MAR 2 4 1971

ASBESTOS/HEALTH

Attached are documents on this subject, accumulated since our February 18 mailing.

I. MEDICAL PAPERS OF INTEREST AND IMPORTANCE
(Evaluation Sheets Only)*

"Chrysotile Asbestos in the Lungs of Persons in New York City," ARCHIVES OF ENVIRONMENTAL HEALTH, March 1971, A. M. Langer and I. J. Selikoff, et al.

"Epidemiology of Asbestos Cancers," BRITISH MEDICAL BULLETIN, January 1971, J. C. Wagner, et al.

"Asbestos Pleural Effusion," ANNALS OF INTERNAL MEDICINE, February, 1971, E. A. Gaensler and A. I. Kaplan.

II. MEDICAL PAPERS OF SOME INTEREST
(Evaluation Sheets Only)

"Emphysema and Pneumoconiosis: A Comparative Quantitation Of Duct Content of Pneumoconiotic Rodent Lungs With and without Emphysema," ARCHIVES OF ENVIRONMENTAL HEALTH, February 1971, P. Gross, et al.

III. MEDICAL PAPERS OF MINOR INTEREST

A List describing each paper.

IV. SPRAYED ASBESTOS

1. On February 26, as the result of letter of complaint he sent to the New York City Council, Dr. I. J. Selikoff testified at a special Executive Session of the Council Committee on Environmental Protection. Dr. Selikoff spoke in opposition to the proposed New York City ban on asbestos-containing spray materials. A report by Hill and Knowlton on Dr. Selikoff's appearance is attached. A full transcript of his testimony has been ordered, but will not be available for some time.

2. On March 3, Dr. Selikoff and Fred Pundsack testified before the Chicago City Council Committee on Environmental Control, which is looking into the possible hazards of sprayed asbestos. Pundsack testified on behalf of the

*Entire paper attached to sets addressed to those individuals who have asked to see the full text of important papers.

Asbestos Information Association/North America. Attached are several clippings from the Chicago papers and radio stations on their testimony. A complete transcript of the meeting has been obtained, but because of its extreme length (259 pages), it is not being distributed. Dr. George W. Wright and Dr. Lewis Cralley have been invited to testify at a second session of the Chicago hearings on March 23.

3. On March 5, the City of Boston Air Pollution Control Commisssion held hearings on a proposed ban of sprayed asbestos in that city. Among those who presented testimony were Dr. William Nicholson, representing Dr. Selikoff and Mount Sinai; Fred Pundsack, representing AIA/NA; Cliff Sheckler, representing NIMA and the Asbestos Cement Products Association; and Herb Levine, representing the Sprayed Mineral Fiber Manufacturers Association. Attached are copies of the testimony presented by Pundsack and Sheckler.

4. The legislature of the State of Washington is currently considering legislation to ban the use of asbestos "slurry" throughout the state. Attached is a copy of the proposed bill. Contact has been made with the legislative leadership to suggest "spray" instead of "slurry" and regulation instead of banning.

V. ASBESTOS INFORMATION ASSOCIATION - PRESS BRIEFING

On March 2, the Asbestos Information Association/North America held a briefing for members of the press on the asbestos/health situation. Approximately two dozen reporters, science writers and editors attended the briefing. Attached are four press clippings received thus far as a result of the briefing: from the MANVILLE

NEWS, ENGINEERING NEWS-RECORD, PLAINFIELD COURIER NEWS and AIR/WATER POLLUTION REPORT. In addition, a reporter from MD magazine has contacted the AIA/NA concerning a story she is working on as a result of her attandance at the briefing.

VII. OTHER ITEMS

1. An article from the March LADIES HOME JOURNAL. The AIA/NA is planning to respond to this erroneous article.

2. A Report from Hill & Knowlton on a presentation on asbestos disease by Dr. Selikoff at the meeting of the American Academy of Occupational Medicine, February 9, 1971.

3. An article from the PLAINFIELD COURIER-NEWS by Wayne Beissert (the same reporter who took a dim view of the AIA/NA press briefing).

4. "Peril on the Job" - an Oil Chemical and Atomic Workers Union publication that cites asbestos and fiber glass.

5. Calendar of upcoming Medical Meetings.

W. P. Raines

SUMMARY AND EVALUATION

Subject: Uncoated chrysotile fibrils found in the lungs of New York City residents. Of interest and importance.

Evaluation: Because of repeated presentation at medical meetings, the substance of this paper has been known for several months. Publication may result in attempts to repeat the work in other cities. The authors conclude: "Similar observations have been made in London. We anticipate that what is now known in these two cities will be found in other urban areas as well." One new observation in the present paper suggests confirmation of the assertion that the identity of cores of ferruginous bodies is relatively unimportant. The authors say: "Unaltered chrysotile is uncommonly found as the core fiber in asbestos bodies removed from lungs of people in the general population...We have similarly examined asbestos bodies from the lungs of a Canadian chrysotile miner and from hamsters injected with chrysotile, all of which gave results consistent with magnesium-leached fibers."

Authors: Langer, A.M., Selikoff, I.J. and Sastre, A. (Mount Sinai School of Medicine).

Journal: Archives of Environmental Health, March 1971.

Title: "Chrysotile Asbestos in the Lungs of Persons in New York City"

Summary: "When inhaled, chrysotile tends to split into unit fibrils 200 to 400 Angstroms in diameter, invisible with optical microscopy. Further, it is altered chemically and physically in vivo. Therefore, attempts to identify unaltered chrysotile in the core of 'asbestos bodies' have many pitfalls, especially when such attempts are limited by optical microscopy. High-magnification electron-microscopic examination of representative small samples of lung unequivocally showed chrysotile asbestos to be present in 24 of 28 consecutive New York City autopsy cases. Our data demonstrate that chrysotile fibers and fibrils are present in the lungs of New York City residents. Similar observations have been made in London. We anticipate that what is now known for New York and London will be found in other cities as well."

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SUMMARY AND EVALUATION

Subject: A review of the recent world literature on the asbestos-cancer association, for British general practitioners. Of interest and importance.

Evaluation: The authors conclude that the association of asbestos with lung cancer and mesothelioma "is now well established." However, there are important differences in the association with the two types of cancer. Lung cancer is more clearly dose related. Elimination of asbestosis through dust control would eliminate the excess risk of lung cancer. Also, "cigarette smoking is important; the risk of bronchial cancer is exceptionally high following exposure to asbestos and cigarette smoke."

On the other hand, "mesotheliomata are less certainly dose related. There are many examples where the exposure has been short, though not necessarily slight; information about the intensity has never been certain... Exposure to anthophyllite very rarely, if ever, causes mesotheliomata. Exposure to chrysotile alone is also probably a rare cause. In a majority of cases, exposure has been to crocidolite and/or amosite with or without chrysotile."

Authors: Wagner, J.C., Gilson, J.C., Berry, G. and Timbrell, V. (British Medical Research Council, Glamorgan, Wales).

Journal: British Medical Bulletin, January 1971.

Title: "Epidemiology of Asbestos Cancers"

Summary: As given above.

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SUMMARY AND EVALUATION

Subject: Twelve cases of pleural effusion (concentration of fluid in the pleural cavity) supposedly resulting from asbestos exposure. Of interest and importance.

Evaluation: Although pleural effusion is a common symptom in cases of mesothelioma, these cases were selected for observation because they occurred in patients with occupational exposure to asbestos, but no pleural disease other than effusion. However, one patient eventually developed a pleural mesothelioma. Asbestos exposure among the 12 patients had varied both in duration and intensity, although ten cases had "some degree" of asbestosis.

Authors: Gaensler, E.A. and Kaplan, A.I. (Boston University).

Journal: Annals of Internal Medicine, February 1971.

Title: "Asbestos Pleural Effusion"

Summary: "The differential diagnosis of pleural effusion is large but has not included asbestos exposure. For 1 to 9 years we followed 12 patients with 'idiopathic' effusions that were frequently recurrent, usually bilateral, and often followed by continued chest pain. The fluid was a sterile, serous, or blood-tinged exudate...With better understanding of the dangers of asbestos and better surveillance of workers, asbestos pleural effusion will be recognized oftener. It occurred in 21% of all patients with asbestosis seen at our laboratory."

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## SUMMARY AND EVALUATION

Subject: Investigation of the negative association between emphysema and pneumoconiosis in rats and hamsters. Asbestos not mentioned. Of some interest.

Evaluation: Presumably the negative association of emphysema to silicosis and coal pneumoconiosis applies to asbestos also. The authors have investigated this phenomenon before and noted that laboratory animals with emphysema (induced by the administration of papain) did not retain dust in their lungs as readily as did control animals without emphysema. Conversely, "silicotic rats were resistant to the action of intratracheally injected papain." The present paper confirms the first observation with more accurate measuring techniques.

Authors: Gross, P., Tuma, J. and deTreville, R.T.P. (University of Pittsburgh and the Industrial Health Foundation).

Journal: Archives of Environmental Health, February 1971.

Title: "Emphysema and Pneumoconiosis: A Comparative Quantitation of Dust Content of Pneumoconiotic Rodent Lungs With and Without Emphysema"

Summary: "Pulmonary burdens of quartz dust and bituminous coal dust, respectively, were imposed upon rats and hamsters by inhalation and intratracheal injection before and after production of papain-induced emphysema....There were statistically significant reductions in mean silica content as well as mean coal dust content of emphysematous lungs in all four groups of hamsters. In rats, whereas the mean pulmonary dust content was lower in emphysematous animals than in nonemphysematous controls, this difference was statistically significant in only two of the four groups. Improved dust clearance is believed to be a major factor in the reduction of dust content of emphysematous lungs."

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## MEDICAL PAPERS OF MINOR INTEREST

The following medical papers have been screened and filed, but judged of insufficient interest to warrant full summary and evaluation.

Kattah, Y.B., "Pleural Mesothelioma with Intrathoracic Haemorrhage," British Journal of Diseases of the Chest, July 1970. A single case history with unusual features. "There was no direct history of asbestos exposure, but on close questioning the patient said that asbestos was used at some stage of chemical processing in the factory where he had worked for the past 37 years.... Asbestos bodies were demonstrated in the sputum in one of three specimens."

Nam, K. and Gracey, D.R., "Pulmonary Complications of Asbestos Exposure," Chest, January 1971. Discussion at a Clinical Conference. The patient, a former asbestos factory worker had asbestosis, pleural plaques and pleural mesothelioma. The discussion includes a brief review of the literature.

Lulenski, G.C., Pifarre, R. and Neville, W.E., "Rapid Growth of a Pleural Mesothelioma, Chest, February 1971. A single case history in which the patient died three weeks after admission to the hospital. "This confirms the potential rapid growth of this malignancy." The patient "had been employed as an oil drum packer from 1950 to 1957, and was exposed to a variety of insulating materials, including asbestos."

Solomon, A., "Radiology of Asbestosis," Environmental Research, November 1970. Discussion of X-ray findings in 43 cases of selected asbestosis, uncomplicated by any other pathology such as associated tuberculosis or neoplasms.

Solomon, A., "Radiological Features of Diffuse Mesothelioma," Environmental Research, November 1970. Discussion of X-ray findings in 23 cases of pleural mesothelioma on which the pathology has been confirmed by the South African reference panel. In five cases there was no history of exposure to asbestos.

Penman, H.G. and Thomson, K.J., "Pulmonary Asbestos in Dunedin, New Zealand, Assessed by Two Methods," Pathology (British), July 1970. Another study reporting ferruginous bodies in random autopsied lungs. Dunedin has "no heavy industries," but the more sensitive of the two assay methods showed "asbestos bodies" present in 85% of the samples. However, both methods employed light microscopy only. The authors concede: "There seems to be no method at present whereby an individual object seen under the light microscope may be proved to contain asbestos."

Klaassen, C.H.L., Van Persijn Van Meerten, O.H. and de Jager, H., "Patient with Pulmonary Asbestosis, Pleural and Peritoneal Mesotheliomas and Hematogenous Metastases," Nederlandsch Tijdschrift voor Geneeskund, April 5, 1969. In Dutch with English summary. A case history of man who had worked as an insulator for 32 years and died seven years after retirement at the age of 72 with extensive metastatic mesothelioma.

Stumphius, J., "Asbestos, Asbestos Bodies and Mesothelioma," Tijdschrift voor Sociale Geneeskunde, January 1970. In Dutch with English summary. An updating of the author's continuing study of mesothelioma among Dutch shipyard workers. The original report in English was evaluated in 1968. In the intervening two years, four more mesotheliomas have been discovered bringing the total to 25. Otherwise there are no important new observations.

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HILL AND KNOWLTON, INC.

MEMORANDUM March 5, 1971

Subject: Report on the Appearance of Dr. I.J. Selikoff Before the New York City Council Committee on Environmental Protection, February 26

The Council held a special Executive Session to hear Dr. Selikoff's testimony concerning the total ban on sprayed asbestos included in the proposed New York City Air Pollution Code. An official transcript, if available at all, will not be available for several weeks. In the meantime it is desirable that Dr. Selikoff's views on this subject be generally known and understood.

He began by complimenting the personnel of the City Environmental Protection Administration for drawing up a thoroughly excellent code which would undoubtedly serve as a model for other cities. After favorable comment on a few specific provisions, including the control requirements on sprayed insulation materials other than asbestos, he said he felt compelled to "voice misgivings" about another provision which, though excellent in intent, would set a dangerous precedent. He objects to the ban on asbestos in sprayed insulation for philosophical reasons, in a sense. His approach to problems of occupational and environmental hazard has always been that control is better than prohibition. He cited several examples: Radiation is a hazard, but we do not ban X-rays on that account, we control the hazard. Automobiles emit carbon monoxide, but we do not ban autos, we try to control the emissions, etc.

Applying this approach to sprayed insulation materials, including asbestos, he said that such controls should be as rigorous as necessary, regardless of the cost to the contractors. They should be required to meet the standards or go out of business. "Put them out of business, if necessary." But do not ban the use of asbestos, because it could lead to the banning of other materials. "One substance after another could be banned."

In response to many questions by members of the Committee, he always skillfully returned to this theme. Asbestos dust is an occupational health hazard and, before controls were instituted, the spraying of asbestos insulation did produce high and possibly dangerous levels of dust in the air around construction sites. However, his group had monitored such sites after the spray regulations had been imposed last year and found that the air in the neighborhoods contained only the normal, "trivial" amounts of asbestos.

Selikoff drew on his experience in working with industry, pointing out that industry can be expected to cooperate in instituting adequate controls of hazardous substances. On the other hand, a proposal to prohibit the use of an industry's product will meet with nothing except total opposition.

Committee Chairman Theodore Weiss said he was somewhat confused at Selikoff's opposition to the proposed ban on sprayed asbestos because proponents of the ban had cited Selikoff's published studies to prove that asbestos dust is a health hazard. Selikoff explained that these studies pointed to an occupational health hazard among insulating workers, and this hazard certainly applies to the men engaged in asbestos spraying, although he had conducted no studies among this group. "When we looked at asbestos spraying we found the dust levels very high. Everybody engaged in the operation was at risk." In future years, the mortality among these men will be very bad because, "the inhaled asbestos will stay in their lungs the rest of their lives." When this was brought to the attention of the spray contractors, they said "yes," and "stalled," doing nothing until the spray regulations were introduced.

Myriad substances in the environment constitute health hazards at some levels. However, control has served us well in the past and the principle should continue to be observed. The Air Pollution Code itself recognizes that the trivial amount of asbestos released into the air by brake linings does not constitute a danger. In medical practice, for example, it has long been recognized that five grains of digitalis can kill, but 0.5 grains can save lives.

One councilman asked if there is any area in the country where there is no asbestos in the air. Selikoff replied that his laboratory had been getting samples from everywhere; so far they had invariably found a few fibers in every sample. Selikoff estimates that "99.99%" of asbestos in city air comes from a few specific sources: factory wastes, the transport of materials. Air supply plenums in buildings recirculate air, and any friable material in such buildings become part of the air supply.

Q. What has happened to asbestos levels in New York City over the past ten years?

A. We have no way of knowing, since no measurements were taken ten years ago. We hope that future measurements will show a reduction over today.

Q. Is there a level of asbestos exposure known to have no effect?

A. We have no absolute knowledge of "no effect" levels. However, autopsies show that fibrils are present in every city dweller's lungs with no apparent ill effects.

Q. What about the combination of asbestos and cigarette smoking?

A. The combination is particularly bad among insulation workers, as my study shows.

Q. How effective have the control regulations on sprayed insulation been?

A. That is a very good question. The workers are still at risk, but not the citizens in the neighborhood. The regulations need to be rigorous and should require the wearing of respirators. Spray workers are exposed to higher levels than insulation workers.

Q. The code only proposes banning sprayed asbestos, not other products. If substitute substances that are equally effective but less hazardous are available, wouldn't the ban on asbestos be justified?

A. There are no studies on these new materials. There are none, and in 20 years we may learn that these are worse than asbestos. I repeat, the rigorous control, no matter how expensive, of all sprayed materials is the answer to the problem. Every occupational hazard that I know of, mercury, radiation, is subject to control. Now you propose to change that policy.

Q. When you refer to "asbestos workers" you do not mean those who work in factories?

A. My own studies have been concerned only with insulation workers.

Q. Is the asbestos industry doing research on health problems?

A. Yes. At least Johns-Manville is.

Q. What about the development of protective devices?

A. This has been productive of excellent results, particularly in Britain. The British are way ahead of the United States in controlling asbestos dust.

Q. Are adequate protective devices for the safe use of sprayed asbestos available today?

A. Yes.

Selikoff did not stay to hear the man who followed him on the stand, Assistant Commission of Air Resources Harold Romer. Romer took the position that the construction industry will not cooperate and that it is "virtually impossible" to control sprayed insulation adequately. Hence it is better to ban asbestos and take a chance that substitute materials will be less hazardous.

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