FILE NAME: Caterpillar (CAT)

DATE: 1954

DOC#: CAT063

DOCUMENT DESCRIPTION: Conference - Workmen's Comp Problems - Dr. Hueper Presentation - Caterpillar's Dr. Kronenberg Listed as Attendee, Pg. 232

PROCEEDINGS—40th Annual Convention of the International Association of Industrial Accident Boards and Commissions, Quebec, Canada, October 3–7, 1954

Workmen's Compensation Problems 1954

BULLETIN 180

UNITED STATES DEPARTMENT OF LABOR
James P. Mitchell, Secretary

BUREAU OF LABOR STANDARDS
Paul E. Gurske, Director

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

331
Un362 I.
no. 180

Foreword

THIS BULLETIN No. 180, contains the proceedings of the 40th annual convention of the International Association of Industrial Accident Boards and Commissions, which was held in Quebec, Canada, October 3–7, 1954.

Proceedings of the convention have been prepared for publication by the staff of the Bureau of Labor Standards.

M. SMITH
JUN 8 1955

Digitized by Google
Original from
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Occupational Cancer Hazards

W. D. HUEPER, M. D., *Chief, Environmental Cancer Section, Cancer Institute, U. S. Public Health Service, Washington, D. C.*

A. Scope

Occupational cancer hazards have plagued mankind for thousands of years. Undue exposure to agents of our natural environment such as solar radiation or infections with the worm, Schistosoma hematobium, have doubtlessly been responsible for the occurrence of cancers of the exposed skin among outdoor workers and of cancer of the bladder among farmers of the Nile valley even during prehistoric times. However, it was not until the advent of modern industrialism some 150 years ago that occupational and industry-related agents have attained a preeminent position in the human cancer problem. Not only are occupational carcinogens the only well defined known causes of human cancers, but their number and variety have steadily increased since Pott in 1775 first related the occurrence of scrotal cancer among chimney sweeps to their exposure to soot.

Our real knowledge and appreciation of occupational cancer producing agents as phenomena of modern industrialism dates back some

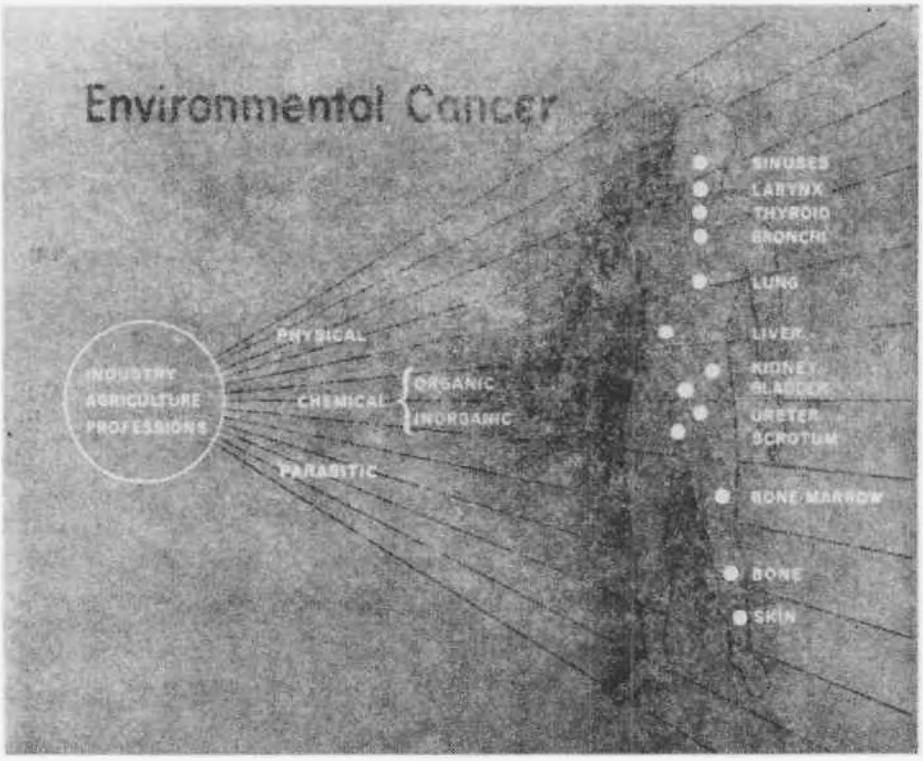


FIGURE 1.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

75 years with the discovery of the relation between the occurrence of skin cancer and an occupational exposure to coal tar (fig. 1). The data given in the following tables (1 and 1a) briefly summarize the salient additions to the information on occupational cancer hazards made since that time. They list the various chemical and physical agents so far recognized or strongly suspected as causes of cancer in man. They show, moreover, the different organs and tissues representing the target organs of these agents and the number of occupational cancer cases placed on record or known to have been recognized as caused by them.

TABLE 1.—*Occupational Cancers Recorded in the United States and Foreign Countries up to 1952*

Agent	Sites of cancer	Number of cancer cases in U.S.A.	Number of cancer cases in Europe	Total
Arsenic	Skin	7	25	32
Coal tar, pitch	do	110	3, 150	3, 260
Petroleum	do	70	29	99
Shale oils	do	7	1, 900	1, 907
Lignite tar and paraffin	do		14	14
Creosote oil	do	1	40	41
Anthracene oil	do		20	20
Soot-carbon black	do	1	190	191
Aromatic amines	Bladder	350–400	1, 200	1, 600
Roentgen- and radium-radiation	Skin	(?)	(?)	(?)
	Leukemia	16	13	29
	Lung		650	650
Arsenic	Lung	7	16	23
Asbestos	do	22	63	85
Chromates	do	75	65	140
Nickel	do	0	84	84
	Nasal cavity. Nasal sinus	0	51	51
Coal tar, pitch	Lung	0	53	53
Petroleum	do	7	33	40
Benzol	Leukemia	11	31	42
Isopropyl	Lung	1	0	1
	Larynx	4	0	4
	Nasal sinus	6	0	6
Radioactive chemicals	Bones	9	0	9
	Nasal sinus	3	0	3
Total		[1] 750	7, 650	8, 400

[1] Approximate.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

TABLE 1A.—*Time Table of Discoveries of Occupational Cancers*

Name of agent	Date	Discoverer	Organs affected	Nature of exposure
Chemicals—Organic:				
Soot	1775	Pott	Skin (scrotum)	Occupational.
Coal tar (lignite)	1876	Volkmann	Skin	Do.
Coal tar (bituminous)	1892	Butlin	do	Do.
Coal tar (anthracite)	1910	Zweig	do	Do.
Coal tar (fumes)	1936	Kawahate	Lung	Do.
Creosote oil	1920	O'Donovan	Skin	Do.
Anthracene oil	1908	Oliver	do	Do.
Paraffin oil (shale oil)	1876	Bell	do	Do.
Petroleum still coke	1890	Derville and Guermonprez.	do	Do.
Petroleum paraffin oil	1910	Schamberg	do	Do.
Petroleum lubricating oil	1930	Heller	do	Do.
Shale lubricating oil	1910	Wilson	do	Do.
Benzol	1928	Delore & Borgomano	Blood-forming tissues	Do.
Aromatic amines (dye intermediates).	1895	Rehn	Bladder, ureter, kidney.	Do.
Isopropyl oil	1952	Weil, Smyth & Nale	Nasal sinuses, larynx, lung.	Do.
Chemicals—Inorganic:				
Arsenic	1822	Paris	Skin	Do.
	1887	Hutchison	do	Medicinal.
	1930	Saupe	Lung	Occupational.
Asbestos	1953	Lynch & Smith	do	Do.
Chromates	1935	Pfeil	do	Do.
Nickel	1932	Grenfell	Nasal cavity and sinuses, lung.	Do.
Physical agents:				
Ultraviolet radiation	1894	Unna	Skin	Do.
				Environmental.
Roentgen-radiation	1902	Frieben	do	Occupational.
	1906	Wyss	do	Medicinal.
	1911	Von Jagic, Schwartz & von Siebenrock.	Blood-forming tissues	Occupational.
	1922	Beck	Bone	Medicinal.
Radioactive substances	1879	Haerting & Hesse	Lung	Occupational.
	1923	McNeal, Ward and Willis.	Skin	Do.
	1929	Loewy	Blood-forming tissues	Do.
	1931	Martland	Bone	Do.

However, an indiscriminate acceptance of these figures as reflecting the actual scope of the occupational cancer hazards would seriously be misleading for the following reasons. The presence of occupational cancer hazards has so far been established for only a few worker groups having contact with one or several of the carcinogenic agents listed. While, for instance, it is generally known that workers employed in gas works and coal tar distilleries or engaged in the cleaning of petroleum stills and having skin and respiratory contact with coal and petroleum pitch and tar show an excessive liability to cancer of the skin, and apparently also, of the lung, there does not exist any official record of similar cancerous complications among electrode workers in aluminum production plants where an exposure to fumes

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

from the electrodes consisting of a mixture of coal tar, pitch, and petroleum coke exists. Reliable information, however, is on hand that these workers suffer from cancers of the skin and, possibly, also the respiratory tract. The extent of this exposure hazard may be estimated by the fact that approximately two-thirds of a pound of electrode carbon is consumed for each pound of metallic aluminum produced, of which 800,000 short tons were consumed in the United States in 1945.

It is equally significant that agents which have been reported to have caused occupational cancers among workers of an industry of one country, do not seem to have the same effect upon the workers of an identical industry of another country, if the available data would be accepted at their face value. Since carcinogens behave in their fundamental disease-producing properties like pathogenic microorganisms, there is no sound reason to assume that carcinogens make any distinctions in their activity or effectiveness for any national reasons. In fact, it can be shown that such scientifically incomprehensible discrepancies are mainly due to local differences of reporting of occupational cancer cases.

The existence of an excessive liability of gas house retort and coke oven workers to cancer of the lung has been reported from Japan, Canada, and England, but not from any other country despite the fact that the exposure conditions for workers employed in such operations are identical. The occurrence of an appreciable number of arsenic cancers of the skin among German users of arsenical insecticides was placed on record during recent years. If full credence would be given to reports on arsenic cancers observed in the United States, one would be led to believe that arsenicals in our part of the world are carcinogenic for almost exclusively medicinal reasons. Again, it is hard to assume that arsenicals would make such distinctions. A similar situation seems to exist concerning the carcinogenicity of lubricating oils obtained from petroleum in different parts of the world. Although there were placed on record by English investigators during recent years, several hundred cases of skin cancers due to occupational contact with lubricating oils, practically nothing is officially known as to the existence of such industrial diseases from the countries on this side of the Atlantic. One seems to be content with attributing here the English observations to the carcinogenic action of shale oils, the large-scale industrial use of which was discontinued during the 1920's, and therefore cannot account for the more recent English cancer cases observed among spinners, mechanics, engineers and other workers having had exclusive contact with lubricating and cooling oils of petroleum derivation.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

It is worth noting in this connection that during the last 20 years, there has been an almost complete lack of published additions to the list of occupational coal tar, pitch and creosote oil cancers of the skin from the United States, although such cancers have been observed and are recorded as such in industrial records, and despite the fact that the annual reports of the Chief Inspector of Factories of England and Wales have regularly listed notifications of such lesions to the extent of from 100 to 250 cases per year.

One may also reflect on the fact that the last published figures on occupational cancers in American dye workers appeared in 1938 and listed less than 100 cases, all occurring among employees of one company. During the intervening 15 years, the total number of such cases has risen several fold and no official data have become available from any of the other companies producing and handling carcinogenic aromatic amines used in the production of dyes and rubber antioxidants. In contrast, recent reports by English investigators supported by the English chemical industries have supplied adequate figures on the number, incidence rates, and attack risks of bladder cancer among English dye and rubber workers who had been exposed to the same carcinogenic aromatic amines with which the corresponding worker groups in this country have occupational contact.

Finally, some consideration must be given to the fact that the general population has varying degrees of contact with some of the carcinogenic agents through their presence in industrial wastes released into the environmental air and bodies of water, and entering subsequently the soil and the fauna and flora living in such a polluted environment and used in part for nutritional purposes. In the past, claims as to the occurrence of so-called "neighborhood" cases of cancer have rarely been made. The well established former occurrence of arsenic cancers among inhabitants of a German region in which the drinking water supply was polluted with arsenic from mine slag heaps represents the first occurrence of this type.

Following the discovery of bladder cancer hazards among German dye workers, it was asserted that an environmental plant contamination with carcinogenic aromatic amines was responsible for the production of bladder cancers among persons living in the vicinity of this plant. While the actual existence of such conditions was denied at that time by other investigators, the recent demonstration of "neighborhood cases" of berylliosis makes such claims appear as not unreasonable possibilities since a highly potent carcinogen, such as beta-naphthylamine, is involved which might have produced such results if the waste disposal and housekeeping methods of the plant were inadequate. It is probable that the future occurrence of cancers of the lung and bone among individuals who lived near beryllium-producing or processing plants might furnish additional evidence of

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

cancer hazards related to environmental plant pollution if beryllium and its compounds are not only carcinogenic for rats and rabbits but also for man. Similar conditions of industrial atmospheric pollution exist around arsenic smelters, chromate producing plants, carbon black factories and oil refineries, as well as uranium ore mills.

The recent compensation claims advanced on the basis of an alleged existence between cigarette smoking and lung cancer also point to the possibility of a greater future importance of the compensation aspects connected with the occurrence of cancers from industry-related sources, such as exposure to carcinogens contained in the exhaust fumes from diesel and gasoline engines, or present as additives and contaminants in foodstuffs.

It appears from these considerations that there can be no doubt that the actual number of occupational cancers is considerably higher than the number of cases placed on record. It is of some interest, moreover, that the number of cases recorded in medical journals is appreciably higher than the number of occupational cancers which during the last 20 years have come for decision before compensation boards because compensation claims in many such cases have been settled out of court. With a few exceptions, such as the incidence of lung cancer among American chromate manufacturers and among German and Czechoslovakian radioactive ore miners, of nasal sinus, larynx and lung tumors among American isopropyl alcohol manufacturers, and of skin cancer among English coal tar manufacturers and processers, no reliable information is available on the incidence rate of occupational cancers of the various types among different occupational population groups.

B. Special Aspects of Occupational Cancers

A fair and competent adjudication of compensation claims for cancers allegedly caused by occupational agents or conditions requires an adequate knowledge of the special aspects related to the production and development of these tumors and of the criteria by which they may be distinguished from non-occupational environmental (medicinal, dietary, cosmetic, habitual) as well as "spontaneous" cancers.

1. Definition of the Term "Occupational Cancer".—The term "occupational cancer" is applied to malignant tumors originating in individuals during the course, and/or as the result of the regular and usually prolonged exercise of certain occupational activities entailing contact with some exogenous, physical, chemical or parasitic agent acting in proper intensity. Occupational cancers thus are caused by specific agents or etiologically related to well defined occupational conditions which form an integral part of the ordinary working environment. They differ through these aspects from the accidental occupational cancers which result from or follow upon some extraor-

Digitized by Google Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

dinary, unforeseen, accidental injury sustained at work and being of a nonspecific nature.

2. Types and Nature of Occupational Carcinogens.—Occupational agents which are known or strongly suspected as having caused cancers of various organs in workers who became exposed to them are largely chemicals. Some of these chemicals are well defined, others consist of variable mixtures of a large number of chemical compounds, a few of which possess carcinogenic properties. A second group of occupational carcinogens is composed of agents characterized by their ionizing or nonionizing radiation. A third group is represented by environmental agents and conditions which sometimes have an occupational association, and which may be related to certain infections or several specific climatic, geologic, dietary, and nutritional conditions, and which in part have more or less indirect relations to carcinogenesis (table 2).

TABLE 2.—*Occupational Carcinogens—Their Route of Exposure and Their Target Organs*

General type	Specific type	Route of exposure	Target organ
Chemical carcinogens:			
Organic chemicals—aromatic, polycyclic, heterocyclic	Benzol	Cutaneous, respiratory.	Blood-forming organs (leukemia, lymphosarcoma, myeloma).
	Beta-naphthylamine, benzidine, 4-aminodiphenyl(auramine, magenta?) (toluidine?).	Respiratory, cutaneous, alimentary.	Urogenous organs (bladder, ureter, kidney).
	Coal tar, pitch, soot, asphalt, tar oil, creosote oil, anthracene oil lamp black, lignite tar and paraffin oil.	Cutaneous	Skin.
		Respiratory	Lung.
	Synthetic coal oil and tar (Bergius).	Cutaneous	Skin.
	Shale oil and paraffin oil	do	Do.
		Respiratory	Larynx.
	Petroleum fuel oil, diesel oil, lubricating oil and grease, cutting oil, carbon black, asphalt, tar, coke, crude paraffin oil.	Cutaneous	Skin.
		Respiratory	Lung.
Aliphatic	Isopropyl oil	do	Nasal sinus, larynx, lung.
Inorganic chemicals.	Arsenic	Cutaneous, ingestive	Skin.
		Respiratory	Lung.
	Nickel	do	Nasal cavity, nasal sinus, lung.
	Chromium	do	Lung.
	Asbestos	do	Do.
Physical carcinogens: ionizing radiation.	X-radiation	Cutaneous	Skin.
		Transcutaneous	Connective tissue, bone, blood-forming organs.
	Radioactive radiation (alpha-, beta, and gamma-radiation).	Cutaneous	Skin.
		Transcutaneous	Connective tissue, blood-forming organs.
		Respiratory	Nasal sinus
			Lung.
		Ingestive	Bone.
Parasitic carcinogens	Schistosoma hematobium	Cutaneous	Bladder.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

In addition to these established occupational carcinogens there are a number of potential human carcinogens which have been shown to elicit cancers in experimental animals and to which workers become exposed during their regular occupational activities. These potential agents which also must be considered in the adjudication of compensation claims, are listed in tables 3 and 4.

TABLE 3.—*Potential Environmental Human Carcinogens*

Agent	Site of tumor	Type of exposure	Species	Types of human contacts
Estrogens	Breast	Parenteral	Mouse	Manufacture.
Natural	Lymph nodes	Cutaneous	Rat	Dietary additive.
Synthetic	Uterus	Oral	Rabbit	Cosmetic ingredient.
	Hypophysis		Guinea pig	
Carbon Tetrachloride	Liver	Oral	Mouse	Industrial solvent.
				Degreasing agent.
				Dry-cleaning agent.
				Fire-extinguishing agent.
				Manufacture.
				Production of freon.
				Grain fumigant.
				Extractive of oils.
Chloroform	do	Oral	Mouse	Manufacture.
		Parenteral		Anesthetic.
				Solvent and Extractive of oils, resins, rubber, waxes, iodine, alkaloids.
				Ingredient of lacquer, floor polish, cleaning fluid.
				Production of artificial silk, plastics.
DDT (a,a-Bis(p-chlorophenyl-1,1,1-trichloroethane).	do	Oral	Rat	Manufacture.
				Insecticide.
				Food contaminant.
Tannic acid	do	Parenteral	do	Ingredient of foodstuffs (fruits, wine, coffee, and tea).
				Medicinal agent.
				Tanning agent.
Thiourea and derivatives.	do	Oral	do	Citrus fruit preservative.
	Thyroid			Medicinal agent.
p-Phenetylurea (Dulcin).	Liver	do	do	Manufacture.
				Sweetening agent.
Diethylene glycol	Bladder	do	do	Antifreeze.
				Intermediate in exposive manufacture.
				Softener of lacquer inks, wood stains, glue, textile, humectant (tobacco).
Methylated naphthalenes.	Skin	Cutaneous	Mouse	Vehicle of insecticides.
Bergius coal oils and tar.	do	Cutaneous	Mouse	Manufacture.
	Subcutaneous tissue.	Parenteral	Rat	Fuel.
				Lubricants.
				Plastic production.
				Petrochemical.
Fisher-Tropsch coal oils, tars, waxes, greases.	Liver	Cutaneous		Manufacture.
		Parenteral	Mouse	Fuel.
				Lubricant.
				Petrochemical.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

TABLE 3.—*Potential Environmental Human Carcinogens*—Continued

Agent	Site of tumor	Type of exposure	Species	Types of human contacts
Light green SF brilliant blue FCF fast green FCF.	Subcutaneous tissue.	Parenteral	Rat	Textile dyes. Food and cosmetic dyes.
Butter yellow	Liver	Oral	Mouse Rat	Food dye (orient). Gasoline dye. Flare color.
Cellophane, polyethylene, polyamide (nylon), bakelite teflon, polymethyl methacrylate.	Subcutaneous	Parenteral	do	Film, fiber, plastic-industrial manufacture and uses. Wrapping material. Medicinal agent.
Berryllium	Bone	Parenteral Respiratory	Rabbit Rat	Metal alloy, X-ray tube, phosphor manufacture. Refractory vessels. Atomic energy production.
Selenium	Liver, thyroid	Oral	do	Soil contaminant. Coloring matter of glass, ceramics, paint, rubber. Metal alloys. Rubber accelerator. Photoelectric apparatus. Decolorizer. Fireproofing agent. Medicinal agent.
Cobalt	Subcutaneous tissue.	Parenteral	do	Metal alloys and plating. Coloring matter of glass, ceramics, paint, rubber. Medicinal agent.

TABLE 4.—*Carcinogenic Chemicals Eliminated as Environmental Human Carcinogens*

Agent	Site of cancer	Type of exposure	Species	Intended use
Styryl 430	Subcutaneous tissue.	Parenteral	Mouse	Trypanocidal agent.
2-Acetylamino-fluorens	Subcutaneous tissue. Bladder Liver Brain. Thyroid. Acoustic duct. Breast. Leukemia. Kidney. Lung.	Oral Parenteral	do Rat Dog Fowl	Insecticide.

3. Evaluation of Evidence.—For the establishment of causal relations between an exposure to these agents and the subsequent development of a cancer of an occupational genesis and therefore compensable nature, the following prerequisites must be fulfilled:

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

(*a*) Definite evidence must be available indicating that the claimant had occupational contact with any one of the various agents listed, that this contact was either of prolonged nature extending as a rule over periods of at least 6 months, and was of adequate intensity for eliciting a cancerous response, according to any previous experience which might be available on this point. Single exposures may be considered to be effective if the casual agent consists of external ionizing radiation or the exposure mechanism favors the production of a carcinogenic depot in the tissues from which a prolonged exposure of the host organism may ensue.

(*b*) The route of exposure to or introduction of the carcinogenic agent in addition to its specific chemical properties and metabolic peculiarities determine the site of the organ or tissues in which a cancer is elicited. Therefore, not any cancer, but only cancers of specific sites are related to any particular carcinogenic agent.

(*c*) The type of exposure does not need to be continuous or extend up to the time of appearance of the cancer, but may be intermittent. In fact, any contact with the occupational carcinogenic agent may have ceased many months to years or, occasionally, even decades before the cancer becomes manifest. Effective carcinogenic exposures may be sustained not only by the ordinary operators employed in operations with occupational carcinogenic hazards, but also by workers entering such operations on a transitory basis, such as supervisors, maintenance personnel, repairmen, truckers, loaders, yardmen, and workers employed in rooms and buildings near the hazardous operations, if housekeeping and exhaust disposal methods are inadequate and environmental contaminations result.

(*d*) *Occupational Medical Stigmata.*—For the establishment of causal relations between occupational exposures to carcinogens and subsequently appearing cancers, it is of distinct value to analyze the medical history of the affected persons for functional or anatomic disease manifestations characteristic of a pathogenic action of the particular carcinogen allegedly involved. Such noncancerous and often preparatory or precancerous symptoms of etiologic specificity act as stigmata or biologic finger prints supporting not only the actuality of a previously sustained specific exposure, but also its causal relationship to the cancer present. Symptomatic manifestations possessing such a significance are, for instance, chronic radiodermatitis, chronic tar dermatitis, arsenic dermatosis, chronic solar dermatitis, chronic radiation periostitis, asbestosis of the lung, and leukemoid reactions after exposure to benzol and ionizing radiation. Chemical analyses of tissues for the incriminated chemical also may sometimes be of assistance in establishing previous contact with any specific occupational carcinogens, such as arsenic, chromium, nickel, radioactive substances, and benzol.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

It is important, however, to note that both these procedures are not applicable for all occupational cancers. Some of the carcinogens do not produce any etiologically characteristic symptoms, in fact, they may not elicit any preliminary toxic or other disease phenomena despite a persistent and prolonged carcinogenic exposure. Thus, cancers of the bladder in dye and rubber workers may develop in the absence of any preliminary local or general warning symptoms after more than one or two decades of continuous, intermittent, or discontinued exposure to certain carcinogenic aromatic amines.

There also does not exist any parallelism between the toxic and/or irritative properties of any chemical and its potential carcinogenic qualities, nor, is there a relationship between the degree of toxicity of any particular carcinogen and its relative carcinogenic potency.

(*e*) Extensive experience with occupational cancers indicates that there usually elapses a latent period of years, if not decades, between the onset of exposures to a carcinogenic agent and the appearance of the resulting cancer (table 5). It is for this reason most unlikely that occupational cancers become manifest within the first year following the inception of contact with a carcinogenic agent. In fact, all cancers which make their appearance during the first three years of occupation in a carcinogenic environment should be subjected to severe scrutiny for a more probable nonoccupational origin before they may be considered from any occupational viewpoint.

TABLE 5.—*Latent Periods of Occupational Cancers*

Organ and agent	Average latent period	Range of latent period
Skin		
Arsenic:	*Years*	*Years*
Medicinal	18	3–40
Occupational	25	4–46
Tar	20–24	1–50
Creosote oil	25	15–40
Mineral oil	50–54	4–75
Crude paraffin oil	15–18	3–35
Solar radiation	20–30	15–40
X-radiation	7	1–12
Lung		
Asbestos	18	15–21
Chromates	15	5–47
Nickel carbonyl	22	6–30
Tar fumes	16	9–23
Ionizing radiation	25–35	7–50
Bladder		
Aromatic amines	11–15	2–40

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

(*f*) A successful production of cancers in experimental animals by the administration of any particular chemical or occupational agent supplies weighty support to a claim that such a factor may have an identical effect upon man, especially if the route of exposure, the physiochemical status of the agent during contact, and the cancer produced in experimental animals are identical with the corresponding aspects in human experience. However, because of the pronounced species specificity of axogenous carcinogenic agents, even positive experimental evidence provides merely strongly suggestive but not entirely conclusive evidence as to the existence of carcinogenic properties of such agents for man. Only human experience gives a definite and irrefutable answer in such matters.

(*g*) Pathologic and histologic evidence is in general of only limited importance in the establishment of the occupational causation of cancers, since neither the clinical behavior nor the gross appearance and histologic structure of cancers are etiology specific. However, in some occupational cancers histologically or histochemically demonstrable manifestations are present which give conclusive or suggestive evidence as to their particular etiology. The presence of asbestos bodies and asbestosis in a lung affected by cancer provides practical and scientific proof as to the asbestotic origin of such a pulmonary carcinoma. Of similar causal significance would be the demonstration of chromite dust by histochemical methods and by incineration of sections of the lung of an individual with pulmonary carcinoma. The histochemical demonstration of arsenic in the skin affected by a carcinoma represents another illustration of the value of histologic studies in the determination of the etiology of a cancer. Likewise the presence of extensive endarteritic changes in a fibrosed subcutaneous tissue containing a carcinoma or sarcoma would arouse the suspicion that X-rays or radioactive energy was causally responsible for the malignant lesion.

It appears from these considerations that a competent and critical evaluation of the entire evidence related to the exposure of the individual the symptomatic manifestations of the preparatory period, the length of the latent period, the site of the cancer, some histologic or histochemical characteristics and the existence of corresponding observations on cancer production in experimental animals aside from pertinent epidemiologic data represents the scientific basis essential for medicolegal decisions in litigations of alleged occupational cancers.

C. Compensation Laws

Workmen's compensation laws enacted in various countries and states reveal a remarkable lack of uniformity as to the types of occupational carcinogenic agents, industrial operations with carcinogenic

330588—55——10

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

hazards, and occupational cancers covered. As of October 1, 1954, full coverage laws applying to all kinds of occupational diseases including cancers had been passed in 26 States of the United States and the District of Columbia; schedule coverage laws not always covering occupational cancers, or all types, were in force in 20 States and no occupational disease laws had been enacted at that time in 2 States (Mississippi and Wyoming).

While workmen's compensation laws based on the principle of schedule coverage may provide some degree of compensation against disability and injuries resulting from occupational cancer hazards, such legal provisions designed for the protection of workers are totally inadequate, if not obsolete, in an era of a rapidly changing and increasing occupational disease panorama. Such static laws reflect a legal and sociologic state of mind which is maladjusted to the dynamic state of modern industry.

However, even the blanket or general coverage compensation law which is sufficiently flexible to include not only the present but also any future occupational cancer hazards, usually has a statute of limitations which is inadequate for providing fair protection under certain and not too unusual circumstances met with in occupational cancer. Since occupational cancers may become manifest many years after cessation of exposure to occupational carcinogenic agents, a statutory time clause of from 6 months to 6 years may be too short for occupational cancers which may appear after a longer period. It is advisable for this reason to adjust all existing laws in such a way that such eventualities are properly covered.

In the workmen's compensation laws existing in most States, certain groups of workers or employees, such as especially farm labor and domestic servants, are excluded from coverage by the law. Since farming as well as housework have become and are increasingly becoming occupations having extensive contact with industrial products (pesticides, herbicides, synthetic fertilizers, antisprouting agents, hormonal fattening agents of livestock, lubricants and fuel of farm machinery, residual oils for smudge pots, soil improvers, antibiotics, detergents, waxes, polishes, dry cleaning agents), there is no sound scientific reason for excluding members of such occupations from coverage by the workmen's compensation laws and from adequate protection against cancers arising from exposure to potential and actual occupational carcinogenic agents.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

D. Labor Codes and Standards

Any attempt toward achieving an adequate compensation by financial means for a cancerous condition acquired through contact with occupational agents not only presents considerable economic difficulties but is also of questionable humane merit. While such a procedure is evidently the best that can be done after an occupational cancer has become an accomplished fact, the wiser, more rational, and in the long run, more economical approach to a reasonable control of occupational cancer hazards lies obviously in their prevention wherever this is possible.

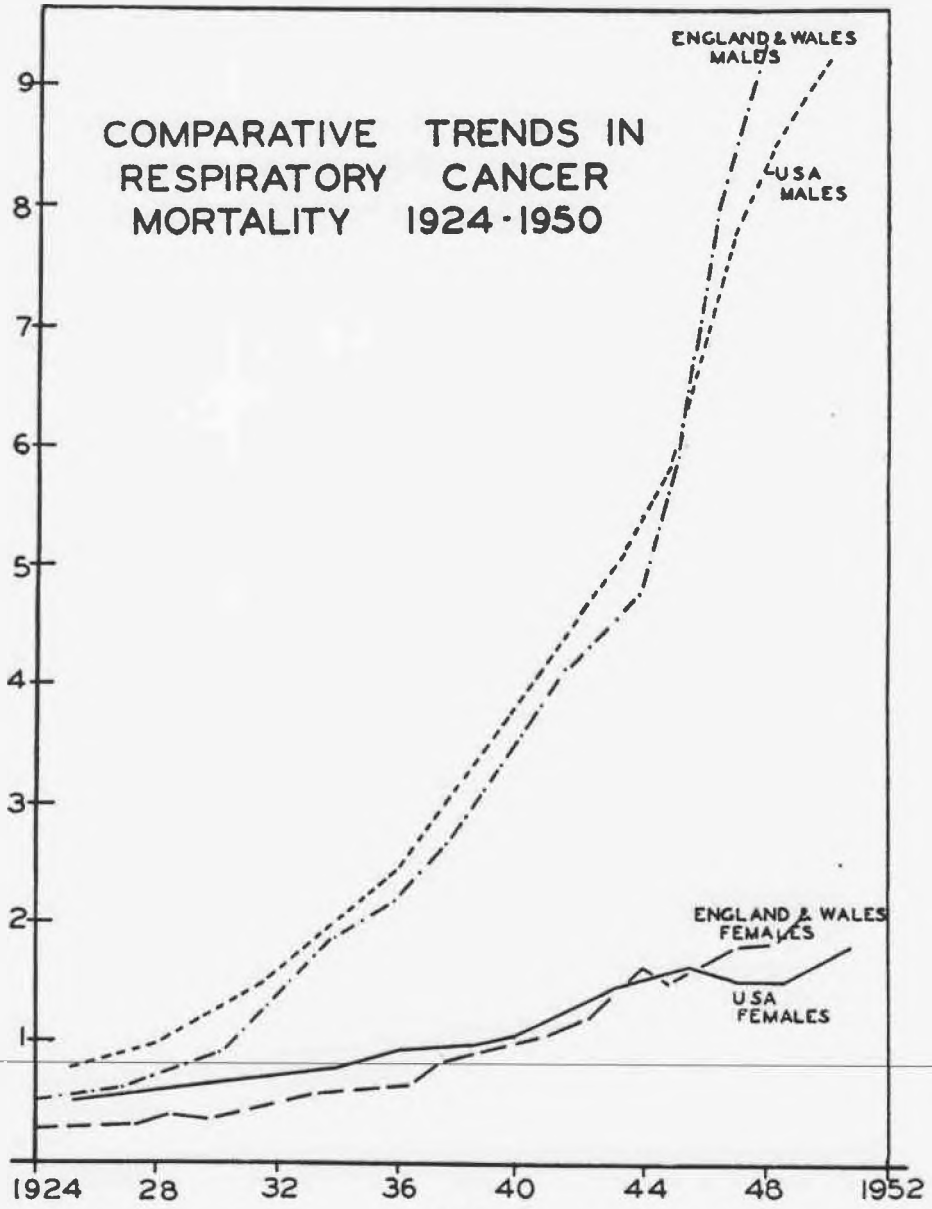
This goal can be achieved to a large degree by the enforcement of proper work conditions in operations in which cancer hazards exist, so that either any contact of workers with such agents is eliminated or reduced to an ineffective level. As to the fundamental step for accomplishing such a control of occupational cancer hazards, it would be advisable to have all factories, workshops, laboratories and other establishments producing, handling or using known or suspected carcinogenic materials to register with State public health and labor agencies. This information would provide the basis for establishing the supervision of plants by health and labor agencies and would create the proper machinery for familiarizing managers of such operations with the potential carcinogenic properties of the substances and devices used in their establishments and with the methods and procedures by which they might be controlled or avoided.

The relative effectiveness of any medical, sanitary and technologic control measures to be adopted can best be determined by ascertaining the changes in the occupational cancer incidence among the total population at risk occurring during some 10 to 30 years after their introduction. It is therefore desirable that provisions be made for routinely recording all cancer cases occurring among worker groups exposed to occupational carcinogens. All precancerous and cancerous lesions observed among members of such groups should for this reason be made notifiable with the State health agency. All persons having knowledge of these cancers should be held responsible for such reporting. The adoption of such measures represents an important step from a public health viewpoint, because there is a growing urgency to determine the environmental causes responsible for significant changes in the incidence rates of several cancers.

A great deal of circumstantial and direct evidence incriminates recent changes in the industry-related environmental factors for the startling and progressive increase in the lung cancer frequency observed

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

in all industrialized countries during the past 50 years (graph 1). A similar, while not as marked, rise in mortality rates has been observed during the last two decades for cancers of the blood forming tissues, especially leukemias, for which the crude mortality rate increased from 1.0 per 100,000 of the population in 1900 to 4.3 per 100,000 in 1944. This development coincides with a marked increased use of ionizing radiation as well as with a widespread industrial and medicinal employment of chemicals having distinct hematotoxic effects.



GRAPH 1.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

It also may be of significance that the age-specific, total and age-adjusted mortality rates per 100,000 population for skin cancer in white males and white females in the United States have shown between 1930 and 1950 a marked shift in favor of the younger age groups (table 6). Whether such changes in the age distribution of skin cancers for both sexes may have resulted from the modern habit of sun bathing or a more intense environmental, occupational and dietary contact of the general population with arsenicals, or with products of the coal tar and petroleum industry, remains at present a matter of speculation. For determining the possible causal significance of such factors in this development, it would be necessary to ascertain data on occupational, dietary, environmental and habitual contacts of the affected individuals, their complexion and race, and

TABLE 6.—*Age-specific, Total, and Age-adjusted Mortality Rates Per 100,000 Population for Skin Cancer in White Males and White Females, United States, 1930, 1945, and 1950*

Age	White males			Percent changes 1945–50
	1930	1945	1950	
Under 15	0. 06	0. 08	0. 03	−62
15–24	. 12	. 11	. 34	+209
25–34	. 22	. 46	. 81	+76
35–44	. 75	. 85	1. 4	+65
45–54	2. 5	2. 1	2. 7	+29
55–64	8. 0	5. 3	5. 9	+11
65–74	23. 7	16. 0	12. 8	−20
75–84	68. 2	52. 3	32. 6	−38
85 and over	194. 2	172. 4	77. 5	−55
All ages	3. 3	3. 2	2. 9	
Age adjusted [1]	4. 7	3. 6	2. 9	
	White females			
Under 15	0. 07	0. 07	0. 02	−71
15–24	. 06	. 13	. 31	+138
25–34	. 23	. 23	. 72	+213
35–44	. 63	. 55	1. 2	+118
45–54	1. 5	1. 0	1. 8	+80
55–64	3. 6	2. 9	3. 6	+24
65–74	11. 4	8. 7	6. 8	−22
75–84	44. 6	26. 3	18. 8	−29
85+	162. 7	132. 7	68. 5	−48
All ages	2. 1	2. 0	2. 0	
Age adjusted [1]	2. 9	2. 1	1. 9	

[1] Adjusted for age on total population of the United States, 1950.

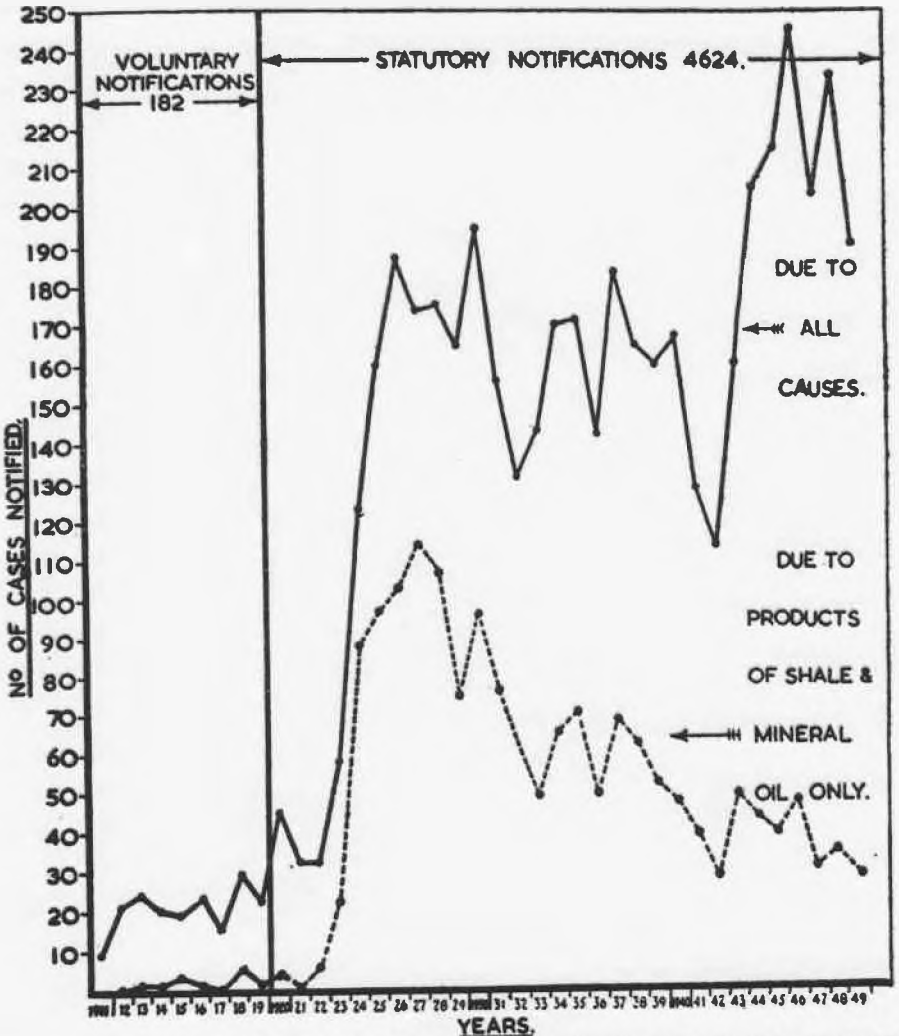
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

on the location of the cancers in the exposed or unexposed parts of the skin (site distribution).

All such data could readily be obtained for occupational factors if all occupational cancers would be made notifiable. At the same time this measure would be instrumental in ascertaining to a much greater degree than heretofore the scope of occupational cancer hazards and of the cancers resulting therefrom. The effectiveness of this procedure is strikingly illustrated by a graph (graph 2) published several

CUTANEOUS CANCER IN RELATION TO OCCUPATION

GRAPH SHOWING THE NUMBER OF CASES OF CUTANEOUS CARCINOMA IN MALES & FEMALES IN ENGLAND, WALES & SCOTLAND NOTIFIED ANNUALLY FROM 1911 – 1949 INCLUSIVE.



THE DOTTED PORTION OF THE GRAPH DENOTES THE NUMBER OF CASES CONTRIBUTED BY SHALE OIL & MINERAL OIL ONLY.

GRAPH 2.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

years ago by Henry in which he showed the striking rise in the number of cases of cutaneous carcinoma in males and females in England, Wales and Scotland attributable to occupational exposures to coal tar, pitch, shale oil and mineral oil after statutory notification went into effect in 1920.

Conclusions

1. The rapid development of modern industrialism has been associated with the appearance of many new occupational health hazards of which those causing cancers occupy an important position.

2. The increasing rate at which occupational carcinogens have been discovered during recent decades suggests that only a fraction of the actually existing industrial carcinogens is known and that heretofore unknown and new occupational carcinogens may be added to the present industrial environment through the development and use of new chemicals and production methods.

3. There is a great deal of evidence indicating that only a relatively small fraction of the cancers produced through contact with occupational carcinogens has been recognized and/or placed on record. Because of the established widespread industrial contact of large worker groups with known occupational carcinogens, the potential scope of the occupational cancer problem evidently is much larger than apparent from the reported number of occupational cancer cases and hazardous industrial operations.

4. Medicolegal decisions in compensation procedures of occupational cancer claims should be based on a competent and critical evaluation of the entire evidence related to the exposure conditions of the claimant, the presence or absence and the type of any etiology, specific symptomatic manifestations observed during the latent and developmental periods of the cancer, the length of the latent period, the site of the cancer, any specific histologic and histochemical characteristics, the production of corresponding cancers in experimental animals by the incriminated agent and pertinent epidemiologic data.

5. Schedule coverage laws are inadequate for providing proper protection against occupational cancer hazards because of the dynamic state of modern industry resulting in the constant addition of new chemicals and production methods which may entail heretofore unknown occupational cancer hazards. The statute of limitations contained in the general coverage laws represents its main defect in the fair and equitable application of this type of workmen's compensation law to occupational cancer hazards.

6. Since the prevention of occupational cancer hazards and not financial compensation for established occupational cancers appears to be the more sensible and humane method of occupational cancer

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

control, labor codes should be properly adjusted and enforced so as to eliminate or reasonably contain occupational cancer hazards in modern industries.

7. For ascertaining the actual scope of the occupational cancer problem and for the institution of adequate control measures, it is essential that occupational cancers and precancerous conditions are made notifiable with local and State health and labor authorities.

8. A comprehensive study of occupational cancer hazards will provide a sound basis for an equally urgent investigation of the apparent extension of industry-related cancer hazards to large parts of the general population.

BIBLIOGRAPHY

1. Hueper, W. C., Occupational Tumors and Allied Diseases, C. C. Thomas, Springfield, Ill., 1942, p. 897.
Recent Developments in Environmental Cancer, A. Review. Arch. Pathol. In press.
A Methodology for Environmental and Occupational Cancer Surveys. Publ. Health Tech. Monograph No. 1. U. S. Public Health Service, Department of Health, Education and Welfare, 1950, p. 37.
2. Trasko, V. M., Occupational Disease Reporting. U. S. Department of Health, Education and Welfare, Publ. Health Service Publ. No. 288, 1953, p. 80.
3. Steiner, L. K., Recent Trends in Occupational Disease Legislation. Univ. Illinois Bull. 48; No. 69, 1951, p. 30.
4. Morgis, G. G., and Davenport, S. J., State Compensatory Provisions for Occupational Diseases. Bureau of Mines Information Circular 7650, U. S. Department of the Interior, 1952, p. 125.
5. Waters, Th., Industrial Physician and Workmen's Compensation—Current Trends in Compensation Legislation. J. Indust. Pyg. and Toxicol. 31: 251–255, 1949.
6. Subcommittee on Legislation Principles, A Rational Approach to Air Pollution Legislation. Manufacturing Chemists' Assoc., 1952, p. 23.
7. Tourangeau, F. J., Health of Workmen: Appreciation of Risks to Which Health of Workmen Are Exposed in Industry in Province of Quebec. Canad. M. A. J. 54: 352, 1946.

The Accident Prevention Associations Under the Quebec Workmen's Compensation Law

L. H. T. Clegg, *President, Quebec Association for the Prevention of Industrial Accidents*

[*In the absence of Mr. Clegg, his statement was read by J. Armand Desrochers, vice president, Quebec Association for the Prevention of Accidents*]

I will outline briefly the setup of the various safety associations, and later, being more familiar with the organization which I represent, I shall endeavour to elaborate on a few of its major promotional activities.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

APPENDIX A

Officers and Members of the Association for 1954-55

President, John Moulin, Commissioner, Illinois Industrial Commission.
Past President, Joachim Grenier, Q. C., President, Quebec Workmen's Compensation Commission.
Vice President, James J. Reid, Vice Chairman, South Carolina Industrial Commission.
Secretary-Treasurer, Paul E. Gurske, Director, Bureau of Labor Standards, U. S. Department of Labor, Washington, D. C.

EXECUTIVE COMMITTEE

G. L. Cousley, Manitoba.
Robert E. Faricy, Minnesota.
Richard W. Morse, Ohio.
Harry A. Nelson, Wisconsin.
W. H. Nickels, Jr., Virginia.

HONORARY LIFE MEMBERS

Former Presidents

1914–15 John E. Kinnane, Detroit, Mich. (deceased).
1915–16 Floyd L. Daggett, Spokane, Wash. (deceased).
1916–17 Dudley M. Holman, Manager, United States Mutual Liability Insurance Co., 1400 Hancock Street, Quincy, Mass.
1917–18 F. M. Wilcox, Wisconsin (deceased).
1918–19 George A. Kingston, Toronto, Canada (deceased).
1919–20 Will J. French, Burlingame, Calif. (deceased).
1920–21 Charles S. Andrus, Springfield, Ill. (deceased).
1921–22 Robert E. Lee, Maryland (deceased).
1922–23 F. A. Duxbury, St. Paul, Minn. (deceased).
1923–24 Fred W. Armstrong, Halifax, Nova Scotia (deceased).
1924–25 O. F. McShane, Salt Lake City, Utah (deceased).
1925–26 Frederic M. Williams, Waterbury, Conn. (deceased).
1926–27 Hal M. Stanley, Atlanta, Ga. (deceased).
1927–28 Andrew F. McBride, M. D., Paterson, N. J. (deceased).
1928–29 James A. Hamilton, 2090 Washington Avenue, New York, N. Y.
Frances Perkins, Cosmopolitan Club, New York, N. Y.
1929–30 Walter O. Stack, Claymont, Del. (deceased).
1930–31 Parke P. Deans, Richmond, Va. (deceased).
1931–32 Wellington T. Leonard, Columbus, Ohio (deceased).
1932–33 R. E. Wenzel, 4226 East-West Highway, Chevy Chase, Md.
1933–34 Joseph A. Parks, 464 South Orange Avenue, Orlando, Fla.
1934–35 J. Dewey Dorsett, 60 John Street, New York, N. Y.
1935–36 G. Clay Baker, Topeka, Kans.
1936–37 Donald D. Garcelon, Augusta, Maine.
1937–38 A. G. Mathews, Grantsville, W. Va.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

1938–39 Voyta Wrabetz, Madison, Wis.
1939–40 W. H. Nickels, Jr., Richmond, Va.
1940–41 C. K. Newcombe, Winnipeg, Manitoba (deceased).
1941–43 William H. Chesnut, Philadelphia, Pa.
1943–44 Emma S. Tousant, Quincy, Mass.
1944–45 T. A. Wilson, High Point, N. C.
1945–46 L. O. Arens, Salem, Oreg.
1946–47 D. J. Galbraith, Toronto, Ontario.
1947–48 Miss Mary Donlon, New York, N. Y.
1948–49 Spencer H. Givens, Jefferson City, Mo.
1949–50 Harry A. Nelson, Madison, Wis.
1950–51 James L. Hill, Detroit, Mich.
1951–52 Raymond E. Barnes, Orlando, Fla.
1952–53 S. W. Macdonald, San Francisco, Calif.
1953–54 Joachim Grenier, Q. C., Quebec, Canada.

Former Secretaries

1914–15 Richard L. Drake, Highland Park, Mich.
1915–16 L. A. Tarrell, Room 516, Caswell Block, 152 West Wisconsin Avenue, Milwaukee 3, Wis.
1916–20 Royal Meeker, Hartford, Conn. (deceased).
1920 Charles H. Verrill, Washington, D. C. (deceased).
1921–32 Ethelbert Stewart, Washington, D. C. (deceased).
1932–34 Charles E. Baldwin, 8210 Larry Place, Chevy Chase 15, D. C.
1934–46 Verne A. Zimmer, Washington, D. C. (deceased).
1947–49 Marshall Dawson, New York, N. Y.
1949–54 William L. Connolly, Providence, R. I.

Active Members, 1954–55

Alberta Workmen's Compensation Board.
British Columbia Workmen's Compensation Board.
Manitoba Workmen's Compensation Board.
New Brunswick Workmen's Compensation Board.
Newfoundland Workmen's Compensation Board.
Nova Scotia Workmen's Compensation Board.
Ontario Workmen's Compensation Board.
Quebec Workmen's Compensation Commission.
Saskatchewan Workmen's Compensation Board.
Department of Labor of Canada.
Alabama Department of Industrial Relations.
Alaska Industrial Board.
Arizona Industrial Commission.
Arkansas Workmen's Compensation Commission.
California Department of Industrial Relations.
Colorado Industrial Commission and State Compensation Insurance Fund.
Connecticut Workmen's Compensation Commission.
Delaware Industrial Accident Board.
Florida Industrial Commission.
Georgia Board of Workmen's Compensation.
Hawaii Bureau of Workmen's Compensation.
Idaho Industrial Accident Board.
Illinois Industrial Commission.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Indiana Industrial Board.
Iowa Workmen's Compensation Service.
Kansas Office of Workmen's Compensation Commissioner.
Kentucky Workmen's Compensation Board.
Maine Industrial Accident Commission.
Maryland State Industrial Accident Commission.
Massachusetts Department of Industrial Accidents.
Michigan Workmen's Compensation Commission.
Minnesota Industrial Commission.
Mississippi Workmen's Compensation Commission.
Missouri Workmen's Compensation Division, Department of Labor and Industrial Relations.
Montana Industrial Accident Board.
Nebraska Workmen's Compensation Court.
Nevada Industrial Commission.
New Hampshire Department of Labor.
New Jersey Department of Labor and Industry.
New Mexico Labor and Industrial Commission.
New York Workmen's Compensation Board.
North Carolina Industrial Commission.
North Dakota Workmen's Compensation Bureau.
Ohio Industrial Commission.
Oklahoma State Insurance Fund and the Industrial Commission.
Oregon State Industrial Accident Commission.
Pennsylvania Department of Labor and Industry.
Puerto Rico Industrial Commission and the State Insurance Fund.
Rhode Island Department of Labor.
South Carolina Industrial Commission.
South Dakota Industrial Commission.
Tennessee Workmen's Compensation Division, Department of Labor.
Texas Industrial Accident Board.
Vermont Department of Industrial Relations.
Virginia Industrial Commission.
Washington Department of Labor and Industries.
West Virginia Workmen's Compensation Fund.
Wisconsin Industrial Commission.
Wyoming Workmen's Compensation Department.
United States Department of Labor.

Associate Members

American Academy of Compensation Medicine, Inc., Barnett S. Fox, Executive Secretary, 501 Fifth Avenue, New York 17, N. Y.
American Associated Insurance Cos., William G. Burch, Superintendent Compensation Claims, St. Louis, Mo.
American Federation of Labor, 901 Massachusetts Avenue, NW., Washington 1, D. C.
American Medical Association, Committee on Workmen's Compensation, Council on Industrial Health, 535 North Dearborn Street, Chicago 10, Ill.
American Mutual Liability Insurance Co., Boston, Mass.
American Telephone & Telegraph Co., James R. Shields, Attorney, 195 Broadway, New York 7, N. Y.
Association of Casualty and Surety Cos., 60 John Street, New York 7, N. Y.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Association of New York State Mutual Casualty Cos., M. J. Murphy, General Manager, 60 East 42d Street, New York 17, N. Y.
Auto Owners Insurance Co., F. S. Warner, Attorney, Lansing, Mich.
Bethlehem Steel Co., F. R. Barnako, Manager of Compensation and Safety, Bethlehem, Pa.
Compensation Insurance Rating Board of New York, Henry D. Sayer, General Manager, 100 East 42d Street, New York 17, N. Y.
Congress of Industrial Organizations, 718 Jackson Place, NW., Washington 6, D. C.
E. I. du Pont de Nemours & Co., 7058 Du Pont Building, Wilmington 98, Del.
Joseph Dean Edwards, Attorney, 144 John Street, New York 38, N. Y.
Employers Mutual Liability Insurance Co., Wausau, Wis.
E. I. Evans, Consulting Actuary, 520 Huntington Bank Building, Columbus 15, Ohio.
Farm Bureau Mutual Automobile Insurance Co., Columbus 16, Ohio.
The Fidelity & Casualty Co. of New York, Raymond N. Caverly, Vice President, 80 Maiden Lane, New York, 38 N. Y.
Ford Motor Co., James L. Hill, Supervising Attorney, Workmen's Compensation Section, 3000 Schaefer Road, Dearborn, Mich.
The B. F. Goodrich Co., Charles F. Nutter, Manager, Workmen's Compensation Department, Akron, Ohio.
Hanna Coal Co., John J. Babka, Compensation Director, St. Clairsville, Ohio.
Hardware Mutual Casualty Co., D. S. Parish, Compensation Claims Specialist, Stevens Point, Wis.
E. H. Herlihy, Herlihy & Herlihy, Attorneys at Law, 412 West Sixth Street, Los Angeles 14, Calif.
Samuel B. Horovitz, Attorney, 6 Beacon Street, Boston 8, Mass.
Industrial Medical Association, Dr. Edward Holmblad, Managing Director, 28 East Jackson Boulevard, Chicago 4, Ill.
Liberty Mutual Insurance Co., 175 Berkeley Street, Boston 7, Mass.
Lumbermen's Mutual Casualty Co., 4750 Sheridan Road, Chicago 40, Ill.
Howard Magee, Attorney, 510 Van Ness Avenue, San Francisco 2, Calif.
Michigan Mutual Liability Co., W. R. MacGregor, Vice President, Mutual Building, Detroit 26, Mich.
National Association of Claimants Compensation Attorneys, Benjamin Marcus, 407 Michigan Theater Building, Muskegon, Mich.
National Association of Mutual Casualty Cos., 919 Michigan Avenue, Chicago 11, Ill.
National Council on Compensation Insurance, 45 East 17th Street, New York 3, N. Y.
National Council of State Self-Insurers' Associations, Walter Linn, Secretary-Treasurer, Finance Building, Philadelphia 2, Pa.
The Pullman Co., F. R. Callahan, Director, Bureau of Safety and Compensation, Merchandise Mart Plaza, Chicago 54, Ill.
E. E. Watson, Consulting Actuary, 2730 Leveque Lincoln Tower, Columbus 15, Ohio.
Western Electric Co., V. J. Gilbert, Attorney, 195 Broadway, New York 7, N. Y.
Woodward & Fondiller, Inc., Consulting Actuaries, 200 West 57th Street, New York 17, N. Y.
Zurich General Accident & Liability Insurance Co., Ltd., Henry Buchman, Superintendent, Compensation Claims Department, 135 South La Salle Street, Chicago 3, Ill.

830588—55——16

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

APPENDIX C

Official Attendance at the Fortieth Annual Meeting of the International Association of Industrial Accident Boards and Commissions

CANADA

Alberta

A. FARMILO, M. B. E., Commissioner, Workmen's Compensation Board, Edmonton.
DR. H. H. HEPBURN, Chief Medical Officer, Workmen's Compensation Board, Edmonton.
C. M. MACLEOD, Q. C., Chairman, Workmen's Compensation Board, Edmonton.

British Columbia

F. P. ARCHIBALD, Secretary, Workmen's Compensation Board, Vancouver.
ADAM BELL, Chairman, Workmen's Compensation Board, Vancouver.
C. W. PRITCHARD, Commissioner, Workmen's Compensation Board, Vancouver.

Manitoba

G. L. COUSLEY, Q. C., Commissioner, Workmen's Compensation Board, Winnipeg.
P. V. E. JONES, Assistant to Commissioner, Workmen's Compensation Board, Winnipeg.

New Brunswick

A. A. CHISHOLM, President, New Brunswick Accident Prevention Association, Moncton.
R. G. JOHNSTON, Vice Chairman, Workmen's Compensation Board, St. John.
J. A. LEBLANC, Claims Officer, Workmen's Compensation Board, St. John.

Newfoundland

CLARENCE V. HANCOCK, Commissioner, Workmen's Compensation Board, St. John's.

Nova Scotia

ARTHUR PETRIE, Commissioner, Workmen's Compensation Board, Halifax.
FRANK ROWE, Chairman, Workmen's Compensation Board, Halifax.

Ontario

J. F. CAULEY, Vice Chairman, Workmen's Compensation Board, Toronto.
MAX DODDS, Ontario Federation of Labor, Toronto.
F. FINCHAM, Workmen's Compensation Board, Toronto.
GEORGE GARROW GREENE, Director, Federal Government Employees Compensation Branch, Department of Labor, Ottawa.
W. J. JOHNSTON, Workmen's Compensation Board, Toronto.
J. B. LANE, Department of Labor, Ottawa.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

L. B. LEPPARD, Physicist, Division of Industrial Hygiene, Department of Health, Toronto.
WILLS MACLACHLAN, President, Canadian Industrial Safety Conference, Toronto.
V. C. PHELAN, Director, Canadian Branch of the I. L. O., Ottawa.
G. R. POOLE, Workmen's Compensation Board, Toronto.
ALLAN PORTER, Department of Labor, Ottawa.
A. ROBINSON, Workmen's Compensation Board, Toronto.
E. E. SPARROW, Chairman, Workmen's Compensation Board, Toronto.
WARREN W. STEARNS, Claims Manager, Liberty Mutual Insurance Co., Toronto.
DR. E. C. STEELE, Workmen's Compensation Board, Toronto.
DR. BRUCE YOUNG, Director, Rehabilitation, Workmen's Compensation Board, Toronto.

Quebec

STEPHEN BABIN, Safety Director, Quebec Iron & Titanium Corporation, Sorel.
A. G. BALLACHEY, President, Quebec Metal Mining Association, Noranda.
DR. BERTRAND BELLEMARE, Workmen's Compensation Commission, Quebec.
W. L. BENNETT, President, Quebec Pulp & Paper Safety Association, Quebec.
JACQUES BERNARD, Montreal.
DR. L. A. BROCHU, Workmen's Compensation Commission, Quebec.
JACQUES CASGRAIN, Department of Labor, Quebec.
A. S. COOK, Secretary-Manager, Quebec Pulp & Paper Safety Association, Quebec.
PAUL A. COOKE, Joint Manager, Quebec Industrial Accident Prevention Association, Quebec.
A. HERMAN COLE, Safety Director, Canadian Car & Foundry Co., Ltd., Montreal.
J. ARMAND DESROCHERS, Vice President, Quebec Association for the Prevention of Industrial Accidents, Quebec.
J. A. DUCKETT, Montreal.
JEAN DESSAULLES, Shawinigan Water & Power Co., Montreal.
PAUL DESJARDINS, Assistant to President, Casgrain & Charbonneau, Montreal.
J. E. DION, Workmen's Compensation Commission, Quebec.
J. E. R. DEMERS, Workmen's Compensation Commission, Quebec.
J. H. DELISLE, Commissioner, Workmen's Compensation Commission, Quebec.
JOSEPH DELAGE, Workmen's Compensation Commission, Quebec.
HONORABLE M. L. DUPLESSIS, Q. C., Premier of Quebec.
ARTHUR FOSTER, Vice President, Workmen's Compensation Commission, Quebec.
HONORABLE ONESIME GAGNON, Minister of Finance, Quebec.
DR. GUSTAVE GINGRAS, Medical Director, Rehabilitation Institute, Montreal.
WILLIAM GALLAGHER, Montreal.
S. GREGORY, Chief Claims Agent, Canadian National Railways, Montreal.
JEAN GARNEAU, Workmen's Compensation Commission, Quebec.
JOACHIM GRENIER, Q. C., President, Workmen's Compensation Commission, Quebec.
BERNARD C. HAMEL, Quebec Power Co., Quebec.
RUDOLPHE HAMEL, Vice President, Catholic Conference of Labour, Asbestos.
HON. WILFRED HAMEL, Mayor of Quebec.
A. H. HONSBERGER, President, Quebec Metal Mines Accident Prevention Association, Noranda.
H. H. HOUGH, Chief Claims Agent, Canadian Pacific Railway, Montreal.
LEOPOLD HUBERT, Safety Director, Quebec North Shore Paper Co., Baie Comeau.
M. MARC LACOSTE, Edifice Cadillac, Montreal.
MAURICE LAPERRIERE, Quebec Iron & Titanium Corporation, Sorel.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

EUGENE LAROCHELLE, Secretary General, Quebec Metal Mining Association, Quebec.
NOEL LAROCHE, Workmen's Compensation Commission, Quebec.
DR. ARTHUR LECLERC, Chief Medical Officer, Workmen's Compensation Commission, Quebec.
DR. D. LEONARD, Workmen's Compensation Commission, Quebec.
T. E. LITTLE, Director, Quebec Metal Mining Association, Noranda.
W. E. MONTGOMERY, Safety Director, Kenneth B. S. Robertson, Ltd., Montreal.
PHILIPPE MONETTE, Q. C., Commissioner, Workmen's Compensation Commission, Montreal.
J. ALPHONSE MORENCY, Workmen's Compensation Commission, Quebec.
JEAN PHENIX, Orthopedist Technician, Montreal.
ROMEO PAQUET, Workmen's Compensation Commission, Quebec.
DONAT QUIMPER, Deputy Minister of Labor, Department of Labor, Quebec.
G. ANT. ROUSSEAU, Workmen's Compensation Commission, Quebec.
F. M. ROCHELEAU, Commissioner, Workmen's Compensation Commission, Quebec.
DAVID ROBILLARD, Workmen's Compensation Commission, Quebec.
EVARISTE ROCHETTE, Commissioner, Workmen's Compensation Commission, Quebec.
I. H. SLOANE, Safety Director, Canadian Johns-Manville Co., Ltd., Asbestos.
W. H. SOUTAR, Assistant to Mine Manager, Canadian Johns-Manville Co., Ltd., Asbestos.
DR. CAMILLE SIMARD, Workmen's Compensation Commission, Quebec.
DR. F. J. TOURANGEAU, Division of Industrial Hygiene, Montreal.
DR. E. A. TURCOT, President, Industrial Medical Association, Montreal.
GERARD TREMBLAY, Deputy Minister of Labor, Department of Labor, Quebec.
L. P. TESSIER, Workmen's Compensation Commission, Quebec.
JACQUES VERREAULT, Secretary, Workmen's Compensation Commission, Quebec.
A. C. WALKER, Superintendent of Safety, Crane Limited, Montreal.
DR. R. E. L. WATSON, Medical Director, Crane, Limited, Montreal.
ST. GEORGE WHITE, Workmen's Compensation Commission, Quebec.

Saskatchewan

M. D. THOMPSON, Commissioner, Workmen's Compensation Board, Regina.
O. W. VALLEAU, Chairman, Workmen's Compensation Board, Regina.
C. C. WILLIAMS, Minister of Labor, Department of Labor, Regina.

UNITED STATES

Alabama

JOE L. COLEMAN, Director, Department of Industrial Relations, Montgomery.

Arkansas

G. L. GRANT, Attorney, United Mine Workers, Fort Smith.
O. W. HOLMES, Commissioner, Workmen's Compensation Commission, Little Rock.
ARNOLD B. SIKES, Commissioner, Workmen's Compensation Commission, Little Rock.

California

CHET FRAZIER, Guarantee Insurance Co., Los Angeles.
JOSEPH J. GALLAGHER, Manager, State Insurance Fund, Burlingame.
S. W. MACDONALD, Chairman, Industrial Accident Commission, San Francisco.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

PAUL SCHARRENBERG, Director, Department of Industrial Relations, San Francisco.
Dr. BERT S. THOMAS, Department of Employment, Sacramento.
H. M. WILSON, Department of Employment, Sacramento.

Colorado

RAY H. BRANNAMAN, Chairman, Industrial Commission of Colorado, Denver.
HAROLD C. THOMPSON, Director of Claims, State Compensation Insurance Fund, Denver.

Connecticut

D. E. COUGHLIN, Hartford Accident & Indemnity Co., Hartford.
A. H. GEHRS, President, Toll Gate House, Ivorytown.
W. S. MCCORMICK, The Aetna Casualty & Surety Co., Hartford.

Delaware

ABEL KLAW, Special Counsel, E. I. du Pont de Nemours & Co., Wilmington.
Dr. I. J. MACCOLLUM, Member, Industrial Accident Board, Wyoming.
JAMES A. MULLIN, President, Industrial Accident Board, Wilmington.
FORD N. WARRINGTON, Member, Industrial Accident Board, Laurel.

District of Columbia

ANDREW J. BIEMILLER, Member, National Legislative Committee, American Federation of Labor.
FRANK FERNBACK, Associate Director of Education & Research, Congress of Industrial Organizations.
BRUCE A. GREENE, U. S. Department of Labor.
PAUL E. GURSKE, Secretary-Treasurer, IAIABC, U. S. Department of Labor.
Dr. W. C. HUEPER, Chief, Environmental Cancer Section, Cancer Institute, Department of Health, Education and Welfare, Bethesda, Md.
Hon. ARTHUR LARSON, Under Secretary of Labor.
JOHN E. LAWYER, Chairman, Employees Compensation Appeal Board, U. S. Department of Labor.
MARIE V. LEFFINGWELL, Office of the Secretary-Treasurer, IAIABC, U. S. Department of Labor.
WILLIAM MCCAULEY, Director, Bureau of Employees' Compensation, U. S. Department of Labor.
FRANK MCELROY, U. S. Department of Labor.
FRANCES C. SMITH, U. S. Department of Labor.
ROBERT VAN HYNING, United Mine Workers Welfare and Retirement Fund.

Florida

JAMES CAMERON, Member, Industrial Commission, Tallahassee.
B. T. COLEMAN, General Counsel, Industrial Commission, Tallahassee.
RODNEY DURRANCE, Director, Workmen's Compensation Division, Industrial Commission, Tallahassee.
JOSEPH A. PARKS, Orlando.
JAMES T. VOCELLE, Chairman, Industrial Commission, Tallahassee.

Georgia

RICHARD W. BEST, Secretary-Treasurer, Board of Workmen's Compensation, College Park.
W. E. BUCKNER, Member, Board of Workmen's Compensation, Atlanta.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Idaho

CLIFFORD J. HOPKINS, President, National Association of Self Insurers, Lewiston.
B. W. OPPENHEIM, Chairman, Industrial Accident Board, Boise.

Illinois

DAN ADAIR, National Safety Council, Chicago.
HENRY BUCHMAN, Superintendent, Compensation Claims Department, Zurich General Accident & Liability Insurance Co., Ltd., Chicago.
EMIL M. CALIENDO, Commissioner, Industrial Commission, Chicago.
FLOYD E. FRAZIER, Director, Industrial Division, National Association of Mutual Casualty Companies, Chicago.
MRS. MARJORIE W. GRIGSBY, Council on Industrial Health, A. M. A., Chicago.
S. J. HOLDERMAN, Chairman, Industrial Commission, Chicago.
ROBERT S. HOWE, Lumbermen's Mutual Casualty Co., Chicago.
D. W. Johnston, Commissioner, Industrial Commission, Chicago.
Dr. MILTON H. KRONENBERG, Medical Services Manager, Caterpillar Tractor Co., Peoria.
H. GENE MILLER, National Safety Council, Chicago.
JOHN MOULIN, Commissioner, Industrial Commission, Chicago.
Dr. C. T. OLSON, Chairman, Commission on Workmen's Compensation, Industrial Medical Association, Chicago.
J. A. PASKIEWICZ, Illinois Department of Labor, Chicago.
S. J. STEVENS, Western Electric Co., Chicago.
PAUL S. WISE, American Mutual Alliance, Chicago.

Indiana

HOWARD T. BATMAN, General Manager and Counsel, Lynch Coal Operators Reciprocal Association, Terre Haute.
Dr. A. K. HARCOURT, Indianapolis.
EMANUEL F. MILLER, Hearing Member, Industrial Board, Indianapolis.
JOSEPH P. MILLER, Chairman, Industrial Board, Indianapolis.

Iowa

C. H. GREENLEY, Deputy Commissioner, Workmen's Compensation Service, Des Moines.

Kansas

EDWARD CURRY, Commissioner, Office of Workmen's Compensation Commissioner, Topeka.
ALBERT M. Ross, Examiner, Office of Workmen's Compensation Commissioner, Kansas City.
RALPH J. THORNE, Examiner, Office of Workmen's Compensation Commissioner, Hutchinson.
SIMEON WEBB, Examiner, Office of Workmen's Compensation Commissioner, Pittsburg.

Kentucky

PAUL COMBS, Acting Commissioner, Department of Industrial Relations, Frankfort.
H. WILLIAMS, Attorney General, Department of Labor, Frankfort.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Maine

JOHN W. BALLOU, Lawyer, Bangor.
Mrs. MADELINE BARNARD, Industrial Accident Commission, Augusta.
CYRIL M. JOLY, Member, Industrial Accident Commission, Waterville.
JAMES E. MITCHELL, Lawyer, Bangor.
F. E. RICHARDSON, Portland.

Maryland

MELVIN L. FINE, Chairman, Industrial Accident Commission, Baltimore.
Dr. JOHN V. HOPKINS, Baltimore.
W. ALBERT MENCHINE, Commissioner, Industrial Accident Commission, Baltimore.
PAUL SIEMERS, Jr., Manager, Compensation Department, Maryland Casualty Co., Baltimore.
HENRY B. SUTER, New Amsterdam Casualty Co., Baltimore.

Massachusetts

Dr. ALEXANDER P. AITKEN, Chairman, Subcommittee on Industrial Relations, American College of Surgeons, Brookline.
ALPHONSE S. BACHOROWSKI, Attorney, Salem.
DAVID D. BANKS, Employers Groups Insurance, Boston.
THOMAS W. BOWE, Member, Division of Industrial Accidents, Boston.
R. B. COOPER, Director of Medical Relations, American Mutual Liability Insurance Co., Boston.
EUGENE H. GIROUX, Chairman, Division of Industrial Accidents, Boston.
FRANK E. GODFREY, Director of Self-Insurance, Division of Industrial Accidents, Boston.
STANWOOD L. HANSON, Assistant Vice President, Liberty Mutual Insurance Co., Boston.
G. S. HARLAN, Vice President, American Mutual Liability Insurance Co., Boston.
JAMES G. HARNEDY, Attorney, Massachusetts Bonding and Insurance Co., Boston.
MARCELLA J. HICKS, Boston.
MARY F. HICKS, Member, Division of Industrial Accidents, Boston.
ELIAS J. KOLOFOLIAS, Member, Division of Industrial Accidents, Boston.
EDWARD J. MURPHY, Attorney, Boston.
MARY A. NOONAN, Boston.
ASHLEY ST. CLAIR, Counsel, Liberty Mutual Insurance Co., Boston.
JOSEPH A. SULLIVAN, Chief Examiner, Liberty Mutual Insurance Co., Boston.
Mrs. EMMA S. TOUSANT, Past President, IAIABC, Quincy.

Michigan

W. C. BISHOP, Manager, State Accident Fund, Lansing.
HARRY F. BRIGGS, Superintendent of Claims, State Accident Fund, Lansing.
WILLIAM E. BUCHANAN, Chrysler Corp., Detroit.
C. E. CAROTHERS, Ford Motor Co., Detroit.
JOHN C. CHILDERS, Lincoln Mercury Division, General Motors, Detroit.
H. A. COMPEAU, Attorney, State Accident Fund, Lansing.
WILLIAM J. DEVERS, Chrysler Corporation, Detroit.
CYRUS E. DURIO, Chrysler Corporation, Detroit.
JAMES L. HILL, Supervisory Attorney, Workmen's Compensation Section, Ford Motor Co., Detroit.

330588—55——16

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

W. G. Hotchkiss, Compensation Supervisor, Chrysler Corporation, Detroit.
George E. Johnson, Manager, Employee Services Department, Ford Motor Co., Dearborn.
William J. Jones, Lacey, Jones & Doelle, Detroit.
F. A. Lux, Staff Attorney, Workmen's Compensation Section, Ford Motor Co., Detroit.
Wade H. McCree, Jr., Member, Workmen's Compensation Commission, Lansing.
W. R. MacGregor, Vice President, Michigan Mutual Liability Co., Detroit.
Benjamin Marcus, Representing Samuel B. Horovitz, Muskegon.
Richard R. Norris, Chrysler Corporation, Detroit.
Robert L. O'Connell, Rothe, Marston, Bohn & Mazey, Detroit.
Theodore P. Ryan, Chairman, Workmen's Compensation Commission, Dimondale.
Richard L. Schmidt, International Representative, Compensation Department, UAW–CIO, Detroit.
A. A. Schmitt, Vice President in Charge of Claims, Corporate Service, Inc., Detroit.
Fred S. Warner, Attorney, Auto Owners Insurance Co., Lansing.

Minnesota

Robert E. Faricy, Commissioner, Industrial Commission, St. Paul.

Mississippi

Sam S. Allred, Commissioner, Workmen's Compensation Commission, Jackson.
John A. Craig, Chairman, Workmen's Compensation Commission, Jackson.

Missouri

William G. Burch, Superintendent, Workmen's Compensation, American-Associated Insurance Companies, St. Louis.
Charles E. Cates, Member, Industrial Commission, Jefferson City.
Earl F. Cheit, Assistant Professor, St. Louis University, St. Louis.
R. Robert Cohn, Attorney, Kansas City.
W. E. Freeland, Member, Industrial Commission, Jefferson City.
Spencer H. Givens, Director, Division of Workmen's Compensation, Jefferson City.
Stephen J. Millett, Chairman, Industrial Commission, Jefferson City.

Montana

W. W. Casper, Secretary, Industrial Accident Board, Helena.

New Jersey

Winston Blann, Chubb & Sons, Managers, Federal Insurance Co., Short Hills.
Dr. H. E. Bricker, New Lisbon.
Carl Holderman, Commissioner, Department of Labor & Industry, Trenton.
Daniel A. Spair, Director, Division of Workmen's Compensation, Department of Labor & Industry, Trenton.

New Mexico

Ebenezer Jones, Assistant Commissioner, Labor and Industrial Commission, Santa Fe.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
Generated on 2013-09-24 16:09 GMT / http://hdl.handle.net/2027/uiug.30112004740161
Creative Commons Attribution-NonCommercial-NoDerivs / http://www.hathitrust.org/access_use#cc-by-nc-nd

New York

EVERETT R. ALDEN, Manager, Claims & Safety Department, Socony-Vacuum Oil Co., Inc., New York.
LOUIS ARBEIT, Actuary, Woodward & Fondiller, New York.
H. DUDLEY BIERAU, Director, Compensation & Safety, American Locomotive Co., Schenectady.
MISS GERTRUDE CAVANAUGH, Workmen's Compensation Board, Albany.
RAYMOND A. CAVERLY, Vice President, Fidelity & Casualty Co., New York.
OLIVER T. CLAYTON, New York.
MARSHALL DAWSON, Past Secretary-Treasurer, IAIABC, New York.
J. A. DENKSCHERZ, Secretary-Comptroller, National Council on Compensation Insurance, New York.
BENJAMIN DISSIN, State Insurance Fund, New York.
MISS MARY DONLON, Chairman, Workmen's Compensation Board, New York.
J. RALPH DYKES, United States Casualty Co., New York.
JOSEPH DEAN EDWARDS, Attorney, New York.
RICHARD FONDILLER, Woodward & Fondiller, New York.
G. EARLE FOX, Secretary, Casualty Division, Glens Falls Insurance Co., Glens Falls.
DR. LEONARD J. GOLDWATER, National Chairman, Cardiac-in-Industry Committee, American Heart Association, New York.
WILLIS C. GORTHY, C. E., Director, Institute for the Crippled and Disabled, New York.
MISS JEANETTE HANLON, Associate Economist, Workmen's Compensation Board, New York.
ALFRED HEINEN, United Steelworkers of America, Buffalo.
THEODORE HETZLER, JR., Attorney, National Association of Mutual Casualty Cos., New York.
F. H. HUMPHRIES, A. C. F. Industries, New York.
H. M. JACKSON, Manager, Industrial Health Program, Johns Manville Corp., New York.
ANDREW KALMYKOW, New York.
EDWIN D. KYLE, Counsel, New York Compensation Insurance Rating Board, New York.
M. L. LASKOWSKI, Western Electric Co., Inc., New York.
JOHN M. MCDONALD, Director, Workmen's Compensation, Associated Industries of New York State, Inc., Albany.
ROBERT E. MARSHALL, Administrative Deputy, Workmen's Compensation Board, New York.
GEORGE E. MULLIGAN, Manager, Workmen's Compensation & Disability Claims Division, American Surety Co., New York.
MICHAEL J. MURPHY, General Manager, Association of New York State Mutual Casualty Cos., New York.
RAY J. OAKLEY, State Insurance Fund, New York.
MISS MARION POLAKOV, Secretary, United Steelworkers of America, Buffalo.
MISS MARY POLOKOV, Buffalo.
JAMES J. REGAN, Secretary, The Self-Insurers Association, New York.
R. V. RYAN, Fidelity & Casualty Co. of New York, New York.
HENRY D. SAYER, General Manager, New York Compensation Insurance Rating Board, New York.
A. M. SCHMIDT, Insurance Manager, National Council of State Self-Insurers Association, New York.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

JAMES R. SHIELDS, Attorney, American Telephone & Telegraph Co., New York.
CYRUS F. SMYTHE, Claims Attorney, New York Telephone Co., New York.
WILLIAM H. STIEGLITZ, Associate Attorney, State Insurance Fund, New York.
J. HARRY TIERNAN, Attorney, United Steelworkers of America, Buffalo.
WARREN C. TUCKER, Counsel, Utica Mutual Insurance Co., Utica.
GEO. D. WELLS, Western Electric Co., Inc., New York.
N. MORGAN WOODS, Association of Casualty & Surety Cos., New York.
DR. M. WILLIAM ZUCKER, Director of Studies, Commerce & Industry Association of New York, New York.

North Carolina

J. W. BEAN, Commissioner, Industrial Commission, Raleigh.

North Dakota

OTIS BRYANT, Chairman, Workmen's Compensation Bureau, Bismarck.
B. M. RYAN, Member, Workmen's Compensation Bureau, Bismarck.

Ohio

H. D. BANGERT, Emile E. Watson, Columbus.
JACOB CLAYMAN, Secretary-Treasurer, Ohio CIO Council, Columbus.
J. MAYNARD DICKERSON, Vice Chairman, Industrial Commission, Columbus.
B. G. GOTTEMOELLER, Superintendent of Claims, Farm Bureau Mutual Auto Insurance Co., Columbus.
W. C. HARTMAN, Attorney, Squire, Sanders & Dempsey, Cleveland.
M. HOLLAND KRISE, Director, Workmen's Compensation, Frigidaire Division, General Motors, Dayton.
JOHN KUMPEL, United Rubber Workers, Akron.
RICHARD W. MORSE, Chairman, Industrial Commission, Columbus.
CHARLES F. NUTTER, B. F. Goodrich Co., Akron.
THOMAS M. HARMAN, Jones, Day, Cockley & Reavis, Cleveland.

Oklahoma

FRED ALBERT, Industrial Commission, Oklahoma City.
MARX CHILDERS, Industrial Commission, Oklahoma City.
JUDGE ALBERT C. HUNT, Industrial Commission, Oklahoma City.
TOM G. MARTIN, Commissioner, State Insurance Fund. Oklahoma City.
MONT R. POWELL, Chief Attorney, State Insurance Fund, Oklahoma City.
E. J. SUTHERLAND, Industrial Commission, Oklahoma City.

Oregon

L. O. ARENS, Member, Industrial Accident Commission, Salem.
WILLIAM A. CALLAHAN, Chairman, Industrial Accident Commission, Salem.

Pennsylvania

F. R. BARNAKO, Manager, Compensation and Safety, Bethlehem Steel Co., Bethlehem.
FRANK K. BOAL, Deputy Secretary, Department of Labor and Industry, Harrisburg.
A. C. CHRISTMAN, Chief Supervisor, Indemnity Insurance Co. of North America, Philadelphia.
W. D. COAKLEY, Secretary, Fire Association of Philadelphia, Philadelphia.
E. GWILLIAM, Manager, State Workmen's Insurance Fund, Harrisburg.
R. M. HARTMAN, Assistant Manager, Compensation and Safety, Bethlehem Steel Co., Bethlehem.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

ROBERT C. HERON, Superintendent, Compensation Claim Department, American Casualty Co., Reading.
RUSSEL C. KEISER, Assistant Manager, State Workmen's Insurance Fund, Harrisburg.
WALTER LINN, Secretary-Treasurer, National Council of State Self-Insurers Association, Philadelphia.
JOHN L. NAYLOR, Director, Bureau of Workmen's Compensation, Harrisburg.
F. PRITCHARD, Chief Safety Inspector, State Workmen's Insurance Fund, Harrisburg.
A. SCHROEDER, General Attorney, Pennsylvania Railroad Co., Philadelphia.
DAVID M. WALKER, Secretary, Department of Labor & Industry, Harrisburg.

Puerto Rico

MISS RAQUEL NIGAGLIONI, Member, Industrial Commission, San Juan.
EDUARDO A. SANTIAGO, Actuary, State Insurance Fund, San Juan.

Rhode Island

ANTONIO DI PINTO, Executive Assistant Curative Center, Department of Labor, Providence.
DR. JOHN E. DONLEY, Medical Director, Curative Center, Department of Labor, Providence.

South Carolina

MISS FAITH CLAYTON, Commissioner, Industrial Commission, Columbia.
JAMES J. REID, Vice Chairman, Industrial Commission, Columbia.
MRS. H. S. TATE, Columbia.

Tennessee

W. H. PARHAM, Commissioner, Department of Labor, Nashville.
PAUL A. PHILLIPS, Safety Engineer, Department of Labor, Nashville.
DEWEY WHITTLE, Director, Division of Workmen's Compensation, Department of Labor, Nashville.

Texas

DR. V. C. BAIRD, Chief Physician, Humble Oil & Refining Co., Houston.
R. L. ECKMAN, Vice President, Petroleum Casualty Co., Houston.
L. H. FLEWELLEN, Chairman, Industrial Accident Board, Austin.
FELIX A. RAYMER, President, Petroleum Casualty Co., Houston.

Virginia

MRS. C. B. HITCH, Richmond.
W. H. NICKELS, JR., Chairman, Department of Workmen's Compensation, Richmond.

Washington

ELMER H. KENNEDY, Supervisor, Rehabilitation Center, Department of Labor and Industries, Olympia.

West Virginia

DR. JOHN P. BRICK, Chairman, Occupational Disease Medical Board, Charleston.
FRANKLIN W. KERN, Executive Secretary, Workmen's Compensation Fund, Charleston.
RUDOLPH J. MURENSKY, Legal Assistant, Workmen's Compensation Fund, Charleston.
GEORGE W. STOKES, Commissioner, Workmen's Compensation Fund, Charleston.

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Wisconsin

STEPHEN J. HAJDUCH, Attorney, Milwaukee.
B. E. KUECHLE, Vice President, Employers Mutuals, Wausau.
MORTIMER LEVITAN, Assistant Attorney General, Madison.
J. E. LINSTER, Claims Counsel, Employers Mutuals, Wausau.
HARRY A. NELSON, Director, Workmen's Compensation, Industrial Commission, Madison.
VOYTA WRABETZ, Chairman, Industrial Commission, Madison.

Wyoming

WILLIAM P. PETRY, Manager, Workmen's Compensation Commission, Cheyenne.

U. S. GOVERNMENT PRINTING OFFICE: 1955

Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
Generated on 2013-09-24 16:09 GMT / http://hdl.handle.net/2027/uiug.30112101574801
Creative Commons Attribution-NonCommercial-NoDerivatives / http://www.hathitrust.org/access_use#cc-by-nc-nd