

ization of a Group Insurance Division in the Company in 1917 gave great impetus to the Company's cooperative work with industrial management, and resulted in the formation of an Industrial Health Section in 1924. Its Laboratory of Industrial Hygiene is the first of its kind ever established by an insurance company.

The Industrial Health Section

Health Education

The Metropolitan publishes a large number of pamphlets, each dealing with an outstanding health or disease problem. These give information in simple language on such subjects as diabetes, appendicitis, rheumatism, the heart, acute infectious diseases, care of the teeth, nutrition, first aid, and similar topics.

In addition to these health pamphlets which are made available to policyholders and certificate holders, the managements of organizations covered by Group insurance are supplied with information in booklet form on subjects pertaining to health improvement.

The following brochures in the industrial health series have been prepared for the information of industrial management:

1. *First-Aid Service in Small Industrial Plants*
2. *First-Aid for All Injuries*
(For distribution to employees)
3. *Physical Examinations in Industry*
4. *Industrial Dental Service*
5. *Methods of Testing and Protecting Eyesight in Industry*
6. *Air Conditions and the Comfort of Workers*

Other industrial hygiene booklets published are:

Silicosis

Protection of Workers Exposed to Chromium and Its Compounds

Health Protection in Welding

Prevention of Oil Pimples

PLAINTIFF'S EXHIBIT

MET-850



Dark Room of the Laboratory

Industrial Health Services

Through exceptional library facilities and the personal experience of Staff members, supplemented by the many sources of information made available through its wide and numerous contacts with health work in various industrial and mercantile organizations, the Industrial Health Section is prepared to furnish practical assistance to Group-insured firms submitting problems for its consideration. Medical information with respect to specific diseases or maladies caused by industrial processes is provided, and technical advice of a chemical and engineering nature for determining and controlling or eliminating existing health hazards may be procured.

Information on general health matters may be handled through correspondence, but it is believed that better results are obtained through personal visits of plant representatives to the Laboratory, where their problems can be discussed frankly with members of the Staff and where protective devices can be demonstrated. Consultation services, exclusive of individual plant surveys, are offered without cost to Group policyholders.

The Laboratories of Industrial Hygiene

Physical and chemical service laboratories, well-equipped and practical, are maintained to render complete service in all phases of industrial hygiene. All specialized instruments used to determine and evaluate potential health hazards associated with plant operations are calibrated and standardized in the physical laboratory before each field trip. These include the interferometer for measurement of solvent vapors, mercury vapor detector, sound meter used to determine noise levels, instruments for measurement of radiant energy, carbon monoxide indicators, and velometers for measurement of air flow.

When circumstances warrant a detailed study of the plant working areas for the purpose of evaluating various factors affecting employee health, plant surveys are made. These surveys are made at the invitation of and with full cooperation of the management, and are conducted at a nominal cost to Group-insured firms (transportation of personnel and equipment, and mainte-

nance of men during the time of conducting the survey). Air samples taken under actual conditions of operations in plants are returned to the chemical laboratory, where they are analyzed for suspected toxic constituents. Samples containing silica are determined chemically and petrographically, and counted and measured with respect to particle size.

Surveys are conducted by personnel of long experience in field work who do not concern themselves with individual workers, but with conditions. Observations are made of all plant operations and manufacturing processes, and particular attention is given to all by-products of the finished materials. Such determinations and measurements of air contaminants as can be made by portable instruments are done during the survey. Where this is not feasible, air samples are collected according to standard procedure and sent to the laboratory for analyses.

There is also acquired definite knowledge of the plant environment, based on observations and measurements of contaminant concentrations, which can serve in the development of protective measures.

An experienced design engineer is a member of the Staff, and is available for consultation in formulating new control measures or in planning necessary revisions for those in use. Plans of proposed ventilation systems and other control measures may be submitted for appraisal, and for suggested improvements when required, before installations are made.

The subject material covered in carrying out an industrial hygiene survey is outlined in the schedule presented on the opposite page.

The confidential nature of the information obtained through these services is fully recognized, and all reports become the sole property of the Group-insured firm. The purpose of these studies is to offer practical assistance to industrial management in providing conditions favorable to employee health. As a corollary to this policy, members of the Industrial Health Section will not testify in any capacity in court proceedings or in hearings before Workmen's Compensation proceedings for the purpose of establishing or opposing claims.

INDUSTRIAL HYGIENE SURVEY—ITS SCOPE AND METHODS

1. Study of plant layout and manufacturing processes.

Visual inspection.

Types of buildings.

Sequence of manufacturing processes.

2. Raw materials used in manufacturing.

Health hazards involved in handling.

3. Manufacturing processes analyses.

Hazardous by-products.

Fumes and vapors.

Gases.

Dusts.

4. Job analysis.

Classification with respect to exposure.

Length of work shift—constant or intermittent—degree of physical exertion.

Proximity of workmen to source of health hazard.

Efficiency of equipment provided for control of health hazard.

5. Plant housekeeping.

Cleanliness.

Wet or dry sweeping and vacuum cleaning.

Frequency of cleaning and painting.

Orderliness.

Aisle obstruction.

Systematic organization of manufacturing operations from raw materials to finished products.

6. Plant facilities for protection of health of workers.

Personal service facilities.

Toilet and washrooms.

Water supply and drinking equipment.

Work clothes and lockers.

Restaurant and eating facilities.

Rest periods and restrooms.

Medical supervision.

First-aid.

Physical examinations

Applicants for employment.

Routine periodic examination of all employees.

Special examination at intervals for employees at hazardous occupations.

Preventive health measures and health education of employees.

Industrial relations.

Safety programs.

Welfare activities.

Environmental air conditions.

Temperature.

Humidity.

Air velocity.

Illumination.

Intensity (actual measurement).

Type (natural or artificial).

Glare.

Posture and seating.

7. Analysis of findings, and recommendations for control of hazards found.

Metropolitan Visiting Nurse Service

Since 1909 the Metropolitan Life Insurance Company has provided Visiting Nurse Service to specified classes of policyholders. This privilege was extended to Group-insured employees in 1918. The purpose of this service is twofold:

1. To provide professional nursing care under the physician's direction to eligible policyholders and certificate holders who require this service in their homes.
2. To give instruction in the care of the sick, in the promotion of health, and in the prevention of disease.

In the majority of communities, this service is provided by existing public health nursing agencies which meet specified requirements and with which the Company makes a contract. In other communities where the number of policyholders warrants the establishment of service and where a public health nursing agency does not exist or a contract is not feasible, the Company employs nurses directly.

In the communities where this service is available, the nurse visits the home of the insured individual who is ill and renders skilled nursing care under the direction of the attending physician. She remains in the home long enough to carry out the physician's orders and to give the necessary instructions on the care of the patient. The number of visits the nurse makes depends on the patient's condition, the physician's orders, and the family situation.

This service is most effective when the nurse reaches promptly the individual who needs and wants it. She then has the opportunity to give the type and amount of care which tends to shorten the duration and severity of disabilities. To assist Group-insured firms in making the best use of the service, the Metropolitan has a recommended procedure for its use—The Five Point Plan—and arranges to have the local nursing representative discuss this with management at the time the insurance becomes effective and at intervals thereafter. It also supplies Group-insured firms with descriptive leaflets for general distribution to the employees, with posters for bulletin board display, and with statements about the service, suggesting the content and scope of articles for employee magazines.

Although for the industrial worker the main objective of this service is to shorten the severity and duration of disability, thereby keeping at a minimum the burden of disability absences, experience has shown that, when used properly, it is also an important factor in strengthening employer-employee relationships.

Metropolitan Statistical Services

The Statistical Bureau of the Company is closely affiliated with the Health and Welfare Division. Its specialists are in a position to advise on statistical methods and practices, particularly as applied to medical, health and accident, and population statistics. Numerous studies have been conducted in these fields based on data available from policyholders and from many outside sources as well. Since 1911, the Bureau has studied extensively the mortality of the Company's Industrial policyholders, who form a good cross-section of the country's urban wage-earners and their families. Current trends in mortality among policyholders and findings of special investigations made by the Bureau are reported upon in the *Statistical Bulletin*, published monthly, or in separate pamphlets.

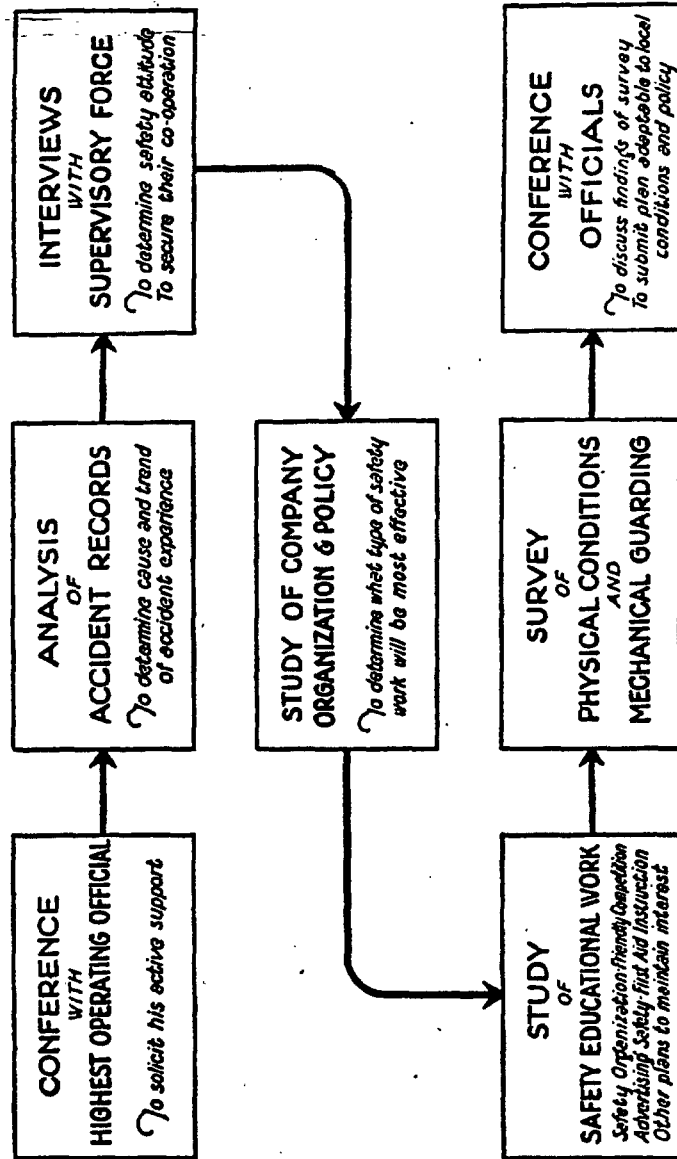
Close contact of the Bureau's Staff with official and unofficial public health, population, statistical, industrial health, and accident prevention associations keeps the Bureau informed on current developments in these fields. A section of the Bureau is concerned especially with occupational hazards and accidents.

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Industrial managers of our Group-insured firms are cordially invited to avail themselves of these services, or to consult with members of the Industrial Health Section Staff with respect to special problems pertaining to the physical health or well-being of their employees.

ACCIDENT PREVENTION

PLAN OF SAFETY SURVEY



NOTE: Safety Surveys are made from a purely service standpoint and not for rate determination.

FIGURE 1.

METROPOLITAN SERVICES

- IN SAFETY

Industrial Safety

Since industrial accident prevention work was first undertaken on an organized basis in the United States, many gratifying results have been obtained. This is particularly true in those organizations and industries which have developed intensive industrial safety programs. For example, between 1930 and 1945 a reduction of slightly more than 50 percent has been noted in the frequency rate* and slightly less than 50 percent in the severity rate† of accidents occurring in organizations reporting to the National Safety Council. During a 10-year period, the death rate incident to occupational accidents among adult white male Industrial policyholders of the Metropolitan Life Insurance Company showed a reduction of approximately one third, from 25.6 per hundred thousand population in 1936 to 16.8 in 1945. Many industrial and commercial organizations have shown even greater reductions. They have proved that accidents are not a necessary by-product of production and that their prevention is good business.

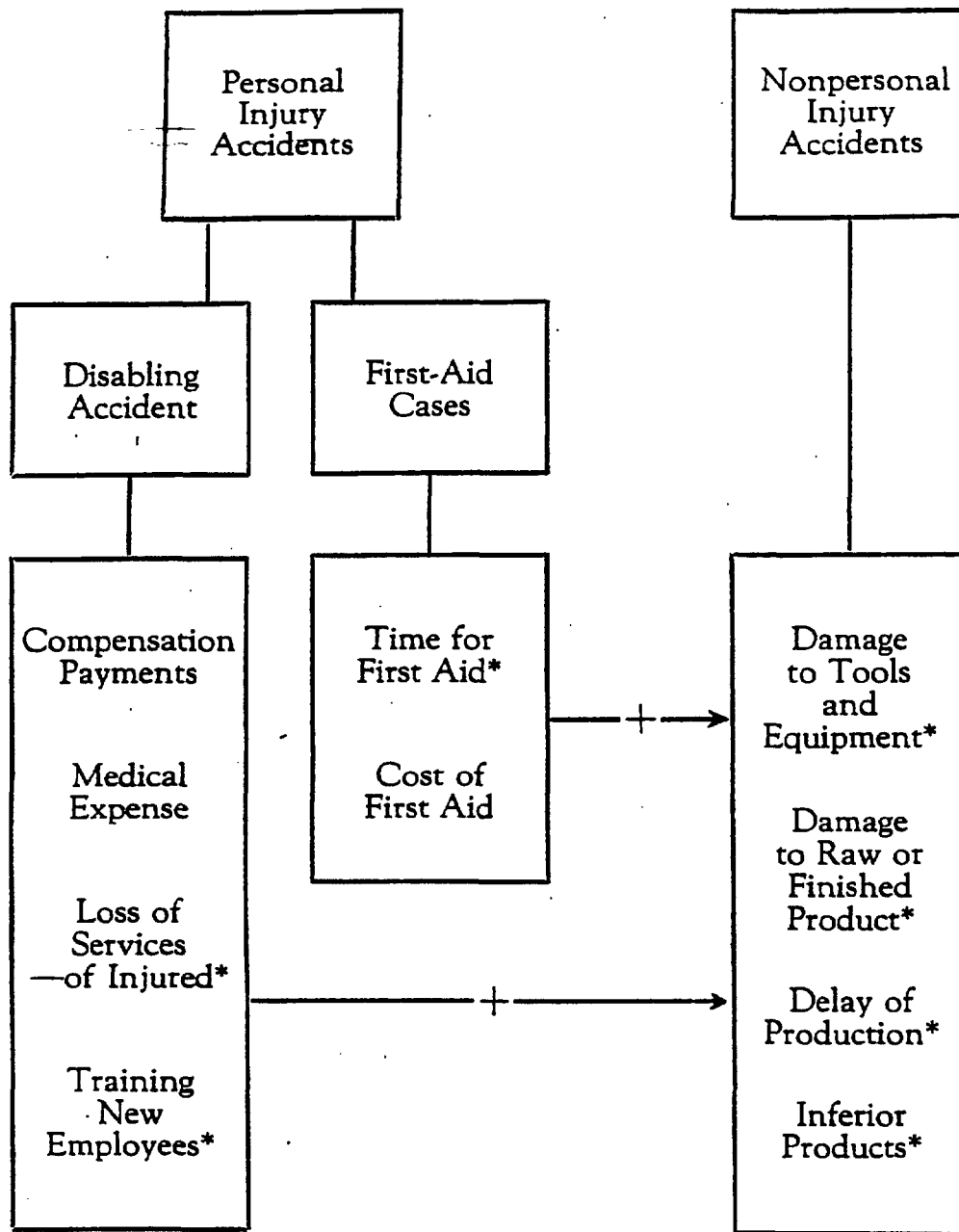
Notwithstanding these accomplishments, however, approximately 16,500 workers are killed and 2,000,000 are disabled annually by work accidents. In addition, approximately 34,500 deaths and 3,000,000 disablements result from off-the-job accidents involving American workers.

Experience has indicated that a low industrial or off-the-job accident rate is the result of maintaining well-organized and carefully planned programs; it is not the result of spasmodic promotional efforts. The accident prevention program must be designed to fit in with the operating procedure of the organization; safety factors must be integrated in all production procedures; and, of most importance, the safety program must have the active support of management, supervisors, and employees. From a management point of view such support is more than justified by many important factors.

*Disabling injuries per 1,000,000 man-hours of exposure.

†Days lost per 1,000 man-hours of exposure.

ACCIDENT LOSSES



*These items are usually noninsurable.

FIGURE 2.

Mr. Carl Gray, former president of the Union Pacific Railroad Company, once stated: "Lives saved, limbs saved, homes saved, these are the dividends of Safety." Although of first importance to every industrial organization, the prevention of human suffering and the prevention of social maladjustments are not the only dividends of safety.

An accident resulting in an injury to an employee imposes a direct charge on industry, involving the payment of compensation and necessary medical expenses, or the payment of insurance premiums to cover these liabilities. Although lowered accident rates tend to reduce these direct accident costs in many individual companies, the national economic loss from accidents has increased tremendously during the past few years as a result of more liberal compensation provisions and higher wage scales.

In addition to the direct charges, industry must bear the cost of time lost by other employees and supervisors because of curiosity or of services rendered to the injured worker. It must also bear the economic loss due to the absence of injured employees, the employment and training of replacements, and the curtailment of production during the period of replacement.

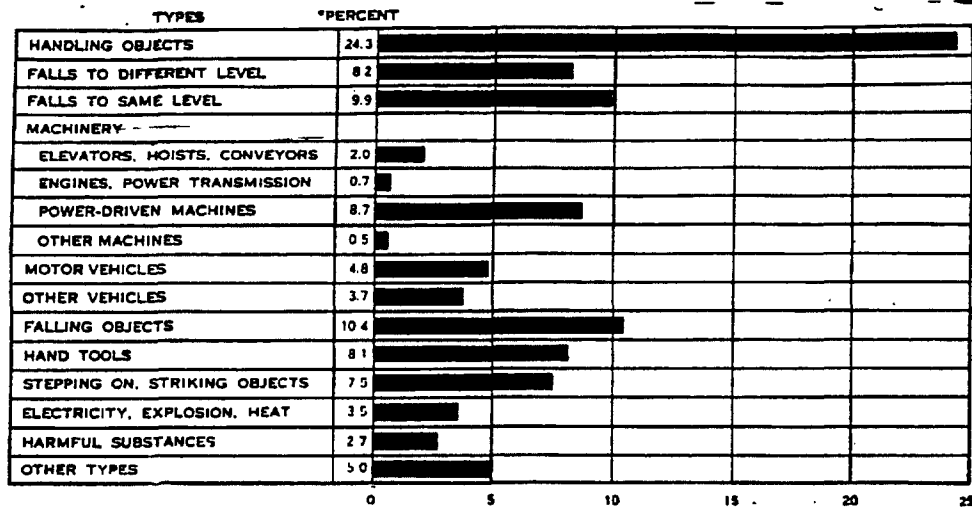
Whether an industrial accident results in personal injury or not, it is usually accompanied by the damage of tools and equipment and the spoilage of raw or finished products, imposing an additional economic loss on industry and interfering with or curtailing production. These so-called indirect costs represent a serious financial drain on industry. It has been estimated that the indirect costs incident to personal injury accidents alone average approximately four times as much as the direct cost of such accidents. The more important accident losses are listed in Figure 2.

Although the employer's legal liability for accidents to employees is confined to those accidents which occur in connection with the work of the employee, the employer does suffer an economic loss through absenteeism and delayed production as a result of off-the-job accidents to his workers.

Effective accident prevention work can be made an essential phase of an industrial relations program, particularly when safety consideration is included in the selection, placement, induction,

TYPES OF ACCIDENTS

PERCENTAGE OF CASES



*Source: Accident Facts of the National Safety Council.

FIGURE 3.

ACCIDENT FREQUENCY RATE

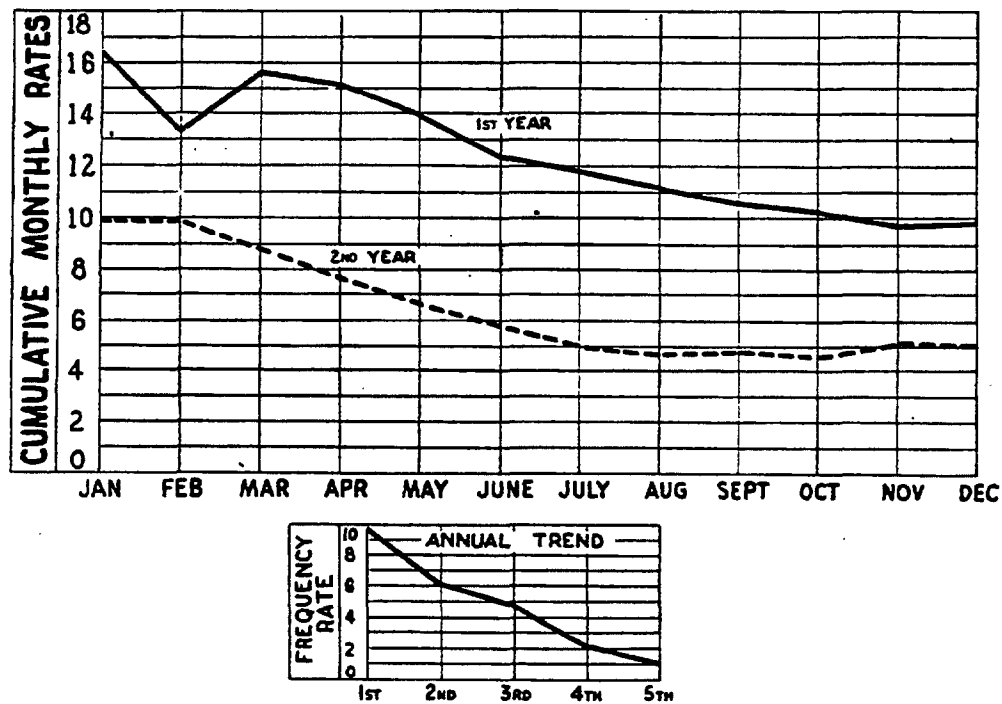


FIGURE 4.

and training of employees. In many organizations, particularly those engaged in transportation and others having close contact with the public, the conduct of accident prevention programs is an important influence in the field of public relations.

The Safety Bureau

Consulting Service

The Safety Bureau was organized in 1924 primarily to serve Metropolitan Group-insured firms in a consulting capacity with respect to their accident prevention problems. The following services are available.

Safety Information

Through its contact with industrial management and national and local safety organizations, the Safety Bureau has access to information developed through practical experience, and also maintains a well-classified library and index of available current material. Accordingly, it always welcomes requests from Group-insured firms for information dealing with technical or educational phases of the accident prevention problem.

Analysis of Accidents

It has been found that an actual knowledge of the previous accident experience of an organization is essential to the development of an effective safety program. To obtain such information, an effective system of accident reporting is necessary, and frequent and competent analyses of accident records are desirable. The Safety Bureau is in a position to aid Group-insured firms in developing their accident reporting and recording system and, when requested, is glad to receive, tabulate, and analyze their accident reports. This information is considered confidential and is returned to the insured firm with a description of the firm's accident problem as indicated by the records, together with suggestions for improving existing conditions. Figure 3 illustrates a typical method of indicating types of accidents occurring in a plant.

Figure 4 indicates a method of maintaining a visual picture of the accident experience of an organization.

Safety Surveys

Upon request, representatives of the Safety Bureau will assist the officials of a Group-insured firm to conduct an evaluation survey of their accident problem and of their existing safety activities, in order to determine the justification for and the method of increasing the effectiveness of such activities. It is recommended that such a survey be initiated at a conference with the operating officials of the plant in order to plan the survey and to obtain the active support of top management. An analysis of the company's accident records is considered a preliminary and essential phase of each survey. As a safety program of any organization is dependent upon the manner in which the supervisory force accepts its responsibility for accident prevention, conferences with members of the supervisory force are desirable during the survey.

To aid in integrating the safety program with the regular production activities, a study of the company organization and policy is considered essential. The survey also includes a review of methods followed in the selection, placement, and training of employees, together with a study of educational activities including safety committees, accident prevention contests, methods of advertising safety, first-aid instruction plans, etc. Attention is also given to existing physical conditions of the plant as they affect the safety of the worker. These steps in connection with the conduct of a survey are presented graphically in Figure 1, which appears on page 16.

Although no charges are made for the services of the Bureau Staff in connection with plant surveys, the Group-insured firm is requested to reimburse the Company for transportation and maintenance incident to field surveys. Following the survey, and after consultation with plant executives, a written report is prepared and submitted to the company for consideration. The Bureau also seeks to keep in close touch with the Group-insured firm, watching the progress made and offering further recommendations when deemed desirable.

Publications

Industrial Safety publications of the Safety Bureau are addressed primarily to executives, supervisors, and safety engineers, and are based on the practical experience of members of the Bureau's Staff and of organizations conducting accident prevention work among employees.

In order to place in a convenient and condensed form a review of the fundamental principles of organized safety educational activities, a book, *Industrial Safety*, has been published. In addition, each of the 10 chapters of the book is available as an individual booklet. This series of booklets covers the following subjects:

1. *Getting Results from Safety Work*
2. *Getting Facts About Accidents*
3. *Directing the Plant Safety Work*
4. *The Foreman's Part in Safety*
5. *Workmen's Safety Committees*
6. *Safety Advertising*
7. *Safety Competition*
8. *Safety Meetings*
9. *Making the Plant Safe*
10. *Safety Activities in Small Companies*

When distributing copies of these booklets to supervisory personnel, it is recommended that each be utilized as the basis for a safety conference. Additional suggestions for such conferences are contained in the booklet *Foremen's Safety Conference*.

A list of other current industrial safety publications of the Safety Bureau is available upon request.

Off-the-Job Safety

The Safety Bureau maintains close contact with national, State, and local agencies particularly concerned with the prevention of home, public, and traffic accidents. In addition to par-

ticipating in organized programs in these fields of safety interest, pertinent publications dealing with home and traffic safety are issued for general public distribution in connection with organized activities. These publications are also made available to Metropolitan Group-insured firms for employee distribution as an aid to the off-the-job program of these organizations.

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The services of the Safety Bureau in the prevention of both on-the-job and off-the-job accidents are available upon request of Metropolitan Group-insured firms. The executives of such firms are invited to make use of these services, and through correspondence or otherwise to consult the members of the Safety Bureau Staff with respect to all phases of accident prevention work.