FILE NAME: Quebec Asbestos Mining Association (QAMA)

DATE: 0000

DOC#: QAMA025

DOCUMENT DESCRIPTION: Abstracts of QAMA Research Projects 1960s-1970s

QAMA –

Sponsored

Research

Projects

Project No. 4 - Ultrastructural study of experimentally induced asbestos granulomas in hamsters

Samples of chrysotile obtained from Dr. Holt (Reading) to be injected into the peritoneal cavity of hamsters. Formation of asbestos bodies to be investigated by classical histology, electron-microscopy and histochemistry.

Other samples of chrysotile to be injected into Selye's granuloma pouches pouches. Local reaction to be investigated and its modification by various agents incl. P_2O_4.

Cost $11,266.

Dr. André Dumont, M.D. &
Dr. A. Alcindor, M.D.,
Université de Montréal,
Montréal.

CANCELLED

Project No. 5 - Epidemiological study on the biological effects of asbestos dust at the Balangero Mine and among the Port of Genoa and LaSpezia Arsenal insulation workers

Epidemiological study of all workers past and present of the chrysotile mine and of a representative cohort of insulation workers from the shipyards and environmental study of their dust exposure.

Objectives are:

1) Does the inhalation of asbestos fibres bear any relationship with: a) the occurrence of carcinoma of the lung; and/or b) the occurrence of mesothelioma of the pleura and/or the peritoneum?

2) Do people exposed to the inhalation of very low concentrations of asbestos dust, such as workers exposed to concentrations well below any threshold limit or people living in villages in the vicinity of asbestos mines, exhibit an abnormally high incidence of calcified pleural plaques?

3) Do the different types of asbestos behave in the same way in regard to lung cancer, mesothelioma of the pleura and pleural plaques, or is one type of asbestos prevalent among the others as a causative agent?

Cost $85,000.

Dr. Enrico C. Vigliani, M.D.,
Clinica del Lavoro,
Milano, Italy.

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3864

DOCUMENT TITLE | LOCATION

Ghezzi, I., Aresini, G. & Vigliani, E.C.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
10	The risk of asbestosis in a mine of	
11	chrysotile asbestos (It)	
12	(Il rischio di asbestosi in una miniera di	
13	amianto crisotilo)	
14	La Medicina del Lavoro, 63 (5-6): 189-212, 1972	
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A-I		

tile asbestos.

The Authors have carried out a study of the causes of death and a study of clinical epidemiology on the working population of a mine of chrysotile asbestos in Balangero. In this mine, between 1932 and 1970, 1098 workers have worked for at least one month; of these, 242 were at work on March 31st, 1970. Informations could be obtained in 998 workers, that is 90.8 % of the total population. 270 subjects have died: 6 of these (2.2 %) died from lung cancer. No case of serosal mesothelioma was ascertained. The percentage of lung cancers was not significantly different from that observed in male subjects of the same age, who died in the same period in two towns of the area, where the mine is situated. A clinico-radiological examination and a study of the respiratory function have been carried out in workers at work since more than one year: 29.8 % of 474 subjects showed an X-ray pattern classifiable in categories 1, 2, and 3 of the CINCINNATI classification; the highest percentage of subjects (48.6 %) with abnormal X-ray pattern was observed in the groups at highest risk. 51 subjects showed fibrous changes of the pleura, 10 of which with calcific opacity. The respiratory function test performed were the vital capacity, the maximum expiration volume in one second (VEMS), the alveolo-capillary diffusion at rest and at work (steady state method); half subjects with abnormal X-ray pattern showed a ventilatory insufficiency restrictive in type, while approximately one third showed a damage of alveolo-capillary diffusion. In 14 workers with a completely normal X-ray pattern, an impairment of alveolar-capillary gas diffusion was demonstrated, in at least 5 of these cases, all at high risk, the existence of any other possible pathologic cause, except asbestos exposure, could be ruled out. 25 % of the workers who received physical examination, was found to have chronic bronchitis; no correlation was demonstrated between chronic bronchitis and asbestos exposure. The physical examination showed the existence of fine crepitant rales at the thorax bases in 27 % subjects with abnormal X-ray pattern; the highest percentage of subjects with fine crepitant rales was detected in the group with the highest risk. The finding was present also in 7.5 % of the radiologically normal subjects. On the basis of the clinical and functional data, it seems possible to confirm that an impairment of alveolo-capillary diffusion of gases and the appearance of bibasilar fine crepitant rales can constitute one of the early consequences of exposure to asbestos, even in the absence of pleuro-pulmonary changes radiologically evident.

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INDEX/TRACING CARD

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3586

DOCUMENT TITLE

Ghezzi, I., Maranzana, P. & Zannini, D.:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
3	Considerations on asbestosis in Piedmont,	
10	Liguria and Lombardy. (It)	
36	(Considerazioni sull'asbestosi in	
38	Piemonte, Liguria e Lombardia).	
60	Medicina del Lavoro, 62 (2-3):111-119, 1971.	
61		
62		
63	Since 1943, when the compulsory insurance against asbestosis was started in Italy, 1530 workers were compensated by I.N.A.I.L. for asbestos pneumoconiosis in Piedmont and in the provinces of Milan, Bergamo and Genoa; out of these, 1205 were still living on March 31 st, 1970. The asbestoses of moderate or advanced degree constituted	
43	32 % of the cases, such percentage was higher than 50, if one considered only the	
31	workers who had been employed in the textile industry and in dock-yards. Pleural	
30	changes, both calcific and not, were radiologically demonstrated in 52 % of asbestotic	
42	subjects who had worked in textile mills, while among the former chrysotile miners	
70	such changes resulted to be present only in 14 % of the subjects. Out of the 325 dead	
85	workers compensated for asbestosis, 165 (57 %) died due to causes directly related to asbestosis (cardio-respiratory insufficiency, tuberculosis, pleural and lung tumours). Pleural and lung tumours were found in 34 subjects, that is 10.5 % of the dead cases; such percentage rose to 26.3 %, if one considered only the 61 autopsied cases, in 16 of whom the presence of a pleural or lung neoplasia was found. The incidence of pleural and lung tumours was maximal (19.5 %) among the former insulation workers, and minimal (2.6 %) among the ex-miners, who had been exposed only to chrysotile; in this last group no pleural mesothelioma was found.	
	Besides the epidemiologic data, the results are reported of 466 measurements of air dustiness, carried out in as many work places: in 36.3 % of the counts, the asbestos concentration was higher than 12 fibers/ml. The maximal concentration of asbestos was observed in the atmosphere of a textile department (carding).	
	Ref. Book A I, II, III.	

INDEX/TRACING CARD

JHM 00772

DATE | INDEXED BY | FILED BY | DOCUMENT NO. 3839

DOCUMENT TITLE: Sartorelli, E., Zedda, S., Aresini, G. & Ghezzi, I.: | PAGE OF | LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
12	Respiratory physiopathology of asbestosis (Italian)	
13	(Fisiopatologia respiratoria dell'asbestosi).	
60	La Medicina del Lavoro, 63 (7-8): 269-281, July-Aug. 1972.	
61		
62		
63		(Summary on file)
70		
85		

D-III

INDEX/TRACING CARD

DOCUMENT TITLE: Vigliani, Enrico: | PAGE OF | 2870 | LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
20	Fibrogenesis. The fibrogenic response	
21	to asbestos.	
29		
~~43~~	OAMA 2nd Antigua Conference IV:	
~~44~~	151-167, Nov. 22, 1967	
45	Medicina del Lavoro 59(6-7):401-	
48	410, 1968	
73		
85		

TIIA 00773

DATE | INDEXED BY | FILMED BY | PAGE OF | DOCUMENT NO 3333

DOCUMENT TITLE Vigliani, Enrico C.: | LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
2	Criteria for determination of MAC	
3	of silica and asbestos in the air. (It.)	
40	(Criteri per la determinazione delle	
43	concentrazioni massime tollerabili di	
45	silice e amianto nell'aria).	
48	Med. Lavoro, 60 (2):85-89, Feb. 1969.	
85	(List # 4)(Ent. Lab. Asbest Pap.)	

The paper given at the International Congress of Hygiene and Preventive Medicine in Rome, 1968, describes in some detail the Italian hygienic norm for prevention of silicosis:

$$R = \frac{q\,N}{5000}\left(1 + \frac{2}{1+q}\right)$$

where R = hazard of pneumoconiosis

q = % of free silica in dust

N = number of particles <5 micron in 1 cc of air

Otherwise it summarizes knowledge of the date on measurement of dustiness in various countries and particularly on the problems connected with evaluating and measuring hazard of asbestos exposure.

x

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DOCUMENT TITLE Vigliani, E.C.: | PAGE OF | LOCATION 3291

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
70	Asbestos Exposure and its Results in Italy.	
60	La Medicina del Lavoro, 60(5):325-330, May 1969.	
61	(paper read at 2nd International Conference	
63	on Pneumoconiosis, Johannesburg, April 1969).	
62	SUMMARY: Of 307 deaths among asbestosis compensation cases in four	
36	Italian provinces, 31.6% died of asbestosis, 10.8% of cancer of	
38	lung and pleura. A minority of subjects were autopsied, and these	
85	subjects exhibited a higher mortality from asbestosis, 42.4%, and	
	lung and pleura cancers, 27.1%. The author comments that the	
	"number of lung tumors found at necropsy is rather high." Four	
	types of asbestos workers were studied; miners, textile and friction	
	products, asbestos-cement, and insulation workers. "Mining	
	has the lowest and insulation the highest incidence of tumors of	
	the lung." A study on dockyard workers is also under way. Preli-	
	minary findings among this group indicate: "No significant differen	
	in the incidence (9.4%) of tumors of the lung was seen between	
	workers with continuous and intermittent exposure to asbestos."	
		IEM 00771
	PROCEEDINGS Internat. Conf...Pneumoconiosis., pp. 192-196, published 1970.	

DOCUMENT NUMBER

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3091

DOCUMENT TITLE

Vigliani, E.C.; Ghezzi, I.; Maranzana, P. & Pernis, B.

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
36	Epidemiological Study of asbestos	
38	workers in Northern Italy.	
60	La Med. del Lavoro 59 (8-9):481-485,	
43	Aug.Sept. 1968	
61		
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SUMMARY

During the period 1943-1967, 285 workers (209 men and 79 women), compensated by the INAIL for asbestosis, died in Piedmont, Liguria and Lombardy. Thirty two workers had been engaged in asbestos mining, 161 in manufactures (asbestos-textile, brake and friction products), 60 in the production of asbestos-cement, and 35 in insulation works. Out of the 288 dead workers, 28 (10 %) died from a lung tumour or from a mesothelioma of the pleura, 36 from neoplasias at other sites, 93 from cardio-respiratory disease complicating asbestosis, 22 from tuberculosis, 51 from other causes; in 28 cases the death cause could not be determined. In 56 cases the autopsy was performed; among these cases, lung and pleura tumours constituted the 23 %. The percentage of lung tumours among the male asbestosics was approximately twice that observed among the inhabitants of Milan, Turin and Pavia, and approximately 8 times higher than that of silicotic patients who died in the same period. Among the 32 miners, who had been exposed only to chrysotile, the incidence of lung tumours resulted to be 3.1 %, lower than that observed among other categoris of asbestos workers (textile and friction products, asbestos-cement) and among the insulators.

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INDEX/TRACING CARD

DATE | INDEXED BY | ENTERED BY | PAGE of | DOCUMENT NO 2931

DOCUMENT TITLE

* Vigliani, E.C. & Pernis, B.: Maranzana, P., Ghezzi, I.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
70	Epidemiological Study of Asbestos Workers	
60	in Northern Italy.	
61		
10	Lecture #37 -2nd International Conf.	
~~12~~	Biological Effects Asbestos, Dresden,	
~~31~~	April 1968	
42	Proceedings published 1973, pp. 147-150	
85		

INDEX, TRACING CARD

JHM 00776

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3865

DOCUMENT TITLE

Zanardi, S., Lerza, P. & Russo, L.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
10	Clinical and radiological problems	
11	concerning asbestosis (Italian)	
12	(Problemi di clinica e radiologia dell'asbestosi)	
30	La Medicina del Lavoro, 63 (7-8):257-268, July-Aug. 1972	
31		
33		(English abs PVP)
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One of the most serious problems concerning asbestosis is certainly that of early clinical and radiological diagnosis. The Authors therefore aim to bring a contribution to the subject by reporting and discussing the semeiological findings obtained in numerous cases of relatively early asbestosis (700 cases of asbestosis at first observation found among almost 3000 workers of the naval industry). The clinical aspects considered include subjective symptoms, physical signs, chest X-ray findings, functional and laboratory findings. Moreover, the availability of a second group of patients followed-up for a long time (70 asbestosis patients alive and periodically controlled for 50 to 16 years), as well as of a third group of dead asbestosis cases (32 cases controlled at autopsy) enable the Authors to bring a further contribution to the knowledge of the clinical course and prognosis of this pneumoconiosis, both in its typical evolution and in the evolution modified by the various complications.

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3866

DOCUMENT TITLE

Zannini, D., Bogetti, B. & Ottenga, F.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
3	The risk and prevention of asbestosis	
4	in shipyard works (Italian)	
10	(Il rischio e la prevenzione dell'	
12	asbestosi nelle lavorazioni navali)	
30	La Medicina del Lavoro, 63 (5-6):	
31	221-244, 1972	
36		
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Since the first few reports of cases of asbestosis among workers engaged in insulation jobs by means of asbestos aboard ships in building or repair, the risk of pneumoconiosis in such workers has revealed so far more and more severe, and has involved also other groups of workers of the naval industry, in whom, in the last years, pleural or pulmonary lesions are found more and more frequently. Of no minor concern is the increasing frequency of pleural or pulmonary tumours among the same workers. The actual diffusion of such diseases can be related not only to a more systematic medical checkup of the workers, but also to the more and more intensive use of asbestos in the last 30 years. In fact asbestos is used aboard not only for the insulation of engines, but also for the thermic and acustic insulation of all ship structures, both by means of panels, and by spray. Almost all people working aboard ships in building and repair are therefore exposed to the inhalation of asbestos, as it has been demonstrated also by the cases studied at the Institute of Occupational Medicine in Genoa, and by the connected findings. It is therefore required a resolute organization of the preventive measures, which consist both in substituting asbestos with other materials, and in reducing the ambient dustiness, in using individual protection measures for the workers directly or indirectly exposed to the risk, in organizing the work aboard in instructing the personnel, in studying the ambient dustiness.

IHM 00777

Project No. 6 - The cellular basis of the biological effects of asbestos

Study of morphological and biochemical changes of macrophages and fibroblasts cultured in vitro in the presence of well defined particles of asbestos, such as: chrysotile, amosite, crocidolite, anthophyllite, tridimite, and in each of them long fibres and very finely divided particles separately. Whenever indicated the in vitro experiments to be expanded by suitable studies on experimental animals.

Cost: $45,000.

Dr. Benvenuto Pernis, M.D.,
Università degli studi di Genova,
Via Balbi 5,
Genoa, Italy.

JHM 00779

DOCUMENT NUMBER

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3862 | LOCATION

DOCUMENT TITLE: Governa, M. & Pernis, B.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
20	Biological effects of asbestos (It)	
25	(Azioni biologiche dell'amianto)	
27	La Medicina del Lavoro, 63 (5-6):	
120	161-178, 1972	
36		
69		(English abs. PVP)
72		
73		
85		

DOCUMENT NUMBER

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3684 | LOCATION

DOCUMENT TITLE: Governa, M. & Rosanda, C.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
21	A histochemical study of the asbestos	
20	body coating.	
85	Brit. J. Industr. Med. 29 (2):154-159, 1972	

Governa, M., and Rosanda, C. (1972). *Brit. J. industr. Med.*, 29, 154-159. A histochemical study of the asbestos body coating. Asbestos bodies after iron extraction were tested by histochemical methods for mucopolysaccharides. The results of the reactions suggest that acid mucopolysaccharides are present in the coating of most bodies. During the formation of the bodies acid mucopolysaccharides might act as a matrix for iron deposition on the coating.

JHM 00780

INDEX TRACING CARD

DOCUMENT NUMBER

INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3863

DOCUMENT TITLE

Governa, M. & Rosanda, C.:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC
21	The mechanism of formation of
72	asbestos bodies (Italian)
85	(Meccanismo di formazione dei
	corpuscoli dell' asbesto)
	La Medicina del Lavoro, 63 (5-6):
	179-188, 1972

From the results of the most recent studies on the mechanism of formation of asbestos bodies, it seems that one can conclude, according to SUZUKY and CHURG (1969), that asbestos bodies are the terminal-product of a biological process which occurs in the macrophage, which has phagocytosed a mineral fiber; within the phagolysosome the fiber would be covered with the coating of organic substances.

In this report, the results are presented of a series of experimental studies, from which it is possible to propose an alternative mechanism of asbestos bodies formation.

By an *in vitro* experiment in an acellular system, previous observations have been confirmed, according to which the formation of asbestos bodies is possible without the active intervention of cells; in fact, asbestos bodies have been obtained by incubating chrysotile fibers in sterile saline solution containing albumin, hyaluronic acid and ferritin.

By histochemical studies on the coating of human asbestos bodies, it has been demonstrated that the inner layer is composed by proteins mixed with haematoidin and ferric iron; above this, there is hyaluronic acid, finally covered by an outer layer containing ferric iron.

Histochemical studies on the substances which deposit themselves on the asbestos present in experimental granulomata from carrageenan, have demonstrated the high affinity of asbestos for haematoidin, hyaluronic acid and iron. In fact, already in the initial phases of granulation tissue formation, all these substances had stratified themselves on asbestos fibers. These were coated, even though they were free in the tissue ground substance, and were not phagocytosed within the macrophages.

Hyaluronic acid is a physiological extracellular component of the ground substance of the connective tissue. Haematoidin is also a substance usually extracellular, present in the connective tissue interstitium as a consequence of past haemorrhages; iron too can be found free in the connective tissue ground substance in areas where an inflammatory process is occurring.

One can therefore suggest the hypothesis that asbestos bodies might be found in the lung interstitium, even even without the intervention of macrophages.

In conclusion, if one keeps in mind that the membrane of alveolar macrophages is rich in acid mucopolysaccharides and that haematoidin can be found within the macrophages themselves, one can suggest two mechanisms of formation of asbestos bodies: the shorter fibers, completely phagocytosed by macrophages, would represent the core of intracellular asbestos bodies, while the longer fibers, which are not phagocytosed by the macrophages would give rise to asbestos bodies which are formed outside the cells, in the ground substance of connective tissue.

X

DOCUMENT NUMBER

INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3785

DOCUMENT TITLE

Governa, M. & Vadala, C. Rosanda:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
21	Histochemical demonstration of hematoidin	
73	in the innermost layers of human asbestos	
85	body coating.	
	Int. Arch. Arbeitsmed. 30 (4): 273-282, 1972	

Summary. The well-known histochemical reactivity of asbestos bodies has been modified by treatment with iron extracting solutions and enzymes. Asbestos bodies did not exhibit any more Prussian blue positivity after treatment with iron extracting solutions, but showed a toluidine blue metachromasia due to hyaluronic acid. The same bodies, treated before with iron removing solutions and digested with testicular hyaluronidase, were not toluidine blue metachromatic, but exhibited again a Perls positivity. Then these same bodies became again Perls negative after a second iron extraction, and showed instead a positive hematoidin reaction. The diameter of the same body appeared progressively smaller after each treatment. Moreover the hematoidin positive layer had been so digested by trypsin that asbestos fibers were at least optically naked.

These findings suggest that during the development of asbestos body coating, first proteins, hematoidin and ferric iron are deposited over asbestos fibers, subsequently hyaluronic acid is laid around the first layer, and finally other ferric iron particles impregnate the hyaluronic acid molecules.

IT-M00781

DATE | INDEXED BY | EDITED BY | DOCUMENT NUMBER

DOCUMENT TITLE | PAGE | OF | DOCUMENT NO 3869 | LOCATION

Governa, M. & Vadalà, Rosanda:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
43	Histochemical study of asbestos fibre	
24	coating in experimental carrageenin	
28	granulomas	
72	British J. Industr. Med., 30 (3): 248-252, 1973	
85		

To study the composition of asbestos body coating, asbestos particles present in experimental carrageenin granulomas were tested histochemically for mucopolysaccharides, ferric and ferrous iron, haemoglobin, and haematoidin. The stains were applied on microscopical sections both untreated and treated with iron-extracting solutions and/or enzymes. The results indicate that asbestos is rapidly coated with haematoidin, ferric iron, and hyaluronic acid.

DATE | INDEXED BY | EDITED BY | DOCUMENT NUMBER

DOCUMENT TITLE | PAGE | OF | DOCUMENT NO 3140 | LOCATION

Parazzi, Elena; Pernis, B.; Secchi, G.C. & Vigliani, E.C.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
43	Studies on 'in vitro' cytotoxicity	Also in Proceedings Interna
44	of asbestos dusts.	Conf. on Biological Effects
72	La Medicina del Lavoro, 59 (10): 561-	of Asbestos, Dresden,
8	576, Oct. 1968.	April 1968, published 197
85		pp. 74-81

The cytotoxic action of different types of asbestos dusts on guinea pig macrophages cultured «in vitro» was studied. This was done through investigation of the production of lactic acid, the loss of fluorochromasia, and the release into the culture medium of enzymes belonging to different intracellular structures -- cytoplasma and lysosomes - from macrophages cultured «in vitro» and treated with chrysotile and crocidolite dusts. The results obtained using the three methods listed show that both types of asbestos possess a marked cytotoxic action for macrophages: this action is evidenced by a reduced production of lactic acid in the treated cultures, by a rapid loss of fluorochromasia in the cells, and by a marked release in the culture medium of lactate dehydrogenase, which is an enzyme belonging to the cytoplasmatic fraction of the cells. Crocidolite exerts a more marked cytotoxic action than chrysotile and an even greater action than a tridymite dust used as a comparison.

Experiments made using separately the particulate and fibrous fractions of the two above mentioned types of asbestos showed a high toxicity of the fibrous fraction and a moderate damaging action of the particulate fraction: the different toxicities for the macrophages of the two types of asbestos used in this investigation might therefore be attributed to a greater richness in fibres of the crocidolite or to some properties of these fibres. Pre-treatment of the asbestos dusts with PVPNO or FDIA did not reduce the cytotoxic action: the authors are therefore inclined to believe that the cytotoxic action is connected with the physical characteristics of the dusts rather than with the chemical characteristics.

JHM 00782

DATE | INDEXED BY | FILED BY | DOCUMENT NO 3087

DOCUMENT TITLE | PAGE OF | LOCATION

Parazzi, E.; Secchi, G.C.; Pernis, B. & Vigliani, E.:

KEY CODE	KEY WORD OR CHARACTERISTIC
120	Studies on the Cytotoxic Action of
40	Silica Dusts on Macrophages in Vitro
72	Arch Environ Health 17 (6):850-859,
85	Dec. 1968
91	

SCOPE NOTES

Summary

Experiments were performed in order investigate the site of cellular damage duced by silica particles in vitro to perito al guinea pig macrophages.

The release into the culture medium cell sap enzymes, lactate and aldolase, and the dehydrogenase lyso-omal enzymes, ac phosphatase and ribonuclease, as indicat of lesions to different cellular structures, followed. Loss of fluorochromasia from cel as evidence of damage to the cellular mem brane, was also studied; with this method is possible to elucidate the early mo fications of macrophages treated with sili particles.

When the interaction between quartz a tive groups and the cellular membrane w prevented by coating the particles with s rum, a delayed release of enzymes was o served.

These observations suggest that when s en is added to macrophage cultures in vi it interacts with the external cellular mem brane and that the first cellular lesion occ at this site. Further damage might then inflicted by the liberation of lyso-omal e zymes.

INDEX/TRACING CARD

WHI 00783

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3587

DOCUMENT TITLE: Pernis, B. & Castano, P.:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
43	The effect of asbestos on cells in vitro (It).	
44	(Effetto dell'asbesto sulle cellule	
72	in vitro).	
8	Medicina del Lavoro, 62 (8-9): 120-129,	
85	Feb. March, 1971.	
74		
		(English abstract PVP)

Experiments have been carried out to investigate the effect of different asbestos dusts (crocidolite and chrysotile) on long term cultures (more than 6 weeks) of mouse peritoneal macrophages. Some cultures were treated with ferritin with the aim of testing the possible formation of asbestos bodies *in vitro*. Finally trials with silica in the same culture conditions have been made as controls. The preliminary results indicate that in optimal culture conditions asbestos is not cytotoxic. Such data are discussed with reference to the contrasting results previously obtained, and to the effect of silica. Moreover the problem of the effect of asbestos *in vitro* and the problem of asbestos body formation is briefly discussed.

B-III-2.

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 2981

DOCUMENT TITLE: Pernis, B. & Vigliani, E.:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
72	In Vitro and In Vivo Studies on the	
43	Efects of Asbestos Fibres on Macro-	
44	phages.	
45	Lecture #17-2nd Internat. Conf. Bio.	
48	Effects Asbestos, Dresden, April 1968	
40		
120		
85		

IHM 00785

Project No. 7 - Anthophyllite asbestosis in Finland

1. Clinical picture of anthophyllite asbestosis (fibrosis of the lungs) to be investigated in a cohort of past and present workers of Finnish anthophyllite mines and mills. Diferences from the classical asbestosis in radiological picture, speed of development, frequency of simultaneous findings of pulmonary fibrosis with pleural plaques, cause of death, etc. to be explored.

2. Prevalence of pleural plaques and calcifications in the general population to be investigated in correlation with the environmental conditions.

3. Prevalence of all signs of asbestos exposure to be investigated in a cohort of construction workers.

Cost: $42,000.

Dr. Leo Noro, M.D.,
Institute of Occupational Health,
Haartmaninkatu 1,
Helsinki 25, Finland.

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3779 LOCATION

DOCUMENT TITLE: Ahlman, K.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
40	Industrial pulmonary disease in Finland.	
84	Scand. J. Resp. Diseases (Suppl.) 63: 101-104, 1968.	

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3500 LOCATION

DOCUMENT TITLE: Ahlman, Kaj; & Siltanen, Eero:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
63	Exposure of insulation workers to	
70	asbestos dust.	
10	Work-Environment-Health, 8 (1):1-5, 1971.	
30		
31		
2	(no summary)	
43		
45		
48		
84		

LHM 00787

INDEX, TRACING CARD

Ahlman, K.; Partanen, T.J.; Rintala, E. & Viikeri, M.:

Anthophyllite mining and milling as a cause of asbestosis.

Paper No. 25: Conference on Biological Effects of Asbestos, Lyon, October 2-5, 1972.

Summary

Clinical and epidemiological experiences concerning occupational exposures to antophyllite asbestos are reported. The data base is a cohort of 1 249 individuals with an exposure at an antophyllite mine and mill since 1936, and 105 known cases of asbestosis among them. Results and progress of different phases of the project are illustrated and discussed. A picture of a dangerous working environment arises, with heavy health risks, especially in workers with long-lasting exposures.

JHM 00788

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3100 | LOCATION

DOCUMENT TITLE: Laamanen, Arvo:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
1	The use of snow samples in air pollution	
3	studies.	
84	Work-Environment-Health 5 (1):42-50, 1968.	
76		

In our investigation of air pollution in Finland we have measured the distribution of different impurities in the environment of some point and area sources by primarily using the snow sampling method. The snow sampling method is easily applicable in estimating deposit levels and is especially useful in sparsely populated areas, although we have demonstrated that, under circumstances where there are similar criteria for evaluation, we can also use the method that we have developed in densely populated areas as well.

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3650 | LOCATION

DOCUMENT TITLE: Laamanen, Arvo:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
1	Calcium, magnesium, iodide, fluoride,	
8	chloride, sulphate, and nitrate concentrations	
56	in drinking water in the surroundings of	
60	an asbestos quarry.	
48	Report from the Institute of Occupational Health, (Helsinki)	
84	No. 72: 5 pages, 1 fig., 7 tables, March 1972.	
✓	(Also published in Ref. No. 1624).	
6		

~~1111-00789~~

IBM X TRACING CARD

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 102 | LOCATION

DOCUMENT TYPE

Laamanen, Arvo:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
6	Reports from the Institute of Occupational	
8	Health, Helsinki, Finland.	
84	No. 72: 5 pages, 1 fig., 8 tables, March 1972	
	(also published under No. 3052)	
1		
56		
60		
41		

DOCUMENT NUMBER

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 2947 | LOCATION

DOCUMENT TYPE

* Meurman, L. & Kiviluoto, R.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
36	Retrospective prospective study of	
37	anthophyllite asbestos workers in Finland.	
48	Lecture #34-2nd Int. Conf. Bio. Effects	
70	of Asbestos, Dresden, April 1968.	Proceedings published pp.135-13
84	The mortality from all causes of Finnish asbestos miners is briefly discussed.	
60	Similar paper presented at International Conf. on Pneumoconiosis, Johannesburg, S.A. April-May/69,	
	This very brief paper presents refined data similar to that presented by the same authors at Dresden in 1968. The mortality rate from lung cancer is 3-5 times higher than the expected, but the authors pointedly note that incidence of GI cancer is normal and there were no cases of mesothelioma.	
	Johannesburg PROCEEDINGS, pp. 190-191, in 1970.	

IBM 00790

INDEX TRACING CARD

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 2887 | LOCATION

DOCUMENT TITLE: Noro, Leo:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
0	Occupational and "Non-occupational"	
1	Asbestosis in Finland.	
3	Amer. Industrial Hygiene Assoc. J.	
10	29: 195-201, May-June 1968	
12		
31		
21		
38		
48		
60		
61		
70		
84		
36		

DOCUMENT NUMBER

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3216 | LOCATION

DOCUMENT TITLE: Noro, L.

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
70	Epidemiology of Asbestos - Related Diseases.	
10	Presented at Internat.	
36	Congress on Occup. Hlth, Tokyo, Sept. 1969	
38	Proceedings published 1971, pp. 207-209.	
84		

In some thousands of operations and jobs the workers are exposed to asbestos dust. Facts concerning the health effects in the mining and asbestos industries are well known, but other occupational groups have not yet been studied enough. Improved dust control has diminished the number of classical asbestosis cases, but the late results, such as malignant tumors, have entered into the focus of research. Smoking, the increasing amount of air pollutants, and other potential environmental carcinogenic agents, however, complicate epidemiological studies among workers and the general population exposed to small amounts of asbestos.

JHM 00791

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 2560

DOCUMENT TITLE

*Noro, Leo, Ahlman, Kaj; Laamanen, Arvo & Vikeri, M.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
10	Asbestose als Berufskrankheit in	
48	Finnland.	
4	Int. Archiv fur Gewerbepathologie und	
59	Gewerbehygiene 22: 179-184 , 1966.	
17		
60		
33		
2		
84		

Zusammenfassung

Die Produktion von Anthophyllit-Asbest in Finnland liegt gegenwärtig bei 150000 t im Jahr. Mehr als 1200 Arbeiter sind beruflich Asbeststaub ausgesetzt. Zusätzlich zu technischer Staubverhütung sind in den letzten 10 Jahren verstärkt medizinische Arbeitsuntersuchungen durchgeführt worden und ungefähr 4000 Röntgenaufnahmen in Verbindung mit periodischen Untersuchungen gefertigt worden. Bis jetzt wurden 195 Asbestosefälle im Verlaufe von 30 Jahren diagnostiziert. 118 davon in der Asbestindustrie und 35 unter Isolierern. In der Asbestindustrie lag die Zeit, die die Arbeiter dem Asbeststaub ausgesetzt waren, in 69 Fällen zwischen 2 und 15 Jahren und in 49 Fällen bei weniger als 11 Jahren. In der zuletzt erwähnten Beschäftigung arbeiteten 8 Personen länger als 35 Jahre, ohne Pneumokoniose zu bekommen. Die Situation fordert mehr Aufmerksamkeit in bezug auf die technische und medizinische Kontrolle in Asbestwerken.

DOCUMENT NUMBER

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 2726

DOCUMENT TITLE

* Noro, Leo, Ahlman, Rintala and al:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
70	MANUSCRIPT (not published) CONFIDENTIAL:	
48	Epidemiology of anthophyllite asbestosis.	
0	Prelinary results. (1967)	
60	(ms)	
61		
10	Lecture Dresden Conference - Proceedings	
12	published 1973, pp. 130-135	
31		
32		
13		
34		
84		

The Institute of Occupational Health has until now collected in Finland 144 cases of asbestosis in the asbestos industry - insulators excluded. Industrial hygiene studies from recent years show that the dust exposure has been rather heavy in some jobs, especially in the quarry and mill, but the situation is improving. During the last 30 years approx. 300 workers have been exposed to anthophyllite asbestos in the quarry and mill during more than one year. One half of this group has died, asbestosis has been diagnosed in 1/4. 111 present workers and 24 retired workers (total 135) have been studied roentgenologically and clinically. In 37 cases, of which 12 were new, X-ray changes indicating occupational asbestosis have been found, 18 being in stage 0 - I, 12 in I, 5 in II and 2 in III.

In the asbestosis cases the age, exposure, history of smoking, pneumoconiosis, production of phlegm, shortness of breath and abnormal lung function tests were significally greater than in the non-asbestosis group. Comparing the self-reported symptoms (phlegm and shortness of breath) with the ordinary male rural population and lumberjacks at the same age, these symptoms were more frequent among workers exposed to asbestos dust. The study is continuing with more detailed X-ray and ultrasonic echograph and other examinations.

JHM

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3789

DOCUMENT TITLE: Nurminen, Markku:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
36	A study of the mortality of workers	
37	in an anthophyllite asbestos factory	
38	in Finland.	
42	Work-Environment-Health, 9: 112-118, 1972	
48		
60		
70		
84		

Nurminen, M. Work-environm.-hlth 9 (1972) 112—118. *A study of the mortality of workers in an anthophyllite asbestos factory in Finland.* A cohort study of 1030 workers employed at an anthophyllite asbestos mining factory is described. It extends the information about asbestos related disease at this factory which was previously available only for workers with severe exposure. The cohort was defined as the workers with a minimum exposure of three months who had started employment at any time between 1946 and 1966 and the main analysis was of mortality up to the end of 1968. The hazards of exposure to anthophyllite asbestos dust are indicated by the main results of this mortality study: 1. The cohort of workers was found to have excess overall mortality accounted for by cancer of the lung, bronchus and trachea, respiratory tuberculosis, and other respiratory diseases. 2. Asbestosis (as an underlying or contributing cause) was mentioned on the death certificate of every fifth deceased member of the cohort. 3. The mortality from lung cancer among anthophyllite asbestos workers with a minimum exposure of three months was in certain age groups over three times that expected.

AbT

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 2957

DOCUMENT TITLE: * Siltanen, Eero:

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
3	Measurement of asbestos dust.	
84	Nordisk Arbeidsmedisinsk Möte På.	
	Fagernes 28 - 30.11.1968 (pp. 1-2)	

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO 3409

DOCUMENT TITLE: Siltanen, Eero:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTE
3	Comparison of asbestos dust measurements	
43	by counting particle and mass concentrations	
44	and mass concentrations with different	
45	methods (Ger.)	
48	Vergleich einiger Methoden zur Massen-	
60	und teilchenkonzentrationsbestimung bei	
61	der messung von asbeststaub	
62	Staub--Reinhalt. Luft 30 (10): 436-439, Oct. 1970	
76	(English abstract H. Bohlig & P.V. Pelnar)	
84		

DATE | INDEXED BY | EDITED BY | DOCUMENT NUMBER | PAGE OF | DOCUMENT NO 3885 | LOCATION

DOCUMENT TITLE: Taskinen, Eero, Ahlman, Kaj & Wiikeri, Matti:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
25	Current hypothesis of the lymphatic	
29	transport of inspired dust to the parietal pleura.	
40	Chest, 64 (2): 193-196, Aug. 1973	
73		
84		

In the light of a case report, we will describe a hypothesis of the lymphatic transport mechanism of inhaled dust particles to the parietal pleura. The autopsy of a molder who had been employed for 41 years in iron foundries showed heavy mixed-dust pneumoconiosis. In the parietal pleura there were black linear streaks following the course of intercostal arteries. These formations were microscopically interpreted as periarterial lymphangitis and fibrosis caused by the dust. According to our hypothesis, the dust particles have been transported from the lungs via the lymphatic vessels partly in retrogression. The mechanism is supposed to be the same in the transport of small asbestos particles causing pleural plaques.

INDEX TRACING CARD

JHM 00794

DATE | INDEXED BY | EDITED BY | PAGE 01 | DOCUMENT NO. 3359

DOCUMENT TITLE: Viikeri, M.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
30	Ultrasound Examination of Pleural Plaques:	
31	experimental, pathologic and clinical	
76	studies.	
72	Supplement 301 to Acta Radiologica,	
12	62pp., Discussion of May 1970, Helsinki.	
84	Circulated: Front page and pages 55 and 56	

DATE | INDEXED BY | EDITED BY | PAGE 02 | DOCUMENT NO. 3031

DOCUMENT TITLE: Viikeri, M., Jaaskelainen, J. & Tahtie:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
0	Ultrasonic Examination of Pleural	
12	Thickenings and Calcifications in	
30	Occupational Asbestosis.	
31	Dis. Chest, 54(1):17-20, July 1968	
71		
76		

The roentgenologic diagnosis of occupational asbestosis is based upon typical pulmonary fibrosis and anteriorly detected pleural calcifications, which appear much later than parenchymal changes. Therefore, a definite diagnosis usually demands a long observation period. We used ultrasonic A- and B-mode methods to examine pleural changes in nine occupational asbestosis patients and five normal persons. In normal persons the parietal pleura was shown as a thin, sharp line when the B-mode method of examination was used. Roentgenographically observed calcifications were easily detected and distinguished from the normal pleura by this examination. It is noteworthy that similar echo peaks were seen in A-mode examinations in lateral and posterior pleura, where roentgenograms did not reveal pleural calcifications, and their size could be traced well with the B-mode examination. Thus it is possible to find early pleural changes, which, in our opinion, are connected with occupational asbestosis. Diagnosis could be made earlier without a long observation time.

84 15

INDEX TRACING CARD

JHM 00795

DATE | INDEXED BY | EDITED BY | DOCUMENT NUMBER

DOCUMENT TITLE * Viikeri, M.; Jääskeläinen, J. & Tähti, E.: | PAGE OF | DOCUMENT NO 3036 | LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
12	Ultrasonic examination in Occupational	
30	Asbestosis.	
31	Scand. J. clin. Lab. Invest. 21,	
76	Suppl. 101, 105, 1968	
84		

DATE | INDEXED BY | EDITED BY | DOCUMENT NUMBER

DOCUMENT TITLE Viikeri, M.; Jääskeläinen, J. & Tähti, E.: | PAGE OF | DOCUMENT NO 3089 | LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
12	Early detection of pleural thickenings	
30	and calcifications determined by	
31	ultra sound.	
76	Work-Environment-Health 5 (1):68-72, 1968	
84		

SUMMARY

The thoracic wall of ten asbestosis patients was examined by ultrasonic A- and B-mode examinations to determine the existence of pleural calcifications and thickenings. Roentgenographically observed calcifications were found in seven patients. In the ultrasonic examinations distinct changes were observed at these places. In addition, pleural thickenings were recognized also posteriorly where they had not been seen in the roentgenograms. Ultrasonic examinations seem to offer possibilities for improving the early diagnosis of pleural changes.

JHM 00796

INDEX TRACING CARD

Project No. 8 - A study of the health effects related to asbestos exposure in workers of the industry and other residents of New Orleans

Phase I: All employees of a Johns-Manville plant and a National Gypsum plant manufacturing asbestos-cement goods to be examined by a questionnaire on occupational and respiratory history, by a physical examination, by PA, and two oblique chest X-rays and by spirometry and transfer factor measurements. Additional physiological measurements to be done in those with abnormal clinical or radiological findings. Past employees to be traced and the cause of death to be investigated in those who died. Attempts to be made to assess the past dust exposure and current measurement done in the plants to be utilized.

Phase II: Plans for community investigation of risk of malignancy in individuals outside the plants to be prepared during the first year for the later realization.

Cost: $291, 380.

(Continues as IOEH # 16)

Dr. Hans Weill, M.D. &
Dr. Morton Ziskind, M.D.,
Tulane Medical School - Section of Pulmonary Diseases,
New Orleans, Louisiana.

Enterline, Philip E. & Weill, Hans:

Asbestosis in asbestos cement workers.

Paper No 28: Conference on Biological Effects of Asbestos, Lyon, October 2-5, 1972.

Summary

The asbestos cement industry consumes the bulk of the world's output of asbestos. Workers in this industry are exposed to silica and asbestos and develop both asbestosis and silicosis - with the amount related to their total dust exposure. It is estimated that radiographic changes of 2/1 category or above appear after a total dust exposure of 1,000 mppcf-months. Asbestosis appears to be less of a problem than in other asbestos products industries, possibly because the asbestos cement industry is growing more rapidly and it's work force has had less dust exposure. Both chrysotile and crocidolite asbestos are used, with the latter confined almost entirely to asbestos cement pipe. Cement pipe workers appear to have a great excess in respiratory cancer but little asbestosis, whereas other cement workers have a modest excess in respiratory cancer but a considerable amount of asbestosis.

JHA 00799

DATE | INDEXED BY | EDITED BY | PAGE | OF | DOCUMENT NO. 3906

DOCUMENT TITLE

* Waggenspack, Carmel:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
62	A mortality study of former employees	
70	of two asbestos-cement products manufacturing	
76	companies.	
80	Proposal for a doctoral dissertation	
	submitted to Dept. Epidemiology, Tulane Univ. July 1973, 32 pp.	

DATE | INDEXED BY | EDITED BY | PAGE | OF | DOCUMENT NO. 3925

DOCUMENT TITLE

* Weill, Hans:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
13	Pulmonary function testing in industry.	
76	J. Occup. Medicine, 15 (9): 693-699,	
80	Sept. 1973.	

Summary

As a result of the increasing number of demonstrated or potential occupational inhalant exposures which may adversely affect lung function, tests to detect impaired pulmonary function should become a part of the health surveillance program in many industries. In order to further this objective, I have tried to provide some answers to the questions: What must the pulmonary function test do and what will it tell us? How can we extend the information obtained from simple spirometry? What additional tests should be considered? Who should perform the tests and with what equipment? What are the problems in analysis and interpretation of results? And, finally, under what circumstances might inhalation provocative testing and development of a mobile function unit be considered?

PAGE OF 3797

Weill, H. Waggenspack, C., Bailey, W., Ziskind, M. & Rossiter, C

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
0	Radiographic and physiologic patterns	
40	among workers engaged in manufacture	
42	of asbestos cement products.	
43	J. Occup. Med. 15 (3): 248-252, March 1973	
44		
12		
13		
62		
70		
80		

INDEX TRACING CARD

JHM 00801

Project No. 9 - Monograph: "The Health Problems of Asbestos."

Preparation of the manuscript of a new book entitled "The Health Problems of Asbestos."

Cost: $3,291.

Dr. John Beattie, Professor,
Ash Tree House,
Swavesey,
Cambridgeshire, England

Not yet published

Project No. 10 - Continued epidemiological research relating to the effects of asbestos on man

(Still in progress)

1) Cohort Study. Observation of causes of death in the present cohort of workers of asbestos mines who were born 1891-1920 to be prolonged up to 1972 to see causes of additional about 100 deaths expected until then.

2) Mesothelioma Survey. All cases from Ontario and Québec which occur until 1973 to be investigated epidemiologically. Additional about 25 cases a year can be expected in these provinces.

3) Clinical Study. Standard examination of chest radiogram, two simple tests of pulmonary function (vital capacity and ventilation rate on exercise) and a questionnaire of respiratory symptoms to be introduced and their reliability and their relative efficiency to be evaluated.

4) Etiology of pleural plaques to be investigated by a) case control inquiries, b) chemical and mineralogical examination of plaque material, c) geological studies of mines where the

3919

McDonald, J.C.; Becklake, M.R.; Gibbs, G.W.; McDonald,

KEY CODE

KEY WORD OR CHARACTERISTIC

11
12
13
14
0
2
38
43
69
60
70
81
X

The health of chrysotile asbestos mine and mill workers of Quebec.

Rossiter, C.E.

Arch Environ Health, 28 (2): 61-68, Feb. 1974

The results of studies of respiratory symptoms and function, roentgenographic changes, and mortality in relation to dust exposure in the Quebec chrysotile industry, which has employed some 28,000 workers, are brought together and their implications for control examined.

Breathlessness on exercise, diminished inspiratory capacity, parenchymal and pleural changes, and respiratory disease mortality were related to dust exposure and to each other. Respiratory cancer was also related to dust exposure. The overall excess of deaths from respiratory cancers, including five with malignant mesothelioma, was at most 50% above expectation, based on age-specific rates for Quebec and the mining region.

If safety standards are set, they should be based on epidemiological evidence. From these data for the chrysotile producing industry of Quebec, a reasonable figure, based on a 1% risk of acquiring clinically significant disease, would lie between 2 to 4 million particles per cubic foot, calculated for a working life of 50 years. In the absence of epidemiological findings based on fiber counts and lack of a satisfactory means of conversion, particle counts should continue to be used for control in this industry.

INDEX, TRACING CARD

JM 00808

Project No. 11 - A chemical and mineralogical study of insulation material

(Still in progress)

a) The nature of the insulation material used now and in the past in Canada and in the U.S. to be investigated and samples to be examined for mineralogical and chemical composition.

b) Samples of insulation material from old boilers and heating systems to be obtained and examined for mineralogical and chemical composition.

Changes to be sought between a) and b).

Cost: $52,000.

Dr. Graham W. Gibbs, Ph.D.,
Department of Epidemiology and Health,
McGill University,
Montreal, Canada.

JHM 00810

Project No. 12 - Identification and quantitation of fibrous dust and ferruginous bodies in lungs of autopsied adults

Lungs to be obtained from autopsies of persons:

1) not occupationally exposed to asbestos whose life has been spent chiefly in urban areas,

2) not occupationally exposed to asbestos whose life has been spent chiefly in rural areas,

3) occupationally exposed to asbestos with asbestosis,

4) occupationally exposed to asbestos without asbestosis.

Fibre counts and ferruginous bodies counts to be made in the lungs and compared in order to determine whether there is any relationship between asbestos related disease and fibre content of the lungs.

This one year study should test feasibility of method available to authors.

Cost: $19,921.

Dr. Paul Gross, M.D. &
Dr. R.T.P. deTreville, M.D.,
Industrial Health Foundation,
5231 Centre Avenue,
Pittsburgh, Pa. 15232, U.S.A.

DATE | INDEXED BY | EDITED BY | PAGE 01 | DOCUMENT NO. 3749

DOCUMENT TITLE: Gross, P., Davis, J.M.G., Harley, R.A. Jr., Cralley, L.J. & deTreville, RT

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
1	Asbestos: identification of fibrous	
21	particles in lungs.	
25	J. Occup. Med. 14 (10):757-759, 1972.	
43		
76		
71		
80		

Summary of proven nonspecificity. Because of inorganic bodies are not necessarily indicative of inhaled asbestos fibers. Of the methods useful in identifying asbestos fibers, electron diffraction and microprobe analysis, while most definitive, have proved excessively laborious and expensive. A newly developed, rapid screening method for asbestos vs nonasbestos fibers has proved to be practical and economical in our use. In addition, with this method the form of asbestos, chrysotile, which represents 95% of the asbestos used in this country, can be identified. It is recognized readily by the unique tubular structure of its fibrillar units. Besides asbestos, inorganic fibers found in human lungs may consist of glass, rock wool, or ceramic aluminum silicate fibrous fragments or diatoms have also been identified. The ashes of plants and their derivatives—leaves, wood, paper, and coal—contain mineral fibers of respirable size which find their way into and remain in the lungs.

Methods of quantitating the fibers in lung sediments are described and results in a small series of lungs are summarized. On the average, 75% of all fibers were shorter than 5 μm and about 14% of the short fibers were chrysotile. The biological significance of the asbestos content in lungs of people not occupationally exposed to asbestos is briefly discussed.

Suggested subject terms: Public Health Service grant CPE 70-11

DATE | INDEXED BY | EDITED BY | PAGE OF | DOCUMENT NO. 3796

DOCUMENT TITLE: GROSS, Paul, DAVIS, John M.G., HARLEY, Russell A. (Jr.) &

LOCATION

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
25	Lymphatic transport of fibrous dust from	deTREVILLE, Robert T.
27	the lungs.	
0	J. of Occup. Med. 15 (3): 186-189, March 1973	
1		
43		
46		
52		
71		
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The concentrations of inhaled mineral dust and mineral fibers in the lungs and satellite lymph nodes of 30 people were determined and tabulated. Fiber concentrations ranging from nearly four to more than 125 million per gram of dry tissue were found in satellite lymph nodes. Approximately six per cent of all E-M-size fibers were identified as chrysotile. Although 94% of the fibers remained unidentified, cogent reasons are given for not believing that a significant portion of them are man-made nor other amosite or crocidolite, and for considering two other probable identities. No correlation was found between fiber concentration in lymph nodes and lung nor was there any correlation between the fiber concentration in lymph nodes and concentration of mineral dust in other lung or lymph nodes.

00813

DATE	INDEXED BY	EDITED BY	PAGE 01	DOCUMENT NO. 3072

DOCUMENT TITLE: Gross, Paul & Harley, Russel A.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
56	The locus of pathogenicity of asbestos.	
43	Archiv Environ Health, 27 (4):240-242, Oct. 1973	
44		
45		
72		
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X		

Documented experimental evidence, as well as the results of preliminary experiments, are presented which indicate a reduction in pathogenicity as the polyfilamentous arrangement of asbestos dust particles is replaced by a monofilamentous structure. On the basis of this evidence, it is proposed that the locus of pathogenicity of asbestos dust particles resides in their polyfilamentous structure.

INDEX/TRACING CARD

Project No. 13 - Epidemiological study on the biological effects of asbestos dust at the Balangero Mine - Continuation as a prospective study

1) Causes of future deaths in Balangero miners and ex-miners to be investigated and correlated with same in a control group selected from adjacent villages.

2) The CO transfer in the workers exposed to asbestos to be repeatedly studied and compared to radiological appearance of the chest in order to see whether changes of the transfer factor precede radiological changes.

3) Prevalence of pleural calficiations among the adult population of the villages nearest to the Balangero mines to be investigated by mass-survey with 10x10 X-ray film apparatus.

4) Dust concentration measurements to be repeatedly done in the mines in question.

Cost: CANCELLED

Dr. Enrico C. Vigliani, M.D.,
Clinica del Lavoro,
Via S. Barnaba 8,
20122 Milano, Italy.

Project No. 14 - Fibre shape and biological activity

(Still in progress)

19 samples of fibres (glass, microquartz and asbestos) of various lengths and diameters to be tested for carcinogenicity in groups of 50 hamsters each. The tests are designed to disclose whether carcinogenicity of fibrous particles is dependent on some critical shape, independent of chemical composition, and thus controllable by a general principle.

Cost: $276,000.

Dr. William E. Smith, M.D.,
Director - Health Research Institute,
Fairleigh Dickinson University,
Rutherford, N.J. 07070 - U.S.A.

DATE | INDEXED BY | ENTERED BY | PAGE OF | DOCUMENT NO. 3831

DOCUMENT TITLE: Smith, William E.:

KEY CODE	KEY WORD OR CHARACTERISTIC	SCOPE NOTES
8	Asbestos, talc and nitrites in relation	
37	to gastric cancer.	
50	Amer. Indust. Hyg. J.: pp. 227-228, May 1973	
46		
72		
80		no summary
X		

INDEX, TRACING CARD

JHM 00819

Project No. 15 - Fibre diameter of dust in mining, milling, manufacturing and insulation operations - A pilot study

(Still in progress)

A preliminary study to be carried out of the asbestos fibre diameters of airborne dust to which workers are exposed to a) mining and milling, b) textile manufacturing and c) insulation work.

Five samples to be collected at each of at least 3 locations in each of a), b) and c).

All samples to be examined using a scanning electron microscope and the diameter and length of fibres to be measured.

Results to be interpreted in the light of available epidemiological information.

Cost: $18, 830.

Dr. G.W. Gibbs, Ph.D.,
Department of Epidemiology and Health,
McGill University,
Montreal, Canada.

JHM 00821

Project No. 16 - Study of the health effects related to asbestos exposure in workers of the industry and other residents of New Orleans - 2nd phase

(In progress)

1) Analysis of data collected in previous study (IOEH # 8)

   a) correlation of clinical features with radiographic changes and pulmonary function;

   b) relationship of pulmonary function and total dust exposure;

   c) relationship of smoking and radiographic changes and pulmonary function.

2) A study of mortality in 8,000 previously employed workers in the two asbestos cement factories.

3) Follow-up examinations (in three-yearly intervals) of the 300 men aged 40-59 from the original study group (IOEH # 8).

Cost: $270,000

Dr. Hans Weill, M.D.&
Dr. Morton Ziskind, M.D.,
Tulane Medical School - Section of Pulmonary Diseases,
New Orleans, La.

Project No. 17 - Relationship between asbestos and tissues

(In progress)

A. Mechanism of coating in formation of the asbestos body to be studied:

1) in the lungs from patients with asbestosis;
2) in tissues of animals exposed to asbestos and various other dusts;
3) in cell cultures of fibroblasts and macrophages;
4) in vitro systems incubating asbestos and various other dusts with substances present in asbestos body coating.

B. Studies on the relationship between the asbestos content of the lungs and the degree of fibrosis:

To be examined:

1) lungs from workers exposed to asbestos inhalation with and without fibrotic lesions;
2) lungs from comparable non-exposed populations;
3) tissues from experimental animals exposed to asbestos and to various other dusts;
4) fibroblasts cultured in vitro with asbestos and various other dusts.

Cost: $45,000.

Dr. Benvenuto Pernis, M.D.,
Instituto di Medicina del Lavoro
della Università di Genova,
16132 Genova, Italy

Project No. 18 - A factor to convert total airborne dust concentrations using the midget impinger technique to fibre counts as recorded by membrane filter method

(In progress)

At 20 locations at each participating asbestos mine a minimum of 5 duplicate samples of airborne dust will be collected using side by side millipore membrane filters and midget impingers. These at least 1,800 samples will be counted at McGill and by participating members of the industry. Simultaneously the total and respirable mass concentration of dust will be determined using Hexlet and/or MRE samplers. Objectives are:

1) The calculation of a conversion factor, to convert midget impinger counts to membrane filter fibre counts;
2) the description of observer variation in counting fibres using the membrane filter or total dust using the midget impinger techniques.
3) Measurement of total and "respirable" airborne dust mass concentrations in the mines and mills to examine their relationship, if any, to particle and fibre counts.

Cost: $37,375.

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Project No. 19 - Epidemiological study of mesothelioma in U.S.A.

(In progress)

1) Ascertainment of fatal cases of mesothelioma by getting an answer from every pathologist as to whether or not he has made such diagnosis during the previous year.

2) Visits by M.D. to every pathologist who reports a case to review the case and to select a control case.

3) A field survey in which Public Health Nurses obtain occupational and residential histories for cases and controls.

4) Pathological review by the U.S. mesothelioma panel.

Cost: $59,800.

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