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PLAINTIFF'S EXHIBIT 4270

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Exam of R.J. Merrett
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Shannon Kernaghan
Official Reporter

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS

AT

THE CASA MONTEGO

MONTEGO BAY

JAMAICA

MARCH 16 - 19, 1972

W.M. Hutcheson — [illegible]

PLAINTIFF'S EXHIBIT 88

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1. LIST OF OFFICERS AND DIRECTORS

QUEBEC ASBESTOS MINING ASSOCIATION

OFFICERS AND DIRECTORS

1972

Mr. J.R.M. Hutcheson	- President
Mr. R.J. Merrill	- Vice President
Mr. M.J. Messel	- Director
Mr. R.S. Coleman	- Director
Mr. W.W. Oughtred	- Director
Mr. F.P. Smith	- Director
Byers, Casgrain & Stewart	- Legal Advisers
Mr. G.A. McCammon	- Treasurer
Mr. Paul-A. Filteau	- General Manager and Secretary

2. STANDING COMMITTEES

QUEBEC ASBESTOS MINING ASSOCIATION

STANDING COMMITTEES

1972

UNIFORM CLASSIFICATION AND GRADING COMMITTEE

Chairman - W.H. Foster
Members - J.J. Sztuke, J.O. Eby, G. Verreault, K.S. Jackson, R.S. Coleman, G. Brink

TECHNICAL SUB-COMMITTEE

Members - G.F.A. Brink, J. Giansante, G. Foy, W.H. Smith, Ed Day, D.L. Monroe, J.J. Sztuke, G. Verreault, R. Gale, M. Cossette, M.C. Pharo

PUBLIC RELATIONS COMMITTEE

Chairman - I.C. Campbell
Members - R.S. Coleman, Y. Couture, R.J. Merrill, L.C. Pluze

TRAFFIC COMMITTEE

Chairman - R.P. Gagnon
Members - W.J.W. Smith, L.J. Webster, R.S. Laing, L.R. Delaney, G.R. Biron, D.M. Akers

INDUSTRIAL RELATIONS COMMITTEE

Chairman - J.O. Eby
Members - H. Gagnon, J.L. Gartshore, W.H. Bonneville, N. LaCouvée, J.G.M. Mooney, G. Dostie, G. Rousseau, M. Bruneau, Y. Bolduc, R. Fillion, W.R. Cooling

LEGISLATION AND TAXATION COMMITTEE

Chairman - I.C. Campbell
Members - G. McCammon, O. Mousseau, G. Vaillancourt, G. Mead, R.S. Coleman, Al Dennis

ENVIRONMENTAL CONTROL COMMITTEE

Chairman - L.C. Pluze
Members - W.H. Foster, R.B. Gresham, M. Prus

OCCUPATIONAL AND ENVIRONMENTAL HEALTH COMMITTEE

Chairman - Karl V. Lindell
Members - W.W. Oughtred, F.P. Smith, J.R.M. Hutcheson, M.J. Messel

3. LIST OF MEMBERS AND GUESTS

QUEBEC ASBESTOS MINING ASSOCIATION

SPRING MEETING - CASA MONTEGO, MONTEGO BAY, JAMAICA

MEMBERS AND GUESTS

Asbestos Corporation Limited	Mr. W.W. Oughtred Mr. M.P. Carson Mr. I.C. Campbell Mr. A.S. Johnson
Bell Asbestos Mines Limited	Mr. F.P. Smith Mr. R.M. Bateman Mr. M. Dorais Mr. W.J.W. Smith Mr. G.W. Smith
Canadian Johns-Manville Co., Ltd.	Mr. J.B. Jobe Mr. W.L. VanDerbeek Mr. D.T. Colton Mr. D. Poutiatine Mr. J.R.M. Hutcheson Mr. J.O. Eby Mr. N.W. Hendry
Carey-Canadian Mines Limited	Mr. R.J. Merrill Mr. A.H. Bagenstose Mr. M. Prus
Lake Asbestos of Quebec Limited	Mr. R.L. Hennebach Mr. M.J. Messel Mr. L.C. Piuze Mr. R.P. Gagnon
National Asbestos Mines Limited	Mr. R.S. Coleman Mr. E.J. Killian Mr. D.L. Shank
Cassiar Asbestos Corporation	Mr. J.C. Christian
Institute of Occupational and Environmental Health (O.A.M.A.)	Dr. C.W. Wright
Quebec Asbestos Mining Association	Mr. K.V. Lindell Mr. Philippe Casgrain Mr. Paul-A. Filteau

4. AGENDA

120th MEETING OF DIRECTORS OF THE

QUEBEC ASBESTOS MINING ASSOCIATION

TO BE HELD MARCH 16 - 19, 1972

AT 9:30 a.m. AT THE CASA MONTEGO,

MONTEGO BAY, JAMAICA

A G E N D A

MARCH 17th, 1972

1. Minutes of the 119th Meeting of the Directors of the Association held on January 24th, 1972

2. Reports of:-

   a) Uniform Classification & Grading, and Technical Committee:-

      - 1972 Manual of Testing Procedures

   b) Industrial Relations Committee
   c) Traffic Committee
   d) Legislation and Taxation Committee
   e) Public Relations Committee
   f) Environmental Control Committee:

      - Warning Labels on Fibre Bags

3. New Business:-

   - Peking Solo Fair

4. Comments on General Business Conditions

5. Comments on Political Climate in Quebec

6 Adjournment

MARCH 18th, 1972

1. Occupational and Environmental Health Committee:

   Report by Chairman of Committee -
   E.P.A. Hearings in Los Angeles;
   I.A.R.C. Meeting in Lyon, France;
   Membership of Scientific Committee of I.O.E.H.;
   Priorities for Future Research

2. Institute of Occupational and Environmental Health:

   Comments by Chairman of Scientific Committee on Environmental Standards

3. Adjournment

5. MINUTES OF THE 119th MEETING OF DIRECTORS OF THE ASSOCIATION HELD ON JANUARY 24th, 1972

MINUTES OF THE 119th MEETING OF THE DIRECTORS OF THE

QUEBEC ASBESTOS MINING ASSOCIATION

HELD ON MONDAY, JANUARY 24th, 1972, AT 10:00 a.m.,

AT THE MOUNT ROYAL HOTEL, MONTREAL

There were present:

Messrs.: W.W. Oughtred, President
F.P. Smith, Vice President
J.R.M. Hutcheson, Director
R.J. Merrill, Director
M.J. Messel, Director
R.S. Coleman, Director
Ph. Casgrain, General Counsel for the Association
George McCammon, Treasurer
P.A. Filteau, General Manager.

There were also present:

Messrs.: W.H. Foster, Chairman of the Uniform Classification and Grading Committee;
J.O. Eby, Chairman of Industrial Relations Committee;
R.P. Cagnon, Chairman of Traffic Committee;
I.C. Campbell, Chairman of Legislation and Taxation Committee and Chairman of Public Relations Committee;
K.V. Lindell, Chairman of Occupational and Environmental Health Committee;
M.P. Carson, Asbestos Corporation Limited;
M. Dorais, Bell Asbestos Mines Limited;
K. Jackson, Bell Asbestos Mines Limited;
L.C. Pluze, Lake Asbestos of Quebec Limited.

The President of the Association, W.W. Oughtred, acted as Chairman and P.A. Filteau as Secretary of the meeting.

The Chairman declared that a regular notice of meeting had been duly mailed to all the Directors of the Association and said notice was ordered to be entered at length in the minute book of the Association.

There being a quorum, the Chairman declared the meeting duly constituted.

Minutes of the Meetings of the Directors of the Association held on October 11th and 12th, and December 5th, were duly approved.

The Committee Chairmen were then requested to report.

UNIFORM CLASSIFICATION & GRADING AND TECHNICAL COMMITTEE

Uniform Classification & Grading:- It has not been necessary to hold a meeting since the Q.A.M.A. December 5th meeting.

An agreement on the "Quebec Standard Asbestos Testing" machine was sent to Lynn MacLeod on December 17th for signature but has not been returned.

Members of the Committee, or their delegates, met with Dr. Santt on December 7th. Dr. Santt was invited to Quebec by the Franco-Quebec Cooperation group. The Central Research Group of the Quebec government apparently are interested in hiring Dr. Santt to direct research along the lines of his patents. A meeting of the Quebec Industrial Research Center has been called for February 4th to discuss the economics of extracting several by-products and developing new applications for asbestos tailings. W.H. Foster, M. Cossette and P.A. Filteau are expected to attend said meeting.

In addition, Marcel Cossette has sent out data given to him by Dr. Santt. The U.C.&C. Committee will meet in February to decide the merit (or otherwise) of following this up further.

The 1971 Exchange results were sent to all Companies for checking before issue. Marcel Cossette will issue these results holding up only those which a Company may wish checked before issue.

Technical Sub-Committee:- Reporting on the December 9th meeting of the sub-committee, the chairman explained that a complete review was made to all tests presently in the Manual, and also of other tests which might be of interest in the future and it was determined that:

a) 28 tests are required by Q.A.M.A. and others;
5 tests are not required by Q.A.M.A. but perhaps by A.T.I. or A.C.P.A. (being checked).

b) Of the 28 tests required by Q.A.M.A.:
- 21 are in form ready to be included;
- 5 need rewriting (A.S.T.M. form);
- 2 need revision.

c) The printing plates of the present manual are available at A.T.I. and should help considerably (for those pages and illustrations that are not going to change).

INDUSTRIAL RELATIONS COMMITTEE

Labour negotiations are in progress at a rather slow pace.

On behalf of the Committee, the Chairman recommended that the Association retain the services of Mr. Neil George as Safety Consultant at a basic monthly retainer fee of $625. Said proposal was moved, seconded and carried.

The possible integration of the rehabilitation centres of the Workmen's Compensation Board as well as the Board itself into the general insurance and social security plan of the Government was discussed and its disadvantages to both the employers and employees emphasized. In view of this, Counsel suggested that strong and direct action be envisaged immediately with Premier Bourassa and the Minister of Labour, J. Cournoyer. He or the General Manager will attempt to set up a meeting with Hon. Cournoyer within the next few days.

The date of February the 14th was set for a tentative meeting of the officials of the C.P.Q. and senior representatives of member companies of the Association.

The meeting was advised that the Thetford Mines Industrial Clinic "C" was to be moved to Quebec City and that Dr. Cartier would act as Consultant to the Workmen's Compensation Board on a partial time basis. A replacement, Dr. Dussault, is being trained to take over eventually Dr. Cartier's post at the Clinic. The object of the W.C.B. is to have top specialists to render decisions, especially in pneumology and pathology. It was thought best to accede to their request, although it will involve taking two X-rays of each employee, one for the company and one for the W.C.B. (as required for miner's certificate).

TRAFFIC COMMITTEE

Meetings were held with several conferences during December and agreements reached as follows:

U.K. Conference: - No increase in rate.

Continental Conference: - Increase of $1.00/per ton.

Australian Conference: - A leading customer in Australia made an agreement with Montreal Shipping to use Conference and non-Conference service to carry all his tonnage; balance to go conference at $1.00/per ton increase.

A meeting was held with Canadian Pacific and Canadian National in connection with a proposed container terminal for the Industry; Plessisville was proposed by the C.N. and Weedon by the C.P. as tentative locations. Such an arrangement would not be satisfactory to the industry and obtain the support of its members.

The Pulp and Paper Industry are planning to have their own ships and would like to know if the asbestos industry is interested in using available space. Such shipping would be the roll-on and roll-off system and expected to begin in 1974; another meeting is planned in one year's time.

A meeting was held in Quebec with the Port Manager and the Quebec representative of the Federal Minister of Economic Expansion, Mr. F. Jolicoeur, to discuss the container terminal facilities on the Beauport Flats. It was pointed out that the Port authorities must first promote the use of their facilities with the shipping companies.

The Japanese service to the East Coast is not expected to start before the Spring of 1973. In the meantime, the companies are experimenting a rail-and-ocean rate through Vancouver; such a deal is cheaper in winter time.

The Committee is considering the possibility of having a forwarder in Europe who would supervise the whole tonnage shipped to Europe and who would negotiate the rates.

The Committee is also studying the possibility of leasing containers, an arrangement which would give the industry some much desired flexibility.

It was remarked that complaints had been voiced in connection with the C.P. service, especially as to inland delivery in England.

LEGISLATION AND TAXATION COMMITTEE

The Chairman briefly reviewed the recent legislation enacted by both the Provincial and Federal Governments, as follows:

a) Bill C-259 - Valuation Days, as no doubt everyone is aware, are December the 22nd and December 31st, 1971.

b) Bill 48 - Finally assented to on December 21st, 1971 with over 100 amendments. The Mining Industry obtained satisfaction as far as amendments requested.

c) Bill 291 - In addition to providing for a uniform system of municipal assessment, the act also determines the sources of revenue for both the regional and local school boards.

The Directors were also advised that the General Manager would shortly forward to each company a form (questionnaire) to be filed with the Auditors of the Association, consisting of a statement of taxes, dues, donations and other economic data for the year 1971. This confidential report, as compiled by the Auditors, is to be used only in cases of representations or submissions to the Government.

PUBLIC RELATIONS COMMITTEE

As authorized at the previous meeting of the Directors, the Chairman of the Committee submitted a report containing several suggestions on a public relations program to off-set recent unfavorable publicity both in Canada and the U.S. The possible approaches investigated are as follow:

1. Rebuttal time on C.B.C. TV to counteract the effects of the program "This Land" cannot be obtained in view of the protest already registered by Mr. J.D. Christian.

2. A feature film to demonstrate the essential role of asbestos and health protection measures taken by the Industry does not seem the practical solution. It is estimated that the production cost would amount to some $60,000. and another $20,000 to $30,000 would be required for distribution and T.V. reproduction time.

3. Maintain close contact with the Asbestos Information Committee of North America through possibly the director of Information Services who might be permitted to attend meetings of the Committee from time to time.

4. An advertising program through the three week-end magazines available in Canada: Week-End, Perspectives and Canadian Magazine. The advertising would be directed solely at inviting the public to write in for copy of a leaflet entitled "Asbestos and your Health", the distribution to be made by the Montreal Office. This leaflet would be a low cost four page non-technical publication, written in simple expository style in separate English and French editions containing information similar to the British document entitled "Asbestos and Health" and the A.I.A. - N/A card on the same subject.

The Chairman recommended the ad program (# 4 above) at a total estimated cost of $19,500. and that the services of a competent agency be retained to produce and place such advertising during late April, May and early June, 1972. In the meantime, the leaflet would be prepared for the approval of the Directors.

It was moved and seconded that such a program be initiated and implemented as soon as possible.

CARRIED.

It was agreed that the industry's position with regard to the health issue be made available to senior editorial staffs, ecology and environmental control editors of all Canadian daily papers and to

editors of magazines, trade and professional publications, as well as to radio and T.V. news editors. Copies could also be made available upon request to high school and university students, and to member companies for distribution to customers.

A program should also be developed to send letters to the editors of Canadian newspapers whenever the latter make unfavorable mention of asbestos; such letters to be signed by the President of the Association.

Several members of the French Lexicon Sub-Committee attended a meeting in December at the invitation of the Office de la Langue française to discuss the preparation of a technical lexicon for the mining industry. This proposed lexicon would contain some 8,000 words and the sub-committee felt that it was somewhat too elaborate and comprehensive. However, it was agreed to collaborate with the O.L.F. and make our own asbestos technical lexicon available to the Office, when completed.

ENVIRONMENTAL CONTROL COMMITTEE

A meeting of the committee was held on January the 9th, at which time the conclusions of the McGill report on various types of respirators was considered. The mask found to give the best performance was shown to people at the meeting.

As per our request, McGill will not publish certain performance figures in their proposed technical papers and have even offered to let us see the papers prior to publication.

As scheduled, the E.P.A. hearings were held on January the 18th last with five (5) representatives of the Asbestos Industry presenting their written submissions. More to be reported at the I.O.E.H. meeting later in the day.

It seems that the Emergency Protection Regulations concerning asbestos filter cloth recently issued by the U.S. Department of Labour cannot be met. The people making such regulations must and will be advised of the role of the asbestos cake which forms inside the filter bag, and improves the filtering characteristics; request should be made that said regulations be corrected accordingly.

The U.S. Government is presently asking asbestos products manufacturers to complete a material safety data sheet. In order to avoid inconsistencies, the committee plans to prepare a suggested answer which will be circulated to all the companies so that they may assist any of their customers in this connection.

OCCUPATIONAL AND ENVIRONMENTAL HEALTH COMMITTEE

The Chairman briefly commented on the panic set up by the A.F.of L. and C.I.O. with respect to emergency protection standards on asbestos, bringing about as a result a reduction of T.L.V.'s from 12 fpcc to 5 fpcc by the U.S. Department of Labour. An Advisory Committee to the Government Agency is to be appointed and Dr. C.W. Wright has been asked to sit on said committee. In Dr. Wright's opinion, it would be preferable to set up immediately a T.L.V. of 2 fpcc, rather than a T.L.V. of 1 fpcc later.

TREASURER

It was moved and seconded that the former Treasurer, George Robinson, be paid an allocation of $600. in reimbursement of additional services and travelling expenses since January 1st, 1972, which may possibly stretch into February 1972.

CARRIED.

Moved and seconded that the account of Byers, Casgrain and Stewart, Counsel for the Association, in the amount of $13,666.24 for the

period of January 1st to December 31st, 1971, be approved.

CARRIED.

OTHER BUSINESS

Moved and seconded that a contribution of $600.00 be granted towards the general financing of the 74th Annual General Meeting of the Canadian Institute of Mining and Metallurgy in Ottawa.

CARRIED.

ADJOURNMENT

There being no further business, the meeting then adjourned.

CERTIFIED CORRECT

Secretary

Chairman

6. UNIFORM CLASSIFICATION & GRADING, AND TECHNICAL COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

UNIFORM CLASSIFICATION & GRADING, AND TECHNICAL COMMITTEE REPORT

UNIFORM CLASSIFICATION & GRADING:

A meeting scheduled for March 2nd had to be cancelled due to a snow storm.

1. Quebec Standard Asbestos Testing Machine: - On January 25, 1972 Mr. W.K. MacLeod returned the signed agreement between Lynn-MacLeod and QAMA to produce the approved version of this testing machine.

   However, in a quotation to Bell Asbestos, a few days later Lynn-MacLeod quoted two models of this tester - one, the standard one at $7,300. and a new version at $4,300. The latter version has not been seen by any one in QAMA and I am advising Lynn-MacLeod that only the approved version will be recognized and that the new version must not be called "Q.S. Testing Machine".

2. Research on Use of Asbestos Tailings: - As reported previously the Uniform Classification & Grading Committee met with a Dr. Santt from France on December 7th. He was brought to Quebec by the Provincial Government. He claims to have patented methods of recovering fibre from tailings (by grinding and aspiration), recovering magnetite by a wet magnetic separation, and to end up with clean serpentine good for refractory.

   The general opinion is that there isn't too much new in this.

On February 16th, 1972, P. Filteau, M. Cossette and myself attended a meeting at the "Centre de Recherche Industrielle du Québec". The idea was to integrate the research effort of all groups with the objective of total exploitation of asbestos mine tailings and arouse the interest of asbestos producing companies. Such a project, it was felt, would improve the environment and air pollution, and diversify the economy of the asbestos region. Present were personnel from:

Ministère des Richesses Naturelles;
Ministère de l'Industrie et du Commerce;
Ministère de la Qualité et de l'Environnement; (Dr. V. Goldbloom)
Ministère des Affaires Municipales;
Université Laval;
Ministère de la Voirie;
Centre de Recherche Industrielle du Québec.

QAMA personnel emphasized that considerable work had been done by individual QAMA Companies. The process was not the problem, but the sale of the recovered asbestos fibre, minerals and serpentine was the real problem. The use of asbestos in roads was not encouraged, due to the public's attitude towards asbestos pollution. QAMA, it was pointed out, is working actively on reduction of pollution.

A committee of four was formed to look into what information is available. The committee to report in 3-4 months. Members were to be:

Mr. Castonguay	Department of Mines
Mr. J.-C. Roy	Laval University (Chemistry)
Mr. P.O. Perron	C.R.I.Q.
Q.A.M.A. Representative	

Directors are requested to:

a) Appoint a Q.A.M.A. representative - if felt desirable

b) Give this representative some guidance (via P.A. Filteau)

c) On March 28th, it is proposed, at a Uniform Classification & Grading Committee meeting to investigate the information that is available and to determine what research companies are prepared to make available to this committee now (?) and perhaps later (?).

TECHNICAL:

A meeting was held on February 29th, 1972.

On this occasion, the committee reviewed the progress of the 1972, (3rd) Edition of the Manual of Asbestos Testing Procedures.

It is proposed that the name of this manual be changed to "Chrysotile Asbestos Test Manual".

Work on the manual is proceeding well. The new A.T.I. Fibre Testing Chairman is Mr. C.E. Stiefken. They have hired Mr. J.L. Tucker to assist in prepering the new manual. Mr. Tucker did the same job, for the 1966 manual. Anticipated cost is $2.50 to $3.00 each for the new manuals, compared to $1.88 for the 1966 manual.

The A.T.I. wishes to have Mr. Tucker's paid assistance approved "pro forma" by the Directors of QAMA.

W.H. Foster,
Chairman

7. INDUSTRIAL RELATIONS COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

INDUSTRIAL RELATIONS COMMITTEE REPORT

LABOR NEGOTIATIONS

The Q.A.M.A. group still consists of two unions:

Lake Asbestos	-	Steel Workers
Bell Asbestos	-	Steel Workers
Asbestos Corporation	-	Syndicat National d'Amiante
Carey-Canadian	-	" " "
National Asbestos	-	" " "
Johns-Manville	-	" " "

Regular meetings of the Committee have been held on a monthly basis since last November to keep up-to-date on labor negotiations and labor laws. As of March 1st, Johns-Manville has held 18 two hour sessions with its local. The Thetford producers have not been as active but have now scheduled meetings to accelerate the proceedings.

The demands are quite unacceptable and it appears that hard bargaining will result. There are several principles which the unions are trying to establish and as yet no indications of their true demands are apparent.

The closing of Flintkote Mines did not appear to cause undue problems.

WORKMEN'S COMPENSATION

The compensable wage level was increased from $6,000 to $9,000 as of January 1st, 1972. This will raise costs up to 20% over previous rates. This will again augment with new contract rates.

I regret to say our frequency for the industry increased from 24.1 per million man hours in 1970 to 27.1 in 1971. Although loss ratio remained practically the same.

Pneumoconiosis claims have increased and for 1971 were 46.5% of costs. Outstanding claims have at year end rose from 8 to 20.

No further information has been learned of the take-over of W.C.C. by Social Welfare Department at this time. The matter is under study by an inter-departmental committee, as per Order-in-Council 3160.

Payments to victims of criminal acts will be administered by W.C.C. but funded by Department of Justice.

SAFETY

We now have a consultant on Safety, N.H. George. He will spend a minimum of one week per month in the Q.A.M.A. operations. This is a yearly contract.

DUST CONTROL

Our ventilation engineer has requested approximately $2,500 to purchase a membrane filter sampling equipment. This was recommended by the Environmental Committee and it does appear in order to change our counting practices at this time.

LABOR LAWS

Bill 49: - The Provincial Labour and Manpower Department does not propose the use of terms of Bill 49 to proceed with compulsory professional qualifications, unless there is an agreement to this effect between the parties concerned. The Department has also indicated that it will welcome any amendment which will make the legislation more realistic and operable. In this respect, Article 45 of the Bill, concerning collective dismissals, will be amended

so as to differentiate between a temporary lay-off and a permanent termination.

Proposed Legislation: - During the session which convened on March 7, it is expected that the National Assembly will be asked to consider the following:

a) A Bill which would permit associations of employers to represent, for collective bargaining purposes, those members who express such a desire.

b) A Bill on "Safety at Work", providing for an Industrial Accident and Disease Prevention Corporation, which would be responsible for all inspection services and the application of safety regulations in all work places. This corporation would be composed of an equal number of representatives of employers and employees and of a president appointed by the Government. The main objection to this project is again the often stated opinion that "accident prevention is the responsibility of employers, who pay the bill and are as a result concerned with the proper supervising and application of the rules and regulations. The project would involve the merging of all present inspection services and accident prevention associations under the Department of Labour and Manpower; such attempts have always been strongly opposed in the past by this Association and the majority of employers associations.

Bill C-253: - The recently appointed federal Labour Minister O'Connell has indicated that the Bill will be revised and will seek to encourage unions and management to include in new contracts some provision dealing with the effects of technological changes. Such provisions would not be subject to review by the Canada Labour Relations Board and unions would not have the right to strike during the life of the contract. Although this concerns the federal jurisdiction, the enactment of such legislation would soon permeate into the Provincial field.

MISCELLANEOUS

After more than three months of study of the contents of the recent union manifestoes, it has been agreed by the Employers Council (C.P.Q.) not to present a counter manifesto, but rather to publish in May a basic document on the free enterprise system entitled "This society which we build together..."

J.O. Eby,
Chairman.

Un cas de discrimination raciale soumis à Choquette

Le ministre québécois de la justice vient d'être saisi d'un dossier de discrimination raciale en rapport avec la "sous-location" d'un logement du 5052 Victoria, à Montréal.

Le comité pour la défense des droits de l'homme, qui s'est chargé de porter le fait à la connaissance du ministre Jérôme Choquette, affirme qu'en Ontario, tout cas de discrimination dans le logement peut être porté devant une Commission de droits de l'homme, faire l'objet d'une enquête comprenant l'étude de solutions pouvant concilier les parties et, le cas échéant, être plaidé devant des tribunaux.

Au Québec, le comité dit ne pas avoir le choix: il "dénonce" et souhaite que le Québec se dote d'un code (législation) des droits de l'homme et d'une commission chargée d'en assurer l'application.

Voici les faits tels que résumés dans les textes transmis à la presse (photocopies de l'original reçu par M. Choquette et expédié le 9 mars): Jean Rhéault, habitant le 5052 Victoria, doit quitter Montréal pour Sept-Iles (raisons professionnelles) et en avise son propriétaire, M. Roland Lambert. Le propriétaire demande au couple Rhéault de trouver une "personne bien et solvable" pour sous-louer l'appartement.

Le 7 février Mme Rhéault se présente chez le proprio en compagnie de M. Antonin Dumas-Pierre, Haïtien (le couple Rhéault avait auparavant fait paraître une annonce et sélectionné les occupants-candidats). M. Lambert répond en substance qu'un Noir ne peut pas occuper son logement, le racisme étant plutôt le fait des autres locataires qui quitteraient alors leurs appartements.

Devant cette réticence à accepter des "gens de couleurs", il est convenu de faire signer une pétition aux autres locataires de l'adresse précitée. Seize des dix-huit signataires de baux signent la pétition pour l'acceptation d'un Haïtien dans cet immeuble de rapport (un dix-septième le fera un peu plus tard). Devant cet argument, le propriétaire Lambert trouve d'autres motifs et se fâche finalement: "Jamais vous n'aurez mon logement", aurait dit M. Lambert à M. Dumas-Pierre.

Une entrevue entre le propriétaire et la secrétaire exécutive du Comité pour la défense des droits de l'homme, le 11 février, a mené à une constatation d'"attitude discriminatoire avouée à l'égard des Noirs". D'après le comité qui trouve non-valable la réponse de M. Lambert et s'engage à "prendre des initiatives dans cet acte discriminatoire".

L'ex-locataire Rhéault habite maintenant Sept-Iles et a écrit le 25 février à son ex-propriétaire qu'il considérait ne plus être lié par son bail à cause de l'attitude adoptée par M. Lambert. M. Dumas-Pierre n'a pas pu signer de bail pour occuper le 5052 Victoria.

Rejoint hier par téléphone, l'un des directeurs du Comité pour la défense des droits de l'homme, M. Ryba, a déclaré que la promesse d'une telle législation antidiscriminatoire a été faite maintes fois par les autorités provinciales mais que rien ne semble avancer.

M. Ryba admet que le recours à l'opinion publique est l'étape la plus délicate dans de tels cas mais qu'il faut bien que les citoyens sachent qu'ils n'ont pas à déclarer forfait, qu'il y a une bataille à livrer pour les droits de l'homme chaque fois que la discrimination raciale ou autre se manifeste.

LA CELLULITE ENFIN VAINCUE!

Une majorité écrasante de 98% des femmes souffre de cellulite. Les unes appellent cela "du poids", d'autres disent "je vieillis"... mais pour toutes c'est la cellulite qui ravage leur physique et leur moral.

JOSETTE GHEDIN s'est particulièrement attachée à comprendre la femme qui souffre de cellulite. Au travers de 13 années de recherches actives sur les causes de cellulite dans notre province et sur les traitements les plus appropriés à notre situation, elle a enfin mis au point une cure qui fait des merveilles.

Désormais 98 pour cent des femmes qui reçoivent ce traitement nouveau sont guéries ou soignées de façon très satisfaisante. "Les 10 p.c. qui ne réagissent pas ou peu sont de plus en plus previsibles", affirme Josette Ghedin. C'est ainsi qu'avant tout traitement Josette Ghedin a un entretien minutieux avec la nouvelle patiente. Durant celui-ci, elle accepte ou non de soigner selon le cas qu'elle observe. Si Josette Ghedin entreprend le traitement il comporte des conditions.

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Comment dure le traitement? Josette Ghedin affirme que

La CAT doit demeurer indépendante (CSN-FTQ)

Les présidents de la FTQ et de la CSN, MM. Laberge et Pepin, se sont prononcés hier, dans un communiqué commun, contre toute tentative du gouvernement Bourassa d'intégrer la Commission des accidents du travail au ministère des affaires sociales.

"La CAT, disent MM. Laberge et Pepin, doit rester une commission indépendante. Toute tentative du gouvernement de Québec de modifier le statut de la CAT en l'intégrant au ministère de M. Castonguay prouverait une incompréhension totale de la part du cabinet provincial de la question des accidents du travail et de l'importance qu'y attachent, depuis des générations, les travailleurs québécois.

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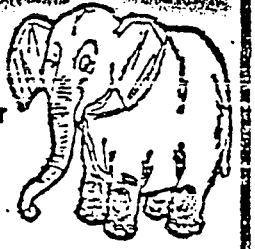
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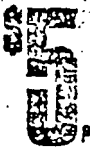
Ouvert ce soir jusqu'à 9h. p.m.



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EST CENTRAL - 274-6603

independante (CSN-FTQ)

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"Nous continuons à considérer, déclarent MM. Laberge et Pepin, que le domaine des accidents du travail fait partie intégrante des relations de travail et, dans cette optique, nous croyons que l'entreprise a une responsabilité sociale dont elle doit assumer le coût.

"Au lieu de chercher, par le biais des affaires sociales, des solutions simplistes et technocratiques aux problèmes des accidents du travail, le gouvernement devrait étudier une réforme en profondeur de la CAT dans laquelle on viserait aussi bien la prévention des accidents que la compensation des accidentés. Une telle transformation de la CAT serait une réforme sociale beaucoup plus réaliste et beaucoup plus apte à notre avis à assurer une protection adéquate à chaque travailleur autant en essayant d'éviter les ac-

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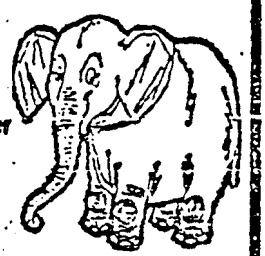
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NORD - 747-1810

[illegible]

SUD - 679-4370

[illegible]

9 a.m. à 5 p.m. tous les jours - 9 a.m. à 1 p.m. le samedi

Aucun rendez-vous nécessaire

[illegible] question des accidents du travail et de l'importance qu'y attachent, depuis des générations, les travailleurs québécois.

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"Nous voyons cette réforme de la CAT sous deux formes. D'abord, une modification complète de sa structure administrative en créant un conseil d'administration bipartite et paritaire formé des représentants des employeurs et des syndicats. En second lieu, nous croyons qu'il faudrait donner à la CAT toute la responsabilité de la prévention des accidents du travail en créant une division spéciale à cet effet.

8. TRAFFIC COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

TRAFFIC COMMITTEE REPORT

The Traffic Committee has been trying to solve problems related to container shipping, improve the rate structure and find new transportation methods to improve overall distribution arrangements.

Quebec Port: - The Q.A.M.A. has been asked by the Provincial Government to assist them in trying to get the new Japanese container service to call at the Port of Quebec. This service should start in March 1973.

Heretofore, only the ports of Halifax and Saint John, N.B. had been mentioned and no consideration given to the ports of Quebec or Montreal.

The cost of transportation to and from Halifax and Montreal is $87.00 per container in each direction. It is possible that the savings in transportation of these containers may induce the Lines to call at Quebec despite the additional mileage.

The Province of Quebec has asked the Deputy Minister of Industry and Commerce to prepare an economic study and have a delegation go to Japan to sell the advantages of the Port of Quebec. At a meeting attended by both Mr. Paul-A. Filteau and myself we were asked if each asbestos producer would send a delegate to Japan to support the project.

We explained the project to each director of the Q.A.M.A. and it was agreed that each company would send a delegate. The group will be leaving Montreal March 23, 1972 for ten (10) days.

The delegation would consist of:

Mr. R. DeCoster, Deputy Minister
3/4 Senior Officers, Ministry Indostry & Commerce
Mr. W. O'Malley, Department of Transport, Ottawa
Mr. Bousquet, Quebec Port Manager
Mr. J.L. Lachance, President S.A.A.B.
Mr. G. Lequient, Research Analyst S.A.A.B.
Mr. Paul-A. Filteau, Q.A.M.A.
6 Delegates Q.A.M.A.

The Canadian Embassy in Japan will arrange for meetings, etc.

We have no guarantee that the Lines will accept to call at Quebec, however, we believe it is a worthwhile effort.

Leased Containers: - We have studied the possibility of leasing containers instead of using carriers' boxes. We felt this would improve our distribution and possibly reduce our transportation cost.

This study is not complete and we are unable to make recommendations at this time.

Forwarder - Europe: - Contacts have been made with several forwarders in Europe to improve deliveries of containers and negotiate inland rates for the Q.A.M.A. No decision has been made yet whether it would be practical or economical to have one. More research is needed.

Continental Europe Service: - We are trying this year to support both non conference and conference services in order to keep the rates down. This has the effect that we can ship to Continental Europe for as low as $18.00 per 2240 lbs.

CP Rail - CP Steamships Service: - At the request of the President of the Q.A.M.A. we have met with both CP Rail and CP Steamships outlining

the difficulties experienced by the Q.A.M.A. and Canadian Pacific. We believe we will see some improvement as result of these meetings.

CPR - CNR Container Pool: - Both railway companies are waiting to see which port the Japanese lines will call at before deciding where to have their terminal. CNR favour Halifax while CPR favour Saint John, N.B.

Rate Negotiations: -

1 - Trucking rates to ports of Montreal/Quebec have been increased 20¢ per ton.

2 - United Kingdom Conference will maintain same rates for 1972 - no increase.

3 - Australian Conference increased its rates $1.00 per ton.

4 - Japanese ocean rates are being increased 10 percent.

5 - Mediterranean/Spanish Atlantic rates increased approximately $2.50.

Many of the services used now assess a $2.00 bunker surcharge together with a currency surcharge.

General: - Rate quotations are increasingly being quoted on a "House to House" basis. This change increases the importance as well as the work of the Traffic Committee.

While the ocean rates have been the major factor in the past, it becomes more and more evident that receivers wish to have a rate that will cover their cost from our mines to their plant. This involves negotiations in Europe as well as in Canada with the result that problems are more complex and often very time consuming.

These requirements are rapidly changing the distribution of the industry's tonnage. Either containerization or unitization are requested by the steamship companies and it is increasingly difficult to ship break bulk.

The new rate structures are devised to eliminate break bulk. Both inland and ocean carriers have published rates where it is prohibitive to ship conventional.

Roland P. Cagnon,
Chairman.

9. LEGISLATION AND TAXATION COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

LEGISLATION & TAXATION COMMITTEE REPORT

1. There has been no meeting of the Legislation & Taxation Committee since the last meeting of the Association.

2. INCOME TAX ACT - CANADA

The new Federal Income Tax Act has become law but it will be some time before its full implications can be digested and the problems associated with its application identified. Representations as to the form and wording of the forthcoming regulations with respect to the provisions dealing with mining have been formulated and presented to the Tax Department under the auspices of the Mining Association of Canada.

3. COMPETITION ACT - CANADA

The Competition Act (Bill C-256) originally tabled during the previous session of Parliament, was withdrawn after attracting heavy criticism. The then Minister of Corporate & Consumer Affairs, Mr. Basford, under such pressure called for representations to be made and was overwhelmed with the adverse response; amongst the briefs was one from the Mining Association of Canada filed on behalf of the whole industry.

It seems likely that under a new Minister, the substitute Bill which is promised for the present session of Parliament will be modified to remove or at least ameliorate the most objectionable provisions of the original bill dealing with the aspects of criminal law and the powers of the Tribunal.

4. CANADA LABOUR CODE

Bill C-253, an act to amend the Canada Labour Act, which in its original form would have granted a union the right to strike during the currency of a labour contract in the event that disputes arising out of a technological change were not settled, was also withdrawn in the face of concerted employer protest.

Although this law would affect only industry under federal jurisdiction, it would establish a dangerous precedent for provincial governments to follow in their labour law.

Again, it is anticipated that a new bill will be tabled during the current session, again under the auspices of a new Minister and in the face of concerted opposition it is to be hoped that this objectionable provision will be either modified or dropped altogether.

5. ANTI-POLLUTION ACT - QUEBEC

The Quebec Government has yet to table its legislation with respect to air and water pollution although the Minister responsible continues to promise in his public pronouncements that he is going to be tough. It seems unlikely that this act will come down until mid-summer and at that time there will still be an opportunity to make representations.

6. REAL ESTATE ASSESSMENT ACT - QUEBEC

This has now become law but its impact has yet to be fully assessed pending the promulgation of the regulations issued thereunder. At this time it would not appear that there will be any major problem.

7. FEDERAL ELECTION

In the light of the legislation forecast in the Speech from the Throne, a good deal of which is in the category of political fence mending, and general public opinion it seems likely that a federal general election will be called within the next six months.

I.C. Campbell,
Chairman.

10. PUBLIC RELATIONS COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

PUBLIC RELATIONS COMMITTEE REPORT

This report covers the period of December 1st, 1971 to February 29th, 1972.

1. PUBLIC RELATIONS COMMITTEE

The Public Relations Committee met in Thetford Mines on February 10, 1972, and reached the following decisions:

a) Asbestos/Health Advertising Program: - Text, schedule, media selection and layout for the proposed advertising program were approved. April 15 - May 30 was set as the target period for the publication of the three identical advertisements at two-weekly intervals in the three Canadian weekend rotogravure magazines, Weekend, Perspectives and The Canadian. At the Committee's request, Mr. Filteau has authorized the agency to proceed with the estimated $20,000 expenditure. A bottom right-hand page position has been requested, this being the most effective one for coupon-type advertisements.

b) Asbestos/Health Leaflet: - This publication will be part of the advertising program. The final draft has now been distributed to Directors for approval, before proceeding to cost estimation. The leaflet will also be distributed to employees, possibly as an insertion in the Asbestos Producer, as well as to the general public. Copy is submitted under Appendix III.

c) To support the advertising program, a letter has been prepared which can be sent, when and where deemed advisable, under the signature of the PR Committee Chairman, to any Canadian news medium, which, as indicated by returns from press clipping or monitoring services, carries news items or commentary prejudicial to asbestos in the health context.

d) Annual State of the Industry Report - (Asbestos in Canada - 1971): - The final draft has now been distributed to Directors before proceeding with cost estimation. Copy is submitted under Appendix IV.

e) QAMA Geological Guidebook: - Texts and plans for this publication are now 95 per cent complete. An estimated requirement for 3,000 English and 1,000 French copies is indicated for distribution to visiting delegates from the International Geological Congress in 1972 and the Commonwealth Mining Congress in 1974, as well as to visitors to plants of individual member-companies. Estimated production cost, including translation and taxes, is $4,800 to $5,400. The Guidebook contains approximately 10,000 words of English text. It is anticipated that approximately 1,000 copies will be distributed free and the balance sold to participating companies at $1.00 per copy.

f) QAMA English-French Lexicon: - Under the guidance of Col. G.W. Wright, the task of revising and clarifying the English-language content prior to translation is now almost complete.

g) Industry Centennial - 1976: - There is no progress to report in the matter of developing plans for a meaningful but low-budget program by which the industry can appropriately and creditably celebrate its Centennial, other than preliminary correspondence with the Canada Post Office concerning the issuance of a commemorative postage stamp.

2. ASBESTOS PRODUCER

a) So far as can be determined, employee interest in this publication remains high, as does the level of story suggestions originating with employees.

b) There has been a number of requests from domestic, US and overseas publications for permission to incorporate in their issues story material which has appeared in the Producer. In practically all cases, these requests are for stories concerning end-uses for asbestos or for the article in the January 1972 issue covering the role of the asbestos fibre salesman in West Germany and the competitive pressures to which he is subject.

c) The Montreal office continues to receive, on virtually a daily basis, requests from school commissions and individual schools for additional complementary subscriptions to the paper. In most cases, the requests originate with vocational guidance departments.

3. OTHER QAMA LITERATURE

Since the start of the 1971-72 school year, the following quantities of QAMA literature have been distributed, from the Montreal office primarily to schools:

This is Asbestos (Orange book)	566 English & French
Facts about Asbestos (Black book)	1,623 English & French
Asbestos Wall-Chart	479 English & French

At the present rate of consumption, supplies on hand of the orange book are sufficient to last until mid-summer 1972. There has also been a heavy demand for the Asbestos in Canada - 1970 publication, now depleted, by CEGEP and university students with term-paper assignments in economic geography. Applicants are now supplied with photo-copies.

4. PRESS RELATIONS

a) Recommendations for a public relations program to offset adverse and uninformed asbestos/health publicity were submitted to Directors, at their request, at the January 24 meeting in Montreal, following the CBC-TV program televised in early December and representations subsequently made by Association personnel to senior CBC production officials.

b) In connection with the above, we have learned indirectly that as far as CBC is concerned, the issue of asbestos and health is now dead. The program was not well received and the Corporation now feels that there is greater popular interest in such matters as food additives. However, it is always possible that on future programs dealing with public health, environmental control, etc. reference may still be made to asbestos as a real or imagined health hazard.

c) Two association press releases were distributed during the period under review.

i) The Asbestos Story Ring presentations in Montreal, December 1971.

ii) Election of new Association president and officers, January 1972.

5. MON ONCLE ANTOINE (N.F.B. FILM)

It now appears certain that this feature-length film will experience a modest commercial success, but not, however, to the extent imagined by the news media following its initial showings in Toronto and Montreal. It has not been nominated for an Oscar in the Academy Awards. Nevertheless, the industry is an integral part of the environment portrayed in the film.

The film is bound therefore to:-

a) Resurrect the spectre of the asbestos strike (the action is set in the period between the end of World War II and 1949 and hints at the first stirrings of Quebec's aspirations for political and economic independence.)

b) Appeal to Canadian and Quebec nationalists alike, with the industry cast as a symbol of the dire consequences of foreign ownership, the profit motive and Anglo-Saxon management.

c) Encourage the National Film Board and Quebec film producers, screenwriters etc. to make further films of this type, treatment and theme.

Nevertheless, the film conveys its message in so subtle and low-key a manner that it is unlikely to prove a rallying point for discontented young separatist radicals, the left wing of the labor movement etc.

It is accordingly recommended that industry representatives adopt the position, if publicly discussing the film, that it is a good movie, worth seeing, and that they are happy that the industry was able to cooperate in its production.

The April issue of the Producer will contain a cheritable but not evangelical article on the film, plus an interview with its young male star and his father who is employed by a member-company.

6. PUBLIC CONTACT

Requests for information to the Montreal office concerning asbestos have maintained an average of one written and three verbal ones per day during the period under review. The bulk of these requests still originate with teachers and pupils.

A smaller but significant proportion are from members of the general public, or companies, seeking information regarding the availability of asbestos-based products.

The Montreal office also continues to receive approximately 10 phone-calls per week from job-applicants, particularly students seeking employment next summer.

J.A. Gossip,
Director of Information Services

I.C. Campbell,
Chairman - Public Relations Committe

11. ENVIRONMENTAL CONTROL COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

ENVIRONMENTAL CONTROL COMMITTEE REPORT

The following report is submitted for your consideration:

1. Dust Mask: - No. 8710 3M's dust mask is not available as yet in commercial quantities. In the meantime, most plants are using mask No. 3M-8500.

2. Public Hearing - Environmental Protection Agency (E.P.A.): - At the E.P.A. meeting held in Los Angeles on February 15th and 16th, 1972, Mr. Karl Lindell officially represented the Q.A.M.A. and presented a brief which was well received.

   Mr. Ken Nelson, Director - Department of Environmental Sciences of Asarco was scheduled to appear on February 16th but was unable to do so. He was replaced by his assistant, Dr. Thomas Smith. His brief dealt mostly with threshold limits and he recommended permeability of filter bags.

   Your Committee will try and obtain copies of all briefs presented in Los Angeles and every member Company will be supplied with a full set.

3. Bag Permeability Report: - A survey was run with all member Companies to get the description of filter bags used, and this information was passed on to Karl Lindell and Ken Nelson.

4. Material Safety Data Sheet: - In order to standardize on this Material Safety Data Sheet requested by the U.S. Department of Labour, your Committee prepared standard answers to the different sections and submitted same to all member Companies for approval. This approval was received during late February and a copy of the Data Sheet was mailed to all member Companies on February 28th.

5. Stabilization and Vegetation Growth on Tailings: - The staff of the Sherbrooke Laboratory has made further studies on growth of vegetation on tailings using material from Asbestos Corporation Limited and Canadian Johns-Manville. Results are still inconclusive and Marcel Cossette plans to carry on with his study.

   Arrangements were made for seeding a one acre lot of flat tailings at the Canadian Johns-Manville plant in Asbestos. The area was covered with a thin layer of top soil and seeded. No report has been received on this experiment.

6. Sub-Committee on Design: - One meeting was held at Carey-Canadian Mines on February 10th, 1972; the subject was "Tailings Disposal".

   This Sub-Committee is doing excellent work for member Companies and all engineering data dealing with environmental control are freely exchanged between the different Companies; if everybody takes full advantage of this information, one should notice major improvements in the quality of environment at all plants of the member Companies.

7. Crusher Ventilation Course: - A series of lecture were organized by the Quebec Metal Mining Association at L'Ecole Polytechnique on February 22nd and 23rd, 1972.

   The asbestos producers were represented by six members of their staff.

Lionel C. Piuze,
Chairman.

12. OCCUPATIONAL AND ENVIRONMENTAL HEALTH COMMITTEE REPORT

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

OCCUPATIONAL AND ENVIRONMENTAL HEALTH COMMITTEE

REPORT OF THE INSTITUTE OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH - MONTREAL

The following report, covering the period of October 1971 to February 1972, is submitted for your perusal.

GOVERNMENTAL ACTIONS

The past six-months in the U.S.A. were a period of very important developments.

Under the Occupational Safety and Health Act (1970) an "emergency" occupational standard of 5 fpcm^3 for asbestos in air was issued on December 7, 1971 and a "permanent" standard is due to be issued within the 6 following months. A voluminous "Criteria document" for this purpose was completed by the National Institute for Occupational Safety and Health which recommends a permanent standard of 2 fpcm^3. This Criteria document which is presently under consideration by the U.S. Department of Labor was thoroughly commented and criticized by Dr. Wright. All the material was circulated in Newsletter No. 23 of February 1972.

Under the Clean Air Act (1970) the Environmental Protection Agency (EPA) in March 1971 named asbestos among the three "hazardous air pollutants" for which there is the highest priority in setting the national emission standards. Proposal of national emission standard was issued on December 7, 1971. The document was circulated in Newsletter No. 22 of January 1972. As provided for in this document, a series of public hearings have since been held

by EPA concerning this proposal. On January 18, 1972, a Johns-Manville team (Messrs. J.B. Jobe, E.M. Fenner and Dr. F.L. Pundsack) and Dr. G.W. Wright and Dr. J.C. McDonald appeared at the hearing in New York. Their presentations were circulated in our Newsletter No. 23 of February 1972. On February 15, 1972 in Los Angeles Dr. K.V. Lindell gave testimony and the following day Mr. F.H. Zimmerman spoke for the AIA/NA and Dr. H. Weill (recipient of an IOEH grant) presented his view.* These three documents are presented "in extenso" under Appendix I.

In Canada the National Air Quality Objectives under the Clean Air Act (1971) were proposed for the first five pollutants one of them being "particulate matter". No intention has yet been shown by the government to propose an emission standard specifically for asbestos although some pressure in this direction is being exercised by the Canadian Medical Association.

The government of the Province of Quebec prepares a new anti-pollution law. The cabinet minister responsible for the environment Dr. V. Goldbloom visited Thetford Mines, Que. on October 21, 1972 and met there representatives of the Quebec asbestos mining companies and Dr. P. Cartier, Dr. R. Greinger, Dr. G. Wright and Dr. P. Pelnar at a conference concerning air pollution by asbestos fibres. An impressive review of technical control of air pollution in asbestos mines and mills was presented by Mr. J.R.M. Hutcheson and research of pertinent biological problems as supported by industry was outlined by Dr. Wright. Following this meeting Dr. Goldbloom had another conference on the same subject with the representatives of the Unions.

On November 19, 1971 another Conference on pollution abatement was organized by Quebec Chamber of Commerce in Montreal. Again, Dr. Goldbloom announced the forthcoming antipollution law. This conference was commented upon in our Newsletter No. 21 of December 1971.

* A fourth presentation (Appendix I) was made on February 16th by Dr. T. Smith, on behalf of Mr. K.W. Nelson of Asarco.

In Denmark an almost complete ban of all kinds of asbestos for insulation was issued with validity from March 1, 1972. The ban does not apply to asbestos-cement products. The document was circulated in our Newsletter No. 24 of March 1972.

Recent developments in biological research are reviewed in the chapter on activities of the Scientific Committee.

ACTIVITIES OF IOEH

Increasing scientific interest in biological problems of asbestos has reached a rate of an "information explosion" over the last years and the activity of IOEH in keeping the documentation up-to-date has had to be accordingly sharply increasing, as shown in figures and tables attached to this report. With more than 1,650 documents filed or listed the IOEH became known as the most complete source of scientific information on asbestos and health and our help is being requested by an increasing number of people from outside our organization. Several comprehensive one-subject-retrievals of documentation were lately made upon request for people preparing reports for the conference of a working group to assess the biological effects of asbestos to be held in Lyon, France on 2nd - 6th October 1972.

Our regular mailings of documentation continued and Collections of documents were sent in October, November (2), 1971 and in January, February 1972. Together 90 documents were sent, 16 of them published in other language than English and provided with English abstracts and 14 up-dating inserts into the Reference Book. In cooperation with the Subcommittee on Asbestosis of the Permanent Commission and International Association on Occupational Health 87 sendings of IESAH (Information Exchange System on Asbestos and Health) were made.

We also collect and keep in our archives 328 books and documents which do not have a character of scientific research such as legislative documents, recommendations, codes of practice, etc. from various countries, most of these are also circulated with our documents. We also actively collect and keep all available information on non-published current research work for use of the Scientific Committee of the Institute.

In addition to circulation of these published documents, Newsletters are issued by IOEH in order to circulate unpublished documents, transcripts and news - items of various kinds. Newsletter No. 20 was issued in October 1971, No. 21 in December 1971, No. 22 in January 1972, No. 23 in February 1972 and No. 24 in March 1972. Increasing number and increasing volume of the Newsletters also illustrate steadily increasing volume and scope of activity of IOEH.

Visit to IOEH: - The Institute was visited in November 1971 by professor Dr. Paul Sadoul from Nancy, France. It will be recalled that Dr. Sadoul, upon invitation from OAMA, had attended both Antigua conferences in 1965 and 1967. He is one of the leading French personalities in the field of occupational pulmonary disease.

SCIENTIFIC CONFERENCES

The Third Fall Scientific Assembly of the American College of Chest Physicians in Philadelphia was attended by Dr. Pelnar in October 1971. Dr. Pelnar's report was circulated in Newsletter No. 21 of December 1971.

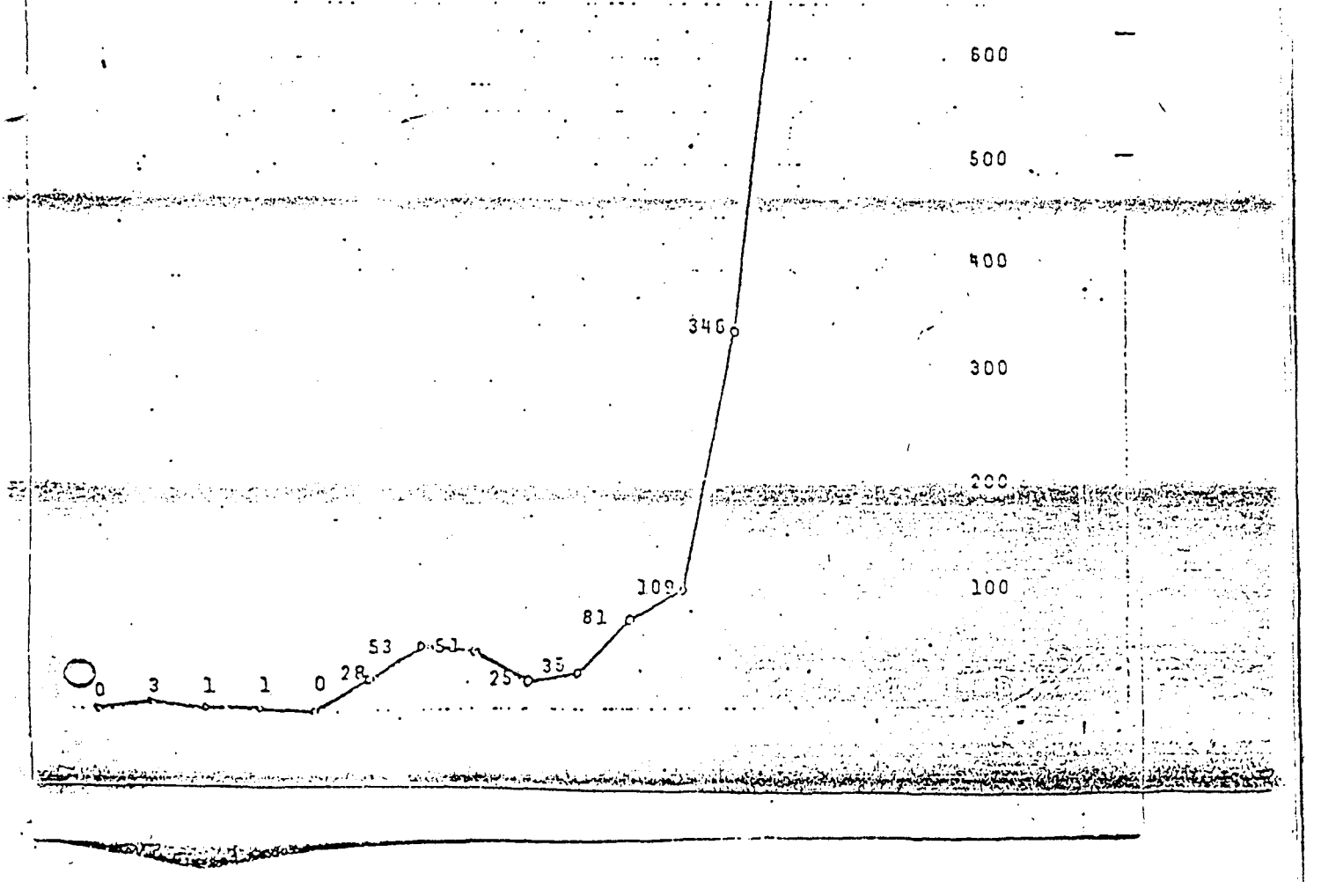
Two important international conferences are planned for 1972.

The XVIIth International Congress on Occupational Health will take place in Buenos Aires in September 1972. A session on asbestos is planned by the Subcommittee on Asbestosis of the

Permanent Commission and International Association on Occupational Health. Details were circulated in Newsletter No. 24 of March 1972.

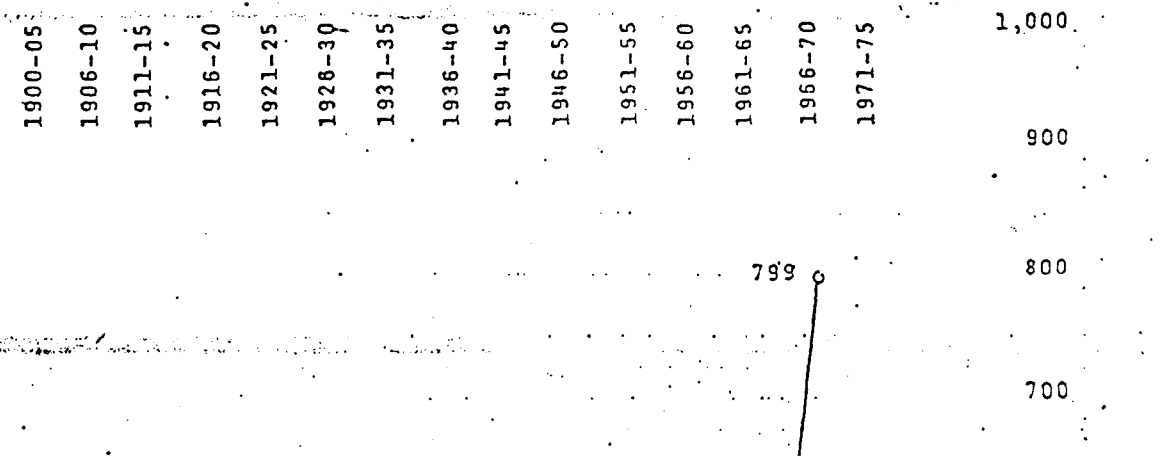
"Meeting of a working group to review the effects of asbestos" (organized mainly by Dr. Christopher Wagner from Penerth) will be held at the International Agency for Research on Cancer in Lyon, France, in October 1972. The tentative program was circulated in Newsletter No. 24 of March 1972.

Premysl V. Pelnar, M.D.
Scientific Secretary


600
500
400
300
200
100
340
109
81
53
51
35
28
25
0
3
1
1
0

ENCLOSURE II

Number of scientific publications on biological effect of asbestos
1900 - 1971 in IOEM files



ENCLOSURE II

Number of scientific publications on biological effect of asbestos 1900-1971 in files of IOEH

1900 - 05	0	0%
1906 - 10	3	0.2%
1911 - 15	1	0.05%
1916 - 20	1	0.05%
1921 - 25	0	0%
1926 - 30	28	1.7%
1931 - 35	53	3.3%
1936 - 40	51	3.2%
1941 - 45	25	1.5%
1946 - 50	35	2.1%
1951 - 55	81	4.9%
1956 - 60	109	6.7%
1961 - 65	346	21.2%
1966 - 70	799	48.8%
1971 -	114	6.3%
	1,636	100.00%

ENCLOSURE II

Number of published scientific works on biological effect of asbestos done in various countries (1900-1971), as filed in IOEH

U.S.A.	424	25.9%
United Kingdom	352	21.4%
Germany	172	10.5%
France	115	7.0%
Italy	105	6.4%
Canada	81	4.9%
South Africa	70	4.2%
U.S.S.R.	57	3.4%
Finland	33	1.9%
Japan	20	1.2%
Others	217	13.2%
	1,636	100.0%

13. APPENDIX I

SUBMISSIONS (4) AT

E.P.A. HEARINGS IN LOS ANGELES

ENCLOSURE I

February 4, 1972

EPA HEARINGS ON PROPOSED EMISSION CONTROL STANDARDS FOR ASBESTOS, LOS ANGELES, CALIFORNIA, FEBRUARY 15TH 1972 - STATEMENT OF DR. KARL V. LINDELL, CHAIRMAN, ENVIRONMENTAL AND OCCUPATIONAL HEALTH COMMITTEE OF THE QUEBEC ASBESTOS MINING ASSOCIATION.

My name is Karl V. Lindell, and I am Chairman of the Environmental and Occupational Health Committee of the Quebec Asbestos Mining Association. I am a Mining Engineer, graduate of the Michigan College of Mines and have been involved in almost all phases of the asbestos industry for over a quarter of a century until my retirement in December 1970, and since then as a consultant dealing more specifically with the problems related to the biological effects of asbestos.

I have been asked to be the spokesman for the Canadian mines of asbestos as I have chaired health committee since its inception in 1965. Our first responsibility was to seek the truth as to the biological effects of Asbestos, of all types and to this end organized the Institute of Occupational and Environmental Health of Montreal, which has been sponsored by the Quebec Asbestos Mining Association.

I attended the hearings of EPA in New York on January and heard the statements made by my former colleagues from Johns-Manville Corporation, Burt Jobe, Executive Vice-President, Dr. Fred Pundsack, Vice-President of Research, Ed Fenner, Director of Environmental Control, as well as

.../2

Dr. G.W. Wright, Head of Medical Research of Saint Luke's Hospital, Cleveland, and Doctor Corbett McDonald of McGill University. Further as to my qualifications to speak on these matters, I was General Manager of the Asbestos Fiber Division of Canadian Johns-Manville Company Limited, responsible for the exploration for asbestos, world wide, mining and milling at Company owned or operated properties, as well as all problems related to these operations, such as environmental and occupational health. In my later years I was also Chairman of the Board of the Canadian Company as well as a Senior Operating Vice-President and a Director of the parent company, Johns-Manville Corporation with headquarters now in Denver, Colorado. In these capacities I travelled much of the world, visiting most of the operating asbestos mines and mills around the globe as well as manufacturing plants, laboratories doing medical research, and attended conferences in many countries on the biological effects of asbestos. My travels have taken me to the Soviet Union on three occasions on exchange visits, where I visited their asbestos mining and milling operations while there I had an opportunity to discuss health problems learning that their experience paralelled our Canadian in regard to asbestosis and the incidence of lung cancer. Their mills were very clean. The fibre occurrences were identical to Quebec in their characteristics and genesis.

.../3

My statement will try to paint with a broader brush the subjects touched upon by some of the statements already submitted to you, but first, let me state that we are entirely in agreement with the EPA that there is a need for control of asbestos emissions. The asbestos industry has recognized for many years that there are occupational health hazards associated with the excessive inhalation of asbestos dust. As a result, the industry, beginning at the Saranac Laboratories in Saranac Lake, New York, in the late 1920's, has sponsored and cooperated in a wide variety of scientific research projects designed to identify these hazards and to eliminate them wherever they may exist, not only in asbestos mines, mills and manufacturing plants, but also among fabricators and applicators of finished asbestos products. In recent years, the asbestos industry, either as individual companies or through the Quebec Asbestos Mining Association's sponsorship of the Institute of Occupational and Environmental Health in Montreal, has or is continuing to support medical research at such highly regarded institutions as McGill University in Montreal, Tulane University in Louisiana, Saint Luke's Hospital in Cleveland, the Environmental Sciences Laboratory at Mount Sinai Hospital in New York, the Industrial Health Foundation in Pittsburgh, the University of California at Berkeley, Fairleigh Dickinson University in New Jersey, the University of Pittsburgh, the Medical College of South Carolina, and a number of others, both here and abroad.

.../4

The asbestos industry has also cooperated extensively in various investigations into asbestos-health conducted by agencies of the Federal Government, including the U.S. Public Health Service, the National Institute of Occupational Safety and Health, and the Environmental Protection Agency. Much of the technical and other data that formed the background of the proposed National Emission Standards under review today has been obtained with the complete cooperation and assistance of the asbestos industry.

In addition, in the industry's own research laboratories, scientists and engineers are also engaging in work related to health, developing better handling techniques for loosely bound asbestos products and also developing and improving techniques for the measurement and control of asbestos emissions both in the workplace and in the ambient air.

For many years the asbestos industry has been actively pursuing the goal of control of asbestos emissions, utilizing the best available technology of the times. Thus industry is sympathetic with the concept of controlling emissions, and have invested many millions of dollars in sophisticated and highly efficient dust control equipment and techniques to reduce worker exposure and to prevent the emission of hazardous amounts of asbestos fiber into the air.

Though there are as yet many unanswered questions in regard to the effect of inhalation of asbestos, the following is a partial list of what is known.

a) The hazard is dose related (Dr. Wright).

b) Disease can be eliminated if proper control measures are taken (Dr. Knox).

c) One group study showed that only smokers had lung cancer.

d) The general public is not at risk.
The report by Dr. McDonald of McGill University on a three year study of chrysotile workers in the Province of Quebec supports this finding.

e) "Asbestos bodies" or "ferruginous bodies" were as prevalent in the general public in 1934 as they are now in spite of the increased consumption of asbestos. This has been reported by Dr. Selikoff and his associates.

Mesothelioma

I wish only to comment on the occurrence of mesothelioma briefly. Dr. Wagner in his report in 1960 found an excess of mesothelioma in asbestos workers in the Cape Province of South Africa. The particular asbestos involved is crocidolite, commonly called "blue-asbestos". However, several hundreds of miles to the east in the Transvaal area one did not find any mesotheliomas in the blue-asbestos mines. The difference here has not yet been

answered. Could it be that the workers had been also exposed in the chrome and manganese mines of the Kalahari, or to the dry air of the Kalahari desert itself? Professor Thomson in his report predicted an epidemic of mesothelioma because he saw an excess in the Cape Town area and reported that 25% of the public had ferruginous bodies in their lungs. He also hypothesized that that since consumption of asbestos was growing it would create a problem. He named the various asbestos products used as breaking down and causing the pollution though he did not have evidence of this. Up to recent date he has not offered any further data to support his claims.

I would also like to call your attention to the fact that at the largest asbestos operation in Canada no mesotheliomas have been seen. There is not any evidence to support the theory of an impending epidemic.

Sources of Natural Emissions

Dr. Pundsack in his paper in New York went into considerable detail on the dynamic process through which asbestos fibers get into the ambient air by natural means. He limited his discussion to the serpentine rock and asbestos fiber occurrences in the United States. Looking at the geological map on a global basis

we see for example that serpentine rocks occur on the west coast of both North and South America from Alaska to the southern tip of Argentina. Along these coastal ranges you will not find many mines, but, you will find fiber and serpentine occurrences in the ranges which even at this time are going through heavy erosion and weathering process, for the full length of the Western Hemisphere. There are isolated areas of serpentine as you move eastward in the U.S.A. and you will find them also in Canada, Mexico, and farther south in Central Brazil. Further east, there are extensive occurrences from the St. Lawrence River near Mont-Joli, Quebec, on down through the state of Vermont, on through the Appalachian Mountains and further south to the Carolinas. The parallel ranges in the Soviet and South Africa have proceeded further in the weathering process, but they can be seen on the surface. We wish to note here that there are crocidolite occurrences on this continent also, even though there are not any commercial deposits in this hemisphere except in Bolivia. Thus the natural sources of emission of asbestos are quite extensive.

From the foregoing it is obvious that man has been exposed to asbestos fibers in the ambient air for a long time. Much work is needed to be done to determine what is the threshold limit value for this background natural pollution. This of course only emphasizes the need to control man-made emissions.

Man-Made Emissions

I will not delve into man-made emissions except to comment on Talc which was mentioned briefly by Dr. Wright in his statement in New York. I am not aware of research on Talc or its effects. Drs. Wright and Cralley (of U.S.A.) have investigated on few samples of Talcum Powder to learn that they do contain asbestos. Bates in his book on "Geology of the Industrial Rocks and Minerals" published in 1960 by Harper & Brothers, New York, does report on samples of commercial talc which contained either or both tremolite and anthophyllite in amounts varying from seven to seventy-eight percent. Steatite is the name given to pure Talc and it is also a hydrous magnesium silicate the same as chrysotile asbestos. You can picture how generously we usually dust ourselves with this material. It is worth investigating fully.

Further Research

There are many areas of this problem requiring further research. Our Scientific Committee is reviewing this situation as to priorities and availability of researchers and laboratories interested in this type of study.

Equipment Specifications

With reference to the rules for equipment specifications 61.22 and 61.23 it is noted that most of Canadian mines dust control systems do not presently meet these specifications when referred to the fabric only. However, when relating to operation it is believed that they will meet the requirements as the coating of asbestos fines on the cloth reduces the air flow to within the specifications limits. More testing will be needed to verify this.

That is my statement.

Thank you for the opportunity to be heard.

Q.A.M.A. ENVIRONMENTAL CONTROL COMMITTEE

F I L T E R B A G S

Company	MILL		DRYER		DUST CONTROL	
	Type of Bag	Permeability c.f.m/ft.(2) at 0.5" H_2O	Type of Bag	Permeability c.f.m/ft.(2) at 0.5" H_2O	Type of Bag	Permeability c.f.m/ft.(2) at 0.5" H_2O
Asbestos Corporation Limited. A	Nylon-acetate	± 35	Not applicable		Dacron felt	25 - 30
	Nylon-acetate (C-13)	22 - 28				
Carey Canadian Mines. B	Cotton sateen	35	Nylon-acetate (C-13)	35	Nylon-viscose	35
	Cotton resine	25				
	Nylon-acetate	35	Nylon-viscose	35		
	Ironclad	32	Cotton resine	25		
	Nylon-viscose	35				
Bell Asbestos Mines. C	Nylon-acetate (C-13)	30 - 35	Not applicable		Cotton sateen	20 - 22
					50% Cotton & 50% Synthetic	25 - 30
Lake Asbestos of Quebec. D	Nylon-acetate	30	Terylene	10	Dacron - Heavy Nap.	35
	Nylon-viscose	35			Terylene - Heavy Nap.	40
					Polypropylene	N/A
Canadian Johns-Manville. E	Cotton sateen	25	Spun acrylic	23 - 27	Cotton sateen	25
					Terylene	15 - 20
National Asbestos Mines. F	Siliconized Cotton sateen	15 - 20	Not applicable		Not applicable	

ENCLOSURE I

EPA Hearings on Proposed Emission Control Standards for Asbestos,

Los Angeles, February 16, 1972

Statement of Dr. Hans Weill, Tulane University School of Medicine
New Orleans, Louisiana

My name is Hans Weill and I am a specialist in Pulmonary Disease and Professor of Medicine at Tulane University School of Medicine. For the past ten years I have been actively engaged in the investigation of pulmonary effects of industrial and community environmental inhalants, including organic and inorganic dusts and toxic irritant gases. For the past two years, we have been carrying out a comprehensive investigation of workers engaged in the manufacture of asbestos cement and other asbestos-containing construction products. I appreciate the opportunity to provide this statement, following which I will be pleased to attempt to clarify any further questions which you may have concerning the biological effects of asbestos exposure.

Because of the evidence indicating an association between dose of asbestos exposure and its adverse biological effects, it is not surprising that these reactions are most easily recognized in industrial populations where this exposure is highest. It has been appreciated for one-third of a century that excessive occupational exposure to asbestos dust can result in diffuse pulmonary fibrosis or asbestosis. Recent evidence strongly suggests that this hazard can be controlled by reducing industrial dust levels and there is general agreement that ever lower community levels of asbestos

fiber are not likely to be associated with a fibrosing effect on the lungs.

That an excess risk of bronchogenic carcinoma of the lungs occurs in workers exposed to asbestos was established in the late 1940s and early 1950s. This risk is not the same for all types of asbestos exposure and seems to be associated, perhaps synergistically, with at least one other factor, cigarette smoking. Of great importance to the purposes of this hearing is the more recent demonstration that reduced asbestos exposure in the plants results in not only a lower risk of developing pulmonary fibrosis but also is associated with a marked fall in mortality for cancer of the lung. This evidence that the increased risk of developing pulmonary neoplasms can be controlled by adequate dust suppression in the plant comes from two separate studies in the United Kingdom and leads to guarded optimism, not only in relation to the industrial asbestos exposures but, by extrapolation, to the tentative conclusion that the lower general environmental asbestos levels do not constitute a significant risk to the population in terms of the development of lung neoplasms.

If there seems little likelihood that asbestosis or bronchogenic carcinoma of the lung can result from general environmental levels of asbestos fiber, what can be said about the rare but important tumor called mesothelioma which may affect the lining of the chest or abdominal cavities? This complex and interesting story has been evolving during the past decade with interest stemming initially from the reported association of industrial

and geographic proximity to the crocidolite mines in the Northwest Cape of South Africa and the appearance of these tumors. Exposures were not quantitated but were likely to have been quite heavy. Confusion resulted from the observation that similar mines producing blue asbestos in the Transvaal section of South Africa were not associated with cases of mesothelioma in the exposed occupational and geographic populations. While a few cases of mesothelioma have been reported in the surrounding environs of a plant using primarily crocidolite in the United Kingdom, emissions were uncontrolled and likely to have been considerable. In a survey of mesothelioma in Scotland recently reported, it was difficult to separate occupational from residential exposure since most of those working in the asbestos industry lived close to the industrial sites, and only one male case of mesothelioma occurred out of 51 individuals who did not have occupational exposure and who lived within one-half mile of shipbuilding, docks, or asbestos factories. It can be readily appreciated that the evidence supporting an association between mesothelioma and non-occupational residential exposure to asbestos is quite limited, particularly when contrasted to available data which suggests little association between general community asbestos exposure and the development of mesothelioma.

The Mayo Clinic recently reviewed 37 cases of mesothelioma which had been seen during the previous 22 years. In only ten of these was there

a definite or probable occupational exposure to asbestos, while in 27 no history of environmental or occupational exposure was detected. None of these patients lived in major industrial or metropolitan areas and a non-occupational exposure to asbestos fiber seems highly unlikely. The most precise definition and quantitation of asbestos exposure is at present possible only for an industrial environment where significantly lower asbestos dust levels have recently been demonstrated to be associated with a normal or only slightly increased risk for pulmonary or pleural malignancies. If confirmed by continuing studies, this ultimately provides strong evidence that the minimal asbestos exposures in urban communities will have no adverse measurable biologic effects.

Since today our attention is being directed to the portion of the proposed emission standards which prohibits visible emissions of particulate matter from asbestos-containing tailing dumps, let us examine the most pertinent scientific evidence concerning the risk associated with environmental exposures in areas geographically proximate to asbestos mines. Last month at these hearings in New York, Dr. J. C. McDonald of McGill University testified in some detail about the investigations which he has supervised on the Quebec chrysotile mining and milling industries and the Canadian mesothelioma survey. Because of the importance of these results to these hearings, I would like to briefly summarize the appropriate portions of these studies.

In the study of mortality in the chrysotile producing industry of Quebec, a very high follow-up of 98% was achieved which presented strong evidence

that even heavy exposure in this industry carried only a modest risk of lung cancer and even a smaller risk of malignant mesothelioma. Again, the evidence that low and moderate asbestos dust levels are not associated with increased risk of developing pulmonary or pleural malignancies in the workers has strong implications concerning that risk in the non-occupationally exposed population. The asbestos-containing tailings dumps in the United States are in chrysotile mines, underlining the importance of Dr. McDonald's findings to this deliberation.

Results of an epidemiologic survey of malignant mesothelioma in Canada are also of interest. Although an association between the development of these tumors and occupational exposure (usually not mining or milling) was found in 1/4th of the cases, after exclusion of occupational and domestic exposures there was no case of mesothelioma occurring in an individual who had a history of ever living within 20 miles of an asbestos mine or mill. This encouraging data concerning chrysotile asbestos health effects, which has been substantiated in chrysotile mining and milling in other portions of the world should be evaluated in view of the facts that all of the asbestos mines and mills in this country produce chrysotile fiber and over 90% of the asbestos used in manufacturing and other utilization is also this fiber type. Strong consideration must be given to the possibility that some or all of the biological effects of asbestos may result from something other than the fiber itself, possibly a contaminant introduced in processing or manufacturing.

This and other unresolved questions will hopefully be answered as the result of intensive research being conducted on this problem.

Because of my interest in maintaining the health of workers and the population in general, I support vigorous efforts in controlling the emission of actual or potential injurious inhalants, even when doses which have been demonstrated to have an adverse biological effect are of a different order of magnitude than those likely to be encountered in the general environment. I, therefore, support most of the provisions of these proposed emission standards but would suggest that present evidence does not indicate a significant risk from the environmental levels of chrysotile asbestos surrounding these mines. While the technology is being developed to control these emissions, continued health surveillance will provide data which hopefully will confirm these present tentative conclusions.

ENCLOSURE I

FEBRUARY 9, 1972

EPA HEARINGS ON PROPOSED EMISSION CONTROL STANDARDS FOR ASBESTOS - LOS ANGELES, CALIFORNIA, FEBRUARY 16, 1972 - STATEMENT OF F. H. ZIMMERMAN ON BEHALF OF THE ASBESTOS INFORMATION ASSOCIATION/NORTH AMERICA

My name is Frank H. Zimmerman and I am Director of Corporate Safety and Environmental Health for the National Gypsum Company. I am here today representing the Asbestos Information Association/North America, which consists of 13 of the nation's largest miners, manufacturers and importers of asbestos and asbestos-containing products. The member companies of the Association are listed on a sheet which I have provided.

We support in general the position taken by the Johns-Manville Corporation in its presentation at the January 18 hearing in New York City, and also contained in the National Academy of Sciences document on asbestos, that at present the general public is not in danger from the minute amounts of asbestos fiber present in the ambient air. We also concur with the position that it is prudent and feasible to establish reasonable emission standards and controls that will protect the public and ensure that hazardous levels of asbestos will not develop in the community air in the future.

We therefore, in principal, support the proposed Environmental Protection Agency National Emission Standards on asbestos.

Nevertheless, there are certain sections of the regulations which we feel require alteration or rewording, and on behalf of the Association, I would therefore like to recommend to the EPA the following changes.

With regard to Section 61.21 Definitions, we agree with the intent of the EPA in trying to establish definitions for visible emissions and particulate matter that would encompass all types of particulate emissions which might possibly contain potentially hazardous amounts of asbestos. Nevertheless, from a practical standpoint, there are difficulties in the definitions as written.

For example, in many asbestos using manufacturing operations, there are particulate emissions to the atmosphere which may be visible but which do not contain any asbestos. As Mr. E. M. Fenner of Johns-Manville pointed out in his testimony in New York, an example of such emissions could be from the sand preparation and drying operations in an asbestos-cement pipe plant.

In another example, a visible particulate emission might contain a very minute percentage of asbestos fibers, and would by visible only because of the non-asbestos particulate matter in the emission, yet the standards definition would not differentiate between such an emission and one of pure

asbestos fiber from an uncontrolled plant or improperly maintained bag house.

To resolve this difficulty, I think it is essential to return to the basic intent of the EPA in establishing asbestos standards in the first place, and that was, of course, to protect the general public by reducing emissions of fiber into the ambient air consistent with the best available technology.

While it is always desirable when possible to restrict emissions of any nature from any source, industrial or otherwise, it is not necessary in order to be consistent with the purpose of these regulations to prevent the emission of non-asbestos containing particulate matter. Free asbestos fiber is the declared hazardous substance with which we are concerned, and the primary job of the EPA and the industry should be to keep asbestos emissions, not particulate emissions per se, at as low a level as is possible. As has been pointed out, not all potential particulate emissions from an asbestos manufacturing operation necessarily contain asbestos, and to require that the same strict controls be applied to them as are applied to asbestos emissions goes beyond the scope of the regulations.

We are sure that it was not the intent of the EPA to present insurmountable obstacles to concerned and dedicated companies within the industry, but to ensure that uncontrolled asbestos emissions would be prevented. With this philosophy in mind, I would like to suggest the following solution to this problem.

We suggest that the definition for visible emission be re-written as follows: "Visible emission" means, for the purpose of this subpart, any visually detectable emission of particulate matter containing free asbestos fibers in excess of the amount which would be emitted form a fabric filter device or other suitable collection installation, as described in section 61.23.

Such a definition would not be inconsistent with the intent of the regulations, and would in fact closely parallel the approach taken by the EPA in section 61.22, subparts (a-1) and (a-2); (b-2) (b-3) and (b-4); (c-1) and (c-2); and in (c-3).

In conjunction with this defintion change, we would also suggest that the definition of particulate matter in Section 61.21, subpart (h) be reworded as follows: Particulate matter means any material containing free asbestos fiber, other than uncombined water, which exists in a finely divided form as a liquid or solid.

The wording "free asbestos fiber containing particulate matter" or "particulate matter containing free asbestos fiber" should be used throughout the Standard in place of the less specific terms "material" and "particulate matter."

Our next suggested change in the standards is with regard to Section 61.22, subparts (a-1) and (a-2) regarding the prohibition of the spraying of any product containing asbestos on any portion of a building or structure or in an area directly open to the atmosphere. We realize that this section of the regulations was designed primarily to deal with the problem of the use of asbestos-containing spray fireproofing compounds in high rise building construction.

Those of us in the industry who have followed the course of the spray fireproofing controversy over the past two years can well understand the EPA's decision to prohibit this particular use of asbestos and we cannot disagree with it. However, the regulation as worded would also ban the use of a number of asphalt-asbestos spray roofing and foundation compounds and adhesives that we feel do not fall into the same category as the fireproofing compounds. These asphalt spray compounds contain an average of around 5 per cent asbestos fiber locked solidly in the asphalt binder. They are applied in a manner which could not conceivably create any emissions of free asbestos fiber to the atmosphere.

A member company of the Asbestos Information Association which manufactures these products contacted a number of reputable testing laboratories in the Cincinnatti area to run a series of fiber counts on the application of these asphalt-asbestos compounds. When the process was explained to the testing laboratories, they replied that they did not see how any free fiber could be released during application, and concluded that it would be essentially a waste of time to run the tests.

Accordingly, we recommend that Section 61.22, subparts (e-1) and (e-2) be reworded so as to eliminate products of this nature from the proposed ban. This can be accomplished in two ways. Either the proposed ban in (e-1) and (e-2) can be made specific to spray compounds in which water is the liquid agent, or else subparts (e-1) and (e-2) can be totally eliminated, and subpart (e-3) slightly reworded so as to apply to all asbestos-containing spray compounds.

Without going into detail, the Association would also like to express its agreement with the position of Johns-Manville with regard to Section 61.22 (subparts (e-1) and Section 61.09 on source reporting, and we would also like to see some clarification from the EPA on the definition of a "source."

Our final suggested change in the regulations is with regard to the prohibition on visible emissions from mine tailings dumps. As was expressed by Mr. Fenner of Johns-Manville at the New York hearing, the control of tailings dump emissions is the one requirement in the regulations with regard to mining operations that the industry at this time does not know how to meet. As the EPA is well aware, the industry has been working on this problem for a number of years without finding a suitable solution. We are not confident of being able to discover one within the two year waiver period allowed under the law. We would therefore like to recommend to the EPA the following three point plan to deal with this problem.

1. The prohibition on tailings dump emissions should be deleted from the regulations for the present.
2. An industry program should be set up with EPA guidance and approval to discover a suitable method for controling these emissions.
3. When a method has been developed, the prohibition on visible tailings dump emissions should then be reinserted in the regulations.

I realize that this approach to the problem is somewhat unorthodox, however, there are several points which speak in its favor. Of prime importance is the medical evidence

with regard to the lack of asbestos health hazards in the vicinity of chrysotile asbestos mines. Dr. Hans Weill of Tulane University will speak directly to this aspect of the situation in his presentation. Secondly, the asbestos mines in this country are few in number and, for the most part, located in areas far from any large population centers. Thirdly, as I stated before, the industry does not know how to solve the problem at this time and is skeptical about its chances of doing so in the near future.

This last point is of considerable importance to those companies that are faced with the practical problem of meeting the mining regulations. No matter how well controlled the asbestos mines in this country are at present, it is reasonable to assume that additional funds will be required to comply with the regulations. If a company feels that it will end up closing down its mining operations in two years because of the tailings dump problem, it may very well decide not to spend the money needed to comply with the other requirements of the regulations, and instead close down operations immediately. This is a situation which we would prefer not to see occur.

We feel that this proposal, though somewhat unusual, is not unreasonable in light of the industry's willing acceptance of the vast majority of the proposed regulations, our part

cooperation with the EPA in health matters, and our avowed determination to do all that is necessary within the limits of technical feasibility to control asbestos emissions into the ambient air. We hope that these things will be taken into consideration by the EPA when evaluating our proposal.

In conclusion, I would like to once again express our continuing recognition of the need for effective emission controls, and our general support of the EPA National Emission Standards for Asbestos.

Thank you

Statement
of
K. W. Nelson
Director, Department of Environmental Sciences
American Smelting and Refining Company
Salt Lake City, Utah

Public Hearing on Emission of Hazardous Pollutants
Los Angeles, February 16, 1972

My name is K. W. Nelson. I am Director of the Department of Environmental Sciences of the American Smelting and Refining Company. I have been in environmental health work for 30 years, 26 of them with American Smelting. Because we have an interest in asbestos production and in all the trace metals associated with our principal products - copper, lead, and zinc - I wish to comment on the proposed national emission standards for asbestos and mercury.

During World War II, as a member of a Navy team assigned to develop industrial hygiene programs in shipyards building ships for the Navy and Maritime Commission, I had occasion to observe closely all jobs done in ship construction. One of them was the installation of asbestos insulation, particularly in the boiler rooms of ships. Amosite, chrysotile, and crocidolite forms of asbestos were used.

We knew very well then that inhalation of excessive asbestos dust over a period of time could cause asbestosis. We were appalled to see that asbestos handling, cutting and application were done almost always without regard to dust exposures. Workmen would literally be covered with dust and visibility in engine and boiler rooms would often be diminished by floating dust. My memories of those scenes are vivid.

We urged dust control wherever practicable - which was not often the case then - and at least we urged the wearing of respirators

approved by the U.S. Bureau of Mines for protection against pneumoconiosis-producing dust. But I must say our recommendations were often not followed assiduously.

Also during the war I had occasion to inspect an asbestos textile plant providing Navy goods. Again I saw workrooms with visible dust. Every light fixture or other hanging appurtenance was festooned with fiber masses like trees adorned with Spanish moss. Dust control consisted of sprays of water mist in the room to keep the asbestos damp and to allay dust. The hanging fiber accumulations were evidence that the control was not very successful.

There is no doubt in my mind that the cavalier practices of insulation installers of 30 years ago and perhaps in ensuing years were responsible for the asbestosis discovered in recent years and for the markedly increased incidence of lung cancer which is apparently the result of cigarette smoking plus massive occupational exposures to asbestos dust.

My special interest in mercury began in 1941 when Dr. E. P. Laug and I, working for the Food and Drug Administration in Washington, developed an improved method for determining mercury in biological materials - a method which is still the official one of the Association of Official Agricultural Chemists, though there have since been developed a number of better and faster methods. I assisted also in toxicological studies of mercury's effects on animals.

Since those early experiences I have followed with care the expanding scientific literature on asbestos and mercury and their relationships to environmental health.

The first specific comment I have on the proposed national emission standards for asbestos and mercury is that neither substance, in my opinion, deserves being set aside as an especially hazardous air pollutant. Health effects from excessive exposure to airborne asbestos and mercury have been related almost exclusively to occupational situations which involve exposures for greater than any which the public could experience. An exception may be the "neighborhood" illness cases ascribed to asbestos, but almost certainly such cases resulted from lack of dust collection which would be routine today in order to maintain in-plant airborne fiber levels within occupational health standards.

My point is that almost any substance capable of being airborne and causing "irreversible, or incapaciting reversible, illness" could be classified as a hazardous air pollutant. Carbon monoxide is an obvious example and of course the total national man-hours annually of public exposure to carbon monoxide in significant quantities would far exceed the total man-hours of public exposure to asbestos or mercury. By "significant exposure" I mean one which would be likely to provoke significant physiological change.

My further point is that distinguishing asbestos and mercury as "hazardous" means to the public "extremely hazardous" and arouses unnecessary anxieties. Our environmental anxieties these days may indeed be overshadowing those more deserving of serious public attention. President Nixon's recent message to Congress on environmental pollution effects on health raised questions about our classifications of hazardous substances. He said, in discussing the identification and distribution of adverse agents, "In some cases the grounds for alarm are

well-founded; in others fear goes beyond the evidence. The reasons for inclusion are varied and not always well-founded. There has been little attempt to review the whole range of environmental agents systematically, or to adopt a consistent basis for judging an environmental agent as a hazard."

I would urge the Environmental Protection Agency to re-consider the need for national emission standards for mercury and asbestos on grounds that fears go beyond the evidence.

Paragraph 61.21,(i), defines asbestos tailings as any solid waste product of asbestos mining or milling operations which contain asbestos. This definition is too broad. In the mining industry the word "tailings" applies to the finely divided product of milling or, less commonly, to the oversize material passing over screens. As defined now, the term "tailings" would mean virtually any material from an asbestos mine. The definition should be modified.

Paragraph 61.22,(a),(3), prohibits visible emissions from any mine road surfaced with asbestos tailings. Under the existing tailings definition any road in an open pit mine surfaced with waste rock from the pit, or not especially surfaced at all, would be surfaced with asbestos tailings. And the rock would in all likelihood contain some asbestos.

Both because of this situation and because we believe it impossible not to have, at any time, some visible emission from trucking on roadways, we believe the visible emission prohibition should be dropped. It is routine practice to prevent dusting of roadways and it would be necessary to meet the OSHA airborne asbestos standard for truck drivers

and miners in the area. These facts would preclude, in our opinion, any possibility of significant neighborhood asbestos contamination from a mining operation.

The complete prohibition of emissions seems to us an impossible requirement in paragraph 61.22,(b),(1), referring to visible emissions from ore dumps, storage areas, conveyors, and tailings dumps, in (d), referring to building demolition, and in (e),(1) and (2), referring to asbestos spraying. Again it seems to us that good dust prevention practices should be applied, but that absolute prevention of a visible emission is impossible.

Paragraph 61.22,(f), is objected to because of the use of the word "tailings" in its overly broad sense. The restriction as it stands would mean hauling in materials from outside a mine area when an abundance of rock, overburden or other waste rock, was immediately available for road construction.

The various categories of fabric permeability specified in paragraph 61.23,(a),(c), and (d) are unnecessary. The high efficiency of fabric filter bags for collecting dust and fibers is principally a function of the filter cake which quickly builds up on the bags when in use. It is a superfluous refinement, in our opinion, to have the various grades. A single specification of 35 or 40 CFM/ft^2 is recommended.

No risk to the public from airborne mercury in particle or vapor form has ever come to our attention. U.S. Geological Survey professional paper 713 reports atmospheric mercury concentrations at ground level near mercury ore deposits of 20 $\mu g/m^3$, diminishing to 0.1 $\mu g/m^3$ 400 feet

above ground. Air at ground level over precious metal ores has reached 1.5 $\mu g/m^3$. Again we raise the question of why mercury should be set aside as a hazardous pollutant. It's relative rarity, relatively high cost, and the lack of any observed community air problems argue against its hazardous classification. We may be creating a problem in trying to solve a non-existent one.

The five-pound per 24-hour emission limitation specified in paragraph 61.53 appears to be purely arbitrary. No allowances are made for the concentration of mercury in a given effluent or for stack height and subsequent dilution. At the very least, an option should be permitted to meet an appropriate ambient air standard, as in the case of beryllium. What the ambient air standard should be is unknown at present, but 1 µg seems very conservative. In any case, there is surely time to develop and agree upon an ambient air standard. There is no emergency.

The stack testing and record keeping would be eliminated if an ambient air option were available and chosen. Ambient air monitoring should be permitted on a 26-day a year schedule like that followed by the national air sampling network. After two years of such monitoring, permission to discontinue it should be granted, provided satisfactory evidence is submitted to the administration that ambient air levels have been satisfactory. Changes in plant practices that would increase mercury emission would automatically mean a resumption of ambient air monitoring.

We appreciate this opportunity to express our views on this proposed legislation.

14. APPENDIX II

REPORT OF Dr. G.W. WRIGHT

PRESENTED AT COLORADO SPRINGS, OCTOBER 12, 1971

CONDENSED REVIEW OF THE ACTIVITIES

OF THE SCIENTIFIC COMMITTEE,

INSTITUTE OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH

PRESENTED AT COLORADO SPRINGS, ON OCTOBER 12, 1971

1. RESEARCH PROJECTS SUPPORTED BY THE I.O.E.H.

Several important findings have been developed by Dr. Corbett McDonald's study during the interval between the last meeting of the Q.A.M.A. and this current one. He has demonstrated that an excess of bronchogenic cancer occurs only in those exposed most heavily in mining and milling, approximately 5% of the total worker population. There is no excess in the four categories of exposure below this, and this includes some groups that would consider to be moderately heavily exposed. It would appear rather definite that an excess occurs only in those individuals exposed to more than 400 units, or ten million particles per cubic foot for forty years. This can be estimated to be somewhere in the neighborhood of in excess of ten to twelve fibers per cc for forty years. It is also demonstrated that evidences of "asbestosis" develops at exposures less than this, and therefore the British contention that bronchogenic cancer occurs in excess only in those people with sufficient exposure to cause asbestosis is supported. The level at which asbestosis is apt to occur has not as yet been determined. These data should be of some use in those considerations having to do with establishing a threshold limit value, especially in mining and milling. Some, however, may contend that the circumstances in mining and milling are not necessarily appropriate to those involved in manufacture. It should be pointed out also that five cases of mesothelioma were reported from the

the population of workers under study, and this probably represents a slight excess but still considerably lower than that which has been reported in manufacturing and insulation workers.

There are two features of importance with respect to the current status of Dr. Vigliani's studies being carried out at Balangero. He has continued to confirm the finding that employees in this chrysotile mine who also have asbestosis do have an excess of bronchogenic lung cancer. He has not, however, observed any cases of mesothelioma. Evaluation of this latter finding should recognize that McDonald's study embraces many times larger number of men. Continuation of this study for a longer period has been requested and approved by our Scientific Committee and awaits action by the Executive Committee of the I.O.E.H. Continuation of this study is highly advisable in order to provide further confirmation and in addition, to disclose the relationship of excess bronchogenic cancer to the actual exposure in order that such data might be used in setting a TLV. Extensive monitoring of the concentration of asbestos fibers and particles in the air surrounding the Balangero mine have been carried out. These show a concentration at one fiber per cc or less in the immediate neighborhood of the mine and mill itself with a rapid diminution so that in an area outside of approximately three square kilometers the level is below 0.5 fibers per cc. In the communities of Corio and Balangero the fiber counts are under 0.2 fibers per cc on the average. This information will be of use in the upcoming considerations by E.P.A. with respect to control of emissions from mines and mills. The study of the shipyard workers in Genoa confirms an excess of bronchogenic cancer and mesothelioma in these categories of workers. Unfortunately this study has not developed as well as we had hoped from an epidemiologic point of view and there is some question at this moment as to whether it will be recommended that this be carried forward. The inability to establish actual exposures is the main stumbling point.

The studies being carried out in Finland, originally under the direct supervision of Professor Leo Noro but now under the supervision of Dr. Ahlmen are proceeding as anticipated as to schedule. The correlation between the health status of workers in anthophylite mining and milling and the industrial hygiene studies is still in process, but should be complete within the near future. The same can be said with respect to air pollution studies being carried out in the neighborhood of the mines and the mills. This is of particular interest with respect to the incidence or prevalence of pleura plaques. Of great interest is a current publication by this group indicating the severe dustiness of the environment of thermal insulators and those working in the construction industry. Fiber counts in excess of fifty per cc have been indicated and almost none are below twenty. This study clearly indicates that either American insulation workers follow strikingly different work practices or the estimates that have been indicated by Selikoff's group are erroneous. I do not know how to judge this at the present moment. Asbestosis has been found in this group of workers, but nothing with respect to the incidence of this abnormality has been shown. Also, there is no information as to whether or not there is an excess of bronchogenic cancer or mesothelioma in the insulation and construction workers of Finland. Information along these lines should be forthcoming in the near future.

The study of workers in the asbestos-cement industries of National Gypsum and Johns-Manville in New Orleans has proceeded according to schedule. It is not anticipated that anything in the way of correlations between exposure and the health of the workers will be available until late in 1972. Investigation into the feasibility of a study of the prevalence of mesotheliomas in the New Orleans area is underway. Plans for the future include setting up a cohort for long term intermittent study over the ensuing years, and in addition for an immediate study of a cohort identified some years past whose total mortality experience can be examined at the present time.

The study by Gibbs of Dr. McDonald's group with respect to alterations of a chemical and physical nature in insulation as it stands in place is under way, but no information has as yet been developed.

Dr. Pernis has not provided us with a final report, but it is anticipated in the very near future. The major outcome of this study to date is that macrophages in simulated "in vivo" conditions are not killed by the ingestion of asbestos fibers. This is in striking contrast to the reports of the effect of asbestos fibers on macrophages in artificial media where a destruction of the cells occurs with considerable rapidity. This finding is of extraordinary importance because it indicates that the mechanism of the development of fibrogenesis (asbestosis) is apparently quite different with respect to asbestos than it is with free crystalline silica.

The study by Dr. Gross on comparison of the fiber content of urban versus rural lungs has only begun and no report can be made on this at this time.

2. MEETINGS

As some of you know, a large international meeting on the general subject of pneumoconiosis and occupational health was recently held in Bucharest, Romania. I presented an overview of the asbestos biological effects. Dr. McDonald presented in detail the study of the mortality pattern in the Quebec Asbestos mines and mills along the lines given at the beginning of this report. Dr. Selikoff presented preliminary data on exposure of a group of workmen in an insulation manufacturing plant in Patterson, N.J., where the exposure was solely to amosite. He reports an excess of bronchogenic cancer and mesothelioma, as well as asbestosis and concludes that the biological effects in this population are essentially the same as those that he has observed in his

insulation workers. No information on the degree of dustiness was given other than to say that it was a dusty plant. He indicated that one individual had worked only a single day in this plant and subsequently developed mesothelioma. His paper was difficult to evaluate, but it is of importance because it indicates that in a manufacturing exposure solely to amosite (of course there were other materials of a non asbestos nature present) there has developed an excess of mesothelioma whereas in the mining and milling of amosite in South Africa it is reported this does not occur. Dr. Gilson reported a summary and made the important point that the risks of utilizing asbestos products must be taken in perspective. He indicated that the biological effects and mortality pattern in mining and milling of chrysotile in various places throughout the world was clearly a far less serious and disturbing one than is true for the same procedures with respect to crocidolite, at least in the northwest Cape. He also indicated that the biological effects as observed in insulation workers and in the manufacturing processes, especially textile, the health [illegible] effects were far more severe. He also pointed out that if one takes the mortality pattern as a whole the adverse risks of working in the asbestos industry were considerably less than that of being a fisherman in the ocean surrounding England or in one or another of the other trades in England where the mortality risk was considerably higher. It is of some interest that at this meeting there was no report from any Russians.

3. WHERE ARE THE PRESSING PROBLEMS?

In the U.S.A. regulations will soon be set with respect to the control of emissions of asbestos into the public air. These are of probable importance for Canada also, since what is done in the USA may have an influence on what is done later in Canada. The EPA of the USA asked the National Academy of Sciences of the USA to appoint a committee to bring in a summary of the health effects of asbestos as they might be germaine to the problem of the general air pollution. A report of this has been published and deserves

reading because the story has been reasonably accurately and dispassionately presented. The EPA has prepared a proposed set of regulations and these have in turn been looked at in conference between the EPA and industry. Some changes from the original proposals were made that are of a beneficial nature. As it stands at this time the regulations will not propose any numerical standards, but will be expressed predominently in what might be called performance criteria and with the prevention of visible emission. There has been a banning of the use of sprayed asbestos where it can get out into the public air and also the use of tailings from asbestos mines and mills for the purposes of road surfacing. There also is a requirement that there be no emissions from tailings dumps. By this it is meant that the emissions should not exceed one-quarter of a Ringelman.

The setting of a new occupational threshold limit value will undoubtedly occur in the next several months. Approximately a year and a half ago a report was prepared by the Bureau of Occupational Safety and Health in conjunction with a committee that they organized. This report suggested a TLV of five fibers per cc. This report has not been released, largely because of extreme pressure from Dr. Selikoff and his labor unions. They are committed to a TLV of less than two fibers per cc. In this connection it should be recalled that Dr. McDonald has shown no excess of bronchogenic cancer until levels of those necessary to produce asbestosis occur. It should be emphasized however that this is in mines and mills and the question will be raised as to whether or not it is appropriate for other settings. This is particularly true since the biological experiences in mining and milling chrysotile have been so much less severe than in the insulation workers and in some manufacturing settings. The long delay in publishing the five fiber recommendation suggests strongly to me that Dr. Marcus Key faces a dilemma posed by the insistence of the labor group and Dr. Selikoff that the TLV be less than two fibers per cc.

4. A LOOK AT THE FUTURE

For our purposes and those of regulating agencies, we must obtain answers to the following. (1) What are the safe levels of fiber concentration in the ambient air of the worker in mining and milling, manufacture, and those who use asbestos products in terms of protection against fibrosis, pleura plaques, bronchogenic cancer and mesothelioma? The need for this information with respect to the users is going to be emphasized more and more in the future and is of obvious overriding importance. Some information is available in considering this question. There is data from the British textile mills and there is the extensive and very useful data of Corbett McDonald from mining and milling. We are still badly in need of USA data with respect to textiles, asbestos cement (Weil and Zizkin's study) and insulation. (2) Are the effects related to type of fiber or to geometry or both? The fact that the biological experience in mining and milling appears to be much less severe than in manufacturing and possibly in using asbestos products clearly indicates a need for finding out the reason for this difference. Is it co-existing materials? Is it related to the possibility that with each subsequent handling of fiber the fiber diameter gets smaller? No information is available on this question and we must institute some research along these lines in a manner similar to that which Timbral has already done with respect to the difference between the fiber sizes generated in the Transval crocidolite mining and milling versus that of the northwest Cape. (3) Has the public experienced any of the adverse effects seen in industry? If so, what? Pleura plaques we know are experienced by the public and by the workers in industry, and we need to have a better understanding of this. Both Corbett McDonald and the Finnish studies are in this direction. Whenever the question of public air exposure or worker exposure is taken up in terms of the safe level of exposure, one invariably comes face to face with the question of mesothelioma. We simply don't have the needed information to approach this problem in a reasor

way. Such information must be obtained in some way. (4) We badly need to know the parameters of public exposure in terms of numbers. Here we are faced with the question of the electron microscope sized fiber. One can go from this to the question of whether there are biological effects of the electron microscope fiber. We have essentially no data on this latter point, but are accumulating data on the light microscope sized fibers in the public air.

5. ADDITIONAL RESEARCH THAT CAN BE SEEN TO BE NEEDED AT THIS TIME

From an epidemiological point of view we badly need studies of chrysotile textile workers and, if they can be found, we also need crocidolite exposures. In addition, because of Selikoff's report of insulation manufacturers, it is essential that we obtain information in this area as well. It is imperative that we develop information with respect to the frequency of mesothelioma in the public as well as in working places. Dr. Weil will have some information on this, but the study is not broad enough and we need additional work. The number and size of the fibers found in the lungs of persons who die probably represents a sampling of their total lifetime exposure. One of the fruitful approaches, therefore, to past exposure both of worker and the public is to look into the fiber content of the lung at death. Some work along this line is being done by the British, but undoubtedly a great deal more needs to be done in this country with our own kind of exposures. The need for a study of whether or not the fiber geometry in both the air and in the lungs varies when one compares mining and milling to manufacture and use is very clear and must be pursued.

While it can be said that we have generated information over the past few years, it is equally clear that (1) we have not generated enough to answer the rapidly mounting questions put to us and (2) with the development of new information we have generated

questions that were not obvious at the outset of our attempts to work in this field five years ago. Although a substantial amount of financial support has been generated to study the general problem of biological effects of asbestos, the industry will have to develop more and at a more rapid tempo if it is to have any input into the deliberations having to do with public and occupational TLVs and the utilization of asbestos products.

George W. Wright, M.D.,
Chairman - Scientific Committee.

15. APPENDIX III

ASBESTOS/HEALTH LEAFLET

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

ASBESTOS AND YOUR HEALTH

WHAT IS ASBESTOS?

Asbestos is a mineral fibre, a hydrated magnesium silicate. There are several different varieties of asbestos. Of these, commercially the most valuable one is chrysotile. The world's three leading producers of chrysotile asbestos are Canada, the USSR and South Africa. Of the 4.5 million tons mined in the world each year, the USSR is the principal producer and user, Canada is the largest exporter and USA is the chief importer. Canada accounts for 35 per cent - 1.6 million tons - of annual world asbestos production, injecting almost a quarter-billion dollars annually into Canada's economy.

WHO USES CHRYSOTILE ASBESTOS?

Virtually everyone does. You cannot operate a road or rail vehicle, a ship or an aircraft without it. It goes into brake linings, roofing products, sewage systems, floor tiling, electrical insulation, fireproof partitioning, the exteriors of buildings, fire-fighting clothing, lubricants and caulking materials, highway asphalt, rockets and space vehicles, acoustical tiling as well as steam, gas-turbine and rocket engines. Skyscrapers sit on lead-and-asbestos pillows: Fresh, pure water flows through asbestos-cement pressure pipes. Chrysotile asbestos goes into prefabricated buildings, ships at sea, subway trains, aircraft and submarines. It has literally scores of essential applications in the office, the plant, the suburban home, the downtown apartment. The paper on which this leaflet is printed could not have been produced without asbestos. On every day, in every way, chrysotile asbestos is essential.

WHAT MAKES CHRYSOTILE ASBESTOS ESSENTIAL?

Asbestos fibres are unique. When they are combined with other materials - and asbestos is rarely, if ever, used by itself - they provide protection from fire, absorption of heat from friction, insulation from heat, cold and noise, reinforcement for plastic and other materials, particularly cement. Or any combination of these. And they do all this at remarkably low cost.

DOES CHRYSOTILE ASBESTOS PRESENT A RISK TO THE GENERAL PUBLIC?

No - there is at present no evidence of hazard to the general public from the minute amounts of asbestos that may be present in community air. In an October 1971 publication, Asbestos - the Need for and Feasibility of Air Pollution Controls, the U.S. National Academy of Sciences states, "At present, there is no evidence that the small numbers of fibers found in most members of the general population affect health or longevity."

DOES ASBESTOS FIBRE PRESENT A HEALTH HAZARD?

Yes - for many years, it has been recognized that a group of respiratory diseases are related to asbestos. However it is also known that, when these develop, they generally do so only after excessive amounts of asbestos dust are inhaled over a long period. A recent study conducted by McGill University into the health of 10,421 past and present chrysotile asbestos mine workers in Quebec shows that their death-rate from such diseases was in fact lower than that expected for of the rest of the general Quebec populace for the same causes. According to the June 1971 issue of Archives of Environmental Health, the death-rate was higher only in the case of workers who, in the course of employment 30 - 40 years ago, were subjected to chrysotile asbestos dust concentrations at levels that no longer prevail in Quebec's chrysotile asbestos mines.

IS ASBESTOS A MAJOR AIR POLLUTANT?

No - Conducted by an asbestos research group at New York's Mount Sinai Hospital, dust counts in New York City and other urban areas of the U.S. show that asbestos levels in the community air are many times lower than levels considered to be safe for workers who actually handle asbestos. What's more, recent evidence indicates that small amounts of asbestos fibre from natural sources, such as weathering of surface outcrops, have existed in the atmosphere for perhaps millions of years. Humans thus probably evolved into their present form in an atmosphere containing some asbestos.

DO BRAKE LININGS EMIT ASBESTOS INTO THE AIR?

Hardly any - A study by the U.S. Public Health Service shows that only a tiny fraction of the asbestos in brake linings is released to the air in its original form when brakes are applied. The action of heat converts the rest into forsterite, a non-fibrous, inert and harmless material.

DOES THE USE OF ASBESTOS CAUSE DISEASE IN THE GENERAL PUBLIC?

No - There is no evidence, scientific or otherwise, that anyone in the general public has ever contracted any disease from exposure to the minute amounts of asbestos released into community air through the application, use, wearing or weathering of finished asbestos products.

CAN A LITTLE BIT OF ASBESTOS KILL YOU?

No - Long-term medical studies of workers who are exposed to asbestos in their jobs show that low to moderate levels of exposure do not lead to an increased rate of disease. In these studies, a higher-than-normal incidence of disease was found only among employees exposed to extremely high asbestos concentrations for long periods of time, a situation which no longer prevails.

ONCE ASBESTOS ENTERS THE LUNG, DOES ALL OF IT REMAIN THERE FOREVER?

No - The lung's normal cleaning mechanisms quickly remove the majority of inhaled particles, including respirable-sized asbestos fibres.

SHOULD THE USE OF CHRYSOTILE ASBESTOS BE BANNED?

No - Asbestos concentrations both in the workplace and in community air can be satisfactorily controlled. There is therefore, from a public health standpoint, no reason to ban the use of any asbestos - containing product. In fact, society would surely suffer if deprived of the wide range of asbestos products designed to protect health, life and property.

TO WHAT EXTENT IS CHRYSOTILE ASBESTOS AN OCCUPATIONAL HEALTH PROBLEM?

Because of the long latent period of asbestos-related diseases, some cases still occur among long-service employees whose exposure began at a time when little was known of the amount of asbestos a human could tolerate, and when dust control equipment was not as efficient or as widespread as today. With expanding medical knowledge and today's improved dust control measures, however, there is every reason to believe that these cases will decrease in the future and asbestos-related disease will cease to be an occupational problem.

CAN CHRYSOTILE ASBESTOS BE SAFELY USED IN THE WORKPLACE?

Yes - Chrysotile asbestos fibre can be handled and used on the job with perfect safety so long as certain basic precautions are followed. These include the careful handling of containers to prevent spillage, the use of dust control exhaust hoods at all stages of in-plant handling where dust is unavoidably created, the wearing of protective respiratory equipment where necessary, as well as good housekeeping with regard to dust clean-up and disposal procedures.

SHOULDN'T SUBSTITUTES FOR ASBESTOS BE USED WHENEVER POSSIBLE?

No - More is known about the potential health hazards of chrysotile asbestos and the proper means for controlling them than is the case with materials that might be used to replace it. It would be unwise to substitute unproven materials, whose health effects are unknown, for chrysotile asbestos which has proved its usefulness to mankind for the past 100 years. For many essential, life-saving uses, chrysotile asbestos is the only material that can do the job.

WHAT IS INDUSTRY DOING ABOUT THE PROBLEM?

A lot - The Canadian asbestos-mining industry sponsored in the 1930s some of the first studies of asbestos-related disease ever undertaken in North America. These studies provided information that became the basis for environmental control programs in the industry which have been refined and expanded over the years. Millions of dollars have been devoted to sophisticated equipment and techniques aimed at preventing asbestos dust from being inhaled by workers in the mining and milling of chrysotile asbestos and in the manufacture of asbestos-containing products.

Through the Institute of Occupational and Environmental Health in Montreal, the Industrial Hygiene Foundation in Pittsburg and in various hospitals and universities around the world, the industry has sponsored and continues to support major epidemiological and other research projects designed to identify and eliminate asbestos-related health risks not only for Canada's chrysotile asbestos production workers but also for worldwide fabricators and applicators of finished asbestos-containing products.

WHAT DOES THIS ALL MEAN TO YOU?

Recent public discussion of the health implications of exposure to asbestos dust has led to the unwarranted and erroneous assumption that data on health risks associated with heavy, long-term, on-the-

job exposure to asbestos can also be applied to the general public.

The known medical facts, supported by nearly half a century of international studies and research, are that:-

1. Asbestos-related health risks are basically confined to the job setting. Every step is being taken to eliminate these job-related risks.

2. Asbestos-related diseases may develop, generally, only after the inhalation of substantial amounts of asbestos dust for a prolonged period of time.

3. There is at present no evidence that exposure to the minute amounts of asbestos that may be present in community air present any hazard whatsoever to the general public.

For further information, please contact:
Quebec Asbestos Information Service, P.O. Box 1643, Station B, Montreal 110, Que.

Published as a public information aid by the Quebec Asbestos Mining Association of behalf of its member-companies.

Litho in Canada

16. APPENDIX IV

ASBESTOS IN CANADA - 1971

QUEBEC ASBESTOS MINING ASSOCIATION

MEETING OF DIRECTORS - CASA MONTEGO, JAMAICA

ASBESTOS IN CANADA - 1971

HIGHLIGHTS

There was a moderate decline in 1971 shipments of chrysotile fibre from Canadian mines as compared to the record-breaking levels attained in 1970. Canadian shipments fell from 1,659,084 tons in 1970 to some 1,633,000 tons. Shipments from Quebec producers declined some 2.0 per cent to 1,339,770 tons, as compared with the 1,367,057-ton level achieved in 1970.

This decline represents the first interruption since 1967 in the industry's sales growth pattern of approximately four to five per cent per annum.

Although shipments for the first six months of last year were well ahead of those for the same period in 1970 and boded well for another record year, the U.S. monetary and economic measures announced in August had an unexpected, far-reaching and depressing impact on international trade during the second half of 1971 and sales of asbestos fell well below predicted levels in certain areas. Major markets thus affected included Western Europe and Japan, where fibre shipments were seriously curtailed.

CANADIAN PRODUCTION

In Canada, the asbestos-mining industry is concentrated mainly in the Eastern Townships of Quebec, with producers also located in northern British Columbia, Yukon Territory, Newfoundland and northern Ontario. The largest known deposits outside of the Soviet Union are those in the Eastern Townships of Quebec where asbestos has been continuously mined since 1876. In a narrow belt stretching northeastward from Asbestos to East Broughton, nine mines (seven

open pit and two underground operations), operated by six companies, produce approximately 82 per cent of Canadian fibre.

Outside Quebec, Cassiar Asbestos Corporation is the principal Canadian producer. From its mining operations at Cassiar, B.C. and at Clinton Creek, Yukon Territory, total production amounted to 180,241 tons in 1971. Shipments from Newfoundland and Northern Ontario totalled 113,231 tons.

T A B L E I

ESTIMATED SHIPMENTS OF CANADIAN ASBESTOS - 1971/70

Province	1971 Short Tons	1971 Percentage	1970 Short Tons	1970 Percentage
Quebec	1,339,770	82%	1,367,057	82.4%
Yukon Territory	87,279	5.3%	104,386	6.3%
British Columbia	92,962	5.7%	85,891	5.2%
Newfoundland	69,218	4.2%	62,640	3.8%
Ontario	44,013	2.8%	39,110	2.3%
TOTAL	1,633,242	100	1,659,084	100

Source: QAMA

WORLD PRODUCTION

Canada accounts for approximately 35 per cent of the world's chrysotile asbestos production. Other producing nations include the USSR, South Africa, Rhodesia, China, the USA and Italy. Asbestos is also found in Finland, Cyprus, India, Japan, Brazil and Nepal.

The world's largest asbestos deposits occur in the Soviet Union. Although official figures for that country's production in recent years are not available, it is reasonable to assume that Soviet output is approximately 2,000,000 tons a year. Although demand for and consumption of asbestos within that country remain at a high level, there is reliable information that Soviet exports of chrysotile fibre are increasing at a rate of some 10 to 15 per cent per year.

with France and East Germany as their largest customers. Soviet exports in 1969 amounted to 381,000 tons.

Production of asbestos in the USA totalled some 130,000 tons in 1971 and a comparable output is anticipated for 1972. California continues to be the leading producer, accounting for 70 per cent of output; Arizona produces some 2,000 tons per year, while the balance is produced in Vermont.

Rhodesia, the Republic of South Africa and Italy are also substantial producers. There were no indications of any significant increase in production during 1971. However, the recent lifting by the U.S. of its import embargo on Rhodesian asbestos may result in a shift in the distribution of fibre on world markets.

Output from the Chinese People's Republic, which furnishes no statistics, is estimated at between 165,000 and 175,000 tons annually.

MARKETS AND TRADE

Asbestos-cement products continue to be the major application for Canadian asbestos, accounting for more than 50 per cent of production. It is in this sector that the greatest growth rate has occurred in the past and is expected to continue in the future.

Asbestos-cement construction materials particularly suit the needs of developing countries, and the plants for manufacturing them can be set up at relatively modest capital cost. Normally, a ready supply of cement is available locally, and asbestos is the only material which must be imported. Thus, finished products can be locally produced for low-cost housing and industrial construction in competition with, in many cases, comparable materials which, when imported, create or aggravate local balance of [illegible]ents difficulties.

The establishment of new manufacturing plants in developing countries has in recent years substantially increased the demand for Canadian

asbestos. In the past 14 years, shipments from Quebec producers alone to these countries have increased by some 50 per cent. Canadian asbestos is currently being shipped to more than 70 countries.

Acceptance of Canadian asbestos fibre by so broad a spectrum of international markets has resulted in a stabilizing of overall demand. A relatively soft economy in one part of the world, accompanied by an abnormally low demand for asbestos, is often offset by a strong economy, with its resultant high fibre demand, in another.

On overseas markets, the trend towards shipping asbestos in containers continues to expand although it is currently restricted to countries, such as Britain, Continental Europe and Japan, with sophisticated cargo-handling facilities at major ports.

APPLICATIONS

The extensive range of applications that exist for chrysotile asbestos fibre results from four basic characteristics of the mineral: - it is fire-resistant; it absorbs heat generated by friction; it insulates against heat, cold and noise, and it acts as a reinforcement for plastic and other materials, including cement. More than 50 per cent of chrysotile fibre output from countries outside the Soviet bloc is used in asbestos-cement applications and piping. In addition to these cement-based products, asbestos applications are to be found in friction materials, brake linings and clutch facings, textiles, filtering agents, roofing materials, acoustical and thermal insulation products, lubricants, sealants and surface coatings.

CANADIAN DEVELOPMENTS

Of the four varieties of asbestos that are produced commercially - chrysotile, crocidolite (blue asbestos), amosite and anthophyllite - chrysotile is the only asbestos mineral mined in Canada. The growth of international markets, the ever-broadening range of asbestos applications and increasing customer sophistication have not only forced the Canadian industry to expand but to develop over 150

separate grades, or blends, of chrysotile asbestos fibre.

Standardized grading began in the 1930s when Quebec's asbestos producers decided to establish the Quebec Standard classification system for asbestos fibres. On the basis of fibre length, this standard divides chrysotile into eight basic groups which are further sub-divided into grades and sub-grades determined by length, strength, color, absorptivity, density and other characteristics.

For the past decade, Canada has retained its dominant position as the major supplier of chrysotile asbestos to world markets. Except during temporary set-backs, most producers have had to operate at capacity. It is anticipated that demand for asbestos will continue to grow. Several major producers have projects in various stages of development. These include:

1) Development of Asbestos Corporation's Asbestos Hill project in Northern Ungava, together with the construction of associated fibre grading and packaging facilities in Nordenham, West Germany, is proceeding on schedule. Ungraded fibre mined at Asbestos Hill will be shipped this summer by bulk carrier to the West German plant where fibre production is expected to be approximately 100,000 tons annually.

2) Asbestos Corporation conducted further exploration and development work, to an amount of over $2 million, at its deep-lying Penhale orebody near Thetford Mines, Que. The results of this work are now being evaluated before proceeding with the next phase in the development of an underground mine.

3) Canadian Johns-Manville Co., Limited, at its Jeffrey Mine, in Asbestos, Que. has completed, as part of a $75 million program, the construction of a 3,000-ton-per-hour gyratory crusher. The concentrator-dryer complex is scheduled for completion by the end of 1972. The escalation of stripping and waste removal

tonnages from the open pit is in progress. The new mining program is designed to achieve a constant level of fibre production for the next few decades.

Flintkote Mines Limited ceased operations at its Thetford Mines, Que., property on December 31, 1971, having exhausted the orebody.

In Australia Woodsreef Mines Limited, of which Pacific Asbestos Ltd., a Canadian company, is a 58 per cent shareholder, has completed construction of its 5,000 ton-per-day mill near Baraba, N.S.W. The mine will enter production later this year, with an eventual 70,000-ton annual output of chrysotile fibre.

ENVIRONMENTAL HEALTH

The Canadian asbestos-mining industry sponsored in the 1930s some of the first studies of asbestos-related disease ever undertaken in North America. These studies provided information that became the basis for environmental control programs in the industry which have been refined and expanded over the years. Millions of dollars have been devoted to sophisticated equipment and techniques aimed at preventing asbestos dust from being inhaled by workers in the mining and milling of asbestos and in the manufacture of asbestos-based products.

Through the Institute of Occupational and Environmental Health in Montreal, the Industrial Health Foundation in Pittsburg and various hospitals and universities around the world, the industry has sponsored and continues to support major epidemiological and other research projects designed to identify and eliminate asbestos-based health risks not only for Canada's asbestos production workers, but also for world-wide fabricators and users of finished asbestos products.

Although research findings are still far from complete or conclusive, scientific evidence has been established which presents the risk of exposure to chrysotile asbestos in a somewhat different light from that so often suggested in the news media. This evidence includes:

1) By calculating exposure indices for each worker from job dust levels and duration of employment, a McGill University study* completed in 1970 and published in 1971 demonstrated that overall mortality amongst a group of 10,421 past and present asbestos workers was lower than that expected for the population of Quebec, except for five per cent of the cohort whose employment began 30 to 40 years ago and who were subject to high dust exposure levels.

*("Mortality in the Chrysotile Asbestos Mines and Mills of Quebec", Dr. J. Corbett McDonald et al., Archives of Environmental Health, June 1971).

Commenting on the results prior to the publication of these findings, Dr. McDonald, who heads the Department of Epidemiology and Health at McGill University, Montreal, stated to a group of asbestos production management and labor representatives "in view of these findings in asbestos production workers, it is difficult to believe that the very much lower levels of chrysotile asbestos to which the general public is exposed under normal circumstances could constitute any appreciable health hazard."

2) A report published in October 1971 by the U.S. National Academy of Sciences and entitled Asbestos - the Need for and Feasibility of Air Pollution Controls concludes, "At present, there is no evidence that the small numbers of fibers found in most members of the general public affect health or longevity." The report continues, "Asbestos is too important in our economy for its essential use to be stopped. But, because of the known serious effects of uncontrolled inhalation of asbestos minerals in industry and uncertainty as to the shape and character of the dose-response

curve in man, it would be highly imprudent to permit unrestricted additional contamination of the public environment with asbestos. Continued use at minimal risk to the public requires that the major sources of man-made asbestos emission be defined and controlled...."

The dust-control programs for protecting the health of workers in Canada's asbestos mills and of residents of Canadian asbestos-mining communities include the procedures recommended in this report.

It is, accordingly, the current belief of Canadian asbestos producers that, in light of the latest scientific evidence, risks incurred by normal exposure to asbestos do not constitute a health hazard, serious or otherwise, to the general public.

THE FUTURE

With the international monetary situation now improved, at least for the time being, it seems reasonable to hope that overall economic activity amongst the industrial nations will soon resume its normal pattern of growth.

It would appear that the incentive for such growth rests with the United States. A strong domestic U.S. economy appears probable in 1972 and is doubtless essential for a world-wide recovery. However prudence requires that Canadians recognize that the announced intention of the United States is to redress its balance of payments deficit. It can most easily achieve this by increasing exports, reducing imports and curtailing foreign aid. The consequences to other trading nations of such a policy remain to be assessed. Nevertheless current indications suggest that the outlook for world-wide asbestos sales in 1972 is encouraging.

Table II - Canadian Asbestos Production and Exports

Table III- World Production of Asbestos