	15,000
Sunderam Abex	500/1000	1500/2000
Rane Brake Linings	1,000	1,500

Source: MMTC



Bannerjee: 'management apathetic'

two fibres -- per cubic centimetre, and efforts are continually on to halve that level.

In stark contrast are the horrendous conditions existing in Indian factories. A. Bannerjee, a CITU union leader at the Asbestos Packing and Manufacturing Company (APMC), Bombay, which is a medium scale unit employing 300 workers, tells of two asbestos deaths in 1982. This fact has also been certified by medical reports. Listing mixing and carding operations as potentially the most hazardous (see box 3), he says, "We have absolutely no control equipment. And the best we have is a few exhaust fans. Respirators are unheard of. Workers are simply given a piece of cloth which they tie around their noses and mouths. In fact, the management has not bothered to provide workers even with proper working clothes."

SHEER APATHY

Bannerjee goes on to talk of the accumulation of waste fibres at various stages of processing and of how these wastes are again mixed with cotton fibre. He complains that "The more the proportion of wastes in the mix, the more the dust caused but the management is motivated purely by considerations of profitability. According to Bannerjee the working conditions are even worse at APMC's nine subsidiary companies located in and around Bombay which are all engaged in related activities like grinding of asbestos mattress manufacture.

According to a study conducted by the CLI in 1981 when it comes to safety measures



It affects not only you but your family too

sure [illegible] of the [illegible] shortly conduct

Prabhakar San gineering Worker at HFL highlights tions against asbe bagging stage itse 75 hessian bags v raw asbestos. In bags used [illegible] original [illegible] polythene bag. T fibre start [illegible] tions from the poi is today sought to plastic strip curt power.

Sanzgiri also ta tions which requi ing of dotter cylin should be mechan "Under a union ag ment has decided ment from Germar led by 26 January.

INADEQUATE EFF

In 1980, HFL intro protection equipm Sanzgiri points ou control systems th ance and that the a second line of de

Till 1977, HFL s

Table 1:

Major asbestos companies in India

Name of company	Products	Nature of TNC link
Hindustan Ferodo	Brake linings, jointings, limped sheets, yarn, packing cloth, textile mattresses and millboards.	Turner and Newall, U.K. (T&F)*
Hyderabad Asbestos Cement Co	Asbestos cement sheets and pressure pipes, jointings, millboards and thermal insulation	Johns Manville, USA (T) and now Societa Italiana Perl Aminto, Italy. (T).
Asbestos Cement Co.	Asbestos Cement sheets	Turner & Newall, UK (T&F)
Shree Digvijay Cement Co	Asbestos cement sheets and pressure pipes	Johns Manville, USA (T&F)
Sundaram Abex	Friction materials like brake linings	Abex Inc., USA (T&F)
Suri Asbestos Industry	Textiles, packings, ropes, laggings, jointings, yarn etc.	Johns Manville, USA (T&F)
Rane Brake Linings	Brake linings and clutch facings	Small and Parkes, UK (T&F)
Reinz Talbros	Asbestos jointings	Reinz Dichtungs — A.G. West Germany (T&F)

*T. Technical
*F: Financial

Source: DGTD Handbook of Foreign Collaborations, 1980

Shree Digvijay Cement's asbestos plant [illegible] Ahmedabad, believed to be the subject of the study, is no better. The study revealed that out of 320 workers selected at random over 6.5% suffered from asbestosis. In the fibre-grinding, loading and the pipe [illegible] departments workers were exposed to both crocidolite and chrysotile fibres (see subsequent discussion), and fibre concentrations were found to be much higher than the statutory permissible levels.

The study noted that "dust control measures in the factory had been introduced only in 1979." Whether the management moved fast to ensure better working conditions remains unknown. But its first action is reported to be the retrenching of those workers who the CLI study established as suffering from asbestosis.

Workers in Hindustan Ferodo, the largest Indian manufacturer of friction materials like automotive clutch and brake linings and asbestos textiles went on a seven month strike in 1981 demanding, among other things, better working conditions. Working conditions in HFL today are relatively better than Indian asbestos industry standards but that is not saying very much. HFL is now anxiously looking forward to a study on asbestosis

Manufacturi

The asbestos cem combines ash water to form pelleted in succes mandril. Dependi proportion by wei may vary from 15" sheets placed l metal sheets and ruptured asbestos sl of the asbestos sh light diesel oil (LD (HSD) is sprayed i sheets. While which is done ma vapour and asbest inhaled by workers Exposure. In the n contrast, a dry mi asbestos is first made before passing the sieve cylinder to fo process which tak water, the pipes are

sure that the CLI and the factory inspectorate of the government of Maharashtra are to shortly conduct at its Bombay plant.

Prabhakar Sanzgiri, president of the Engineering Workers Union (affiliated to CITU) at HFL, highlights the need for taking precautions against asbestos dust right from the debagging stage itself. He recalls that in 1974-75 hessian bags were still being used to pack raw asbestos. "In Ferodo those days, many bags used to be broken. Now we insist that the original polythene bags are placed in another polythene bag." The feeding of fibres into the fibre plant, one of the most dangerous operations from the point of view of dust exposure, is today sought to be controlled by putting a plastic strip curtain on the mouth of the hopper.

Sanzgiri also talks of government regulations which require that cleaning and grinding of dotter cylinders in the carding section should be mechanical processes and says that "Under a union agreement now, the management has decided to import some new equipment from Germany, which should be installed by 26 January."

INADEQUATE EFFORTS

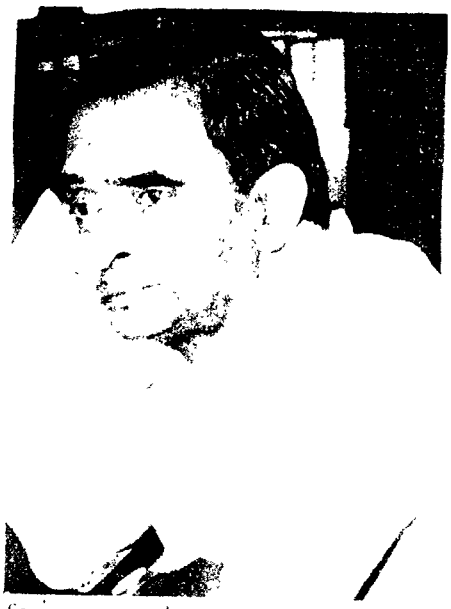
In 1980, HFL introduced personal respiratory protection equipment on the shopfloor. But Sanzgiri points out that it is the engineering control systems that are of primary importance and that the respirators essentially form a second line of defence.

Till 1977, HFL's plant layout was still rather outmoded and contained the carding, spinning and weaving sections under the same roof. It was in this year that the isolation of the dust-prone carding section was taken up. This was achieved by using a plastic strip curtain to separate it from the other sections. Union representatives admit that this has helped in making the other areas relatively dust-free but they say that there is still a lot of scope for improvement.

The cleaning of carding machines, however, still involves an exposure to asbestos dust. The cleaning process involves rotating the dotter cylinders of the carding machine while one man brushes off the waste. This is easily the most dangerous and dust-prone job on the shopfloor.

HFL's contract department used to handle an even more dangerous area. Workers had to go out and spray asbestos fibre for insulation. This activity was finally stoped when many workers started suffering from chest diseases.

Union representatives talk of improvements in the shopfloor layout in HFL, e.g. the provision of proper ventilation facilities, separate lockers and bathing facilities for the workers. But predictably the management's response has been that all these improvements cost money. "We are often told," says Sanzgiri, "how Sunderam Abex has a wage cost which is only 17% of manufacturing costs while it is 28% in HFL. I wonder what the working conditions in Sunderam abex are like." In any case, such costs should be counted under capital expenditure and not under wages, as they are not perks given to workers but are an essential pre-requisite for the manufacture of asbestos products.



Sanzgiri: control systems needed

But asbestos product manufacturing units are not the only places where you might be exposed to this killer fibre. Breaklining and grinding operations in every vehicle manufacturing unit, release enormous amounts of asbestos dust, and asbestos traces are often found in the sputum of workers in these departments. When complaints of respirator

Manufacturing processes

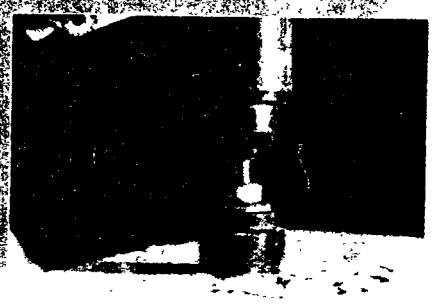
The asbestos cement manufacturing process combines asbestos fibres with cement, sand, water to form a slurry which is deposited in successive layers on a rotating mandrel. Depending on the product, the proportion by weight of asbestos to cement may vary from 5% to 90%. On hinging, the sheet is pressed between two corrugated metal sheets, and pressed to make corrugated asbestos sheets. To prevent sticking of the asbestos sheet to the hot metal — light diesel oil (LDO) or high speed diesel (HSD) is sprayed between the two moulding sheets. While stripping the sheets, which is done manually, diesel fumes, hot vapour and asbestos dust are released and inhaled by workers.

Exposure. In the manufacture of pipes, by contrast, a dry mixture of cement and asbestos is first made and water is added later before passing the slurry through the hot sieve cylinder to form pipes. On maturation, a process which takes 15 days of soaking in water, the pipes are cut while being rotated at high speeds. This process invariably exposes the workers to asbestos dust.

In contrast to the relatively "wet processes" of sheet and pipe manufacture, there are the "dry processes" of textile weaving and the friction material manufacturing. In the manufacture of textiles, the crushed asbestos fibres are sprayed into receptacle, (the fibre plant) for fluffing and combing and the resultant flocculent soft fibrous output is mixed with cotton before carding. The carding machine consists of large rotating cylinders with innumerable wire points which ensure that the fibres are laid parallel. The output is in the form of a sliver or rope which goes through the subsequent processes of spinning, doubling and weaving.

In the manufacture of friction materials, fluffed fibres are mixed with metal chips and friction particles along with binder resins. This mixture is then either profiled or extruded into the required shapes. At times woven material is also used in the manufacture of friction materials. In all dry processes, fibres are widely dispersed over the working area and inhaled by the workers.





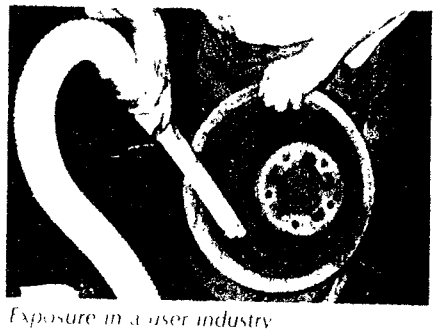
Workers clothing cleaned under special lighting and without it

difficulties are made managements use the simplest expedient available that is, transferring the persons concerned to other departments in the name of job-rotation. No respirators or engineering controls are used. If this is the case in a highly organised user industry with some of the best known Indian companies involved, what the situation might be elsewhere is best left to one's imagination.

VEIL OF SECRECY

The activities of asbestos companies lie cloaked in secrecy. And the only people who can examine them are the factory inspectorates of the government.

To imagine that the government is unaware of the problems of asbestosis or mesothelioma would perhaps be naive. After all, is not asbestosis becoming a notifiable disease? But N. L. Gadkari, former chief inspector of factories for Maharashtra, categorically dismisses government intentions. The moment a disease becomes notifiable, it just disappears. Take, for example, the case of byssinosis which is caused by inhalation of cotton fibres. This disease was made notifiable at the same time as asbestosis, but it has practically never been heard of despite the profusion of cotton textile mills in and around Bombay.



Exposure in a user industry

According to J. Kumar, formerly of the CLRI who authored the CII study on health hazards from asbestos in Ahmedabad, "Because of the legal implications involved, no factory medical officer will ever identify asbestosis. Actually the main problem is mesothelioma which is definitely caused by crocidolite which the company studied was using." Perhaps it should be pointed out here that manufacturers in the U.K. opposed a voluntary ban on the import of crocidolite only in the early seventies.

In marked contrast to what [illegible] India, is the attitude of the [illegible] Medical Board of the U.K. which has clearly laid down that any worker [illegible] from even two of the symptoms [illegible] ness, inspiratory crackles [illegible] function, finger clubbing [illegible] occur in a variety of respiratory and cardiovascular diseases, and [illegible] posed to asbestos at work [illegible] certified as suffering from asbestosis. Compare this, for example, with the factory inspector's report on Rajagopal [illegible] box). It seems patently dishonest to suppress such vital facts and call [illegible] bronchitis or tuberculosis.

Trade unionists feel that the ESIC [illegible] was set up by the government [illegible] do its duty. Bannerjee says that the workers of APMC undergo medical checkup [illegible] year by the KEM hospital and not the ESIC hospital at Andheri. However, [illegible] when asbestosis is detected the worker is retrenched by a management [illegible] to wash its hands off the [illegible].

When a worker is not [illegible] ESIC contributions stop and he can avail of [illegible] treatment only for a period [illegible]. "Of course," says Bannerjee, the ESIC provides for compensation of upto a [illegible] of Rs. 80,000 payable in instalments of Rs. 500 per month when a worker [illegible] in service. But as soon as it is proved that he has the disease, more often than [illegible] retrenched. Further, what if he [illegible] same disease, say two years after [illegible] from service, neither the management on the liability nor the ESIC [illegible].

UNIONS POWERLESS

The Occupational Health [illegible] ministration (OSHA) of the U.S. [illegible] physical examinations, [illegible] chest X-ray, pulmonary [illegible] and the preparation of [illegible] history before the [illegible] up tests each year. [illegible] fact is that the employer [illegible] medical data through [illegible] physicians.

Sanzgiri points out that [illegible] ments are indicated [illegible] schedule XVII of the Factories [illegible] in the Factories Act. [illegible] major difference however [illegible] loyee has no access to the [illegible].

Kumar, even while [illegible] the reported retrenchment [illegible] factory following his study [illegible] to say. "The problem is that [illegible] tened of retrenchment and [illegible]

Substitutes — the search is on

Sweden and Holland have already imposed a ban on the use of asbestos. And even as manufacturers are faced with the possibility of more bans on the dreaded mineral, the race is on to find substitutes for asbestos in its many uses.

Asbestos consumption. The largest consumption of asbestos is accounted for in the manufacture of flat sheets, corrugated sheets, and pipes. Some headway has already been made in the search for substi[illegible] in these uses of asbestos. Asbestos [illegible] Turner and Newall, along with Unitaka Kasei of Japan, has introduced an asbestos substitute called Mewlon. Mewlon is a high modulous polyvinyl alcohol fibre which can be used to produce non-combustible flat sheets. Hoechst A.G. the the German giant has announced an acryl based fibre called Dolan-10 which can be used in the making of many building materials, which now require asbestos cement. Pilkington Bros. has developed a glass corrugated sheet which can be made on existing asbestos machinery.

In 1979, when General Motors came to face the Environmental Protection Agency, they gave an undertaking to the effect that by 1983 all disc brakes in their cars would be asbestos free and by 1985 even drum brakes would be made of non-asbestos friction material. In addition, Roulands of Denmark has developed brake-linings made of a mixture of metallic and organic materials and Saab of Sweden has offered to convert brake-linings on its older cars to the new material.

The days of asbestos as an essential ingredient in heat-retardant textiles also seem numbered. This is evident from the introduction of a number of asbestos free heat-retardant fibres in the market. Zetex manufactured by Newtex Industries, for example, is made from a silica based yarn with a treated finish. Zetex can withstand temperatures of upto 1800°F. Also in the same use bracket are Dupont's Nomex, a temperature-resistant nylon fibre and bleached Teflon fluro-carbon organic fibres. Multitect, a special wool blend, by Multifabs is yet another substitute that is finding increasing acceptance in the West. Another braided fibre called GFO, which is made of graphite polytetrafluroethylene and a high temperature lubricant, has been found to be the ideal substitute for asbestos in pump packing.

Just a matter of time. Although a successful alternative to asbestos has not been found for use in high pressure pipes, it would only be a matter of time before a suitable substitute is developed.

With suitable substitutes for asbestos being developed and an increased awareness amongst workers of the health hazards associated with it, there has been a gradual reduction in the manufacture and use of asbestos in the Western countries. In India, however, not only are there no signs of a reduction in its use, there seems to be an expansion in the manufacture of asbestos products.

Types of asbestos

Asbestos is a common name given to a number of naturally occuring hydrated mineral silicates that possess a crystalline structure, are inconibustible in air and separate into filaments. The four main types that are chemically different are: (1) chrysotile — white asbestos which occurs as fine silky flexible white fibres, (2) amosite — a straight brittle fibre, light grey to pale brown (3) crocidolite — blue asbestos, straight blue fibre, (4) anthophyllite — a brittle white fibre

uses to co-operate when any study is made.'

Trade union representatives argue that the attack on asbestos related diseases should really start at the preventive stages. Sanzgiri agrees that getting the 'manufacture and manipulation' of asbestos on to the Factory Rules in 1970, belated though it was represented a definite concern in this regard. But he alleges that all these carefully framed rules really exist only on paper. Bannerjee agrees with this point of view and goes on to state that if the Factory Rules were really enforced, perhaps ACMP would cease to exist.

Faced with this barrage of criticism, V. N. Kholkute, chief inspector of factories, Maharashtra, underlines the need for managements to voluntarily exercise the required controls. He is of the view that "The role of the factory inspector is to ensure that the minimum safety precautions prescribed are adhered to." He also claims that the existing norms of having only one inspector per 150 factories means that they are severely understaffed. This shortage of manpower affects the efficiency of his department. He points out that "The inspector has to check everything from licences to health and safety measures, conduct enquiries in cases of accidents and attend courts too. Under such circumstances, to expect better compliance of existing rules would be naive."

on the factory inspectors, Sanzgiri makes a demand that, if accepted, could have phenomenal repercussions. Says Sanzgiri: "The trade unions should be given the right to prosecute." This is the normal practice in countries like the US.

While to some extent the NIOH and CLI have been responsible for pointing to the hazards from asbestos, the most incriminating exposures get hidden under heaps of official explanations. CLI officials, for example, refuse to say a word on the subject on their study of the asbestos industry in India. Behind all the secrecy reportedly lies a recent terse reminder from the secretary, ministry of labour in New Delhi, to officials of the CLI and the like, that as per 'service rules,' they are not to speak to any member of the press or contribute articles about their work for publication in the mass media. What is the justification for this wilful suppression of information?

COMPLACENT UNIONS

Trade unionists, however, think that the CLI and NIOH can play an important role in creating a machinery to monitor asbestos dust levels and carry out systematic studies. They point to OSHA standards which clearly state that "affected employees or their representative shall be given reasonable opportunity to observe any monitoring required..... and (they) shall have access to the records thereof."

S. K. Chatterjee, former director, NIOH, even while agreeing broadly with the unionists, calls for "more responsible unionism and worker education in appreciating the need to adopt protective measures where managements have implemented them."

An interview, with R. J. Mehta, president of the Engineering Mazdoor Sabha is enough to clarify what Chatterjee means. Mehta, whose union is the officially recognised union in the Asbestos Cement Co.'s (ACC and the Turner and Newall collaboration) Bombay plant, seems quite unaware of the potential dangers



Kholkute bemoans staff shortage

of asbestos dust exposure. "Yes, we have had a few cases of TB," he says adding in a cavalier fashion that the wide open spaces at the Mulund plant ensure that dust exposure is maintained at low levels. Besides most of the time the asbestos workers are unskilled or semi-skilled workers. "Where else will he get such good wages? It is difficult for him to find another job."

This is exactly the "irresponsibility" of unions that prompts Gadkari to say: "Workers should realise that an increase in allowances is not a substitute for health and safety measures. Unfortunately, unions always press for extra monetary benefits to compensate for hazardous work."

That even half an hour's exposure to certain types of asbestos dust can cause mesothelioma and other killing diseases is no longer disputed. The problem is who will compensate the victims and what is adequate compensation when the job can actually cost you? It is important to pin down responsibilities if further additions to the thousands of workers already suffering from asbestos related diseases are to be stopped.

There is talk of a new legislation to enforce standards that the Asbestos Information Centre is working on (jointly by the Metals Trading Corporation, MMTC, the Directorate General of Technical Development, DGTD, and the ministry of labour). The problem is that new legislations often get translated into large regulatory bureaucracies. The crucial question, however, is are we ready to send to jail corporate executives who knowingly continue to endanger the lives of workers (as may be done in the West)? However for the present as the frightening picture falls into place, the picture is one of reluctant managements, inefficient systems of machinery, and often irresponsible unions.

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Table 4:

Dust and fibre concentration in an asbestos textile factory in Ahmedabad

Site of Sampling	Total Dust (mg/m^3)	Respirable Dust (mg/m^3)	Particles (mppcf)	Fibres (ml.)
Yarn unpacking	29.09	11.63	57	367
Mixing	21.10	3.65	45	418
Spinning	9.73	2.10	86	225
Weaving	3.16	1.66	47	265
Rope Division	1.78	0.25	23	216

Source: NIOH Annual Report 1980

Notes: mg/m^3 = milligrams per cubic metre
mppcf = million particles per cubic foot
ml = millilitre