

# THE PENNSYLVANIA RAILROAD SYSTEM



## INFORMATION



FOR EMPLOYEES AND THE PUBLIC

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## The Pennsylvania's System for Preventing Personal Injuries

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The following extract from an address, delivered before the American Museum of Safety, gives some interesting details concerning the origin and development of Safety Work on the Pennsylvania Railroad System:

The development of Safety work on the Pennsylvania Railroad has been a gradual evolution and is the natural outgrowth of conditions in many respects peculiar to the Pennsylvania. The principles of Safety First have been traditional in the Company's policy from its earliest history, and while the recent enactment of employers' liability laws has served to quicken interest in the work, the great value of these laws and of the more widespread movement for industrial betterment has been in directing attention to the great waste in human energy, awakening both the railroads and the public to a greater sense of their common responsibility, and in showing the necessity for placing the work of accident prevention on a more scientific basis.

While the close relation of Safety to successful operation was early recognized, there were other influences more directly responsible for the progress of the work begun many

years ago in the earlier operation of the Company.

These influences grew naturally out of an intimate and family-like relationship between the officers and the rank and file of the employes, which has long been a distinctive feature of service with the Pennsylvania. All employment had come to be regarded as permanent, depending only upon the condition of good behavior, and long terms of service became the rule rather than the exception; in many instances successive generations of the same family have been employed, which fostered a spirit of paternalism which expressed itself in service to the men in various ways, but in none more than in the desire to secure to each man the fullest protection possible against the risks and dangers of employment consistent with the requirements of operation, and while the methods were perhaps crude, judged by present day standards, the effort had the merit of spontaneity and gained in effectiveness with experience.

### Safety Campaign Not New

To believe that the movement for greater safety was inspired by commercial rather than sentimental or humanitarian considera-

tion would be to deny the great work accomplished during the years preceding the adoption of employers' liability laws, which are generally supposed to have furnished the principal motive for the movement for greater safety. Additional evidence of the disinterested character of the Safety work is found in the campaign which has been actively waged for a number of years against the practice of trespassing when the financial liability for accidents is relatively small and inconsiderable in comparison with the large annual expenditure which is being made to overcome this practice, which last year resulted in the loss of 5500 lives on the railroads in the United States. In this work the railroads are fighting unaided by an active public sentiment and are greatly handicapped by the need of effective laws prohibiting the practice and penalizing violations.

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In those great improvements which have contributed so materially to the safety of railroad operation—viz., the introduction of the air brake, substitution of the automatic for the old type of link and pin coupler, the installation of automatic block signaling systems and the more recent development of the steel passenger coach—the Pennsylvania has been a pioneer, showing that the question of safety in its relation to operating standards and practices on the Pennsylvania Railroad has kept pace with the progress of science and invention. With these principles inherent in the Company's policy, it made easy and natural the next step of consolidating all safety effort under a single organization, thereby avoiding duplication of effort with the further advantage of co-ordinating all safety work of the various departments to conform to a carefully arranged plan covering the entire field of safety operations.

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While safety work had been constantly given close attention by the Management and Operating Officers, it was not formally organized until the fall of 1910. An investigation had shown the number of personal

injury accidents to be steadily increasing, and it was found that this increase was directly related to the increase in traffic though in smaller ratio, and accordingly, upon the initiative of one of its executives, experts of a large accident insurance company were employed to report on conditions at twenty-eight of the Company's shop plants, to ascertain to what extent the Company might be deficient in providing safeguards, it being thought that an inspection by an outside disinterested company would show true conditions. While the results compared favorably with those of the large industrial corporations, it was decided to inaugurate a system of safety inspection as a permanent feature of the Company's policy, to include not only Shop Plants but also Road and Yard conditions, covering practically all employes in the Operating Department, numbering more than 100,000 men.

In considering means and methods for organizing and handling the work, it became evident that no plan would be entirely successful that failed to provide for the active participation of the Operating Department, not only in organizing the work but also to some extent to share in its direction—that there would be not only a great sacrifice in efficiency by losing the practical experience and highly trained knowledge of the operating officials and staffs in their more intimate relations with the rank and file of the men, but any plan which removed this work from the jurisdiction of the Operating Department would be contrary to the Company's organization.

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With the relation of the Operating Department to the work thus determined, it became necessary to consider some form of organization for its supervision and direction that would develop expert knowledge of safety methods and devices which would not be possible for operating officials on account of the time necessary to acquire a specialized knowledge of the subject and to keep informed of its development and progress.

It was, therefore, determined to place the

detailed work and direction under one of the regularly organized departments, that would have charge of all inspections, investigations of accidents, including preparation of statistics, and as the Insurance Department had been long experienced in handling and developing inspection work, as well as in the recording and tabulation of statistics, with an organization already developed, it was deemed advisable to place the work under that department—which would act as a clearing house in making the best practices on each division available for all divisions and would also serve as an observation station in keeping informed of the progress of the work by outside corporations. Furthermore, this arrangement would insure the desirable feature of having the inspection function performed by a disinterested department where the criticisms and recommendations would be impartial and in the nature of outside opinion. Under this plan the Insurance Department makes its reports to the General Manager, by whom they are forwarded to the divisions through the regular channels, and excepting in a few cases where there may have been misunderstanding or disagreement the recommendations are promptly adopted even in cases where large expenditures are involved.

### **The Investigation of Accidents**

Besides the inspection of all divisions and shop plants annually and oftener, where conditions require, investigations are made of all serious accidents to determine if possible their cause and to suggest the remedy to prevent recurrence; in addition a comprehensive statistical record is kept of all personal injuries. There is probably no more important feature of the work than in analyzing the reports of all accidents to develop the primary and contributing causes. These statistics form the real basis of the department's operations, working on the theory that what has happened is the best indication of what will happen. By this means the Safety Inspectors are able to determine definitely the risks and dangers pertaining to each occupation showing the divisions or localities where accidents are most frequent, and in many cases the cause suggests the remedy. Besides the cause, the statistics

show ages, terms of service, season of year, time of day of accident and other refinements which are valuable in showing the relation of these features to accident frequency.

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Accident prevention is being worked out along three general lines of effort, viz., inspection of conditions, including practices and methods of work, investigation of all serious accidents at time of occurrence and an educational scheme which aims to reach individually each employe in the operating service. Accident prevention is not mainly a question of physical conditions, but is primarily an educational problem, *i. e.*, training the workmen in habits of caution and in the avoidance of dangerous practices.

For this purpose accurate statistical data is invaluable in showing each man the causes responsible for the accidents in his particular line of employment. This data is given in the form of periodical bulletins showing in detail the primary causes, with brief lessons drawn giving special emphasis to those cases resulting from carelessness and neglect or violation of rule.

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As part of the educational scheme the Safety Inspectors of the Department address meetings of employes at various division points, including yards and engine house terminals, and for this purpose are provided with lantern slides visualizing dangerous conditions and practices. It is believed that this plan affords one of the most effective means in impressing the men with the necessity for caution in performing their every-day duties. The meetings are entirely informal and the relations between the speaker and the audience of a friendly and intimate character.

All statistics are shown in two classifications, one covering shop accidents, and the other road and yard, as the causes and conditions of accidents in each of these classes are entirely unrelated. This division of the work also applies to inspections, where the knowledge and training requisite to intelligently report on conditions is along entirely different lines. For shop inspection, only Inspectors with motive power training are selected, and for Road and Yard conditions the Inspectors are experienced in transportation department work, besides having an intimate knowledge of Book of Rules and of operating practices generally.

## Safety Committees

Recognizing the importance of having the men themselves participate in the work, Safety Committees were appointed on each Division, the members being selected from various branches of the operating service.

There is no settled policy as to the classes of men selected for service, which is left to the judgment of the Division Superintendent or Master Mechanic. The grades of the men selected range from laborer to foreman. As a general rule, however, the Chairman has not been of lower grade than Foreman or Supervisor, or some one in authority.

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A special report form to facilitate the work of Committees in stating their recommendations was prepared which provides for all the information necessary to enable the Superintendent and General Superintendent to pass upon the merit of each recommendation. A feature of the report is in the arrangement for following up the recommendations which had not been carried out at time of forwarding the report, these recommendations in the next succeeding report being indicated by their numbers under a separate heading. Another feature is in the arrangement for classifying the recommendations according to their importance, thereby insuring that these recommendations which are most urgent will be given first consideration.

The recommendations of the Committees cover a wide range of subjects, including safety features in connection with train movements and mechanical operations, as also in construction and electrical hazards; in addition attention is also given to questions of sanitation and hygiene.

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An important feature in connection with shop conditions is in educating the men to the importance of making proper use of the guards and other protective devices provided for their safety. There is at times a disinclination to utilize mechanical guards where their use may interfere with output,

which in some instances may be true until the workman has become accustomed to their use, which also applies to men in occupations exposed to eye injuries where the use of goggles or eye protectors are necessary—in these cases the use of goggles should be made compulsory.

As an indication of the extent of the work performed by these Committees since January, 1911, the reports show a total of 17,333 recommendations, of which 13,861 have been complied with at a cost of \$413,000. There are 35 Committees actively engaged in the work, having an average of five members each.

In order to make more effective the work of the Committees and to secure greater uniformity in their recommendations, a special pamphlet entitled "Safety Hints and Suggestions" was prepared, containing suggestions for safeguarding conditions and overcoming dangerous practices.

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While organization and training must always be determining factors in the success of the safety work, it is recognized that no safety organization can reach its highest efficiency unless it has the confidence and support of the higher officials—there is perhaps no single factor so essential to the success of organized safety as an attitude of cordial co-operation on the part of the management. In this respect the safety movement on the Pennsylvania has been especially favored, two of its executives having served as General Manager and being deeply interested in its humanitarian aspects. Besides insuring the financial support necessary in carrying out recommendations and effecting other necessary improvements, the moral effect of this support has been felt throughout all departments down to the lowest track laborer and has been largely responsible for removing the doubt and suspicion with which many employes are at first inclined to regard the safety movement.

Last year the lines of the Pennsylvania Railroad Company, East of Pittsburgh, carried 111,000,000 passengers, and no passenger was killed in a train accident.