Exhibit 71
Exam of R.J. Merritt
Date Apr 5/89
Official Reporter
KATHY RYLANDSHOLM

J.O. EBY

QUEBEC ASBESTOS MINING ASSOCIATION

SPECIAL WINTER MEETING

BARBADOS HILTON

BARBADOS, W.I.

FEBRUARY 1-4, 1967

PLAINTIFF'S EXHIBIT 04243.00

PLAINTIFF'S EXHIBIT WV-000993

Michel J. Maessel
President

Paul A. Flitneau
General Manager

QUEBEC
ASBESTOS MINING
ASSOCIATION

ASBESTOS CORPORATION LTD.,
THETFORD MINES, QUE.

BELL ASBESTOS MINES LTD.,
THETFORD MINES, QUE.

CANADIAN JOHNS-MANVILLE CO. LTD.,
ASBESTOS, QUE.

CAREY-CANADIAN MINES LTD.,
EAST BROUGHTON, QUE.

FLINKOTE MINES LTD.,
THETFORD MINES, QUE.

LAKE ASBESTOS OF QUEBEC LTD.,
BLACK LAKE, QUE.

NATIONAL ASBESTOS MINES LTD.,
THETFORD MINES, QUE.

NICOLET ASBESTOS MINES LTD.,
NORBESTOS, QUE.

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1. LIST OF OFFICERS AND DIRECTORS

QUEBEC ASBESTOS MINING ASSOCIATION

Officers and Directors

Mr. Michael J. Messel	President
Mr. J.O. Eby	Vice President
Mr. R.S. Coleman	Director
Mr. Karl V. Lindell	Director
Mr. J.A. Main	Director
Mr. R.J. Merrill	Director
Mr. Philip A. Meyer	Director
Mr. W.W. Oughtred	Director
Mr. George W. Smith	Director
Mr. Ivan Sabourin, Q.C.	Legal Adviser
Mr. George Robinson	Treasurer
Mr. Paul A. Filteau	General Manager

Committee Chairmen

Mr. R. Dodds-Hebron	Technical Committee
Mr. H.W. Foster	Uniform Classification and Grading Committee
Mr. I.C. Campbell	Public Relations Committee
Mr. I.C. Campbell	Traffic Committee
Mr. J.O. Eby	Industrial Relations Committee
Mr. A.L. Penhale	Legislation and Taxation Committee
Mr. Karl V. Lindell	Occupational and Environmental Health Committee
Mr. J.R.M. Hutcheson	Dust Abatement Committee

2. LIST OF MEMBERS AND GUESTS

QUEBEC ASBESTOS MINING ASSOCIATION

SPECIAL MEETING - BARBADOS HILTON, BARBADOS, W.I.

February 1st - 4th, 1967

Members and Guests

Asbestos Corporation Limited	Mr. A. L. Penhale Mr. W. W. Oughtred Mr. P. H. Riorcon Mr. M. P. Carson Mr. I. C. Campbell Mr. W. H. Foster
Bell Asbestos Mines Limited	Mr. F.P. Smith Mr. R. Dodds-Hebron
Canadian Johns-Manville Co. Ltd.	Mr. R. Hackney Mr. A.R. Fisher Mr. K.V. Lindell Mr. J.O. Eby Mr. N.W. Handry Mr. J.R.M. Hutcheson Mr. D. Poutiatine
Carey-Canadian Mines Limited	Mr. R.J. Merrill
Lake Asbestos of Quebec Limited	Mr. R.D. Bradford Mr. M.J. Messel Mr. R.P. Gagnon
National Asbestos Mines Limited	Mr. J.W. Duncan
Nicolet Asbestos Mines Limited	Mr. P.A. Meyer Mr. G.G. Gabrielson
Quebec Asbestos Mining Association	Mr. C. Robinson Mr. I. Sabourin Mr. Paul A. Filteau

3. AGENDA

100th MEETING

of the

QUEBEC ASBESTOS MINING ASSOCIATION

BARBADOS HILTON, BARBADOS, W.I.

A G E N D A

February 2nd, 1967, 10:00 am

1. Minutes of the meetings of August 4th and 5th 1966, and December 12, 1966.

2. Committee Reports:

   (a) Technical
   (b) Uniform Classification and Grading
   (c) Industrial Relations
   (d) Traffic
   (e) Legislation and Taxation
   (f) Public Relations
   (g) Dust Abatement

3. Election of Officers and Committee Chairmen

4. New Business:
   Accounts payable, etc.
   Financial Statement of Association
   Method of reporting Average Number of Men Employed
   Comments on General Business Conditions

5. Special Summer Meeting 1967

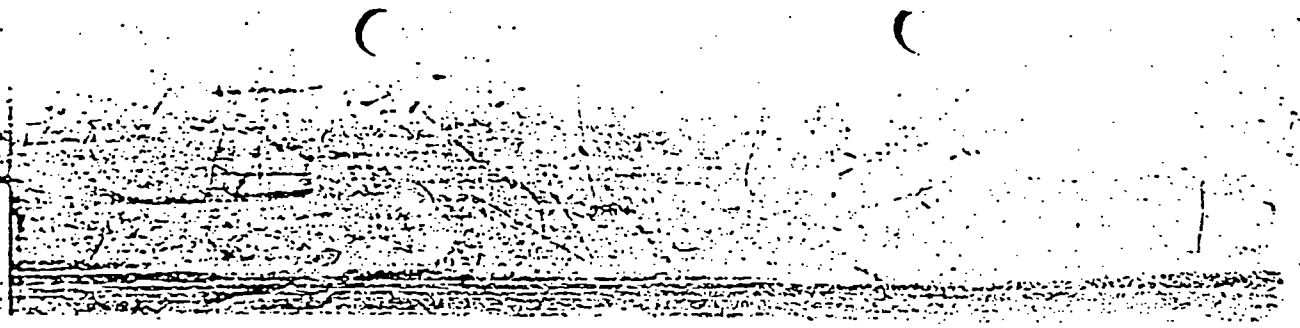
6. Adjournment

February 3rd, 1967, 10:00 am

1. Occupational and Environmental Health Committee

2. Asbestos Plaza - Expo '67

3. Adjournment



4. MINUTES OF MEETING OF DECEMBER 12, 1966.

MINUTES OF THE 99th MEETING OF THE
QUEBEC ASBESTOS MINING ASSOCIATION
HELD ON MONDAY, DECEMBER 12, 1966,
AT THE CHATEAU FRONTENAC, QUEBEC CITY, P.Q.

Present:

Messrs.	M.J. Messel	F. Bolduc	H.S. Jobbins
	J.O. Eby	I.C. Campbell	D. Poirier
	R.S. Coleman	R. Dodds-Hebron	P.H. Riordon
	K.V. Lindell	W.H. Foster	G. Robinson
	P.A. Meyer	J. Gauthier	I. Sabourin
	R.J. Merrill	J.R.M. Hutcheson	P.A. Filteau
	W.W. Oughtred	A.L. Penhale	
	F.P. Smith		

Mr. M.J. Messel was in the chair. He expressed a very cordial welcome to Messrs. Jobbins, Bolduc and Gauthier, who were attending a QAMA meeting for the first time.

Minutes of the 98th meeting of the Association held on September 26, 1966, were approved.

Technical Committee

The last meeting of the Committee was held on November 8th. As reported by the Chairman, work is continuing on various tests, namely, Oil Absorption, Fibre Strength Unit, Filtration of Asbestos-cement-silica-mixes, etc.

Under the ASTM-D-30 Committee, two (2) task forces have had tests procedures accepted: Bauer McNett & Sampling Method. The Surface Area Test Procedure will require re-writing, before it is proposed for acceptance. An additional tast force has been assigned the editing of the Ro-Tap Procedure in ASTM format.

The Editorial sub-committee has undertaken a review of test procedure drawings and will attempt to develop a standard form.

In connection with the Surface Area Test, the distributors of the Dyckerhoff equipment have offered to provide new calibration standards, available from the Mining Academy of Clausthal, Germany. This might come in conflict with our own calibration procedure and it is proposed that such standards be restricted to non-asbestos applications.

A sub-committee has been formed to study unitized shipments of asbestos fibre, with Mr. Pharo as Chairman; other members are André Gauthier and W.P. Archer. One meeting has been held so far.

Mr. Winer of the Federal Department of Mines and Technical Surveys has reported on the Zeiss Particle Size Analyzer; he is waiting for an enlargement apparatus to continue his work. A meeting in Ottawa is planned for March 1967.

At this point, Mr. J.R.M. Hutcheson, who had returned the previous day from Bogota, Columbia, gave a brief account of the ASTM D-30 Committee meeting, held there during the week, (a written report to be circulated to all member companies,)

The Committee, according to our representatives, is moving towards the adoption of restrictive standards. For instance, in the listing of asbestos-cement fibres, it does not include anthophylite. The manual under preparation will constitute an important specifications document, where acceptable tolerances will be listed. This draft document will be submitted for review before going to press. The next meeting of the ASTM D-30 Committee will be held in Mexico City in September 1967.

Uniform Classification and Grading Committee

The Chairman was pleased to report as follows:

A) Sherbrooke Laboratory - Work proceeding normally. The UC&G Committee has decided to have Sherbrooke conduct magnetic ratings on certain fibres in future. The Director attended a meeting of ASTM D-30 on October 3-4. The Fibre Inspector collected 357 grades in 1966.

B) Department of Mines and Technical Surveys - The department has received, in September, the Zeiss Particle Size Analyzer. The Chairman visited Ottawa on October 15th and reviewed the work with Mr. Winer and Woodcock. They lack personnel. Progress (if any) will be assessed in January and it may require a push by the Directors and Chairman to try to accelerate the work.

C) Quebec Department of Natural Resources - The Chairmen of Technical and Uniform Classification and Grading Committees

met with officials of the Department on September 27. It was suggested to undertake research on the use of asbestos in asphalt and concrete and also in paper. It was also suggested to conduct research on the recovery of asbestos now going to tailing; this might involve using wet milling. (Asbestos Corporation will make their data available to the Department.) The Directors wish to point out, however, that CAMA does not want to get involved in a Research program. As per Mr. Hutcheson's advice, caution and control on tests with the use of asphalt will be stressed.

D) Point Value Classification - At a meeting on December 1, UC&G Committee agreed on a "Quebec Point Value Classification of Asbestos-Cement Fibres." This classification, meant for public issue, is worded similarly to the original Q.S. Classification, and is submitted for study by Directors; a formal decision to be taken at next meeting.

Additionally the Committee is tabling "Suggested Controls for the Quebec Point Value Classification" for study and review at next meeting.

E) Bauer-McNett Classification — The Dyckerhoff - McNett Point approach to a fibre classification was not successful. The Committee needs to know which Companies require a McNett Classification? A list of shipments, where McNett is specified, to be made for further study.

Industrial Relations Committee

The Dust Engineer has been making regular inspection tours at mine locations and his monthly reports were circulated.

Following a brief submitted by Steel Workers Union, to the Workmen's Compensation Commission, a meeting will be held on December 17th to review the recommendations proposed by the Psychiatrists, who prepared the brief; there recommendations refer to the psychic effects of accidents on employees involved.

Following the Union demand to re-open present collective labour agreement, a meeting of member companies was held on November 9th last. At the time, it seemed that the local union officers were not aware of this request. The consensus of opinion was opposed to industry wide negotiations and agreed that the matter be handled on an individual company basis. Mr. M.J. Messel, to whom the letter of request was adressed, will reply to the Union, indicating that each company should be approached individually.

Copies of a wage survey compiled by CJM will be sent to all member companies.

Traffic Committee

A) The Chairman reported that the Railroads had requested an increase in the Agreed Charges to the St. Lawrence River

ports of 10% effective next spring and that a meeting to discuss this proposal would be held in January.

B) Ocean rates to Australia which were due to have been increased by 15% effective December 1st, will not be changed until the opening of navigation and as a result of representations made at a meeting with this Conference, it is expected that the increase will be not more than $1.00 per ton.

C) There has been more trouble on the London docks concerning the handling of asbestos by longshoremen, this time South African and Cyprus asbestos were the culprits. A meeting of the asbestos importers and interested people was held in London on December 2nd, at which meeting the Association was represented by Mr. Brazier. No report has yet been received as to the results of such meeting. It was suggested that the continued bad press on asbestos and health in the United Kingdom could be blamed for this situation.

D) Other ocean rates will come up for negotiation in the course of the next few months and there will undoubtedly be some increases. It is important that the study now being undertaken by the Technical Committee with respect to standardizing unitized shipments on asbestos be completed as soon as possible if we are to have any ammunition to mitigate these expected increases.

E) The Chairman reported that he had been elected Chairman of the Canadian Shippers Council, which had already met and was concerning itself with the Canadian shippers' view on the Restrictive Trade Practice report governing the operation of steamship conferences out of Canada.

Legislation & Taxation Committee

The Chairman pointed out that an unfortunate situation had developed in our attempt to present, jointly with the QMMA, a brief on the Belanger Commission Report. Originally, the presentation of this joint brief had to be differed until after June 5th election. Following the change in government, it was agreed to make an appointment with the Premier of the Province to submit our views on the Belanger report to him and other government officials concerned. In the meantime, several meetings of the Joint Tax Committee were held and the general attitude was changed. The Noranda people insisted that the Committee submits, at the same time, a brief on certain clauses of the Mining Act and the Mining Tax Act. The QAMA representatives tried to keep things seperate, and as a result, a special brief on the Mining Act and Mining Tax Act was prepared. An appointment with the Premier was made for December the 12th, but at the last minute it was cancelled by Noranda, because of an apparent conflict with an other appointment. Such an attitude makes cooperation very difficult with the QAMA. Nevertheless, the General Manager will undertake to work out a new approach with the Secretary of the QAMA.

Public Relations Committee

The attention of the members was drawn to the misleading title of an article on "Asbestos as an air pollutant", which appeared in Montreal Star of Friday, December the 9th. The subject was in general treated with fairness and caution; it did not justify the headline given by the press.

A folder for Expo 67 has been prepared by Editas as a hand-out at the "Asbestos Plaza". 100,000 copies could be printed at a rate of 3.1¢ per copy or $3,100.00; an additional 100,000 copies would cost $1,550.00

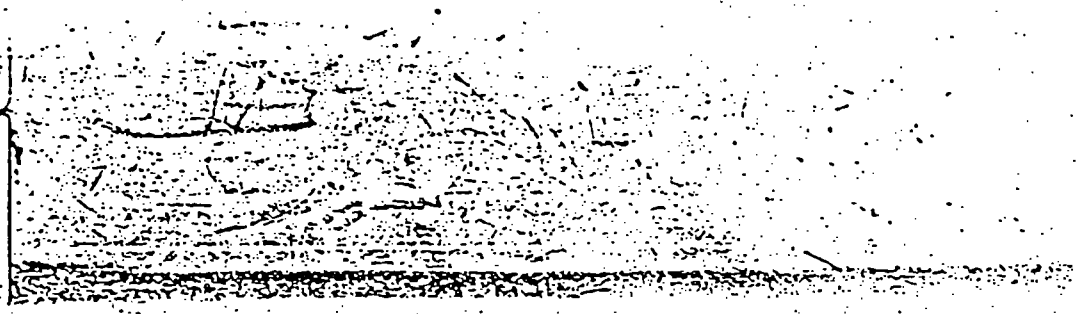
The Chairman recommends that such a folder be printed and submits a request to this effect for $5,000.00. Accordingly, a motion is proposed, se[illegible] and adopted.

A new edition of "Asbestos, The stra[illegible]er known" will be printed as a centenni[illegible] work to be done within the regular b[illegible]

It was pointed out that the release [illegible]onald Survey was not too well reproduced b[illegible]

Institute of Occupational and Environmer

An all-day session of the Scientific Committee was held on December the 10th. Doctors Cartier and Smith, Karl V.Lindell and I. Sabourin attended as observers.



our Dr. Pelnar
our Dr. Cartier

The meeting called on the members to report on what took place since the last meeting of the Committee. It was mentionned that attendance at Medical Conference might appear somewhat futile, but would nevertheless be necessary because of expressions of opinions by attending members although not deciding possibly the point of issue. Many conferences do not publish reports of their dealings. For instance, at the Tokyo Conference, a survey was presented on the incidence of mesothelioma in the State of Pensylvania, where several cases cited were attributed to asbestos exposure; the reproduction of such survey might and yet might not find its way in the report of said Tokyo Conference should same be published in extenso.

The Scientific Committee discussed the matter of availability of research funds. In this respect, the situation as far as the program of the Committee is concerned is somewhat yet fluid and such situation is largerly influenced by this matter of availability of funds. It was suggested that the Institute approach the ATI (Asbestos Textile Institute) and the Asbestos Cement Producers for the purpose of setting up a slush fund which could be used for general research work be in the range of $1,000,000.00. The suggestion to be pursued while waiting for the decision of the Federal and Provincial Governments as to financial support of the Institute.

Counsel reported that at Vienna World's Occupational Health Symposium last September, International Committee had been formed so as to withdraw to a large extent from the "Union Internationale du Cancer" the subject-matter of asbestosis and mesothelioma and pleural plaques and such a Committee was therefore formed, for such purpose, with our Dr. Pelner as permanent secretary and our Dr. Cartier as representative for Canada.

The formation of such a Committee at Vienna was decided by a good move, expressed counsel and much credit for such initiative would be due to Prof. Noro and Prof. Vigliani. (The latter being permanent secretary general of the World Occupational Health Association.)

As an interesting note, in Cincinati, Dr. Selikoff, declared the mesothelioma cannot be admitted without performing certain tests which until today had not been performed. He also stated that he was not sure that asbestos bodies were asbestos fibres. In Paris, Dr. Beattie delivered a talk before the "Union Syndicale de l'Amiante" and pointed out that there are some 209 known cases of mesothelioma in the world. Although not so frequent as other types of cancer, the problem of mesothelioma will continue to build up for quite sometime more. It is suggested that we must face the situation and endeavour to foster proper research program in such fields.

The first case of mesothelioma in the CAMA annals, as a Workmen's compensation claim, has turned up at Asbestos (Can. Johns Manville) based on biopsies at Sherbrooke Hospital. The case is under investigation.

The Scientific Committee wishes to have a meeting with the Executive Committee of the Institute to discuss the appointment of Governors and other relationships.

Dust Abatement Committee

This Committee has been appointed to study dryer dust emission. C.J.M. has agreed to table its own information and the Committee is waiting for replies from other companies.

OAMA Constitution

A) Associate Membership - To be discussed at next meeting.

B) Honorary Membership - This honour would be bestowed on certain individuals who have significantly contributed to the advancement of the industry.

Expo '67

A suitable quantity of rock has been obtained from the Normendy Mine and trucked to St.Gérard for cutting into slabs. A large hollow block of asbestos rock will then be formed around a metal frame. This work to be completed within a month.

New Business

A) 1967 Budget - The Treasurer tabled the Association budget proposed for 1967 in the amount of $473,019.00

ADOPTED.

B) Accounts payable ratified as follows:

1. Counsel - Account for 1965 - OAMA - $25,000.00
   Account for 1966 - OAMA - $25,000.00

   TOTAL: $50,000.00

   Account for 1965 and 1966 re:
   Inst. of Occ. and Env. Health $43,500.00

A motion of adoption of above accounts was proposed and seconded CARRIED.

2. Editas

QUEBEC ASBESTOS MINING ASSOCIATION

ACCOUNTS FOR APPROVAL - MEETING December 12th, 1966.

Editorial Associates Limited	- September	$ 350 44
	- October	$ 815 44
	- November	$ 518 44
		$16,684.32

ADOPTED.

3. It was moved and seconded that the salary of Miss S. Toupin be increased by $50.00 a month, effective October 1966.

ADOPTED.

C) Group Pension Plan

The meeting was advised that an amendment to By-Law No.6 (governing the "Trust Agreement Concerning a Staff Pension Plan") was required in order to conform with the Quebec Supplemental Pension Plans Act. Therefore, the following amendment to By-law No.6 was adopted, after being duly proposed and seconded as follows:

WHEREAS By-Law No.6, being a by-law dealing with the "Trust Agreement Concerning a Staff Pension Plan" was enacted by the Association on the 28th day of October 1963;

Whereas under the provisions of the Quebec Supplemental Pension Plans Act, By-Law No.6 would have to be amended in order to conform with the said provisions;

It is proposed and unanimously adopted: That By-law No.6 of this Association be amended by adding the following paragraph to Clause 9 TERMINATION OF SERVICE:

> "Notwithstanding the provisions of sub-paragraph (c) above, it is provided that, in the case of a terminating employee, who at the date of termination of service has then been in the service of the Employer for at least ten years and has attained the age of 45 years, the policies purchased on his behalf shall be changed to provice a paid-up income, in respect of contributions made and service rendered from and after January 1, 1966, commencing on the normal retirement date, for such amount as the cash value of each policy will permit. The policies providing such paid-up income will be held by the Trustees on behalf of the employee, or will be transferred to the trustees of any pension plan that the terminating employee shall thereafter enter, or will be transferred to the Agency established in accordance with section 6 (e) of the Quebec Supplemental Pension Plans Act, Chapter 23, S.Q. 1965, or its successors, as required by the Quebec Pension Board."

It was noted at said meeting that all members of the Association were present and has signified their willingness to adopt said amendment to said by-law, renouncing expressly to any anterior notice of proposed amendment to By-law No. 6

ADOPTED.

D) Accident Travel Insurance - It was proposed that an accident travel insurance covering all QAMA employees, with the Association as beneficiary, be purchased at a cost of $33.00 a year.

ADOPTED.

E) Annual Meeting - It was agreed to hold the annual meeting at the location selected for the Winter meeting in Barbados, W.I., February 2nd and 3rd 1967.

A nominating Committee to submit a slate of officers for the ensuing year was proposed as follows:

The President - Mr. M.J. Massel,
Mr. Karl V. Lindell,
and Mr. A. L. Pennele, as chairmen

ADOPTED.

Adjournment

There being no further business, the meeting adjourned.

5. REPORT OF TECHNICAL COMMITTEE

QUEBEC ASBESTOS MINING ASSOCIATION

WINTER MEETING - BARBADOS HILTON, BARBADOS, W.I.

February 1 - 4, 1967

TECHNICAL COMMITTEE REPORT

The fifty-first meeting of The Technical Committee was held on January 17th 1967 in Thetford Mines with all member companies represented.

As a brief report has been requested, it may suffice to say that the test work is continuing under the following sub-committees:

Oil Absorption Sub-Committee
Fibre Strength Unit Sub-Committee
Filtration of Asbestos-Cement-Silica Mixes
A.S.T.M. Task Groups

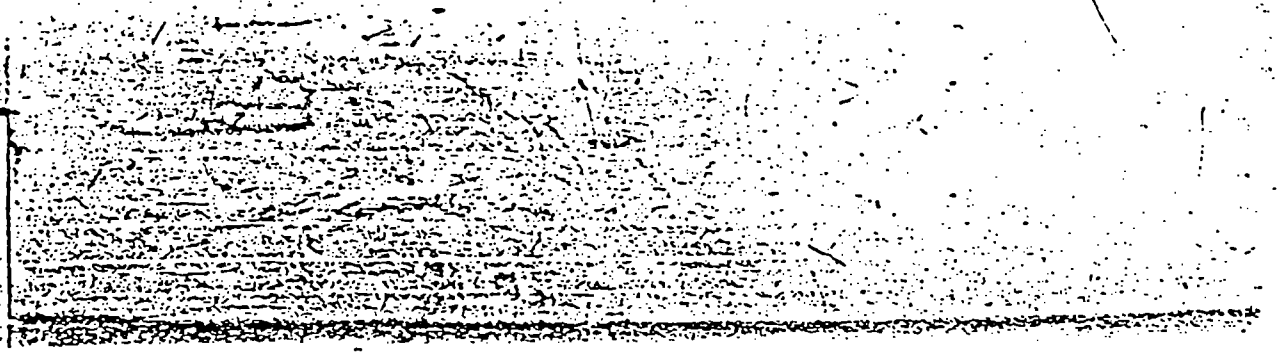
The Unit Load Sub-Committee reported on meetings held so far.

The scope of the work was reviewed and several discussions have taken place with freight handlers and shipping companies to evaluate the work of this committee.

At this stage isolated groups are interested in unit loads, but it will be some time before the industry will have sufficient acceptance to initiate the use of such a package.

Three approaches were reviewed and a summary of the material costs was given to The Technical Committee. The sub-committee realizes the difficulty of introducing the concept of unitized shipments and will continue their investigation.

The report of the Copent Meeting was circulated to the members of the Technical Committee. This report will be reviewed with



6. REPORT OF UNIFORM CLASSIFICATION AND GRADING COMMITTEE

7. REPORT OF PUBLIC RELATIONS COMMITTEE

TEXT OF CENTENIAL BOOKLET

Public Relations report

To: Quebec Asbestos Mining Association

Five individual projects are currently being carried on as part of the industry's public relations program:

Asbestos Producer

The major project continues to be publication of the industry employee newspaper - The Asbestos Producer. Minor changes leading to continued improvements are constantly being introduced to this publication, with editorial policies changing slightly from time to time as dictated by the requirements of the public relations committee. A current change, for instance, is increased emphasis upon the use of the term "chrysotile", with a series of articles planned to familiarize employees with the health advantages associated with this type of asbestos.

Industry Display

The portable industrial display is in continuous use. In co-operation with Mr. Filteau of the Q.A.M.A. office in Quebec, Editas provides regular inspection of the display, replacement of damaged or out of date photographs, cleaning and renovation and transportation from site to site. In January, after a successful period at the University of Sherbrooke, the display was moved to McGill University, where it was set up by Editas for a two-week period. Following its McGill showing, the display will again be inspected and shipped to Thetford Mines for use in connection with the city's 75th anniversary.

News distribution

Information of value and interest to the industry was released to the various media over the past three months; individual items related to the establishment of the Institute of Occupational and Environmental

Expo 67 folder	Copy was prepared in six languages (English, French, German, Italian, Spanish and Japanese) for a small folder about asbestos to be distributed at Expo 67, and six aerial photographs were taken illustrating mine properties. (Copies of the English text are attached; one copy of the folder 'dummy' is available for circulation). Arrangements were made for distribution of the folder at the Quebec Pavilion; 200,000 copies are being printed.
Centennial booklet	Preliminary copy has been prepared and a complete dummy created for a new Centennial Q.A.M.A. booklet to replace the eleven-year-old booklet "The Strangest Mineral...". This new booklet, designed by the studio which created the Centennial symbol and much of the Centennial literature, is completely modern in concept. It is to be published in French and English editions (with asbestos sample attached) and will be available to individual companies at a charge to be decided upon by the public relations committee. A copy of the English text is attached to this report. A dummy of the booklet is available for circulation.

A S B E S T O S

Ancient legend - industrial miracle -

economic goldmine and mineral of

three thousand uses

At Cape Kennedy, Florida, a monstrous rocket-powered space capsule blasts off for Outer Space, destination Moon - or beyond....

In West Berlin, a glass and metal skyscraper rises, securely held to earth on a magic mineral carpet....

In Bangkok, fresh, pure drinking water flows through asbestos-cement pipes....

Millions of people go to sleep in a cold climate, protected from frost and wind by quick-rising, prefabricated walls....

Ships at sea, cars on the expressways, airplanes and submarines, rockets, trucks, trains and motor busses - all these and the space capsule, the skyscraper and the suburban home have one thing in common - ASBESTOS.

This strange, elusive substance, produced in greater quantities in Quebec, Canada, than in any other area in the free world, is a combination legend, industrial miracle, economic goldmine and mineral of three thousand uses.

Its history, its texture, appearance and utility are like those of no other mineral on earth. In this book a small part of its curious tale is told.

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came upon an incombustible substance which he described as "of the nature of the salamander", a kind of lizard reputed to live in the flames. On closer examination, the hair of the salamander turned out to have been mined, much as asbestos was mined in Quebec eighty years ago. Few of Marco Polo's stay-at-home readers, however, were likely to accept without a grain of salt such an improbable tale.

Of such legends and reports few people living in the remote Eastern Townships settlements in the late 19th century were probably informed. Even less aware were they that they were creating a new asbestos legend of their own. Farmers tilling the soil near Sherbrooke and Richmond and the tiny village of Danville came in almost daily contact with the magic mineral in their rocky fields and in the hills. Their wives and daughters carefully extracted the silken threads from the rocks and used them for knitting socks or mittens. Occasionally, braving possible accusations of witchcraft, they tossed their knitted products on the hot stove to dry or even in the fire itself.

Nobody told them they were living on the lid of a vast treasure-house containing one of the world's largest hoards of one of its most valuable minerals.

An Old Wives' Tale in a new age of industry

In French and in English (their mother tongues in the Quebec villages) the wives of the Townships gossiped about their socks and their mittens, made with rock fibres instead of from sheep's wool - and nobody in their neighborhoods took it seriously. Anyway, someday soon, the fluffy white substance would blow away or run out, and their granddaughters would never believe them.

The age of legends, however, was dying, as Canada along with the rest of the world was entering the era of scientific production. And there were men, of course, who knew about asbestos and understood its unusual properties and how it could be mined. Geologists and mining engineers and one or two astute businessmen heard about the remarkable silk fibres in the fields, and a new industry was on its way to being born. Even if they had heard about the salamanders or the burial garments, or of Quebec's socks and mittens, they were much more interested in how much of this rare and exotic mineral lay unexposed beneath the Townships soil.

Eighty years later their question was still

unanswered, though their successors can make a much better guess at it than they could. Men are still exploring and digging and dynamiting and testing; mountains of mine tailings continue to grow and open pits become wider and deeper, big enough in some cases to contain the entire communities which work them. Great, lumbering diesel trucks of almost infinite capacities have replaced the pit ponies and the mills erected to grind the ore bodies and shake loose the precious fibres are a mechanical maze which would astonish nineteenth century producers.

Since 1876, when asbestos was first commercially produced in Quebec, men and machines have drawn out of the earth more than --- --- --- tons of the fibrous mineral. From a geographical rectangle, fifty miles long and fifteen miles wide, they extract each year forty per cent of the entire world's supply. There is, perhaps, enough there still to last another hundred years, if it is mined with care, and firm but increasingly costly efficiency.

Within the rectangle where farmers' wives and daughters were once the sole fibre producers, eleven mines owned by eight major companies now gather and mill some 1,500,000 short tons of asbestos a year.

Ninety five per cent of it is shipped abroad, to become one of Canada's largest revenue producers - nearly $200,000,000 in cash a year, $60,000,000 from the United States alone.

An Old Wives' Tale became industrial reality in 1876. That year, just nine years after Confederation, the new industry mined exactly fifty tons.

What, where and why is asbestos?

Like iron or copper or nickel or gold, asbestos is a mineral. It is different from all other minerals in texture and appearance but, like them, it is an unique geological production diligently sought by industrial man.

Look at it as it is plucked out of the rock and you would think, as one visitor to Quebec's asbestos country suggested, that it was grown from a seed. Or, as another visitor, an enterprising entrepreneur seeking new products for his assembly line, believed, that it was made in a factory, a new product created by a member of the Canadian Manufacturers' Association.

The second observer was actually nearer the truth though he mistook the manufacturer's identity. Asbestos ore is the product of one of the longest, toughest and most haphazard of manufacturing processes, involving billions of tons of twisted, molten rock, unmeasurable heat and pressure, and millions of years of time.

Nature was the manufacturer and though modern scientists and engineers have tried again and again to duplicate its processes and produce asbestos

synthetically, they have never succeeded in developing a satisfactory product. Instant asbestos is still no more than a glint in a scientist's eye.

In remote geological eras, millions of years before the emergence of man, Nature twisted and squeezed prehistoric rock, fed it to volcanoes, crystallized it and left it to lie in serpentine veins soon to be covered by rock debris and top soils, buried deep below the surface of continents and islands - and probably the seas.

Outcroppings served the Acients and attracted the womenfolk in Quebec's Eastern Townships. Hungry modern man has discovered it in more substantial quantities and has mined it in Russia, Rhodesia, South Africa, Cyprus, Italy, Australia, China, France, Japan and the United States, as well as in Canada.

More asbestos lies beneath the Eastern Townships rectangle than under any other comparable area of the earth's surface. Or so today's geologists believe. They may, of course, be wrong; as wrong as the Old Wives who expected the "white stuff" would soon blow away. For already new deposits are being discovered; important ones at Cassiar, in British Columbia, in Newfoundland and up north in Quebec near

Hudson Strait where Eskimos help unearth it.

To the chemist, Asbestos is spelled $3MgO$, $2S_1O2$, $2H_2O$. Those are the symbols for the magic formula which created chrysotile, a hydrated magnesium silicate - the type of asbestos mined in Quebec. Its specific gravity is from 2. 5[illegible] to 2. 59. Although its fibres may seem silky-soft, fragile or delicate, they are so tough that even when exposed to ordinary acids, they maintain their strength. And don't let the soapy feel of the fibres fool you; when twisted, they possess the tensile strength of steel.

Chrysotile is Canadian

Unlike other minerals such as copper, coal or zinc, asbestos comes in different varieties, each with its own set of characteristics.

Commercially, the most valuable kind of asbestos is chrysotile (from the Greek words "chrusos" meaning golden and meaning) and this is the only variety to be mined in Canada.

Mills grind swiftly to capture the fibres

When gold or iron or nickel is mined, it goes to a smelter where the ore is melted down and runs off into moulds. Waste rock, wracked and twisted by the heat, is dumped on a slag heap. Sulphur fumes created during the process, climb towering chimneys and are spewed forth over the countryside.

Asbestos-bearing rock, mined in the same manner as gold or iron, goes instead to a mill. There it is crushed in tough iron jaws, screened, fiberized, graded and bagged, ready for shipment to fabricating plants. Air is the lifeblood of the asbestos mills. To separate a ton of the thistledown-soft fibres from its mother-rock as it is ceaselessly agitated on screens, roughly ten tons of air, in the form of vacuum, is required. The residue of crushed rock is deposited on the tailings piles, or dumped into an abandoned open pit. Of all the intricate equipment in the milling process, the most elaborate, and most costly are the ventilating and air systems that remove any trace of asbestos dust from the air.

In its primitive days, at the beginning of the century, asbestos mining created dust-laden

communities. As production increased and as milling methods were refined, safety measures, including health protection, were developed and introduced until the good working conditions.

As in all other industries, however, it is the man behind the machine that makes the mine. In the 1880's, a Quebec asbestos miner spent his days, winter and summer, in an open pit gathering by hand chunks of asbestos-bearing rock. These he deposited in a horse-drawn cart. His craft was called "cobbing" and for it he was paid an average of $1. 50 a day.

Today, the cobber has almost completely disappeared. In his place is the "team", the miner and mill worker who operate mechanical equipment in open pit, underground mine or modern mill. Their hand-maidens are explosives, air and electric drills and mechanized equipment of high safety standards and great variety. Their earnings are upwards of $2. 34 an hour with additional "fringe benefits" which add as much as another fifty cents.

Quebec's 7,000 asbestos producers are some of the highest paid hourly wage workers in Quebec - recognition of their importance to the Canadian economy.

Before a pound of asbestos goes to market, an asbestos mine must have on its staff not only miners and millworkers, but a whole host of modern technologists, all professionals in the mining field - accountants, geologists, electronic technicians, diesel mechanics, mining engineers, maintenance engineers, safety experts, lawyers, nurses, railroadmen, millwrights, carpenters, purchasers, computer operators, draftsmen, book-keepers, market research men.

All of these highly-trained skills - and many more - are represented on the staff of the typical asbestos mine in Quebec.

The Mining and Milling processes

Asbestos is mined at depths ranging from 60 feet to 1,400 feet below the surface. At one mine, the surface consisted of a lake which was drained away so that miners could have access to the ore. In many cases, as the vast open pits are mined deeper and deeper, it is necessary to widen them. Churches, schools, shops and dwellings built on the surface must be relocated so that the supply of job-creating wealth from the earth may continue.

There are two kinds of asbestos mines - the underground mine and the open pit. Asbestos companies prefer open pit mining because it is not only cheaper, but provides ore that is drier and of more uniform quality when it reaches the mill for processing.

First step in the asbestos-mining process is to blast the rock from the ground. Huge air or electric drills punch a pattern of holes, 12 inches wide and 40 feet deep, into the "bench" of ore to receive the blasting agent. With their benches - staggered mining levels extending around the pit - many of Quebec's asbestos mines resemble vast Roman amphitheatres.

Dynamite, which can be awkward to transport, store and, at times, to detonate, is no longer the blasting agent most commonly used. Chemical fertilizer is used instead. Ammonium nitrate - the fertilizer that Prairie farmers use to produce their wheat - is mixed with diesel fuel at the blast hole to become a powerful and reliable explosive.

Gone, too, are the days of the dramatic blasts when smoke and rock would plume high to the heavens in a deafening reverberation. Such explosions mean energy gone to waste and today's asbestos mine engineers prefer quiet blasts that, without fuss or flurry, gently topple thousands of tons of rock at a time.

In underground asbestos mines - there are only three of them in Quebec, all in Thetford Mines - miners go about their work in a different way. A thousand feet or more below the ground, they burrow under the asbestos orebody, drive shafts, called "drawpoints", at 45 degrees into the rich ore above them, and let gravity, and the sheer weight of the rock above, actually squeeze the ore through the drawpoints, much like toothpaste from an inverted tube. The method is known as block-caving.

From the underground mine or open pit, the

asbestos-bearing ore is transported by truck, or in underground mines by miniature trains, to the crushers near the mill. The huge jaw-crushers chomp away and reduce 20-ton rocks to rubble in a matter of seconds. Then the ore is dried and stored until it is needed in the mill.

Once there, it is subjected to further crushings and repeated shaking, screening and fiberizing, all aimed at separating the last shred of fibre from the smallest particle of asbestos rock. As this occurs, powerful air suction through the massive aspirator hoods draws the fibre away for grading, packing and final shipment.

Asbestos is valueless as long as it lies in the ground. Quebec's eight mining companies which recover it have invested hundreds of millions of dollars in plant and equipment. They spend more millions each year on materials and supplies, maintenance, modernization, expansion, wages, salaries, transportation and other services.

The continuing investment in improvements during the past ten years has cost Quebec's asbestos mines an average of $12,000,000 a year.

Investment on this scale enables the mines to

employ directly some 7,000 men and women and to give indirect employment to approximately 48,000 other Canadian workers in the industries from which mining companies purchase the goods and services needed to keep the 12 asbestos mines and 11 mills operating.

All this is necessary before a pound of chrysotile asbestos goes to market. And much more is required before that pound of asbestos has any intrinsic value to a manufacturer.

Asbestos Has Its Own Language

Like every business, asbestos-mining has a language all its own. These are just a few of the words that asbestos mine or mill workers use in their everyday work:

Cobber	:	a person who separates by hand crude fibre from rock.
Cyclone	:	a piece of milling equipment.
Dryer	:	the section of the mill in which crushed ore is dried.
Feed	:	the supply of ore into the mill.
Grizzly	:	grillwork in an underground mine, preventing the passage of oversize ore.
Jumbo	:	a piece of equipment in the crushing section of the mill.
Nipper	:	an underground miner whose job it is to deliver supplies.
Skip	:	a container in which ore is raised from an open pit or underground mine.
Spotter	:	a man who controls the movement and positioning of trucks unloading at the crusher.
Sump	:	the lowest part of an open pit, where pumps are located.
Tailings	:	pulverized waste rock discharged from a mill.
Whizzer	:	piece of high-speed milling equipment.

Quality is the key in asbestos fibre

Not all chrysotile asbestos fibres are the same. Some are better than others, or, at least, better for a specific manufacturing purpose.

Quebec's asbestos mines produce almost a hundred different grades of fibre, determined by its length. Very early in the industry's history, mining companies decided to establish these grades on a scientific basis so that purchasers anywhere in the world could be assured of the uniformity and quality of the Quebec asbestos they bought.

The standard they adopted, and which is scrupulously preserved under the supervision of the Quebec Department of Natural Resources, is known throughout the world as the Quebec Standard. It is as valid a symbol of integrity in the mineral world as is the label Manitoba Number One Hard when applied to wheat.

Here are the principal standard grades:

Group I	crude (unmilled) fibre	textile products
Group II	crude (unmilled) fibre	textile products
Group III	milled fibre	textile products
Group IV	milled fibre	asbestos-cement products

Group V	milled fibre	asbestos-cement, and asbestos-paper products
Group VI	milled fibre	brake linings as a filler
Group VII	milled fibre	in vinyl floor-tile, highway asphalt
Groups VIII-IX		as a filler in paints and caulking compounds.

Who does what with asbestos fibre?

To a miner, a silky fibre of chrysotile asbestos drawn from a chunk of Quebec rock is a lovely thing to behold. To him, it represents not just a rare mineral. It is the very staff of life. From billions upon billions of fibres such as these, he and over 7,000 co-workers earn their livelihoods. His fibre would be worthless, however, had not other men developed for it more than three thousand industrial uses. Even more uses for it will be found in the future.

In one way or another, most people use asbestos, or the products and services produced with the aid of asbestos, every day of their lives. They use it because asbestos resists fire, heat, friction and corrosion. And it does not conduct electricity. These characteristics, plus the ability of fibres to form a tough, interlocking web when combined with many substances, make chrysotile asbestos an absolutely unique substance.

Principal users of asbestos are the manufacturers of construction materials. Combined with cement, asbestos is used in siding and shingle materials, wallboard, roofing and in water and sewage pipes.

It is found, too, in plastic tiling, in paints and caulking compounds.

Next largest user is the automotive industry and, increasingly, in aircraft manufacture. Asbestos fibre goes into brake linings and pads, not only for cars and trucks but in the largest jet aircraft. It is also used in gaskets and facings for automatic and manual power transmission systems.

General industry demands huge tonnages of asbestos, too. Combined with other materials, asbestos goes into high-temperature insulation, machinery packings, and special lubricating compounds. It is also part of firemen's suits and fireproof draperies including, of course, the theatre curtain. Inside operational rockets and missiles, insulating materials and asbestos-reinforced plastic components are widely used because of their high strength-to-weight ratio and resistance to searing temperatures.

In Canada and the United States, many government authorities specify the use of asbestos as an additive to highway asphalt. This combination results in a tough yet resilient paving that resists the hammering of heavy axle-loads and expansion and contraction caused by sharp temperature changes.

Men do all these things with asbestos today. Tomorrow, they will use it in ways now undreamt of. In the mining company laboratories and in the research departments of the manufacturing companies, the relentless search goes on - to find new and better ways to employ the magic mineral for the benefit of mankind.

An invisible ingredient and an economic law

Asbestos is seldom the main component of any of the manufactured articles into which it enters. Its production, sale and use are, therefore, subject to an universal economic law which, in all countries and under all but the direst circumstances determines where, how and why certain products of everyday use are to be made.

Like salt, also the product of a mine, asbestos fibres which form part of another product are seldom seen and never heard. In a vast number of finished goods they are an essential but infinitesimal and invisible ingredient. Because they are so industrially desirable, however, many people believe that their ultimate processing, or conversion into parts of finished products should always be undertaken either at the mine site or at least within the provincial or national boundaries of their country of origin.

It is as if the salt miners were to insist that all bread must be baked in some remote mining area to be convenient to their salt supply. Obviously, the baker prefers to have his bakeshop in a metropolitan centre close to his market and to have the salt shipped there. Asbestos users share his feelings.

Where it is economically practical, the Quebec asbestos mining industry encourages the establishment of conversion industries in Quebec or in other parts of Canada, and their number grows continually as the Canadian market increases. But at home, as abroad, asbestos fibre sales ultimately depend upon what suits the buyer, rather than convenience of the seller. To retain its position in a highly competitive world market where Quebec asbestos faces not only the competition of other asbestos-producing countries but that of manufacturers of other natural and synthetic materials as well, it becomes a matter of giving the non-Canadian customer guaranteed continuity of supply of high quality fibres at a competitive price which will enable him to use them economically in products of his own manufacture. Any attempt to force him to import the completed product would be disastrous.

Asbestos cement sheets, for example, are a popular construction material both here and abroad. They contain ten per cent asbestos and 90 per cent cement. The weight ratio of cement to asbestos is even higher. Simple logic dictates that these sheets shall be manufactured not at the fibre source but at the site where the cement is manufactured or the sheets

are to be used. It is much more economical to ship a hundred pounds of fibre to the market and add it to the cement, than it is to mix the ingredients together at the mine site and ship a thousand pounds of asbestos-cement sheets to the customer.

Cross-border shipments are affected even more. Few countries have their own asbestos fibres; all can and do make cement. To suggest that in order to make asbestos-cement sheets available to their construction industry, they must also import Canadian cement would quickly drive them to substitute materials.

Quebec's asbestos mines and their 7,000 workers - together with the many thousands employed in the allied trades - depend for their security upon a steady flow of asbestos exports. The world is their market; without it, their industries would die and their jobs disappear. In the natural processes of industrial material integration, the mineral they mine disappears into almost complete anonymity. Invisible ingredient it will always be; essential it will remain only as long as it is freely available. That is decreed by an immutable economic law.

The cities and towns and healthy life asbestos built

Asbestos mining is not only a major Quebec industry; it is also a community builder, seriously concerned about the health and happiness of its employees. In the ore-bearing region of the Eastern Townships, it is responsible for cities like Thetford Mines and towns like Asbestos, Black Lake, Coleraine, Danville and East Broughton and contributes, as well, to the prosperity of nearby Richmond and Sherbrooke.

Without the capital which has poured into the area by way of the mining companies and the skills and research that have been applied to the industry, these prosperous and lively communities would be tiny, unknown hamlets, if indeed, they existed at all.

These are the communities asbestos built. They are remarkable not only for the product which sustains them but for the spirit and enthusiasm that carries them on. Like miners everywhere, asbestos miners are a breed apart. They are fatalists; they know that someday, long after they are gone perhaps, the mines will be exhausted and the communities' reasons for being will disappear.

Yet, encouraged by the companies, they have

developed all the civic amenities. They have concert halls and recreation centres, sports arenas, schools and colleges, fine stores, clubs and movie houses, and all the municipal services. They take pride in their achievements, produce stalwart citizens - all as if their communities were to go on forever.

The largest of the asbestos mining centres, Thetford Mines, has a population of more than 20,000 and is about halfway between Sherbrooke and Quebec City. In 1967, it celebrates the 75th anniversary of its incorporation as a town. A regional centre, Thetford Mines is a marketing point for farm produce, has a large "campus" of secondary and technical schools and colleges and also boasts the largest department store in the Eastern Townships. Federal government statistics show that in 1966, its citizens were second only to Montrealers as the highest average income earners in Quebec.

Some 65 miles to the south-west is the area's second community, the town of Asbestos, whose 10,000 inhabitants have a greater per capita output of chrysotile fibre than anywhere in the free world. Asbestos is the site of the largest open pit asbestos

mine and the largest asbestos mill outside of Russia. Approximately half Quebec's total fibre output is produced here.

Civic enterprise in all the mining communities is inspired and managed by the citizens. Asbestos workers are regularly elected mayors, aldermen and local and regional school commissioners. For these are not company towns. The mining companies participate simply as good citizens through a sincere interest and with cash donations.

In one important area, however, the asbestos mining industry has made a major contribution and plays a continuing and leading part. The industry was one of the first in Canada to recognize the need for medical aid to its workers. One company began to employ industrial doctors more than seventy years ago, and today there are well-staffed and well-equipped clinics and hospitals sponsored by the industry in both Asbestos and Thetford Mines.

Working today in asbestos mines and mills are many men still hale and hearty after half a century at their trades. Many of them have sons and grandsons in the industry.

In common with other mining industries, asbestos mining and milling have been regarded as sources of respiratory diseases. This has been a constant concern of the mining companies and has led to extensive engineering development and regular inspection routines to reduce the presence of dust to a minimum. The air over the mining towns is reported to be much cleaner and safer than that, for instance, over Montreal or any other major city.

In 1966, the companies through their association, established with the co-operation of international medical experts and university staffs, an Institute of Occupational and Environmental Health to examine, study and preserve the health of the industry's present and future employees and extended the benefits of this research to asbestos workers around the world.

Many people, too, think of mining as hazardous Statistically, a man's chance of being involved in an accident at an asbestos mine are much less than when he's at home or driving his car. Safety engineering has made asbestos mining safe; the occupation in Quebec is classified as that of a "light industry" and every year, millions of manhours of accident-free labor are worked in the mines.

The magic mineral's promising future

For another century or more, it is expected men will be mining chrysotile asbestos in Quebec. Methods will change to become more efficient and more economical. The people who work in mines and mills will change, becoming each year more highly trained and more technically skilled.

Most of the hard labor of the early days of asbestos mining will have disappeared. Life in the mining communities will have become even more comfortable and affluent and the people of asbestos-land will more and more be able to combine the enjoyments of rural and urban living.

Some mines now operating will disappear; new ones will be opened up and developed. As new ore bodies are uncovered, municipal boundaries, streets and buildings will change, but change will be preceded by thoughtful planning.

Cultural, economic and health standards will be raised in the mining communities as the new generations of mining folk take over. The aid that has been lavished on today's schools, recreational and medical institutions will begin to show during the final years

of this century.

All this will be possible - and all will come true - because within the Quebec mining and processing industries, the research will go on, seeking constantly new ways to make chrysotile asbestos fibres of use to Man and his World.

Canada in its second century will be richer and its future will be brighter all because of the industry which began with Quebec's old wives' tales almost a century ago.

B. REPORT OF DUST ABATEMENT COMMITTEE

QUEBEC ASBESTOS MINING ASSOCIATION

WINTER MEETING - BARBADOS HILTON, BARBADOS, W.I.

February 1 - 4, 1967.

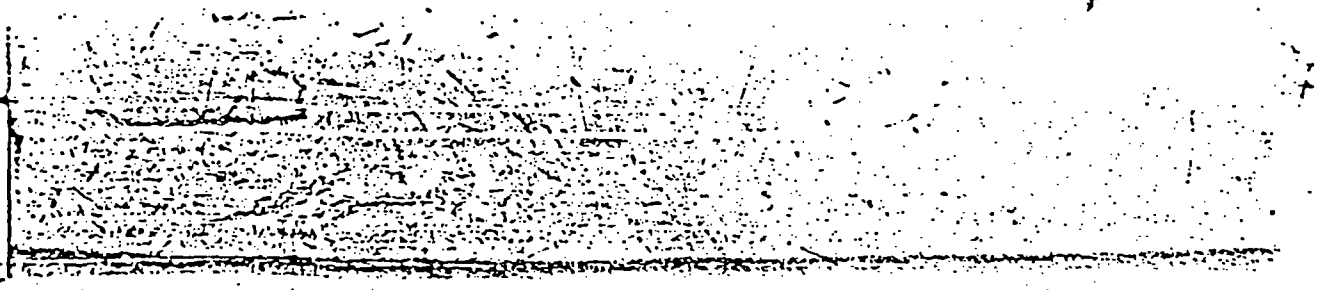
DUST ABATEMENT COMMITTEE REPORT

Reports on dryer dust control have been received from Lake Asbestos, Asbestos Corporation, Bell Asbestos and Canadian Johns-Manville. Two only are comprehensive enough to be seriously studied and it is planned to do so. In my comments at the meeting, I wish to present:

a) a description of the extent of our problem by stating figures of dust quantities emitted to the atmosphere at C.J.M. and at Lake Asbestos, pointing out the progress over the immediate passed years;

b) data on experimental work being presently carried out at Canadian Johns-Manville.

J.R.M. Hutcheson
Chairman



GAMA

9. ALLOCATION OF EXPENSES FOR 1966

QUEBEC ASBESTOS MINING ASSOCIATION

ALLOCATION OF EXPENSES - 1966

	TOTAL	ASBESTOS CORP.	BELL ASBESTOS	CANADIAN JOHNS-MAN.	CAREY CANADIAN			NATIONAL ASBESTOS	NICOLET ASBESTOS	CASSIAR ASBESTOS
...ection	12,468.00	4,750.32	1,034.88	3,540.84	773.04			399.00	249.36	
...ection	9,709.00	1,783.07	443.67	4,537.59	1,339.19			333.01	179.64	
...nd Control	12,057.43	4,593.89	1,000.86	3,424.22	747.56			385.83	241.16	
...tions	128,707.77	49,037.70	10,682.77	36,552.97	7,979.89			4,118.62	2,574.16	
...nsulting	51,200.00	19,369.20	4,227.90	14,450.00	3,349.85			1,665.55	1,033.25	
...& Research	62,638.66	22,675.19	5,199.02	17,413.57	4,384.70			2,380.27	1,628.58	
...pense	16,403.00	2,050.38	2,050.37	2,050.38	2,050.37			2,050.37	2,050.37	
...fice	38,981.45	14,111.28	3,235.49	10,836.82	2,728.69			1,481.31	1,013.50	
...ffice	19,770.53	6,880.15	1,502.56	5,120.57	1,107.15			573.35	355.87	1,739.80
...nurach and of Occupational ...ronmental Health	139,386.26	48,506.40	10,593.35	36,101.04	7,805.63	3,902.82	13,659.86	4,042.20	2,508.97	12,265.99
	491,322.10	173,757.58	39,970.87	134,028.00	32,266.07	16,813.04	51,216.38	17,429.51	11,834.86	14,005.79
...e Station	5,452.77	2,562.80	2,889.97							
	$496,774.87	176,320.38	42,860.84							

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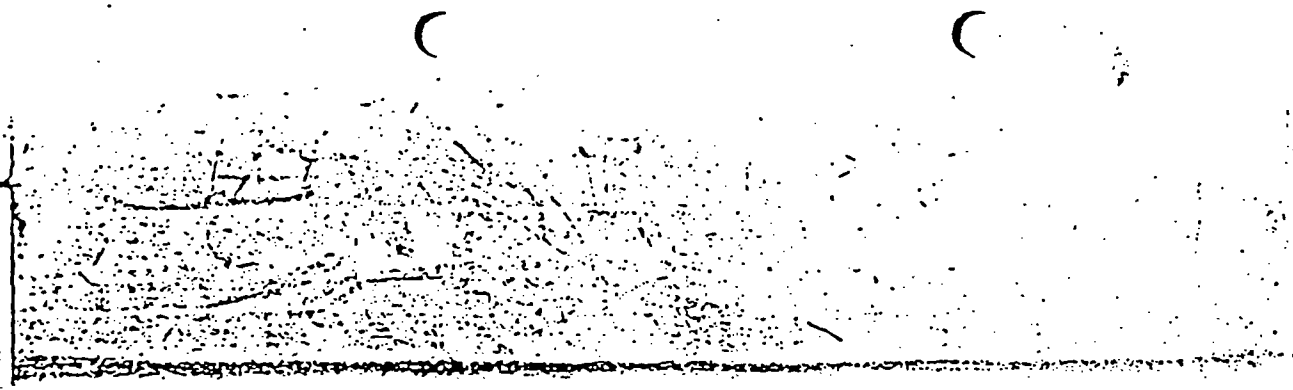

10. REPORT OF GENERAL MANAGER

QUEBEC ASBESTOS MINING ASSOCIATION

WINTER MEETING - BARBADOS HILTON, BARBADOS, W.I.

February 1-4, 1967

REPORT OF GENERAL MANAGER

National Pollution Conference - At the Conference held last Fall , the major recommendation made was for a single federal agency to establish a National Pollution Abatement Code. It was suggested that the Council of Ministers appoint an advisory board to deal with soil, water and air and be responsible for inter-provincial problems: standards and objectives; research and technical assistance; allocation of grants and training. In general, a great deal more emphasis was placed on water pollution as against air pollution.

2. Several meetings of the Provincial Interdepartmental Committee on Mining Technology were held during the Fall of '66. One meeting was held in Val d'Or for the purpose of obtaining the views of the mine operators of Northwestern Quebec.

A survey of the present physical and academic facilities was conducted by Mr. Pierre d'Ean, Principal of the School of Mining Technology of Alsace-Lorraine, France. Specific recommendations presently under advisement are:

a) Appointment of a provincial coordinator

b) At least two schools - Asbestos and Noranda - giving a complete three-years course.

c) A better balanced curriculum and optimum facilities and equipment.

3. Following a brief submitted by the Unions to the Minister of Labour and the Workmen's Compensation Board on the subject of "Psychic Traumatism resulting from an industrial accident", a meeting with all parties concerned - W.C.B. commissioners, and their medical staff; union representatives, the psychiatrists who had prepared the brief and officers of their corporation; representatives of associations of employees - was held at the Office of the W.C.B in Montreal. It was soon apparent that 95% of the recommendations and suggestions concluding the brief were out of order as a result of a surprising lack of information by the psychiatrists as to the operations and facilities provided by the W.C.B. in that field of interest. So much so that the authors of the brief had to withdraw most of their contentions on behalf of the Unions and against the inadequate treatment provided by the W.C.B. to injured workers.

4. As recommended at the last Mines Ministers Conference in St.John, N.B., the Department of Natural Resources of the Province of Quebec proposed to carry out a complete change over to the Drager SC-174 equipment for Mine Rescue work, instead of adding units on a gradual basis, as originally suggested.

Cost of first units 82% of $6000.00 = $4,920.00

Additional cost to Q.A.M.A.82% of $9,000.00= $7,380.00

Also requested, an air compressor for the Thetford Mines Rescue Station at an approx. cost of 82% of $2,500 = $2,050.00

In addition, the Department of Natural Resources would like to hold a meeting with CAMA and CMMA to discuss the transfer [illegible]

to the Government. A consultative Committee, composed of representatives of mining companies and Government, would be set up to advise and approve annual budget, somewhat similar to Ontario plan.

5. Mining Industry Manpower Committee- Following a request by the Mining Association of Canada, a Regional committee was appointed for the Province of Quebec.

   Two meetings were held to outline:

   a) The immediate requirements and forecast for the next 2 years of each sector of the mining industry in Quebec.

   b) The factual situation with respect to manpower supply available for the mines now and for the next 2 years.

   c) To assess recent recruiting efforts.

   d) To investigate recruiting difficulties and suggest means to promote interest in employment offered by the mining industry.

   In this latter respect, our Quebec CIM Education Committee is conducting a tremendous campaign at the secondary school and university levels. It is hoped that the outcome of this plan of action will benefit the mining community. There is no doubt that repeated pressures on the governments in this respect should eventually bring about policies and legislation favouring the mining industry.

6. Asbestos Industry Exhibit - This exhibit has been displayed at the Industrial Exhibition of Northwestern Quebec early in August '65, thence at the University of Sherbrooke until end of October and at the Asbestos Trades School until end of January '67. This week it is being shipped to McGill

7. Our relations with the many departments of the Federal and Provincial governments, as well as with other trade associations, have continued to be most friendly and cooperative. We have maintained our policy of frequent visits and exchanges with officials of the Workmen's Compensation Board, the Labour Relations Board, the Department of Natural Resources, Department of Education, the Federal Department of Energy, Resources and Mines, the Department of Industry, Department of Commerce, etc.

8. Part of our time has been devoted to the setting-up of the Institute of Occupational and Environmental Health. So far, the publicity and interest shown by several quarters is quite gratifying. There is a definite need, obviously, for public information on the activities, the progress and findings of present research work in the biological effects of asbestos.

Paul A. Filteau

11. APPENDIX:

ASBESTOS IN 1966

ASBESTOS IN 1966

Unlike the majority of minerals which have rather stable standards dating back into history, the importance of the asbestos industry has been created largely by research in the origination of uses of asbestos fibres. During the past fifty years, several thousand applications of this material have been developed for industry, for consumer goods and defence. Continuing research into uses and other improvements in the quality of the fibre promise increasing demand for the material in various degrees of utilization. Of the many types of asbestos, only five or six are of economic value. Of these, chrysotile is by far the most important, and accounts for approximately 90 per cent of the world's production, and is the only variety mined in Canada.

World Review

During 1966, the demand for asbestos continued at a high level, such that production facilities were operated at or near capacity. Increasing demand for asbestos in the manufacture of asbestos-cement products, together with a high level of industrial activity in the United States, Japan and Western Europe raised total requirements of many grades to record levels.

Current world production of asbestos is in the order of 3.8 million tons annually. Russia has made significant progress in developing asbestos production facilities in 1965 and 1966, with two new mines coming into production, one at Kiembi, Kazakhstan, and another operation at Aktrovsk

in the Tuva region, South of Lake Baikal. Although no statistics are published concerning asbestos production, Russia is now believed to be the world's leading asbestos producer, with an output in the order of 1,600,000 tons per annum. About 15% of this total, approximately 225,000 tons, were exported in 1966 to East and West Germany, France, Poland, Czechoslovakia, Bulgaria, Hungary, Japan, India and the Scandinavian countries.

Following a shortterm set-back in 1965, the Canadian asbestos mining industry established new records in 1966 for both tonnage and production value. Based on figures for the first eleven months of this year, it is quite possible that total Canadian asbestos production will break the 1,500,000 tons mark in 1966. Thus, Canada would maintain a rate of production accounting for 40% of world output.

In Canada the largest portion of asbestos is produced in some ten(10) mining operations located in the Eastern Townships of the Province of Quebec, where the known reserves are considerable. Elsewhere in Canada chrysotile asbestos is mined at the Cassiar Mine, situated at McDame Lake in Northern British Columbia, and at Baie Verte in Newfoundland, where Advocate Mines Limited produces a type of fibre well suited to the manufacture of asbestos-cement products.

One of the noticeable increases in asbestos production has taken place in the United States, where output in 1966 is estimated at some 130,000 tons, as compared to 118,000 tons in 1965. Production is consumed internally, of course, since

the U.S. continues to represent the largest importing market of the mineral.

In addition to the above countries, the southern half of the continent of Africa, constitutes an important asbestos producing region. Ranking third as an asbestos producer, South Africa should reach an output of 240,000 tons in 1966, mainly crocidolite and amosite. In Southern Rhodesia (including Swaziland) production of asbestos in 1966 is expected to be at or near the 1965 level of 214,000 tons.

Asbestos is produced in many other countries of the world, but the pattern of such production has been relatively stable and no marked change is anticipated in production rates in 1966.

Summerizing, world production of asbestos of all types during 1966 is estimated at some 3,800,000 tons. Russian output is placed at 1,600,000 tons, Canada at 1,500,000 tons and other countries a combined total of about 700,000 tons. World production growth has been remarkable, having doubled in the past 10-year period.

Canadian Developments

Despite increasing world production and competition from other countries, Canada is still by far the Free World's largest asbestos producer. In step with the growing North American economy, The Asbestos Mining Industry in Canada established a new record in 1966. Shipments for the year

were 1,485,741 (prel.) tons, as compared to 1,380,210 tons in 1965 and 1,419,850 tons in 1964, the previous record year. To consolidate their position, Canadian mines are going forward to enlarge the reserves of present mines, and to develop new sources of production.

Cassiar Asbestos Corporation Limited expects to place its Clinton Creek property, in Yukon, in production in 1968 at an annual rate of 60,000 tons. Asbestos Corporation Limited is proceeding to bring its Asbestos Hill property, in Ungava, into production in 1970 at an annual rate of 100,000 tons of fibre. Canadian Johns-Manville Company Limited has undertaken the development of its Reeves Township property, in Ontario, the objective being to begin production in 1968 at an initial rate of 25,000 tons of fibre per year. Expansion of production facilities has been carried out by some of the Canadian producers and activity in the exploration field for asbestos orebodies has been about normal.

Foreign Developments

In the search for new asbestos deposits, no new major discoveries were reported and no new properties entered the production ranks, with the possible exception of the Russian deposit, located near Aktovak on the Mongolian border.

In the United States, some expansion of production has been effected at Pacific Asbestos Corporation, in California, and the three producers operating in the Coalinga area have been active.

In South America, only one active asbestos mining operation was productive during 1966, namely in Brazil. However, a considereble volume of exploration was conducted in La Solita region of Columbia. Production of blue fibre from The Bolivian deposits remained at a very low level.

In Africa the output of crocidolite and amosite from the South African mines continued to expand but no new chrysotile asbestos operations were reported from this latter country. In view of the existing political difficulties in Southern Rhodesia, production of asbestos was adversely affected by sales embargos in various countries of the world. The Ethel Asbestos Mine, a Southern Rhodesian producer for 15 years, closed down during the year.

In other countries where asbestos is produced, the year witnessed the termination of the asbestos mining operation in Corsica, and there are indications that the Japanese mining operation of the Nozawa Asbestos Cement Company, in Hokkaido, might be discontinued.

Technology

Asbestos, unlike other minerals which are found in a single state in their raw form, is currently available in more than one hundred separate grades. In this connection the importance of maintaining high standards of quality and uniformity has never been as essential as it is in today's highly competitive market. Canadian mines have, during the

past several years, conducted a great deal of research in updating mining facilities and improving processing techniques in order to provide a better product to the users of asbestos fibre..

From the production standpoint, the battle against higher costs was continuous throughout the year. Upward increases in mine forces, labor costs and costs of equipment and supplies have been partially offset by greater efficiencies of operation. Some of these efficiencies include increased mechanization in operating procedures, the trend toward larger and more mobile equipment, bulk handling and loading of explosives. It follows, that as mining attains greater depths, waste to ore ratios increase and mining costs accelerate.

The trend in milling techniques continues toward the production of cleaner fibre grades and more uniform qualities. Specifications of fibre grades have become a way of life in most uses of asbestos to the decided benefit of the consumer. This has produced the requirement of more testing and additional quality control procedures to meet specifications. However, it is normal to assume that quality control will play an increasing role in asbestos production and shipments in view of the stress being placed on the safety and other aspects of many of the products in which asbestos is employed.

Demand

When one considers the many applications to which asbestos fibres and shorts are put in the manufacturing industry,

outstripping supply. Furthermore, world consumption of asbestos is expected to rise steadily and the demand could possibly be as high as 6,000,000 tons by 1975.

The largest market for asbestos continues to be for use in the manufacture of asbestos cement products, with the major items being sheets and pipe. Whereas, a slowdown in the production in this field has been witnessed in the last quarter of 1966 in the United States, the United Kingdom and Western Europe, the demand continues to be very strong in most of the remaining countries in the world. The so called underdeveloped countries are emerging as important markets for asbestos fibre due to the establishment or expansion of asbestos cement manufacturing facilities.

In terms of diversity of asbestos fibre use, the U.S. market has no close equal. The multitude of manufactured products incorporating asbestos is most complex and continues to expand year by year. This market absorbs a wide range of fibre types and lengths ranging from the largest textile fibres to floats.

The medium length and short asbestos grades were in high demand in 1966 and the Canadian producers supply a very high proportion of these grades. Manufacturers in such industries as floor tile, brake linings, asbestos paper, plastics, roofing compounds and etc., consume major quantities of such fibres. However, changes in the economic trend of the construction and the automotive industries in any country will rapidly effect the demand for the medium and short grades.

Outlook

Outlook for the export of fibre from Canada is dependent on a number of variables whose impact cannot be entirely predicted. To a great extent, the industry's fortunes in 1967 will be determined by the level of industrial activity abroad, particularly in the U.S. which takes more than 50% of Canadian asbestos exports.

Canada currently exports asbestos of many types to some 67 countries of the world. In 1965 for instance, some 1,319,404 tons were shipped into export markets. Exports in 1966 should exceed those of 1965 by more than 10%

As previously stated, the most important single market for chrysotile is the asbestos-cement industry. In the U.S. this industry has developed an important place in the economy of the country and its products are in ever-increasing demand. This also applies to Continental Europe, as well as Asia and Countries in South America.

Although current conditions in the U.S. indicate that the market for asbestos-cement products and building materials has reached some sort of a plateau, this situation may be offset by stronger demand in other export markets such as Italy, France and Japan. The textile market for a broad range of asbestos yarns and fabrics is firm and new uses for asbestos are being developed such as an additive in newsprint and in asphalt concrete. Accordingly, the Canadian asbestos industry should continue to operate at or near capacity in 1967.

Over the next ten years, production is estimated to grow 5% to 7% annually on a world wide scale. On the basis of such forecast, Canadian asbestos producers look forward to continued expansion in the years to come so as to meet foreign competition on the world markets.

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