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Asbestos Researchers Mtg. at PHS, 1966

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Summary p. 7

MEMO FOR FILE
Meeting on Asbestos Health Research
Occupational Health Research and Training Facility
U. S. Public Health Service
1014 Broadway, Cincinnati, Ohio
December 7, 8, 1966

RECEIVED
A. C. SMITH
JAN 9 1967

Research and Engineering Center
December 16, 1966

File: 411, 259

Dr. Brown started the meeting by reiterating its purpose: to find out what various workers in the field of occupational health were doing in studying the potential hazards of asbestos. The purpose was not to arrive at any conclusions concerning the validity of data on this problem, but merely to acquaint people with the scope of each others activities and to prevent duplication. As noted later, unfortunately, many of the participants used the meeting as a sounding board to review their past work rather than to discuss programs in progress. A list of the participants presenting 10 minute summaries is appended. Approximately fifteen others were there as invited auditors.

Dr. Levis J. Cralley, Public Health Service, Cincinnati.

Cralley discussed the program in which 2500 people in each of 4 asbestos-consuming industries were being compared with an equal cohort of "unexposed" people. The program will cover approximately 25 years and include a retrospective history as well as a prospective study in the future. Cralley's study appears to be well thought out and extremely complete.

He subsequently emphasized the importance of complete characterization of all materials used in "asbestos" research including trace metals, radiation, size, etc. He pointed out that nickel and chrome have been picked up from grinding equipment and that samples used in animal tests may have become contaminated in preparation.

An interesting side light was that Benzo(a)pyrene is apparently broken down by enzyme action, and this specific enzyme is destroyed by minute quantities of nickel.

Dr. William B. Leinhart.

Leinhart emphasized the problems of interpreting X-rays and, as did other subsequently, strongly recommended that the present committee on classification of pneumoconiosis rapidly complete their task so that current work in progress will be uniformly described by all workers.

Dr. M. Kleinfeld, New York State Occupational Health Service.

Kleinfeld described a statistical survey on 820 talc workers with at least 15 years exposure and on 150 asbestos workers outside New York for the same 1940 - 1965 period. Significant correlation between lung cancer was found for both sets of workers, individually as compared to population norm. This was more significant with the asbestos workers and only in the older age brackets for the talc (and tremolite) workers. He reported on no current work.

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Dr. Jan Lieben, Pennsylvania State Occupational Health Director.

Lieben presented a survey of past work plus current surveys in a small town in Pennsylvania (probably Raybestos-Manhattan operation) where considerable mesotheliomas had been observed. Many of the cases were connected to asbestos only by inference because of the proximity within several miles of the plant - a good case of "incrimination by association."

Lieben recommended that a national register of mesotheliomas cases be set up to prevent duplicate recording of the same cases in the literature and subsequent compounding of cases during literature surveys.

Dr. I. J. Selikoff, Mount Sinai Hospital.

Selikoff reported much of the work of his group and introduced them: Hammond, epidemiology; Smith, animals; Churg, pathology; Langer, mineralogy; Berkley, technical surveys; Schall, industrial hygiene. He described work which has already been reported plus continuous studies on the asbestos workers. Three hospitals in New York do now regularly take samples of lung tissue from all autopsy cases, examining for asbestos bodies and fiber inclusions on ashed specimens. The data will be correlated with pathologic information.

They are now starting an expanded program with 18,000 insulation workers. It will also include building trade workers (indirect exposure), neighborhood residents of a plant in 1942 (geographic plus latent period) for comparison of general populations. They are beginning a program to survey air pollution by looking for mineral fibers on air filter membranes. They will study trace elements such as nickel, iron, chrome, cobalt, and magnesium in workers.

Langer has not yet defined make up of any asbestos bodies by the microprobe studies are encouraging. Finally, smoking habits will be studied, and although Selikoff reiterated the strong effect of smoking even in the asbestos workers group.

Dr. T. E. Melby, California Occupational Health Bureau was represented by Dr. I. H. Tabershaw.

The Bureau is checking chrysotile mines and mills and has found dust concentrations "generally high". They were critical of most management although none were specifically cited.

Tabershaw indicated that the California Bureau has under way a study of 600 asbestos workers. They will also check a large group that had a limited time exposure during war-time ship-building operation. Tabershaw stated that their investigation showed large quantities of asbestos fibers being used in installation of both power plant and in the ship building field. He and Lieben were extremely critical of the sloppy installation procedures especially where trowellable cement containing asbestos was used. He emphasized the large and intermittent dust concentrations encountered during installation.

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Dr. E. Cuyler Hammond.

Hammond reviewed the statistics and emphasized the importance of adequate sampling. There appears to be a probable relationship between GI cancer and asbestos exposure. He especially requested that various investigators pool their data so that it might be possible to obtain statistically significant data on a large basis as contrasted to statistically not-significant data in each of a myriad of small investigations.

Dr. Kenneth W. Smith.

Smith described the program now being started by the QAMA group and introduced Dr. Corbett McDonald of McGill University who is supervising the work. Smith briefly described Johns-Manville's position and our interest in arriving at factually correct information. He re-emphasized the use of amosite primarily in insulation and therefore, by "asbestos workers" He pointed out that Johns Manville did have a large population of workers who are continuously monitored and that employment and health records were available to the Public Health Service as a source for epidemiology study. Dr. Smith noted the availability of standard samples of asbestos minerals from the Johannesburg Pneumoconiosis Research Unit.

Dr. J. N. Wolfsie, United States Rubber.

Wolfsie noted that 500 people in their Atlanta, Georgia textile plant are being studied clinically.

Dr. C. C. Blackwell, Jr., American Brake Shoe.

Blackwell spoke briefly on their cooperation with the Public Health Service in studying degradation products from brake shoe material. Practically no asbestos was observed in the degradation products except under extremely adverse, panic-type stops. This subject will be reported in a separate letter.

Dr. George W. Wright, Chairman of the Institute of Occupational and Environmental Health sponsored by QAMA.

Wright reviewed its functions and operation. It contains representatives from government, labor, and industry and has a scientific committee primarily medical doctors including Dr. Marvin Kuschner, Paul Kotin, and others including Dr. M. Palmer who is a full-time secretary. Their purpose is to (1) develop information on health aspects of asbestos and other minerals on a retrievable basis, (2) provide industry with current information, and (3) engender research by others (with no internal research). To accomplish this, Dr. Palmer will travel extensively visiting workers and, hopefully, cross-pollinating research activities. The Institute will receive proposals and attempt to fund meritorious projects.

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Dr. Corbett McDonald, McGill University.

McDonald reviewed briefly the program at McGill to study X-rays of Canadian asbestos workers including both Johns-Manville personnel and Thetford area personnel. The program will include histories of past employees and study the mining and milling groups as distinct populations. He re-emphasized the need for the pathological examination group to come up with a new and acceptable classification system for X-rays. McGill's study will start approximately March 1967, and they will adopt their own classification system if one has not been finally accepted by that time. During discussion, it was noted that the Thetford mines contain from 2 to 5 per cent free silica while practically none has been noted at the Asbestos, Quebec deposit.

Dr. Radford, Sloane-Kettering.

Radford questioned whether radon content was being measured since this is known to be an extremely potent factor in bronchial cancer. No radon has yet been observed in chrysotile deposits although some has been found in the crocidolite and amosite deposits probably due to the proximity of uranium to the latter.

Dr. J. Churg, Mount Sinai Hospital.

Churg re-emphasized the difficulty of recognizing mesotheliomas and that classification was not always unanimous. He suggested that a panel be constituted to examine all doubtful X-rays to secure conformity of diagnosis.

Dr. Paul Gross.

Gross is now completing a 3-year study with three species of animals exposed to chrysotile in inhalation chambers. He has attempted to get greater retention of dust by lye treatment of the trachea, but this was not successful. He did obtain 14 per cent of primary tumors in rats, but none in hamsters or mice. The only other occurrences reported in rats by such tests has been by Wagner in one series of tests. The reason for this is unexplained, possibly the type of dust may have been different and be responsible. Cralley suggested that the hammer-milling technique may have added trace alloys to the fiber, for example, Cralley found an increase in Ni after grinding. Gross has studied a variety of fibers to determine whether asbestos bodies are non-specific and may be related to the presence of any inorganic fiber, such as, fibrous attapulgite, glass fiber, aluminum silicate fiber (unidentified, but probably kyanite), SiC fiber, etc. [illegible] aluminum silicate and the glass produced asbestos bodies; attapulgite was not definite. SiC produced segmented protein covering, but without iron color. All dusts gave an "inert dust" reaction. He thought carcinogenicity could be due to some added function and not necessarily to magnesium silicate. Synthetic chrysotile prepared at Mellon Institute was given intratracheally and produced no fibrosis.

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He has suggested the possibility of getting a purer form of chrysotile by destroying any benzo(a)pyrene and ridding the chrysotile of trace materials by using aqua regia (would harm fiber) or treating with a chelating agent. The benzo(a)pyrene might be removed by heating the fibers above the decomposition temperature of benzo(a)pyrene. He is planning to load asbestos or synthetic chrysotile with trace materials such as Fe, Ni, Cr, or Mn, and also check benzo(a)pyrene with or without fiber (this would duplicate W. E. Smith's work). He is examining the effect of specially prepared glass fiber dust approximately 1 micron in diameter using a phenol formaldehyde or starch binder.

Gross suggested the name of FERRUGINOUS body as a replacement for asbestos body since these forms are apparently caused by other types of fibers. He indicated the need for more study of the nature of the FERRUGINOUS body in man and a study of the development of the FERRUGINOUS body both in man and animals. He suggested more work on isolating FERRUGINOUS bodies from people and using the microprobe for study. Dr. A. Langer of Mount Sinai Hospital already has such a program under way. He raised the question of beryllium content although he had not yet observed any.

In a feeding study of rats, 6 per cent chrysotile was included in the feed for 1 year with no resultant abnormalities. Gross requested from the writer specific samples of fiber which will be reported later and suggested that we collaborate on a report after he has completed further work with a wider variety of specially prepared fibers.

Dr. William E. Smith, Fairleigh Dickinson University.

Smith reported on his work which has already been covered in a memo for file (Asbestos Health Program, Mount Sinai Hospital, November 9, 1966). He pointed out that harsh fibers were apparently more damaging than soft fibers and that benzo(a)pyrene plus chrysotile was more damaging than benzo(a)pyrene. Dr. Kenneth Smith re-emphasized that the use of harsh fibers was almost insignificant as compared to soft fibers. Some of their knowledge of hard versus soft fibers seems "off base" and can be attributed to information from Dodelet. Dr. Selikoff tried to emphasize the importance of harsh fibers by noting that these might be produced during use of asbestos materials at high temperature and consequent possible dehydration and that this material would be released during removal of insulation. There is no technical validity for the inference, and Dr. K. Smith scored by emphasizing the low usage of chrysotile in insulation materials.

Dr. Forde A. McIver, Medical Center, Charleston, South Carolina.

McIver described past work with beagles using atmospheres loaded with 190 million particles per cubic foot derived from 7TF-2 chrysotile. He acknowledged assistance of Johns-Manville in supplying materials. They are currently investigating asbestos and virus with no positive results to date.

Dr. Sidney Spell, Johns-Manville

Spell reviewed Johns-Manville's projected program in studying surface characteristics of asbestos. In addition, the general program to study the decomposition products obtained during the installation and service life of a variety of products containing asbestos was described. The fact that chrysotile is not "indestructible" was noted. This presentation is given in more detail in a letter to Lewis Cralley dated 12/23/66.

Dr. Arthur Langer, Mount Sinai Hospital.

Langer reviewed his work currently in progress at Mount Sinai on the analysis of asbestos bodies. This was covered in more detail in my memo for file (Synthetic Chrysotile in Asbestos Health Studies, November 3, 1966).

Dr. Paul Cartier.

Cartier reviewed his work on the clinical studies of Thetford workers and commented on the availability of a large population of workers for both retrospective and prospective studies.

Dr. Arthur Vorwald, Wayne State University.

Vorwald described his experiment in which for the past few years he has been collecting particulates and analyzing gases by means of a large conical collector over a street corner in Detroit. During this 6-year period, 14,000 cubic feet per minute of air has been collected. Samples of this material have been examined by Johns-Manville; and frankly, it is almost a hopeless problem to determine the amount and type of fiber included in the mass of material. Our comments will be reported separately in a short report.

In addition, Vorwald has been carrying on a rather extensive series of tests using interpleural, intraperitoneal and subcutaneous injections of four different species of animals with three different types of fibers. The results have shown considerable variation between the different species of animals and are not complete. Vorwald pointed out the extreme poisonous characteristics of beryllium. Two milligrams per cubic meter is the permissible limit, however, this toxic factor has always resulted in death and not in any cancerous reaction.

The second day was to be devoted to a critical summary and to planning based on the information presented in the previous day. This was led by Dr. Clark Cooper of California. Frankly, this discussion wandered remarkably with very little semblance of an integrated program arising during the meeting. Hopefully, after all the data are summarized by Dr. Cralley, it may be possible to use the data presented during the first day as a basis for integrating or at least collating the work being done at various agencies. All participants were requested to send in a written summary of their presentations in as much or as little detail as they cared and to make any comments they wished to guide future research programs. Dr. Cralley promised

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to distribute information to the participants. It was suggested that the Public Health Service consider the desirability of holding such a conference again within about 2 years.

A very large percentage of the time was devoted to a review of former and newly proposed classification schemes for classifying X-rays.

SUMMARY

In general, it seemed that a large percentage of the participants especially the state public health officials had already in their own minds convicted asbestos. On the other hand, a reasonable number of participants especially those concerned with actual laboratory work were sincerely interested in scientifically examining the specific nature of the problem and to pin down the role of the various chemical, physical, and biological parameters involved. Dr. K. C. Brown emphasized again that the purpose of this meeting was to bring together researchers. Its purpose was not to critically evaluate the results of past research, and therefore, he had no intention whatsoever at this time of releasing any report to the press other than the fact that a group has met to review research in progress. This was especially directed at one participant who recommended that the group go on record publicly concerning a relationship between asbestos and lung cancer.

I believe that the presence of Dr. K. Smith and myself at this meeting helped to convince the participants that Johns-Manville is actively studying the problem and anxious to assist towards a rapid and conclusive answer to the question whether a public health problem does in fact exist.

S. Spiel

SS/mae

cc: K. Lindell - Agh
A. C. Smith
F. L. Pundsack
W. C. Streib
J. P. Leimreber
Attn: G. Reinschmeed

MEMO FOR FILE (Appendix) -8- December 16, 1966

Occupational Health Research and Training Facility
U. S. Public Health Service
1014 Broadway, Cincinnati, Ohio

Agenda for Asbestos Meeting

Wednesday, December 7, 1966

9:00 a.m.	Welcome	Dr. Murray C. Brown
9:15 a.m.	Presentation of scope and status of on-going research projects - the list of participants is still tentative; others may be added.	Dr. Murray C. Brown, Moderator Dr. Levis J. Crelley Dr. William S. Leinhart Dr. Thomas E. Kilby Dr. Morris Kleinfeld Dr. W. L. Wilson Dr. Jan Lieben Dr. Irving J. Selikoff Dr. Irving R. Tabershaw Dr. Thomas P. Kanouse Dr. E. Cuyler Hammond Dr. Kenneth W. Smith Dr. J. E. Wolfsie Dr. C. C. Blackwell, Jr. Dr. George W. Wright Dr. J. Churg Dr. Paul Gross Dr. William E. Smith Dr. Forde A. McIver Dr. Arthur J. Vorwald Dr. Arthur Langer Dr. Sidney Spell Dr. Paul Cartier

Thursday, December 8, 1966

9:00 a.m. - 12:00	Discussion of further research needs	Dr. W. Clark Cooper, Moderator
1:30 - 3:00 p.m.	Review of definitive knowledge of health effects of exposure to asbestos	Dr. W. Clark Cooper
3:00 - 3:30 p.m.	Summary	Dr. Murray C. Brown

AL 1026001755

Research and Monitoring Series
November 15, 1974

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ASBESTOS ANALYSIS LABORATORIES

Laboratories	Personnel
UNITED STATES	
Fairleigh Dickinson University Health Research Institute Madison, N. J.	V. P. Smith L. Miller
Dept. of Health Bureau of Laboratories Washington, D. C.	C. V. H. Schepers
Public Health Service Dept. of Health, Education & Welfare Division of Occupational Health Cincinnati, Ohio	T. Z. Kerr J. F. Lynch J. E. Kenney L. J. Cralley
Public Health Service Department of Health, Education & Welfare Division of Occupational Health 3rd & C. Sts. S.W. Washington, D.C. 20201	P. Waterline
Public Health Service Dept. of Health, Education & Welfare Environmental Cancer Section National Cancer Institute Bethesda, Md. 20014	W. C. Pepper, Chief H. I. Stewart W. Yeaw
Mount Sinai Hospital 1 East 100 St. New York, N. Y. 10029	I. Selikoff C. Hammond J. Chang
Yale University School of Medicine Dept. of Anatomy 310 Cedar St. New Haven, Connecticut	W. Gardner
American Cancer Society Medical Affairs Dept. Statistical Research Section 219 E. 42 St. New York, N. Y. 10017	A. P. Brunet, Director
Massachusetts Institute of Technology Medical Department Occupational Medical Service Cambridge 39, Mass.	H. Kelly

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Laboratories	Personnel
University of Ottawa Canadian Tumor Registry Dept. of Pathology Ottawa, Canada	D. Wagner (Director)
McGill University Dept. of Epidemiology & Health 1033 Pine Ave. West, Montreal 2, P.Q. Canada	J. C. McDonald
National Cancer Institute of Canada 790 Bay St. Toronto 2, Ontario, Canada	A. J. Phillips
Quebec Asbestos Manufacturers Assoc. Occupational Health Advisory Group	
Quebec Government Occupational Health Advisory Group (to be formed)	
Dept. of Mines and Technical Surveys Non Metallics Sub-Division 40 Lydia St. Ottawa 1, Ontario, Canada	E. M. Woodroofe
GREAT BRITAIN AND IRELAND	
Asbestosis Research Council University of Cambridge Cambridge, England	J. M. G. Davis
Asbestosis Research Committee London, England	W. J. Smither
Queens University Dept. of Therapeutics and Pharmacology Belfast, Northern Ireland	P. C. Kinse C. L. Wade
Medical Research Council Pneumoconiosis Research Unit Llandough Hospital Penarth, Glamorgan, Wales	J. C. Wagner J. C. Gilson J. W. Skidmore V. Timbrell
Welsh National School of Medicine Cardiff, Wales	
Ministry of Labour London	W. D. Buchanan
Chester Beatty Research Institute Institute of Cancer Research Royal Cancer Hospital Fulham Road London S.W. 3, England	J. S. Barrington F. J. C. Roe E. Boyland

Laboratories	Personnel
London Hospital Medical School Dept. of Pathology Whitechapel Rd. London, England	D. C'B. Bourihane
University of Reading Reading, England	P. F. Holt J. Mills D. K. Young
Trinity College Dept. of Pathology Dublin, Ireland	W. T. E. McCaughey
Ministry of Pensions and National Insurance London, England	J. C. McVittie
Safety in Mines Research Establishment Sheffield, England	G. Nagelschmidt
The Royal Beatson Hospital Cancer Research Dept. Hill St. Glasgow, Scotland	R. P. Peacock A. Peacock
London School of Hygiene & Tropical Medicine Dept. of Occupational Health & Applied Physiology	M. L. Newhouse H. Thompson S. A. Roach
University of St. Andrews Queens College Dundee, Scotland	C. H. Bell
ITALY	
Clinica Lavoro Dept. of Immunology Via St. Barnabea Milan, Italy	B. Parnis E. C. Vigliani
University of Turin Institute of Pathology	G. Motture
SOUTH AFRICA	
Pneumoconiosis Medical Bureau Deforte St. Johannesburg, South Africa	G. K. Sluis-Cremer
University of Cape Town Medical School Dept. of Pathology Cape Town, South Africa	J. G. Thomson
Council for Scientific & Industrial Research Pneumoconiosis Research Unit P. O. Box 1038, Johannesburg, South Africa	I. Webster

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Laboratories	Personnel
AUSTRALIA	
Department of Public Health 57 Murray St. Perth, Australia	J. McNulty
FINLAND	
Tampere Central Hospital Tampere, Finland	R. Kiviluoto
Institute of Occupational Health Haartmaninkatu 1, Helsinki, Finland	L. Noro A. Laaminen V. Reunio
FRANCE	
University of Lyon Chaire de Physiopathologie des Voies Respiratoires	P. Caley
GERMANY	
University of Munich Institute of Pathology	W. Doutenvill
Krankenhaus Leninstrasse Karl-Marx-Stadt German Democratic Republic and the Silikose-Erhebungsstelle of the German Central Institute of Occupational Health Dresden, German Democratic Republic	G. Jacob M. Anspach
University of Kiel	G. E. Klein

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Laboratories	Personnel
University of Kansas Medical Center School of Medicine Dept. of Pathology & Oncology Kansas City 3, Kansas	J. Higginson
U. S. Dept. of the Interior Bureau of Mines	C. W. Huggins
University of Michigan Dept. of Pathology Ann Arbor, Michigan	B. Naylor
University of Pittsburgh, Graduate School of Public Health Dept. of Occupational Health Pittsburgh, Pa.	T. F. Mancuso W. Peal
Council for Tobacco Research New York	R. C. Hockett
Chicago Medical School Institute for Medical Research Division of Oncology Chicago, Ill.	U. Saffiotti F. Cefis P. Shubik
Jefferson Medical College Institute for Clinical Science Philadelphia, Pa.	F. W. Sunderman
Glass Fiber Mfg. Program (see Dr. K. Smith)	
Mellon Institute Pittsburgh, Pa.	P. Gross
CANADA	
Thetford Industrial Clinic Thetford Mines Quebec, Canada	P. Cartier
Ministry of Health and Welfare Occupational Health Division Ottawa, Canada	A. J. deVilliers (Director, Biological Unit)
Sacre Coeur Hospital Montreal, Quebec, Canada	B. Ouf (Chief of Pathology)