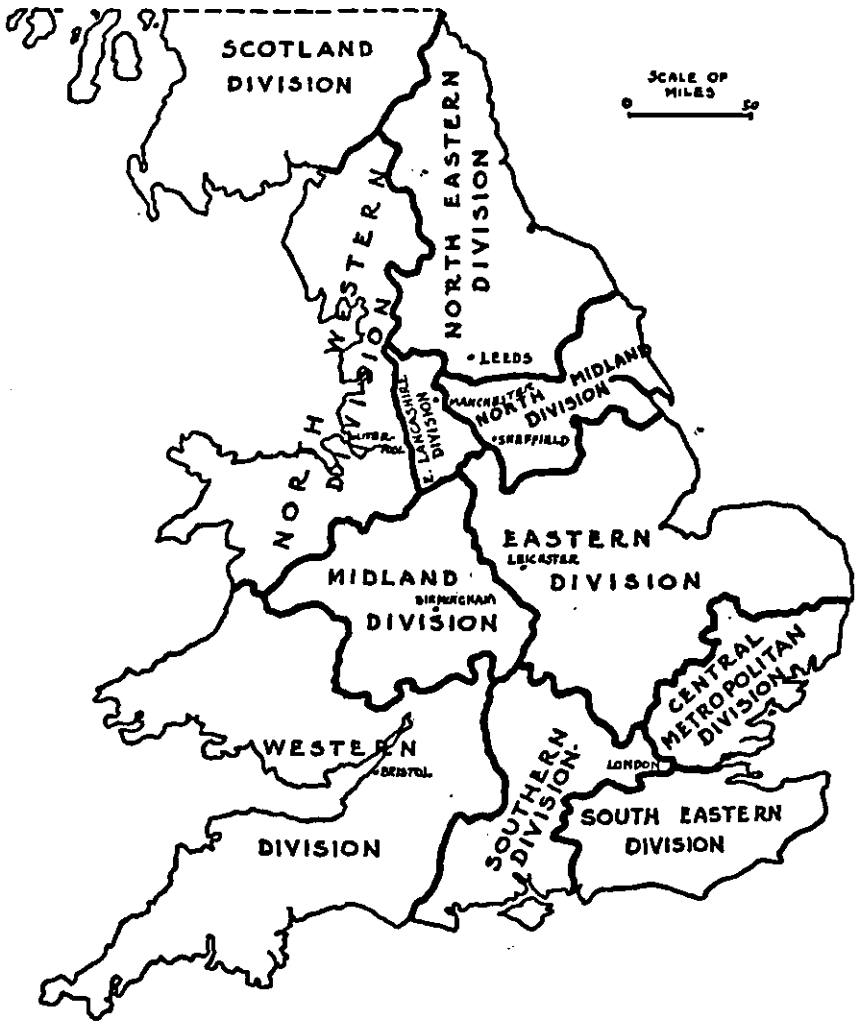


British Factory Inspection

By John Andrews

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THE ELEVEN FACTORY INSPECTION DIVISIONS IN ENGLAND, SCOTLAND, AND WALES, 1936

## Letter of transmittal

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UNITED STATES DEPARTMENT OF LABOR,  
DIVISION OF LABOR STANDARDS,  
*Washington, March 1, 1937.*

MADAM: I have the honor to transmit herewith a study of the British factory inspection system, prepared by John B. Andrews, on special detail for the Division of Labor Standards.

VERNE A. ZIMMER, *Director.*

HON. FRANCES PERKINS,  
*Secretary of Labor.*

## Introduction

Much of the labor legislation in the States of this country is specifically designed to assure safe and healthful work conditions for industrial wage earners. The amount of protection afforded depends upon the adequacy of the laws and the effectiveness of their application. While many of the States have made substantial progress in developing better safety and health regulations, comparatively few have made equal advance in the technique of administration. Therefore it may be stated generally that the labor laws of the States are better than their enforcement. Few of the State administrators are able to secure sufficient funds to enforce completely and effectively the existing rules and regulations designed for the prevention of industrial casualties. A frank appraisal, however, would doubtless reveal that administrative ineffectiveness is sometimes due to lack of appreciation of the importance of this function and failure to work out the best means of utilizing to advantage the facilities available.

In any program of regulation and inspection the factory inspector is doubtless the most important single factor. He is the official who views first hand the conditions surrounding employment. He has the immediate responsibility of pointing out unsafe conditions that need correction and for the prompt detection of health hazards to be eliminated if a winning fight is to be waged on the mounting toll of industrial casualties.

Fortunately there is recent evidence of greater recognition of need for the selection, training, and supervision of factory inspectors. State labor-law administrators, either alone or in collaboration with adjoining jurisdictions, are developing training programs for fitting the factory inspector to carry out his important job of law enforcement and accident prevention. The Division of Labor Standards has been able to make a contribution to such efforts, and it is in line with this general aim that the bulletin on the British factory inspection system is presented. As pointed out by Mr. Andrews, the initial labor legislation and practice in this country were adaptations from the English experience. It is felt that a review of the British system will be helpful in supplying pertinent and valuable information to legislators, administrators, and others concerned in this important field. It will be of particular value and interest when studied in connection with the *Factory Inspectors' Manual* now in preparation for publication by the Division of Labor Standards.

Since the completion of this article, there has been introduced in Parliament a new factories bill containing numerous changes, among which are more stringent provisions in respect of safety and health, and a considerable increase in the inspection staff.

## I. American Interest in Earlier British Experience

In order fully to understand today the governmental machinery and the operating methods of our American administration of labor laws it is necessary to know something of the history, traditions, form of organization, and administrative procedure of the British factory-inspection system. The earlier experience of England in this legislation and administration strongly influenced the American States in their first action in this field.

For the background of American factory-inspection legislation, we are indebted directly to Great Britain. When the Commonwealth of Massachusetts in 1874 adopted the first enforceable 10-hour law for women and on May 11, 1877, enacted the pioneer American law requiring accident-prevention safeguards in factories, these laws were copies in large measure of the essential provisions of the earlier British act, which had been developing through a generation of experience. The Massachusetts act in turn influenced legislation in other States. When, for example, the State of Indiana in 1897 enacted her first law on factory inspection, it was based upon the Massachusetts act. This cumulative imitative practice, which is here merely suggested, continued from State to State on various topics in labor legislation.

From time to time, also, over a period of two generations, Americans interested in labor-law administration have visited England to observe the workings of her older system. Florence Kelly, dynamic pioneer in social-legislation progress and State inspector of factories for Illinois as early as 1893, followed with keen interest as representative of the National Consumers' League every new step in British legislation; Colonel Bryant, as labor commissioner of New Jersey, found in the British administration precedents for some of his most effective experiments; John Price Jackson, when he became head of the Pennsylvania Department of Labor in 1913, supplemented his own engineering experience with suggestions from British administrative practice. The National Child Labor Committee, a generation ago, studied the work of the British certifying surgeons, when planning legislation requiring medical certificates for working children. In 1913 George M. Price made a study for the United States Bureau of Labor Statistics on the administration of factory inspection in certain European countries, including England. This list could be extended by adding the names of scores of Americans who have

visited England to learn from her experience in labor legislation since the writer as the representative of the American Association for Labor Legislation began research visits there in 1910. It has been a long period of American experimentation with open-minded willingness to learn from any source whatever promises to be most helpful for the social purpose.

This eagerness to benefit from other experience does not mean that in America there has been any slavish copying of the British system. On the contrary, American conditions and American ingenuity have led to striking changes and numerous improvements both in the form of the laws enacted and in the adoption of more effective devices for their administration. A careful comparison of present-day laws and methods of administration, as we shall see later, indicates very clearly that the time has come when Great Britain has much to learn from the statutes, administrative regulations, and administrative devices and methods more recently developed in our most advanced American States. And we can still learn much from Britain's failures and successes.

What helpful comparisons can be made of the successes and failures of these two great countries in their common efforts to promote the comfort, health, and safety of their millions of industrial workers? What improvements in the laws should be commonly known? What devices or social inventions have been developed as aids in the enforcement of the laws? With what success is new emphasis being placed upon prevention of industrial evils? How successful have the efforts been in the selection and training of an administrative personnel that is expert and effective? How can adequate labor law enforcement be adequately financed? These are some of the questions that should emerge and upon which light should be thrown through a study of actual experience.

## II. A Century of Development

In a study of factory-inspection methods today in any country it is necessary to understand something of the historical background—the industrial conditions, the gradual development of the legal regulations, and the political machinery of administration—in order to appreciate the exacting duties, obstacles, and accomplishments of those engaged in this important branch of the public service. This background for Great Britain, which has been presented in many volumes,<sup>1</sup> is sketched briefly here and with a view only to a better understanding of the modern system by American readers.

In 1933 Great Britain celebrated the hundredth anniversary of the appointment of her first government inspectors of factories, following the adoption of the Factory Act of 1833.

Enforcement of her earlier legal requirements, dating from 1802 and largely concerned with the hours during which children might be allowed to work (which was also the initiation of compulsory education in England), had been entrusted to honorary "visitors" appointed by the justices of the peace from among themselves and the local clergy. This system proved very ineffective just as American experience without properly appointed full-time special labor law enforcement officials resulted in similar disappointment a generation later.

Following the initial discovery a century ago in England that local inspection does not work well, various commissions studied the problem of effective factory-law administration. Conservatively, several reforms were attempted; but supplemental efforts to overcome the reluctance of local justices of the peace to penalize their neighbor employers were insufficient, as was also the offer to informers of one-half of the fines imposed. Finally, at this preliminary stage, the voluntary effort of one employers' association to bring about observance of the labor laws by mutual agreement was also disappointing. The first and most important lesson learned in both countries through a generation of unhappy experience was that successful labor-law administration requires the maintenance of properly appointed, full-time enforcement officials who will not be unduly inhibited by local neighborhood influences.

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<sup>1</sup> Notable British books of the present generation include: *A History of Factory Legislation*, Hutchins and Harrison, 1926; *Factory Legislation and Its Administration*, Mess, 1926; *The Worker and the State*, Tillyard, 1936.



The first constructive step in England was the amendment in 1833, which recognized that the earlier legislation had not been enforced, and which introduced a centralized system of factory inspection. The demand for this came principally from a few leading employers who wished to obey the protective laws and were insistent that their competitors should be compelled to do likewise. In a very real sense Great Britain instituted factory inspection in 1833. Like Britain, other countries had unenforced labor legislation for a period and then belatedly provided the beginnings of genuine administrative organization—France in 1874, Switzerland in 1877, Germany in 1878, the United States (Massachusetts) in 1879, Austria in 1883, and Belgium in 1888. Great Britain in this respect led by more than a generation, and her development of a highly centralized system with increasing specialization of functions is particularly illuminating for study.

This first genuine inspection law, considering the source of its inspiration, gave amazingly wide powers to the four inspectors who were appointed by the Government to cover the whole country. They not only had full right of entry to factories and could examine any persons therein and summon them as witnesses to give evidence, but in addition they were authorized to make any rules and orders they thought necessary for effective enforcement. These first inspectors could also make use of the local police, and could themselves impose penalties upon offending employers, and they could even sentence to imprisonment any person who declined to testify. They thus exercised not only executive but legislative and judicial powers to a degree perhaps never exceeded by similar officials anywhere. And this lasted for 10 years with considerable success. The impression made was so deep that in the Lancashire section of England factory inspectors are still sometimes referred to as "finers."

Provision was made for the medical certification of employed children and for the appointment of inspector's assistants known as millwardens, and the legislative-judicial-executive inspectors were required to meet twice yearly in London and to make reports quarterly.

The accumulated information indicated so clearly the need of further improvements that in 1844 the Parliament enacted fundamental changes in an act forming the basis of all subsequent legislation. The extreme judicial functions and the legislative authority of inspectors were withdrawn, but their purely administrative powers were greatly strengthened. At this point every employer was required to notify the inspector upon occupying a factory; hours of work and meal times—now for the first time regulated for women as well as for young persons—had to be checked by a public clock;

the working day henceforth was to begin with the commencement of work by any protected person and meal times had to be simultaneous; the inspectors were now given authority to appoint and dismiss the certifying surgeons; accident-prevention work, including guarding of machinery and reporting of accidents, was for the first time instituted; to the Home Secretary was transferred the power to make limited rules having the force of law; and all this under the fundamental principle that the legislation and the safety inspection involved would not in any degree absolve the employer from full personal responsibility for unsafe conditions in his establishment.

The law of 1844 had thus established the primary legislative features of the British system. The main foundations had been laid. The obvious accompanying step was the strengthening of administration to bring about more effective and more nearly uniform enforcement. In brief, there was then instituted the more highly centralized system of factory inspection, which in the main exists today—with its chief inspector of factories, and a number of subordinate superintending inspectors responsible for local supervision of district factory inspectors within the divisions into which the whole country is divided.

New problems of administration, of course, challenged the inspectors at each new advance in legislation. The restriction of working hours of children to 12 a day had led many employers to institute a relay system, which made detection of law violations difficult. Through defective legislative drafting this problem was not solved but intensified with the extension of the same protection to women. By 1847 the hours for young persons and women in textile factories were further limited to 10 per day, which has continued to be the legal maximum to the present time. The relay system—shifting the workers about in endless variety, and shifting the hours of work and of rest for different individuals throughout the day—bewildered the inspectors until in 1850 an amendment was adopted fixing the total period of employment within a prescribed continuous 12 hours of the day with 2 hours' interval for rest and meals. General satisfaction with this effective shorter-hour limitation led to its extension to other industries during the following decade. During the Great War and since, a two-shift system, subject to administrative permission, has brought its related problems and has been the subject of recent inquiry and report.

An interesting administrative experiment was tried out under an extension act in 1867. The enforcement of the factory law in all premises in which fewer than 50 persons were employed was turned over to the local sanitary authorities. This further adventure in local inspection also ended in failure. Local officials again demon-

strated that they did not care to make themselves unpopular among their neighbors. After 4 distressing years the enforcement of regulations in the smaller factories was given to the factory inspectors.

Unification of authority brought out strikingly the discrepancies between regulations for factories and the small workshops, and in 1878 a consolidation act smoothed out many differences which had complicated the administrative problem. The difference between a factory and a workshop no longer depended upon the number employed but, as today, upon the use of motive power. But to the local health authorities was given the control of sanitary conditions in the workshops, and there it has remained with varying degrees of success to this day.

For the next 40 years after 1878 there were no comprehensive changes in the factory law, although other legislation, especially the Employers' Liability Act in 1880 and the Workmen's Compensation Act of 1897, increased the reporting of accidents and made easier of enforcement the provisions requiring the guarding of dangerous places. Certain legislative modifications included authorizing the Home Secretary in 1891 to certify machinery or processes as dangerous and to make appropriate special rules, and in 1895 the keeping of an establishment registry of accidents was made compulsory while courts of summary jurisdiction were authorized, on complaint of an inspector, to make orders prohibiting the use of dangerous machinery or workplaces until made safe. Also added were amendments raising the employment age for children from 10 to 11 and then from 11 to 12; the prohibition in 1891 of the employment of women for a month after childbirth; the inclusion the same year of a "particulars" clause for the protection of piece workers; the appointment for the first time in England of a woman factory inspector in 1893,<sup>2</sup> and finally the appointment in 1898 of the first medical inspector directly responsible to the chief inspector, thus beginning the centralized staff of expert medical and technical inspectors.

But these various amending acts, adopted over a period of more than 20 years, had again made the factory law complex and difficult to administer. For this patchwork was substituted a consolidation known as The Factory and Workshop Act of 1901 which, after 35 years, with some further amendments, is still the law today under which the British work of factory inspection is carried on.

During this study of labor law administration in England, in the summer of 1936, it was freely admitted, particularly by those responsible for its administration, that their factory act was out of date in some respects.

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<sup>2</sup> Women factory inspectors were appointed earlier in the United States. See footnote, p. 18.

Both the Conservative and Labor governments of the past decade have prepared drafts of bills for its radical improvement. The King, in his speech from the throne at the opening of Parliament, as early as December 9, 1924, declared: "Bills will be laid before you \* \* \* to amend and consolidate the Factory and Workshop Acts." In fact, by command of His Majesty a factories bill (Cmd. 2237) had been presented to the preceding Parliament in August 1924 as prepared by the Home Office, which administers this legislation. The draft bill itself filled 99 printed pages, followed by 12 printed pages showing the extent to which the bill differed from the existing law. This was followed 2 years later by the introduction of a second bill on August 2, 1926 (No. 183). There was no action by Parliament on either of these Government bills and on February 14, 1928, the Labor party distributed a pamphlet containing Labor's bill (No. 33) on this subject.

Although this proposed new factories act was considered by the Labor government an important part of its legislative program, it gave precedence to other legislation regarded as more urgent. The main objects of the new bill were to consolidate and simplify the provisions of the existing acts, to strengthen their provisions in such a way as to secure a higher standard in regard to the safety, health, and welfare of the workers, and to extend the protection of the law to workers in certain classes of employment not now included. On December 3, 1935, the Prime Minister announced that it was the hope and purpose of the Government to introduce in Parliament at the session opening late in 1936 a bill for the revision and consolidation of the factory law. The King in his speech to both Houses of Parliament on November 3, 1936, said: "The present law regulating the conditions of work in factories is based upon the act of 1901, and though it has from time to time been modified in certain particulars, further amendment and consolidation are long overdue. My ministers intend to invite Parliament to undertake and carry through this important task in the course of the present session."

It was not contemplated by the Labor government when in power, nor does it appear to be the intention of the present Coalition government, which is again working over the draft of a bill, to make any radical change in the law itself or to alter in any fundamental way the system of factory inspection. It is important, then, to examine somewhat carefully the present law, and then to get a clear picture of the factory-inspection system which is presumed to make it work.

### III. The Present Factory Law

The present British factory law, as already indicated, is the result of accumulated experience and legislation spread over a period of 135 years. The inspection system itself dates from 1833. The present basic factory act of 1901 is 35 years old, and it has in turn through these years accumulated amendments and related acts as well as whole series of administrative regulations and orders.<sup>1</sup>

A brief statement of what the existing British factory legislation covers, and a no less significant indication of some of the things it does not cover, is illuminating. The legal requirements relate mainly to the health, safety, welfare, and hours of employment of workers in factories and workshops. Certain provisions also apply to docks, warehouses, and other classes of premises and to building operations where mechanical power is used. There is no authority over building construction where mechanical power is not used. There is no authority whatever over the demolition of buildings. Moreover, enforcement of sanitary conditions in workshops (as distinguished from factories where mechanical power is used) is left to the local health authority, and the factory inspector can take action only if the former defaults. Again the local authority is primarily responsible for securing provision of means of escape in case of fire, and the factory inspector's duty is limited to requiring the maintenance of such provisions in good condition and free from obstruction, and to action in case the local authority defaults.

In 1920 the inspection of mines and quarries, which for 68 years had been in the Home Office, was transferred to a newly created department of mines in the board of trade. To the Ministry of Health was transferred in 1921 the administration of provisions prohibiting the employment of women after childbirth, certain sections relating to bakehouses, and sections respecting the spread of infectious diseases through home work.

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<sup>1</sup>To the act of 1901 are related a Notices of Accidents Act, 1906; a Factory and Workshop Act, 1907; miscellaneous provisions of the Police, Factories, etc., Act (pt. II), 1916; the Women and Young Persons (employment in lead processes) Act, 1920; Employment of Women, Young Persons, and Children Act, 1920; sections 28 and 29 of the Workmen's Compensation Amendment, 1923; Lead Paint (protection against poisoning) Act, 1926; and the Truck Acts, 1831, 1887, and 1896.

In addition there are in force 43 codes of regulations applying to special industries authorized under the act of 1901, and 23 welfare orders and numerous other orders made under this and later acts.

There is no modern type one-day-of-rest-in-seven law in England, and at the beginning of 1936 there was no legal regulation whatever of the working hours of men, except in a single process in the potteries, and in coal mining, which does not come under the factory acts. There is no regulation for work under compressed air. The factory department undertakes to see that boilers in factories have been inspected, but boiler explosions are investigated by the Board of Trade. There is no official inspection whatever of elevators or lifts in England, except those in factories which come under the jurisdiction of the factory inspector and for the safety of which the occupier rather than the owner is made responsible.

Contrary to the best experience in the United States and Canada, the administration of the workmen's compensation law in England is still left to the county courts.<sup>2</sup> The industrial division of the Home Office, however, compiles accident and compensation statistics, appoints medical referees, and develops schemes for the inclusion of additional occupational diseases. Many advantages of special compensation provisions, such as those relating to accident prevention and child-labor law enforcement in American legislation, are still unknown in English experience. Thus the device adopted in Wisconsin and a dozen other American States, whereby children injured while illegally employed are entitled to double or triple compensation at the direct expense of the employer, which has proved so effective in securing compliance with the child-labor laws, has not yet been introduced in the British compensation law. Experienced American administrators consider this and similar devices in connection with workmen's compensation among the most effective aids to inspectors ever developed in labor-law enforcement. There is no special provision, moreover, for the systematic rehabilitation and vocational retraining of industrial cripples, which for 15 years has been an important factor in many American States. An interdepartmental committee, however, has recently been set up to consider this problem.

Perhaps the most striking changes affecting the administration of the law were brought about by the World War. The inspectors were then instructed to comb through every process in industry to discover where women might be substituted for men, and then to consider what labor-saving devices might be introduced to enable women to accomplish heavy work without undue strain. Meanwhile it was discovered over again that a shorter working week need not in many

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<sup>2</sup> Direct settlements (sometimes following voluntary arbitration) with a memorandum of the agreement between employer and injured worker filed with the registrar of the county court (in Scotland, the sheriff clerk), or, in default of such agreement action in the county courts, is the usual compensation claims procedure. Except recently in the coal industry, the employer is not required to insure his risk.

cases result in reduced product.<sup>3</sup> The 48-hour week became common and tends to continue in more normal times, even though the legal maximum for women and young persons belatedly remains at the 1847 standard of 60 hours per week.<sup>4</sup> This wide gap between prevailing custom and the legal limitation of working hours has naturally reduced, particularly while business was depressed, the task of inspection for compliance with the hours law. Meanwhile, however, the growing complexity of modern industrial processes, especially with the introduction of new chemicals and a rapid increase in electric power, has enormously increased the problems of health and safety, with corresponding influence upon the duties of factory inspectors.

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<sup>3</sup> The temptation under emergency conditions is to relax the strictness of law enforcement, and this was particularly apparent in the early period of the World War. Great Britain yielded for a time; and if the war had been a short one, this leniency might have been recorded as a successful experiment. But it was soon discovered that this was mistaken policy, even from the standpoint of production. In this instance also the United States profited from earlier experience elsewhere and from the beginning upheld standards generally.

<sup>4</sup> Except in textile factories where the maximum is 55½ hours.

## IV. Duties of Factory Inspectors

In the light of the present law, as already discussed, the duties of the factory inspectors may be briefly summarized.

In reference to sanitation the factory inspectors have the responsibility of seeing that the "factories" are not overcrowded, that a reasonable temperature is maintained, and that they are properly ventilated and kept clean. For the "workshops" these duties primarily fall upon the local health authorities, who, however, are required to report to the factory inspector if they find the abstract of the factory and workshops act is not posted up, and in return the factory inspector advises them of any irregularities in reference to sanitation which he may observe. But the provision, both in factories and workshops, of suitable and sufficient sanitary conveniences with separate accommodation for each sex, in all areas is enforceable by the factory inspector, except in the administrative county of London, or where part III of the Public Health Act (relating to prohibited employment of women immediately after childbirth, sanitary conditions in bakeshops, and certain infectious diseases) is in force. The standard of suitability and sufficiency is prescribed in an order by the Secretary of State.

Under their responsibilities for safety the factory inspectors must inspect machinery to see whether proper safeguarding or "fencing" is maintained. Their powers are not now much wider in this respect than they were in 1844 for those factories then covered by legislation. Few definite standards are laid down in the act, but for some of the most hazardous employments regulations have been made specifying in detail the protection required. To a significant extent in recent years "gentlemen's agreements" to provide safe conditions, rather than legally enforceable regulations, have been entered into under the encouragement of the department with well-organized industries in which it is believed good observance can be anticipated. In addition, "confidential instructions" from the chief inspector to the inspectors are supposed to result in their common understanding of official policies of enforcement and thus in a considerable degree to promote uniformity of practice.

The local inspector receives reports of all notifiable accidents in his district and investigates their cause and advises as to measures for preventing a recurrence. He must also assist the coroner at inquests of persons killed in industrial accidents. Another respon-



sibility is to see that adequate means of escape in case of fire is provided and maintained free from obstruction, but this is primarily the duty of the local health authorities, who must, however, report on their own action as a result of a factory inspector's complaint. He must also see that steam boilers in factories are regularly examined and that reports are obtained on the condition of each boiler and its mountings, specifying the maximum permissible working pressure. Finally, the inspector encourages the movement for modern safety organization as a part of standard factory management.

The inspector has special responsibilities growing out of the certification by the Secretary of State of certain dangerous trades. These may be labeled dangerous either (1) on account of health risk from anthrax, lead, and silica and other injurious dusts, or (2) on account of the peculiarly dangerous character of the work as in wood-working, building, shipbuilding, dock work, and in the use of celluloid and electricity. For the first class, special regulations in great number are in force covering ventilation, cleanliness, medical supervision, as well as mess-room and cloak-room accommodations; for the second class, in a limited number of industries, there are also detailed measures of protection. The inspector is supposed not only to see that these special regulations are observed but also, through his growing familiarity with the needs, to aid the department in developing additional protective measures.

In addition, the inspector in similar fashion aids in the development and enforcement of welfare orders, which are designed to promote the comfort and well-being of workers in particular industries requiring special facilities. They relate especially to lunch rooms, cloak rooms, and lavatories in dirty trades, and to cleanliness in baking, fish curing, chrome dyeing, and tanning, as well as to first-aid and ambulance arrangements where occupational injuries are frequent.

In reference to conditions of employment the inspector must ascertain that the hours worked by women and young persons are within the legal limits not only during normal work periods but during overtime and night work, and that the appropriate mealtimes are permitted. A complication is the two-shift system, which must be carefully checked to discourage any violation of permissible conditions. Although he is not concerned with questions of wages *per se*, (which are dealt with in another department, the Ministry of Labor), the inspector must see that no fines or deductions violate the truck acts, and that piece workers are supplied by the employer with the "particulars" enabling them to compute their earnings.<sup>1</sup> The

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<sup>1</sup>One British employer was discovered measuring the piece-workers' output with a yard stick 39 inches in length.

administration of the minimum wage law is in another government department—the Ministry of Labor.

Commenting on the influences which have affected the work of the factory inspectors in recent times, Sir Gerald Bellhouse, who was chief inspector from 1922 to 1932 and particularly interested in accident prevention, wrote: "Whereas formerly they had to enforce an unpopular act and contend with all kinds of opposition, they have become more the advisers of the employers, who often consult them on all kinds of questions. They are, indeed, by virtue of their previous scientific, professional, and technical training—added to their long and varied experience of the industries of the country—a body of industrial experts whose services are at the disposal of industry to assist and advise."

## V. The Factory-Inspection System

The progress of factory legislation, following more complex industrial development, naturally resulted in an extension and specialization of the machinery for the enforcement of these protective laws. Starting without precedents to guide it, the British factory-inspection system from its inauguration more than 100 years ago, when the creation of full-time inspectors appointed and paid by the government was a new departure in industrial legislation, has, in harmony with the recognized high ideals of the civil service, grown efficiently as one of the justly respected branches of the central government.

In Great Britain one finds the administration of labor legislation functioning through a dozen different departments of the central government. In most of these departments the enforcement of labor laws is only a minor function. In the Home Office—which is concerned with supervision of the police, prisons, reformatories, and police courts—there is an industrial division which in addition to factory inspection—the subject of this specialized study—prepares the statistics of accidents and workmen's compensation and also develops schemes for the extension of occupational-disease compensation. There are also special divisions dealing with aliens, children, and shops. The inspection of mines for safety, welfare, and hours of labor is through the mines department attached to the board of trade, which also investigates boiler explosions and has supervision over regulations for the protection of seamen. In the Ministry of Transport one finds the investigation of railway accidents and the administration of regulations affecting wages, hours of labor, and employment conditions of workers engaged in "goods transport by motor vehicles." In the Ministry of Agriculture and Fisheries there is a livestock and labor division, which in addition to licensing stallions and bulls administers the agricultural wages (regulation) act affecting wages, conditions of employment, and supply of agricultural labor. In the Ministry of Health there is administration of health insurance, of old-age pensions and contributory old-age insurance, and pensions for widows and orphans, as well as supervision of the local health authorities that deal with maternity and child welfare, the administration of the law of 1934 for the limitation of working hours and the promotion of the health and comfort of shop employees, the sanitary inspection of workshops and the provision of fire escapes for factory buildings.

The Ministry of Labor has the administration of public employment offices, of unemployment insurance and unemployment assistance and occupational training, of the minimum-wage regulations, and of laws relating to industrial disputes. It also maintains, through its international labor division, liaison between the British Government and the International Labor Office at Geneva and is responsible, in consultation with its own technical departments, for all departmental work created by the activities of the International Labor Office as well as the secretarial work of a standing interdepartmental committee constituted to deal with all international labor questions. In the treasury department we find a legal committee checking up and compiling the administrative regulations having the force of law, and there also is the important treasury solicitor who prepares cases of appeal to the High Court under the factory laws. The director of public prosecutions—appointed by the Home Secretary but subject to the direction of the Attorney General and to some extent of the Lord Chancellor—gives legal advice and assistance in police-court cases of special difficulty. The factory inspectors themselves act as prosecutors in ordinary cases of factory law violation, dealing directly with unpaid justices of the peace or with the stipendiary magistrates. The workmen's compensation law is still administered through the county courts. Finally, under the Privy Council there is a department of scientific and industrial research, and also a medical research council, under which there is an industrial health research board making investigations and preparing bulletins relating to the health and safety of the workers. This incomplete sketch suggests the bewildering maze of administrative channels, through which the interested observer stumbles upon one surprise after another. To an American no twist appears more extraordinary than the county court administration of workmen's compensation and the losses thus involved, including potential aids to the administration of safety and other factory laws. The lack of these special automatic aids to effective administration makes all the more necessary an especially efficient organization of the factory inspection system.

## 1. ORGANIZATION

The factory inspection organization is under the control of a chief inspector of factories, appointed by and directly responsible to the Secretary of State for Home Affairs who is one of the eight principal secretaries of state in England.

### (1) THE GENERAL PLAN

The chief inspector of factories is assisted by three deputy chief inspectors, one a woman, and the country is divided into 11 divisions

under superintending inspectors and the divisions are again divided into a total of 91 districts under district inspectors.

Additional inspectors (16 in 1936) are allotted to divisional staffs, and (109 in 1936) to district staffs, as needed. Moreover, a staff of 29 technical experts, medical, electrical, and engineering, are assigned to specified areas and attached to various divisions (except that the senior specialist in each class is attached to the central headquarters and all of the engineering specialists are stationed in London and not assigned to specified areas). There are also four separate and distinct inspectors of "textile particulars", stationed in the textile areas, who enforce the requirement that textile employers must furnish to their piece workers adequate information for the calculations of wages due them.

In July 1936 there were a total of 264 factory inspectors in the whole country—England, Wales, and Scotland.

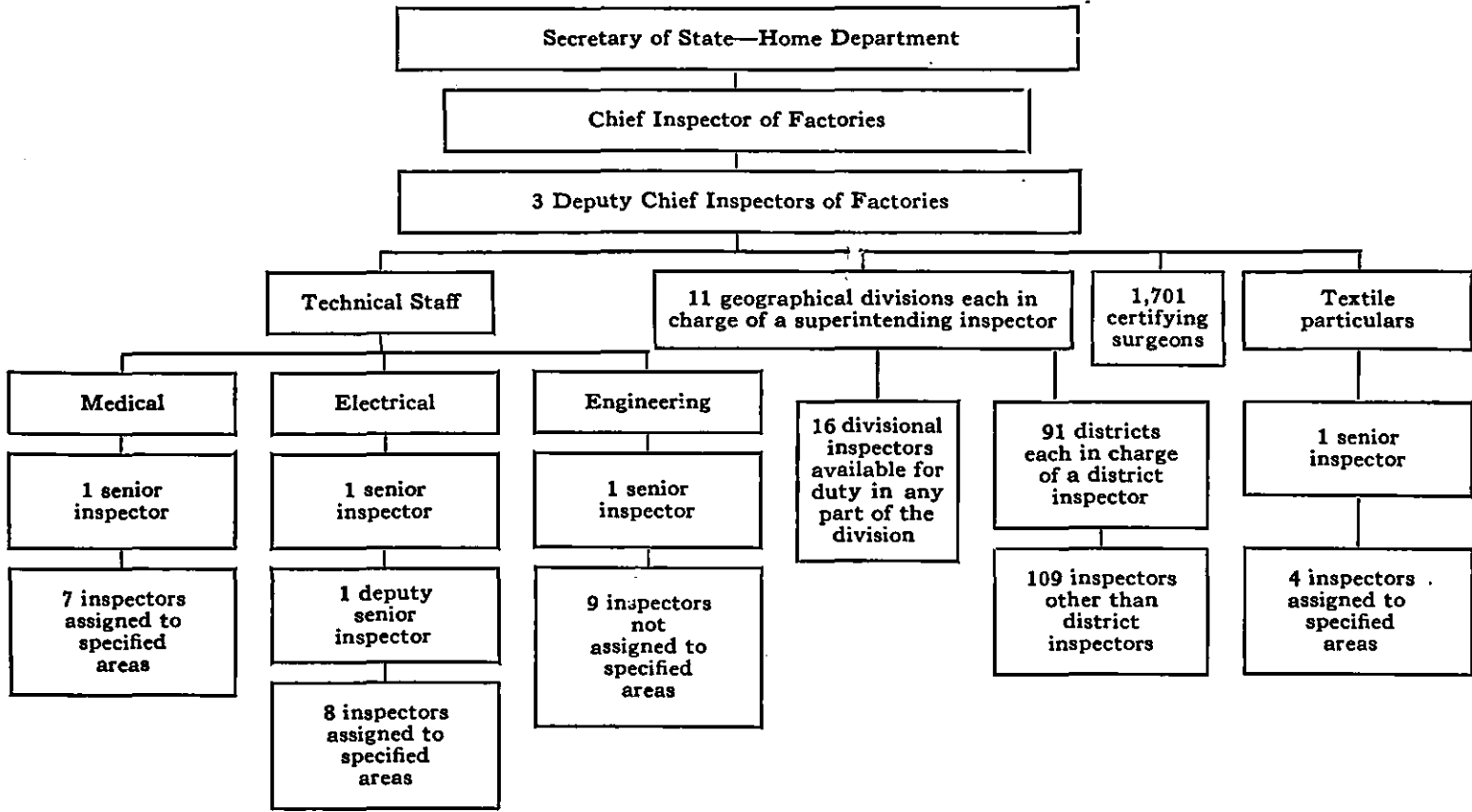
## (2) SPECIALIZED BRANCHES

Great Britain has had instructive experience with specialized factory inspection. With the increasing complexities of numerous modern industries and the introduction of new chemicals and electric power this specialization is constantly increased. But with the formal development of technical branches and the special recruiting of engineers, electricians, and physicians the older specialized branch of women factory inspectors has been abandoned. The reasons for this change are discussed later in this section.

Specialized examination of "textile particulars" was instituted in 1892. The first woman inspector of factories was appointed in 1893; the first medical inspector in 1898. The specialized engineering service was begun in 1901, although there had been, of course, engineers among the general factory inspectors much earlier. The specialized electrical staff was inaugurated in 1902.

### a. Medical

The technical medical staff of eight persons in 1936, including one woman, are assigned to specified areas and attached to various divisions. They have general supervision of the operation of regulations and orders against occupational diseases; the investigation of cases of industrial poisoning; the study of new processes injurious to health; and the duty of advising the department on all medical questions. They also supervise the work of the 1,701 certifying surgeons in their granting of certificates of fitness to young persons, in their periodical medical examinations required in certain unhealthy employments, and in their investigation of accidents specially reported to them.



The senior medical inspector, stationed at national headquarters, organizes and directs the work of this specialized staff, the members of which are expected to become familiar with local industrial health conditions and assist the local district inspectors, if necessary, at inquests or prosecutions. They also advise the Home Office industrial division on the application of the Workmen's Compensation Act to occupational diseases.

#### b. Engineering

The primary duty of the 10 men who constitute the specialized engineering inspection staff, all with headquarters in London, is to advise on engineering and mechanical questions affecting safety or health. They make special studies of ventilation and machine guarding in dangerous trades and processes, investigate explosions and chemical hazards, and analyze accident reports to determine the effectiveness of safeguards. They are available to assist local factory inspectors with their specialized knowledge in bringing new codes into operation, and to give expert testimony, if needed, at inquests and prosecutions.

#### c. Electrical

The 10 special electrical inspectors, assigned to various divisions of the service, systematically inspect the more important places and works under the electricity regulations. They also are available as expert witnesses to assist the district inspectors at inquests and prosecutions.

#### d. Textile Particulars

In a class by itself is the examination of "textile particulars" by four men inspectors assigned to the textile areas and having technical knowledge of the methods of computing earnings in the textile industries. They see to it that these employers furnish, in advance and in writing, the necessary information for piece workers to figure their own earnings.<sup>1</sup>

### (3) WOMEN INSPECTORS

The experience with women inspectors has had a varied history from the time in 1893 when the first woman inspector of factories was appointed,<sup>2</sup> following a recommendation of a royal commission

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<sup>1</sup> Since 1854 it had been compulsory to supply to piece workers in the hosiery and silk-weaving trades the particulars of work done and price paid, and by the act of 1891 this had been extended to all piece workers in textile factories. The appointment of a "particulars" inspector marked the beginning of specialization of staff.

<sup>2</sup> Women factory inspectors were appointed earlier than this in America, the first in Pennsylvania in 1889. In New York, on July 1, 1890, 7 women inspectors were appointed, two serving 31 and 26 years, respectively, before retirement. Two women factory inspectors were appointed in Massachusetts in 1891.

on labor which exposed the hardships many women were enduring in factories and workshops. Long hours and low wages under conditions that were not only unsafe and insanitary but often immoral, led to the development of a special staff of female inspectors which continued for 27 years.

These women inspectors in the beginning were sent out from headquarters in London to investigate women's complaints, to make special studies of conditions especially affecting the health of women and children, and to report upon women's employment. London establishments provided ample opportunity for routine work. As the staff grew in numbers and experience its members were allocated to the divisions throughout the country. It was a dual organization on parallel lines and related to the general system only through the principal lady inspector, who worked directly under the chief inspector.

But it continued thus for a quarter of a century. Then, in 1921, following a departmental inquiry through a committee whose report is not available to public scrutiny, this specialized effort was wholly abandoned.

During the past 15 years the women inspectors who in September 1935 numbered 65, or about 30 percent of the whole divisional and field inspection force, have been presumably upon precisely the same footing in the general service and with the same duties as the men inspectors.

Among the reasons long advanced in Great Britain in favor of specialized female inspectors—and still supported consistently in some other countries including our own—were the arguments that men could not be expected to have sufficient interest and patience to ferret out the evidence of violations of laws restricting the employment of children and women. It was argued that men inspectors, too often in fact, did not believe in such special restrictions, and that men were naturally more interested in problems of industrial safety and the mechanics of accident prevention. It was also argued with much plausibility that female workers in factories found it easier to discuss with another woman the need of adequate sanitary facilities and the reprehensible practices of certain employers who presumed upon the economic necessity of their female workers and insisted upon immoral relations with them.

It is generally agreed that the specialized women inspectors had very considerable influence in improving the conditions under which children and women worked. Their zeal was often notable, and their reports were certainly educational. Their efforts unquestionably led to needed improvements in the law.



But, with the passage of the years, experience developed a sentiment against a specialized branch of female inspectors. It was pointed out that the women inspectors, while giving their attention especially to establishments where children and women were employed, were not only increasing unduly the expense and time of traveling about from place to place, but were also in many instances duplicating visits made to establishments by men inspectors, with resulting annoyance to employers. There was a feeling that the women inspectors were "too much on their own", and that national headquarters would be held responsible for needless irritation among factory managers as well as for the criticisms of those who raise periodically against every government the cry of needed economy in administration.

Thus it came about in 1921 that a committee within the department itself took testimony and prepared an unpublished memorandum which led to a fundamental change, apparently without much open protest, although one prominent woman inspector retired on pension at the age of 59, 1 year before the regular retirement age. The new system is not wholly popular among all of the men inspectors, some of whom still believe that women are to a degree handicapped in dealing with intricate mechanical problems of safety, and that in earlier years the women inspectors were perhaps in some ways "favored" in the allotment to districts and in promotion. It is significant that the present women inspectors, so far as interviewed, were unanimous in favor of the new system where they are presumably on a par with men. To be sure, their salaries are, in general, still on a lower level, and marriage means automatic resignation from the service. Moreover, no woman has yet in Great Britain attained the eminence of chief inspector of factories, but 1 of the 3 deputy chief inspectors is a woman, and there are 2 women among the 11 superintendents of geographical divisions.

The present women inspectors now advance all of the familiar economy arguments in favor of their new status, and they also emphasize that their diversified work is much more interesting. This added interest is understandable in a period when safety first has been somewhat belatedly capturing the imagination of British industrialists and winning popular approval as a slogan. It has come at a time also when actual industrial practice in the reduction of hours of work of young persons and women in Great Britain has greatly outstripped the progress of legal restrictions on such hours of labor, thus decreasing very strikingly during a long period of business depression the task of law enforcement for the protection of children and women.

Finally, an impartial inquirer into the shift away from specialized women inspectors in the organization of factory inspection must conclude that a determining factor in the present favorable attitude of the women inspectors themselves is associated with their keen ambition for promotion to supervisory positions in the British civil service. Without diversified experience in actual inspection work it is naturally more difficult to qualify for a position of responsible supervision over other inspectors. This fact influences, as noted elsewhere, the more or less cheerful acceptance of the sometimes arduous assignment to first one factory inspection district and then to another. The possibilities of promotion unquestionably weigh heavily in the scale as women inspectors, pursuing their worthy ambition to excel in this public service in competition with men, cheerfully undertake the equal responsibilities of all-round factory inspection work.

Perhaps the various qualified inspectors with whom the author was privileged to go on their routine inspections of numerous industrial establishments were not entirely typical. But no one of them, man or woman, could be called less than qualified and efficient. And certainly one of the most conscientious and expert factory inspections observed during this field study in England was made by a woman.

This particular inspection was in a large establishment involving many and varied danger points. As the "lady inspector" entered the first workroom full of a variety of saws and cutting machines, with hurrying belts and revolving shafting, derisive smiles were seen to be exchanged by manager and foreman. "Surely", they appeared to think, "this slip of a woman does not expect to tell us how to run our machines!"

But as she with business-like manner proceeded to indicate one breach after another of the safety laws and to explain precisely how the problem could be effectively met; as she pulled from beneath open cupboards partially emptied cans of explosive chemicals, which under the law must not remain exposed in the workroom; as she waded through weeds in the factory yard to see the reservoir tanks in which the main chemical supplies are stored; as she spoke seriously to an office girl who produced from a desk drawer a soiled cloth in response to a request to see the sterilized bandages for the depleted first-aid kit; and as she made the manager understand that his failure to send employed boys to the certifying surgeon for examination is a serious offense, it was plain that managerial respect for her capacity grew by minutes. As she was preparing to leave at the close of a 2-hour inspection the employer urged her to send him a written memorandum of recommendations since he him-

self had taken no notes. "You will receive a written notice in due course over my signature, but", she added in the crisp phrase of the inspectorate, "you understand you are expected to attend to these matters straight off!"

The tact and diligence of this competent woman inspector was a magnificent example of the spirit that should guide factory inspection in every country if uniform industrial standards are to be seriously adopted and sincerely maintained.

## 2. SELECTION OF PERSONNEL

The British system of selection insures the appointment not only of persons of exceptional ability and training but also of high personal character. Social position also is regarded with considerable favor in England, and in going the rounds with a factory inspector it may be discovered, upon inquiry, that one is accompanying the Oxford-trained son of a prominent justice, or the similarly trained daughter of a lord. In England one frequently hears the expression: "A factory inspector must be able to 'stand up' to the employer." The British factory inspectors do certainly command the respect of employers to a notable degree. Factory inspection is respected like the work of any other life profession, and it offers opportunity for important public service, an adequate and assured income on a permanent basis, and a government pension upon retirement. With the exception of the electrical, medical, and particulars inspectors, who are specially selected, the factory inspectors are recruited through widely advertised competitive examinations held under regulations made by the civil service commissioners with the approval of the Treasury Department. Written applications are scrutinized, and candidates who appear to possess the requisite qualifications are summoned to a qualifying written examination and to an interview before a selection board.

Applications are received by the Home Office, where the initial elimination of unqualified applicants takes place. Personal fitness, education, technical qualifications, and experience are especially considered under the existing regulations. Preference is given those having scientific training and practical acquaintance with industrial processes. In general, a standard of education equivalent to that at a recognized university is required; but these qualifications, say the printed civil-service announcement, may be dispensed with in the case of a candidate with suitable industrial or other special practical experience.

It is now, as a matter of fact, practically impossible for anyone to become an inspector who is not a graduate of some one of the first-class colleges or of a recognized school of engineering or medical

science.<sup>3</sup> The departmental committee which reported on the factory inspectorate in 1929 found that of the 29 candidates—men and women—that had been appointed up to that time under the civil-service regulations of 1925, 26 had university degrees, of which 22 were degrees in engineering or science. Moreover, 23 of the 29 had “suitable works’ experience” and the other 6 had “other special practical experience” in engineering, chemistry, social work, or industrial research.

Vacancies are filled through appointment by the Home Secretary from among the successful candidates. The new inspectors are on probation for 2 years, during which they gather experience under supervision in district work. At the end of this period they are required to pass a second examination in factory law and sanitary science to qualify for permanent appointment and subsequent promotion.

That the civil service or merit selection of personnel has worked successfully is demonstrated by the continual improvement in the quality of the inspectorate. For a considerable period in early years appointments were made through personal recommendations, often under partisan political influence, and the results were unsatisfactory. But about 1870 in England, as some 10 years later in the United States, public sentiment demanded a change from patronage to merit selection in central government appointments. Gone are the days when in England a few privileged land-owning families determined the course of legislation, and to their needy relatives or personal favorites handed over its administration. The propertied influence of local justices of the peace has also been diminished. Central administration of the laws, meanwhile, has become increasingly efficient and for the most part admirable.<sup>4</sup>

Specifically, the factory inspectors are now a professional group selected through competitive written and oral examinations by a process of skillful sifting which eliminates the unfit. If, for ex-

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<sup>3</sup>A generation ago Mr. Asquith was impressed by the Labor demand that more “practical” people be added to the inspectorate. The subject was debated in Parliament, and a number of “Inspectors’ Assistants” of less formal educational training were appointed at lower salaries from the ranks of those whose qualification was largely that of previous employment in factories. A few did very well and later through examinations were advanced into the regular status, but on the whole the experiment was unsatisfactory and was soon abandoned. The Mine Inspection Department later had a similar unsatisfactory experience. In both fields of inspection the advantages of technical study as well as of practical experience was demonstrated.

<sup>4</sup>“Legislation, it is true, and the ultimate executive power,” says the well-known British authority, William A. Robson, in his essay on *From Patronage to Proficiency in the Public Service*, “are still in the hands of the amateur; for from our supreme law makers we have still not learnt to ask for more than tact, a pleasing personality, the ability to compromise, the gift of plausible speech, personal integrity, and a blameless family life. But behind this amiable amateur there is now the support of a large body of highly trained professional administrators, the civil service \* \* \* whose work is becoming increasingly expert in its nature, and increasingly scientific in its method.”

ample, an examination is advertised with five positions to be filled, several thousand, as a rule between the ages 23 and 32, will make application, each paying for this purpose the required half-crown fee. From the specific information submitted by these numerous applicants a committee of the department will reject all but perhaps 40, usually university graduates who have also had practical experience, and these applications will be submitted to the civil service commissioners for approval. If approved, the candidates thus selected will be permitted to take the formal written examination, each paying for this purpose the required fee of £1. In this examination the civil service commissioners may subject the fortunate 40 to a test of their education, and all candidates are required to pass an examination in English composition, including the writing of a report. But much more important is the independent oral interview before a selection board nominated by the commissioners in consultation with the department and including a representative of the Home Office and usually one of the commissioners. The tendency increasingly is to put great stress upon the results of this personal interview, and it is searching indeed. If, as a result of the committee's preliminary written test and the final oral examination before the selection board, 10 are found good, the immediately needed 5 are selected, and they each pay a third fee of £3 2s. and 6d. for their certificates of qualification for appointment. The remaining five are put on a reserve list. Then begins the special instruction of the five first chosen.

### 3. TRAINING OF PERSONNEL

The training of new factory inspectors has always been left to their more experienced associates. A day or two accompanying an older inspector on his visits to factories and then off inspecting "on his own" was a not uncommon introduction to the service a generation ago. But in more recent times the training has become much more serious and systematized. Not only is the new inspector, during a 2 months' training period, given more immediate personal supervision with opportunity to observe inspections by his local superior, but a well-planned course of lectures is given by various experienced and expert men and women of the department. These have most recently been held at the safety or industrial museum in London, with special round-table discussions on particular problems. The following outline of a 2 weeks' course of instruction in February 1936 is suggestive:

## LECTURE COURSE FOR TRAINING NEW INSPECTORS

*Monday, Feb. 3.**Afternoon sessions:*

2:30-----	Introductory address-----	Mr. D. R. Wilson, Chief.
3:00-4:30-----	The safety provisions of the acts: Safety first.	Inspector. Mr. Stevenson-Taylor.

*Tuesday, Feb. 4.**Morning session:*

9:30-12:45-----	1. Steam boilers-----	Mr. Pollard.
Demonstrations.	2. Prime movers-----	Mr. Duguid.
	3. Transmission machinery-	Mr. Eccles.

*Afternoon session:*

2:15-3:15-----	Welfare-----	Miss McWilliam.
3:15-5:30-----	Demonstration on welfare--	{ Miss McWilliam. Mr. Wynter. Miss Wilkins.

*Wednesday, Feb. 5.**Morning session:*

9:30-12:45-----	1. Laundry machinery-----	Mr. Duguid.
Demonstrations.	2. Printing machinery-----	Mr. Chalmers.
	3. Machinery in the food industries.	Mr. Chasteney.

*Afternoon session:*

2:15-3:45-----	Electricity regulations-----	Mr. Swann.
4:30-5:30-----	The International Labour Organization.	Mr. Norman of the Ministry of Labour.

*Thursday, Feb. 6.**Morning session:*

9:30-12:45-----	1. Power presses-----	Mr. Garrett and Mr. Eccles.
Demonstrations.	2. Textile machinery-----	Mr. Topham.
	3. Hoists-----	Mr. Duguid.

*Afternoon session:*

2:15-3:15-----	Explosions-----	Mr. Stevenson-Taylor.
3:15-4:15-----	Application of the act-----	Miss Taylor.
4:30-5:30-----	Private study.	

*Friday, Feb. 7.**Morning session:*

9:30-11:00-----	Lighting-----	Mr. Murray.
11:00-12:45-----	{ Group I: Demonstration on electricity-----	Mr. Murgatroyd.
	{ Group II: Demonstration on lighting-----	Mr. Murray.
	{ Group III: Private study.	

*Afternoon session:*

2:15-3:45-----	{ Group I: Demonstration on lighting-----	Mr. Murray.
	{ Group II: Private study.	
	{ Group III: Demonstration on electricity-----	Mr. Murgatroyd.
4:00-5:30-----	{ Group I: Private study.	
	{ Group II: Demonstration on electricity-----	Mr. Murgatroyd.
	{ Group III: Demonstration on lighting-----	Mr. Murray.

*Saturday, Feb. 8.**Morning session:*

9:30-10:30-----	Chemical regulations-----	Mr. Wilkes.
10:30-12:45-----	Health in industry with special reference to dis- eases notified under Sec. 73.	Dr. Bridge.

*Monday, Feb. 10.**Morning session:*

9:30-12:45-----	1. Milling Gutter Regula- tions.	Mr. Shaxby.
Demonstrations-----	2. Woodworking Regula- tions.	Mr. Younger.
	3. Pottery Regulations-----	Mr. Garrett.

*Afternoon session:*

2:30-3:30-----	Industrial Physiology-----	Mr. G. P. Crowden of the London School of Hygiene and Tropical Medicine.
4:30-5:30-----	Truck and Particulars-----	Miss Slocock.

*Tuesday, Feb. 11.**Morning session:*

9:30-10:30-----	Docks Regulations-----	Mr. Lowe.
10:30-12:45-----	Industrial Diseases of the Lung. Gases and Fumes.	Dr. Middleton.

*Afternoon session:*

2:15-3:15-----	Employment-----	Miss Taylor.
3:15-5:30-----	Private Study.	

*Wednesday, Feb. 12.**Morning session:*

9:30-12:45-----	{ 1. Grinding Machinery-----	Mr. Plumbe.	
Demonstration-----		2. Lifting Gear-----	Mr. Hockaday.
		3. Dust Explosion-----	Mr. Murray.

*Afternoon session:*

2:15-3:15-----	Law of Evidence-----	Mr. Dymock.
3:15-4:15-----	Building Regulations-----	Mr. Eccles.
4:15-5:30-----	Private Study.	

*Thursday, Feb. 13.**Morning session:*

9:30-10:30-----	Relations between Factory Department and Local Authority.	Miss Slocock.
10:30-11:30-----	Ventilation, Humidity, and Heating.	Mr. Price.
11:30-12:45-----	Accident Proneness-----	Mr. Eric Farmer.

*Afternoon session:*

2:15-5:30-----	Private Study.	
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*Friday, Feb. 14.**Morning session:*

9:30-10:30-----	Celluloid Regulations-----	Mr. Wilkes.
10:30-12:45-----	Employment of Women and Young Persons and Der- matitis.	Dr. Horner.

*Afternoon session:*

2:45-3:45-----	Exhaust Ventilation-----	Mr. Garrett.
3:45-5:30-----	Private Study.	

After the 2-weeks' course of lectures and demonstrations at the industrial museum, followed by perhaps 6 weeks of work in close association with the experienced inspectors in the field, the new recruits are assigned to easier factories in the districts to work for 2 years on probation. Unless during the 2 years' practical experience they have shown personal qualities which clearly do not fit them for the service, they are at the end of this probationary period subjected to a stiff noncompetitive examination on factory law and sanitary science, the result of which determines the further employment of the now supposedly trained factory inspectors. When they pass this final examination they are supposed to be good.

The instruction of inspectors, however, by no means ends with this preliminary period. The Secretary of State has given to them in the beginning a volume of general instructions, and this is supplemented with a substantial volume of instructions to factory inspectors from the department. This is followed up regularly with a monthly circular of instructions to factory inspectors which, like the earlier substantial volumes, is printed but likewise is held strictly "confidential."<sup>5</sup>

#### 4. PROMOTION

Under the British system of civil service the higher administrators are profoundly impressed with their own authority, and it is inconceivable to them that anyone could possibly question their system of administration. And it is a system which for a long time has justly excited the admiration of students throughout the world. To understand its operation in the work of factory inspection it is important to remember constantly that under this plan subordinates are given responsibility and are then trusted to do their work properly. Their promotion depends upon faithful efficient service, and it is the system of promotion that keeps them "on their toes."

The inspectorate, it will be remembered, is organized from the bottom up<sup>6</sup> in this general order: Junior inspectors who are learning the

<sup>5</sup> In the American States where similar instruction volumes are circulated to inspectors they are not so closely guarded. But in Britain the Official Secrets Act precludes the giving of such information. These instructions would, of course, be of great value to careful students in understanding the British methods of factory inspection. Speculation as to the contents of such secret instructions includes the observations of others that they possibly "reflect the spirit of the particular administration" as to the interpretation of the factory laws and the strictness of their enforcement under varying circumstances, particularly perhaps in time of industrial depression. But it is also stated that it is perhaps found advisable to guard the instructions carefully on account of the very real danger that inspectors be embarrassed by attorneys of employers when testifying in prosecutions in occupational injury cases. Whatever the necessity of this policy of secrecy, I learned of no factory inspector who had ever violated it.

<sup>6</sup> As Mr. Phelan, a most understanding British representative for many years at Geneva, wrote in 1936 in his admirable book *Yes and Albert Thomas*: "The British system of working a Government office may be roughly described as a system in which the work comes up from below. \* \* \* At each stage of the hierarchy a part of the work is



work under supervision, heads of districts, heads of divisions, deputy chief inspectors, and then finally the chief inspector at the top. All may aspire to promotion. Apparently practically all of them do. They desire very much the increased honor and prestige, and with it comes increased pay.

All factory inspectors in Great Britain, since they are established civil-service employees, enjoy security of tenure, subject to efficiency and good conduct. Their promotion, varying according to circumstances, is roughly from class II to class Ib in 5 years, and from class Ib to class Ia in 11 years. The higher promotions are mainly by selection.

As soon as a local district inspector enters upon his duties he begins to build up a record upon which his future advancement depends. His weekly written reports, which he signs and sends to his division superintendent, are the basis for the confidential report and recommendations of his immediate superior to the head office, which in turn passes the information on to the office of the Secretary of State. This goes into a dozen questions of tact, zeal, ability, initiative, interest in the work as a whole, and willingness to assume responsibility. All of these things are taken into account when promotions are made. Being ranked annually, perhaps as (1) satisfactory, (2) less than satisfactory, or (3) outstanding on all such qualifications, and given an opportunity to reply if reported "less than satisfactory" on as many as two qualifications, tends to keep them keyed up, particularly if it is understood that being marked "outstanding" on as many as two qualifications is likely to rate a promotion as soon as there is opportunity. While seniority counts to some extent, it has been a relatively small factor in promotions in recent years.

Owing to the number of inspectors of the second class, they usually have to wait several years before promotion. Meanwhile, their salaries are advanced yearly, unless one should make a very bad mistake, in which case his normal increase might be held back a year.

The eagerness for promotion, combined with the fear of unwittingly offending through some casual breach of administrative policy, is a marked characteristic of the British inspection system. The amazing emphasis upon secrecy, even involving printed blanks or forms upon which official reports are regularly made, has extended so far as to prohibit a recognized authority in a related branch of the public service from contributing a scientific descriptive article

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liquidated." Only those routine matters requiring decision by the highest authority arrive at the top. This is supposed to give those in highest authority ample opportunity to consider carefully the most important matters requiring decision.

on British legislation to a recognized standard journal of another country, or even from contributing a chapter to a scientific book. This, from the scientific viewpoint, is a provoking angle of the British civil-service system, but the civil servants take it, and any rare exception to the rule is referred to with bated breath and with appropriate regard for the stringent penalty so promptly inflicted. This unhappy aspect of the general system is probably due in some measure to long years of impressive authority in office-routine administration—not too closely associated with the realities of the modern scientific attack upon industrial evils. The factory-inspection department has probably suffered less from this narrow attitude than have some related administrative departments in the social-legislation field, and I learned of no case where a factory inspector had not been wholly loyal to the imposed bonds. The fear of adversely affecting their chances of promotion is in itself sufficient to keep them in line, but in addition they believe in their system and accept it with little question.

## 5. LEAVE, EXPENSES, AND PENSIONS

For British factory inspectors a fairly liberal annual vacation with pay is allowed. During each of the first 10 years of service they are allowed in addition to the usual public holidays 36 weekdays' leave, and during each year thereafter 48 days. Their leave is usually not taken at one single period during the year, but by arrangement may be broken into several convenient periods.

Traveling expenses of the inspectors, incurred in the service, including 3 cents a mile when using own automobile, are reimbursed by the government, and when away from home a subsistence allowance varying from 15 shillings and 6 pence to 23 shillings and 6 pence is granted.

As civil servants the inspectors come under the superannuation acts. Retirement may be and often is required at 60, and at 65 it is compulsory. If they remain in the service until they are 60 they are entitled to pension. (If they retire before 60 they receive pension only if they have served at least 10 years and the retirement is necessary on grounds of health.) The pension, wholly at government expense, is calculated at one-eightieth of the annual salary at date of retirement for each completed year of service, subject to a maximum of half such annual salary. In addition to the pension, provision is made under which an inspector who retires after not less than 2 years may be allowed a lump sum equivalent to one-thirtieth of the retiring salary multiplied by the number of completed years of service, subject to a maximum of  $1\frac{1}{2}$  times such salary. If

an inspector dies in the service after not less than 5 years, there may be allowed to his legal representatives a gratuity equal to 1 year's salary.

## 6. SALARIES

The range of annual salaries of British factory inspectors, according to position and sex, were as follows in 1935:

Title	Number			Salaries	
	Men	Women	Total	Men	Women
Chief inspector.....	1		1	£1,360-£1,650	
Deputy chief inspector.....	2	1	3	(1) 1,261	£905-£1,001
				(2) 1,058-	1,101
<b>DIVISIONAL AND DISTRICT STAFF</b>					
Superintending inspector.....	9	2	11	905- 1,011	738- 847
Inspector, class Ia.....	34	8	42	456- 797	456- 680
Inspector, class Ib.....	61	23	84	456- 680	456- 575
Inspector, class II.....	49	31	80	277- 456	277- 456
Total divisional and district staff.....	153	64	217		
<b>TECHNICAL STAFF</b>					
Senior medical inspector.....	1		1		1,261
Medical inspector.....	6	1	7	738-	1,058 738- 1,058
Senior electrical inspector.....	1		1	1,058-	1,101
Electrical inspector.....	9		9	634-	905
Senior engineering inspector <sup>1</sup> .....					
Engineering inspector.....	9		9	456-	797
Senior inspector of textile particulars.....	1		1	456-	680
Inspector of textile particulars.....	4		4	215-	456
Total (technical staff).....	31	1	32		
Total inspectorate.....	187	66	253		

<sup>1</sup> The position was temporarily vacant.

An examination of this salary schedule indicates a fairly liberal annual compensation in the civil service of Great Britain. As compared, for example, dollar for dollar with salaries provided for factory inspectors under the civil service in New York State the British scale is roughly about 20 percent more in the higher-paid positions of greater responsibility. For the inspectors of the lowest classification the New York salaries average a little lower than the similar class in Great Britain on a dollar-for-dollar basis.<sup>7</sup> It is, of course, necessary to take into account some differences, such as

<sup>7</sup> Counting the British pound as \$4.90, the maximum salary for the British chief inspector of factories is \$8,085; The director of industrial inspection in New York, who heads one of a dozen divisions in the State department of labor, receives \$7,000, and the chief factory inspector \$4,750. In Great Britain the maximum for 11 superintending inspectors was \$4,953, while in New York 9 supervisors of industrial inspection received \$4,000. Great Britain had 42 class Ia inspectors, for whom the maximum was \$3,005, while New York had 59 inspectors and 8 assistant supervisors at \$3,000 each. In the lowest-paid classification, for beginners, Great Britain had 80 class II inspectors, where the salary range is from \$1,357 to \$2,234, while New York had 7 at \$1,680 and 12 at \$1,800. These samples are indicative of relative salaries. In New York a larger proportion of the total number of inspectors is in the higher-salaried group.

in the standards of living and in the periods of training required, but probably factory inspectors are more liberally compensated in Great Britain than in any other country.

## 7. SUPERVISION

The superintending inspectors, who head the 11 divisions of the country into which British factory inspection is divided, supervise the work of their district staffs through examination of the weekly reports submitted. They also make occasional inspections accompanied by the local inspector, approve prosecutions before they are initiated by the district inspectors, and spend much time in conferences with representatives of various industrial organizations both of employers and workers. They frequently convene representative conferences to consider problems of health and safety in special industries and encourage the formation of safety committees, which are asked to cooperate in discovering practicable means for accident and occupational disease prevention. Both the district and divisional inspectors give frequent lectures within their areas. And, of course, the divisional superintendents make regular written reports to central headquarters in London.

Under the British system, it will be remembered, the chief inspector, assisted by three deputy chief inspectors, is stationed at the central office in London. His principal duties are to deal with especially difficult cases which come up to him through the superintending inspectors in the various districts and from the senior inspectors of the three technical branches; to hold conferences of industrial representatives on the more important matters such as the preparation of new codes of regulations; to recommend promotions and transfers to the Home Secretary, and generally to deal with personnel matters arising in the inspectorate; to appoint the certifying surgeons (the local medical practitioners who physically examine young persons upon their entry into employment and make certain other examinations of workers in dangerous processes as required); and to grant exemptions from the requirements of administrative regulations where he is satisfied that this is justified. He also is required to submit to the Home Secretary an annual report, which is presented to Parliament and published about the beginning of July.

## 8. INSPECTION PROCEDURE

It is important to remember that in Britain the local district inspector is the direct active agent in the enforcement of the factory laws. He is solely responsible for the organization of the work in

his own district. His small staff works entirely under his control, and he may, if he prefers, subdivide his district to give his one or more subordinates a feeling of greater responsibility for the work in these subdistricts.

It is only by arrangement through the local inspector that the specialized inspectors of the central office staff carry on special studies in his district, and they furnish him with copies of the results of their inquiries. Any divisional inspectors, also, when they come into his district do so by previous understanding with the local district inspector and any instructions or recommendations resulting from their observations or reports are issued over his signature. In this way the dangers of overlapping are avoided, and the district inspector is made to feel complete local responsibility. A high administrative official once remarked: "We select carefully, train, supervise through the experimental stage, and then we trust them."

The typical week's work of a district or local inspector is divided between investigation of reported accidents and complaints, routine inspections of plants, attendance at coroner's inquests, preparation and institution of prosecutions, and the writing of reports. The inspection work is not systematized on the "block plan", but in general the inspector selects from accident reports received direct by him from employers of his district all fatal cases and any others which appear to him to offer any new, unusual or instructive features for study. Having made this investigation he "drops in" on any establishments in the immediate neighborhood to "look them over." As a result of this hit-or-miss practice he usually does not make any special preparation in advance of his inspection of these establishments, such as examination of inspection-office records to ascertain precisely what complaints may have been received, what accidents have been reported, and what orders may have been previously issued in respect to the particular employer. The usual explanations to the writer of failure to make this advance preparation—that the inspector does not know when he leaves his office which establishments he will visit, that he carries in his head all needed information concerning establishments in his district, and that there is not time systematically to inspect all of the thousands of establishments for which he is responsible—appear less than satisfactory and somewhat inconsistent, particularly in view of the rotation system under which inspectors are from time to time transferred from one district to another.

From personal observation of the technique of various inspectors—both district and special, and both men and women—the writer was impressed with their uniformly courteous and dignified approach to the employer who never received advance notice of visits.

After ringing the outer office bell and then waiting patiently until the proprietor appeared, the inspector announced that he was the factory inspector come to make an inspection. If previously known especially, he was welcomed with decent cordiality and invited to go through the works.\*

Particularly, where much machinery was involved, the inspector usually invited the manager to precede him, only stopping to point out contraventions of the law, such as unguarded machines or, as happened frequently, guards which while acceptable in themselves were improperly adjusted and therefore especially dangerous. Then and there the inspector called attention to the dereliction and, while carefully refraining from recommending any particular guard, discussed with the employer various ways of remedying the situation. Sometimes the inspector emphasized to the employer his legal liability in case a serious occupational injury should result from his failure to keep the danger point adequately safeguarded.

The safety inspection appeared usually to be carefully made, including obstructions to fire escapes, and often unsatisfactorily equipped hoistways, which present a difficult problem where, as in England, the "occupier" rather than the owner of the building is held legally responsible.

Somewhat as an anticlimax, perhaps, in the impression upon the employer was the routine inspection of lime washing of the factory walls and corridors (inaugurated by the pioneer statute in 1802 and legally required each 14 months) and the painstaking counting by the inspector of the supplies in the required "first-aid" box. However, it is a matter of persistent education to make employers aware of the dangers of infection following even the minor injuries.

The inspector notes the presence or absence of the required posted notices inexpensively supplied by the department (practically all printed forms and official literature in England is sold through His Majesty's Stationery Office), and demands the factory register, usually a dog-eared and unpretentious notebook, discovered after some special search among miscellaneous papers in a drawer of some office desk. This register, under the law, is supposed to contain

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\* Delay between the arrival of the inspector and the appearance of the manager may give rise to criticism. On July 30, 1936, Ellis Smith, with more than 20 years' experience in a representative capacity in 1 of the largest factories in the country, said in the House of Commons: "With regard to factory inspection, I hope that the Home Office will consider taking steps to enable the inspectors to get right inside the factories before the administrators and those in charge of the managerial side know that they are coming. What happens in many cases is that, as soon as the factory inspector reaches the gate, a telephone gets busy, and within a very short time people are running around seeing that every guard is right, that everything is in its place and nothing is wrong." The inspectorate, however, explain that wherever they have reason to suspect that conditions will be altered before they gain access to the workrooms, they frequently walk "straight in" without calling at the office.

a record of every accident causing loss of time from work of more than 3 days (now uniform with the disability waiting period under the workmen's compensation law). The inspector may ask, but he does not check back to ascertain, whether all of these notifiable accidents are properly reported. Having no broad responsibility for accident compensation, the representative of the department merely looks to see whether the appropriate government notice under that law is posted. He does not inquire whether the employer has insured his risk. (Insurance of the compensation risk is not compulsory in England, and the administration is through the county courts.)

In the office record at the factory there is also supposed to be the names of all "young persons" there employed of the ages 14 to 16, with the required entry by the certifying surgeon of that community indicating that he has physically examined these young persons and approved their employment in this establishment. It is a negative rather than a positive health certificate. Failure to have this record complete for these children<sup>o</sup> after they have been employed more than 7 days results in a sharp reprimand by the inspector, and in flagrant cases may develop into a prosecution.

Before leaving the establishment the inspector impresses upon the employer that he should attend to all contraventions of the law "straight-off" without waiting for the written memorandum which will presently come to him from the factory inspection department over the district inspector's own signature.

The routine printed card system serving as a check guide for the inspection of establishments and the immediate detailed recording of information, so long used in New York, is unknown in Great Britain. As in Wisconsin, a few hastily scribbled words in a notebook or upon a scrap of paper, and limited to the recording of contraventions of the law, is usually the maximum of such immediate record keeping by the British factory inspector while within the establishment. The better-qualified inspectors prefer the latter system as it frees them from much burdensome detail and permits concentration upon the more important purposes of inspection.

As a rule Saturdays are devoted by the local inspectors to the writing of reports. This work includes the clearing up of all current notifications to employers as a result of the week's inspections, the writing of the summary weekly report of the week's activity to the superintending inspector of his division, and the weekly expense account covering traveling expenses. The inspectors chafe

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<sup>o</sup> Perhaps the word "children" should not be used in this connection, as Great Britain has abolished child labor by definition. Since 1920 the age limit for employment has been fixed at 14, and those from 14 to 18 are known under the British factory law as "young persons." Only for those under 16 years is a certificate required.

somewhat under the necessity of making out some of the detailed reports, but they recognize the necessity. The report forms have been simplified somewhat as the result of a recent special committee inquiry within the department, but some duplication of writing could probably still be avoided as has been found possible without loss in Wisconsin.

Painstakingly, by hand, the British district inspector slowly writes out his reports, and dictation to a stenographer is exceptional although, of course, not unknown.<sup>10</sup>

Increasingly with changes in industry—although still primarily checking violations and insisting upon compliance with the law—the local inspectors are devoting much time to the study of industrial hazards, and from their experience and knowledge of industrial hygiene and safety are educating both workers and employers to bring about improved conditions. In this connection, also, the specialized inspectors, medical, electrical, and engineering, are rendering outstanding service within the factory inspection system.

## 9. COMPLIANCE AND PROSECUTIONS

As a rule, the employer who is found violating the factory law is warned, and only in case of flagrant or continued contravention is he prosecuted. In cases of especially serious infraction of the law the inspector plans to make a follow-up inspection after some days or weeks; and if the employer is not amenable to suggestion, a prosecution may be brought.

The prosecution is initiated by the inspector himself after reporting to his division chief, and in nearly all cases the prosecution is actually conducted by the local inspector. He files his complaint with a local court of summary jurisdiction. When the case is called the inspector lays before the magistrate or justice the evidence he has himself gathered (expertly supplemented by the testimony of one of the specialized engineering or other inspectors if he desires it), and he as local inspector conducts the prosecution. In doing this, he may step out of the prosecutor's box and temporarily enter the witness box to give his own testimony, and then return to continue as prosecutor. It is an interesting spectacle, but anyone who has observed the inspector-prosecutor in this dual capacity will respect his ability to make the case clear to the magistrate. The attorney for the employer appears at a comparative disadvantage when faced with this expert display of knowledge of both the law and the evidence.

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<sup>10</sup> One seasoned civil employee in a related department remarked to me: "We are using some typewriters, and we are beginning to use telephones, but we do not like them!"



The decision of this court is final on questions of fact. If a question of legal interpretation arises in an adverse decision, the inspector may ask the court to so specify in appropriate form, and in such case, with the approval of the Home Office in London, an appeal may be taken to the high court where the department will be represented by counsel. (This legal assistance is obtained through the treasury solicitor.)

If found guilty of not keeping his factory in conformity with the law, the employer is liable to a maximum penalty of £10; and if again convicted for the same offense within 2 years, he is liable to a minimum penalty of £1 for each offense. The court may order the employer to adopt certain means of early compliance with the law; and if he fails to comply by the date specified, the court may then impose a fine of £1 for every day of noncompliance.

In case of death, bodily injury, or injury to health occurring to an employee in consequence of the employer's neglect to observe any provision of the law (including nonconformity with administrative regulations), the employer, deprived of "contributory negligence" defense, is liable to a maximum penalty of £100. At the discretion of the Home Secretary, the whole or part of this fine may go to the injured worker or his dependents. (This feature is still of considerable value where for any reason the injured person in Great Britain is unable to collect full compensation under the workmen's compensation law.) Other infractions have their own penalties, including even the fining of a parent up to 20 shillings for permitting a son or daughter who is a child or young person to be employed contrary to the law; and all fines, except in the case of occupational injuries cited above, are paid into the treasury.

Various devices incorporated in the law are designed to aid the inspector in presenting evidence. A person found in a factory or workshop, except at mealtimes or while all the machinery is stopped, shall be considered to be employed there until the contrary is proved. Moreover, if in the court's opinion a child or young person is apparently of the age alleged by the inspector, the burden of proof to the contrary falls upon the defendant employer. And, finally, the general register, in which the employer is required to reflect in writing his accident experience, and whether he has neglected to lime-wash the walls or failed to obtain the required certificates of fitness for young persons, shall be prima facie evidence against him. The inspector-prosecutor knows how to make effective use of these features.

Reluctance to prosecute an employer is reflected in the statistics for the year 1935, which shows that in all England, Scotland, and Wales during the 12 months the total number of firms or persons

prosecuted under the factory laws was but 697. Of these, 72 were for failure to report accidents and to keep registers, abstracts, and other forms; 29 were for sanitation violations; under the head of safety violations there were 251; for violations under employment (largely hours of labor), 252; for violation of administrative regulations, 124; of welfare orders, 43; of "particulars", 4; for obstruction, etc., 4; and for violation of the truck acts, 6.

The record of convictions is high, almost a perfect score, and this is significant. No prosecution is initiated by an inspector until it has been submitted to a superior official; and when once initiated the technical resources of the whole department are available to carry the action through successfully.

The attitude of the courts toward these cases has sometimes been disappointing where justices of the peace in the more rural sections of the country are involved. In more of these country cases it has been necessary to get an appeal, upon which reversals of adverse decisions have usually resulted. In the large cities, in London for example, the courts have generally been cooperative and, in fact, have sometimes awarded fines quite beyond the disposition of the inspectors in some cases to see heavy penalties inflicted.

A prosecution witnessed in an industrial district in London may be taken as fairly typical. The factory case involved a manufacturer of wood boxes who had failed to post two required notices and to guard properly a circular saw. Two and a half years earlier the inspector upon discovering these contraventions had sent the employer a written notice. Now, upon a revisit, within 2 months of the trial, the inspector discovered continued noncompliance, but since the employer was reported ill prosecution was not immediately instituted. Within a week, however, the inspector sent a second notice, following the reinspection. A fortnight later he revisited the factory and finding nothing had been done he recommended prosecution. The inspector, 3 weeks later, went before the court and laid an "information", and the court set the date, with 10 days' notice, for the hearing.

The inspector, a fine-appearing man of nearly 30 years' experience in the work, was promptly in the prosecutor's box with his papers spread carefully before him. When this case was called he immediately arose and explained briefly to the magistrate just what it was about. He passed up to the magistrate a rough pencil sketch of the saw that was not properly guarded and an illustrated bulletin showing circular saws properly guarded, having first in explanation held up the large printed broadside copy of the law which should have been displayed at the work place together with the large regulation poster required in such establishments.

The magistrate studied the material, while the prosecuting inspector read aloud a section of the legal regulation regarding circular saws and explained that the guard in this case was 4 inches distant and straight whereas it should have been only one-half inch distant and circular in form. The magistrate asked if the employer bought the guard with the machine, and the inspector replied "No" and explained that it was probably made by a mechanic and attached long ago.

The defendant employer was then invited by the magistrate to say anything he pleased. When he merely replied that his machine was guarded and that he would like to have the inspector tell him where to get a satisfactory guard, the magistrate interrupted, severely telling him the Home Office obviously could not recommend a particular place to get guards, and that it was apparent that he had been conducting a dangerous work in violation of the law. The magistrate thereupon promptly fined the employer 30 shillings for each of two violations in failing to post notices, and £3 for failure to have a proper guard on the circular saw. (Under the law he might have fined him as much as £10.) This case, which was called at 3:20 p. m. was closed at 3:29, having occupied but 9 minutes.<sup>11</sup>

When questioned the inspector stated that he enjoyed the work of prosecutions, but some inspectors disliked it on account of the additional nervous strain. It was sometimes embarrassing, he admitted cheerfully, to be both prosecutor and witness, leaving all papers behind in the one box while going up as a witness and then coming back again to prosecute. In contested cases he usually preferred to send a junior inspector to observe the condition and prepare himself to testify as a witness. He found that in most cases the employer after a prosecution was friendly toward the inspector, although there were exceptions.

When inquiry was made why there was such a long period of nearly 2½ years without reinspection of a dangerous saw not properly guarded, as in this case, he replied: "We are not allowed enough inspectors." He declared he was overworked, and that while as district inspector, he was allowed 1½ days for his office work he found it necessary to do some of it at home nights. Some weeks he says, he inspects, sends out perhaps 100 notices to employers, makes an average of almost 1 prosecution a week, a weekly report to the division superintendent, "and", he asked with feeling "how can I get time to work with my office staff and junior inspectors?" He

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<sup>11</sup> Of course, contested cases often require much more time. An inspector at Liverpool told of a prosecution where the employer hired expensive counsel, with instructions to go the limit to beat the case, and as a result the inspector was kept in court 5 hours.

added that he didn't feel inclined to go to the theater any more as he gets thoroughly tired with the day's work.

In 28 years this inspector, who upon graduation from college served as an engineering apprentice solely with a view to becoming a factory inspector, has been shifted around to half-a-dozen different geographical divisions. This is hard, with a family, he confessed, but it does make an inspector a check on the local authorities who are settled in one community and who, as history shows, especially in the smaller places, may develop local sympathy contacts with the usual results.

It is apparent that the district inspectors, so far as they are encouraged to do so and so far as is reasonably and physically possible, are in general doing very efficient work as both factory inspectors and in their dual capacity of prosecutors to insure compliance.

## 10. INSPECTION POSSIBILITIES

It is recognized that the more difficult problems in safety inspection in all countries are among the great number of smaller employers who are less inclined to make accident prevention a prominent feature in factory management. In Great Britain, according to the factory inspection report for 1935, more than one-third of all factory employees are in establishments employing not more than 100 persons; and more than one-half of the total are in factories employing not more than 250. Of the total of 4,703,000 employed in factories, 660,000, or 14 percent, are in factories employing fewer than 25 persons.

The problems of inspection are of course also affected by business conditions. During the past few years in Great Britain there has been a striking increase in industrial activity. This has been accompanied by a disquieting increase in the number of accidents reported, amounting for the 2 years 1933 to 1935 to a total increase of 32 percent and an increase of 22 percent in fatalities. However, it is not believed by the inspectorate that this total increase of accidents to 149,696, including 843 fatalities in the year 1935, represents any increase in the accident rate based on man-hours worked. They also point to the increased accident proneness of those engaged in employments new to them or for which they have become out of practice during their unemployment.

The tendency of employers to require a longer working week is also noticeable when business is good. In his annual report for 1935 the chief inspector of factories notes "cases of gross overwork of young persons almost incredible in these days." He adds with reference to the excessive employment of women and young persons

that "the extent to which a period of employment approaching or even reaching the full legal limit of 60 hours per week has been adopted in certain districts is rather remarkable." Although in most cases a week of about 48 hours continues to be regarded as normal, the official report discloses the longer working week in a great variety of industries. In the polishing, plating, and light metal trades a 55-hour week is usual. The 60-hour week is worked in the bakelite moulding industry. In the rush to produce inexpensive electrical fittings and fancy goods women and girls are working a 12-hour day on polishing and finishing. "One firm with 200 workers", adds the official report, "has been employing protected persons, including girls of 14 or 15, for the last 3 years from 8 a. m. to 8 p. m. and on Saturdays from 8 a. m. to 1 p. m. or 4 p. m. according to pressure." Cases are cited of women and girls over 16 employed for months at a time on power presses making domestic hardware for 60 hours weekly. A firm of cotton spinners employed women and young persons in their winding department for periods up to 71 hours a week, although the special legal limit in textiles is 55½ hours. Unfortunately, says the official report, these long hours are "generally worked by the least physically fit portion of the industrial population. The best workers tend to go to the best employers and the weakest to drift to the factories with the longest hours and the least good condition. There is a great demand for labor—some of the night shifts consist entirely of youths from 18 to 20 years of age." It is fairly pointed out that several of the very serious cases of illegal employment of young persons and of women include "several breaches of the International Labor Conventions relating to night work." The additional load upon factory inspectors, which comes with industrial revival, needs to be frankly recognized with appropriate means for meeting increasing responsibilities.

Satisfactory measurements of the work which a factory inspector may reasonably be expected to accomplish in a day are not available. It is extremely difficult to indicate even roughly on a comparative basis the extent of the factory inspection job in different jurisdictions. One can present only a general impression of the practicability of thorough inspection with the available personnel.

The extent of the factory inspection problem in Great Britain and in New York may be roughly measured in a few quantitative terms. The area of England, Scotland, and Wales is 88,748 square miles, as compared with New York State's 49,204 square miles. This comparison, however, is of less significance than density of population. The total population of Great Britain in 1935 was roughly 45,000,000, somewhat more than 3 times that of New York. The

total number of premises of all kinds subject to inspection in 1935 in Great Britain was 280,774, of which 164,277 were factories and 79,239 were workshops where no mechanical power was used. (The additional premises include 3,077 docks, 4,968 warehouses, and 29,213 firms registered under the Lead Paint Act.) During the same year in New York the inspection report indicates 63,134 factories and workshops inspected. Allowing for obvious differences in density of population and in the extent and character of industrialization, these figures may be of some significance when considered in connection with the records of the respective jurisdictions as published in their annual reports.

As in other law enforcement, there is a limit to the number of factory inspectors which can be maintained with due regard to economy, as well as a limit to the extent of public surveillance which influential citizens will complacently endure. These two factors profoundly affect the size of the budget for law administration.

#### (1) APPROPRIATIONS AND RESULTS

In Great Britain the annual budget providing in 1935 for a factory inspectorate of 254 persons, exclusive of central office clerks, was £184,309 (approximately \$903,000). In New York during the same year the similar budget was \$412,030 for salaries of 111 factory inspectors and of 25 specialists in related divisions devoted to safety and health in factories.

A comparison of the British factory-inspection personnel with that of New York State in 1936 is instructive. At the head of the British organization is a chief factory inspector with three deputies. The New York service is headed by a "director of industrial inspection" under whom there is a chief factory inspector in the Metropolitan District and a chief inspector of factories and mercantile establishments for the remainder of the State. In Great Britain there are 11 superintending inspectors and 16 divisional inspectors; in New York there are correspondingly 9 supervisors and 9 assistant supervisors. The British district inspectors number 200, while in New York there are 90 factory inspectors. The British inspectorate includes 32 technical inspectors, including 8 medical inspectors, 10 electrical inspectors, 10 engineering inspectors, and 5 inspectors of "textile particulars." The New York inspection division includes no such specialists, but a somewhat similar function is performed by three separate divisions also within the State labor department—the divisions of industrial hygiene, of industrial code, and of engineering. The industrial hygiene division includes an executive director for the division and a director of industrial safety and hygiene; five industrial hygiene physicians; four industrial hygiene mechanical engi-

neers; one industrial hygiene chemical engineer; and six industrial safety engineers. The industrial code division includes three code referees; and the engineering division has a staff of four industrial engineers. The total comparable personnel for the year 1936 is thus 264 in Great Britain and 136 in New York. The New York figures do not include the staffs of other bureaus in the division of industrial inspection; namely, the mercantile inspection bureau with 50 inspectors; the boiler inspection bureau with 14 inspectors; the mines, tunnels, and quarries bureau with 4 inspectors; and the public assembly and building construction bureau with 26 inspectors.

In 1935 the factory inspectors in Great Britain made 228,537 visits to factories, 50,696 visits to workshops, and 19,084 visits to other places under the factory laws. Of this total of 298,317 visits, 10,899 were made before or after legal hours. Of 3,837 complaints received, 1,892 were verified. A total of 222,264 contravention notices were made to occupiers. A total of 2,295 prosecutions (charges) were instituted against 697 different firms or persons, and convictions resulted in 1,998 of the prosecutions, with 159 withdrawn and 138 dismissed. The gross amount of fines imposed was £5,342 or about \$26,175.

In New York in 1935, deducting the 44,825 building surveys, the total number of inspection visits was 181,013. Of 671 complaints received 342 were sustained. A total of 171,638 orders for compliance were issued to employers. A total of 1,462 prosecutions were begun during the year, and convictions in 502 cases resulted in the collection of \$8,227 in fines, after dismissal or acquittal in 109 cases. The striking feature in New York was 874 additional convictions where the court suspended the sentence! There was a total of 1,376 convictions, but the court suspended the sentence in nearly two-thirds of them—a bad record for the court.<sup>12</sup>

A general picture of the work done by the British factory inspection department in the year 1935, compared with 1925 and 1930, is given on the following page as taken from the summary table in the latest annual report of the chief inspector of factories.

The traditional "one visit yearly to each establishment" probably never has been accomplished. And such unimaginative routine is increasingly recognized as neither good economy nor good practice in view of limited funds for factory inspection. It is fairly clear, moreover, that thorough inspection of more than a thousand scattered establishments of average factory size is impracticable for even the most zealous public servant. It must be remembered that much time

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<sup>12</sup> See discussion of suspended sentences in New York in article, *Using Political Machinery for Social Ends*, by Dorothy Kenyon, *American Labor Legislation Review*, vol. XXVI, no. 3, September 1936, pp. 134-143.

is required for conferences, prosecutions, inquests, and the writing of reports. Some years ago in connection with a celluloid factory fire, it developed that the establishment had not been inspected for a very long time, and heated debate flared up in Parliament in condemnation of the inspection system—until it was pointed out that the responsible inspector provided for the work by government appropriation had more than 2,000 establishments in his local district.

*Administration of the Factory Acts from 1925 to 1935*

Subject	1925	1930	1935
Authorized staff (inspectors).....	205	229	254
Expenditure <sup>1</sup> (excluding central office clerks and pensions).....	£154, 186	£166, 313	£184, 309
Factories, workshops, etc.:			
1. Factories.....	144, 361	154, 102	164, 277
2. Workshops (including men's).....	128, 793	103, 371	79, 239
3. Docks, etc.....	3, 313	3, 227	3, 077
4. Warehouses.....	4, 310	5, 037	4, 963
5. Firms registered under Lead Paint Act, 1926.....		29, 133	29, 213
6. Humid textile factories.....	381	431	444
7. Works under regulations <sup>2</sup> .....	156, 725	228, 125	254, 770
8. Textile works under particulars section:			
(i) Factories.....	6, 996	6, 293	5, 808
(ii) Workshops.....	1, 819	1, 082	950
Visits to—			
1. Factories.....	186, 970	193, 550	228, 537
2. Workshops.....	107, 999	73, 737	50, 696
3. Other places under acts.....	18, 328	17, 577	19, 084
Number of above visits before or after legal hours.....	11, 691	10, 318	10, 899
Other official visits and attendances.....	24, 742	25, 273	33, 512
Complaints:			
1. Received.....	2, 430	3, 056	3, 837
2. Verified.....	1, 455	1, 801	1, 892
Contravention notices to occupiers.....	210, 673	215, 830	222, 264
Notices to district councils:			
1. Representations.....	7, 086	5, 777	4, 424
2. Occupation of workshops.....	8, 140	6, 292	4, 174
Prosecutions (charges).....	1, 291	2, 051	2, 295
Including prosecutions under regulations.....	140	271	257
Cases of poisoning.....	632	625	438
Reported accidents:			
1. Fatal.....	944	899	843
2. Nonfatal <sup>3</sup> .....	158, 749	143, 859	148, 853
Dangerous occurrences.....	1, 604	2, 452	5, 681
Certifying (or appointed) surgeons.....	1, 772	1, 605	1, 701
Medical examinations:			
1. For employment young persons (14-16).....	350, 802	299, 161	397, 035
2. For employment of boys over 16 at night.....	1, 129	1, 230	1, 243
3. Under regulations, etc.....	278, 155	287, 230	301, 880
Inspections reported by medical officers of health.....	394, 767	375, 119	<sup>4</sup> 354, 117

<sup>1</sup> Relates to financial year commencing Apr. 1.

<sup>2</sup> Works where 2 or more codes of regulations are in force are reckoned as 2 or more works.

<sup>3</sup> On basis of 3 days of incapacitation.

<sup>4</sup> Relates to year 1934.

Speaking in the House of Commons as recently as July 30, 1936, Rhys Davies paid tribute to the "very excellent work" done by the factory inspectorate, but he added: "I have received from most authoritative quarters complaints that with the best will in the world the number of factory inspectors we have at present is not sufficient to cope with the number of complaints received." Other members of Parliament who joined in the debate praised the present inspectorate but urged a substantial increase, even a doubling of the number.



Inspectors themselves freely admit the impossibility of visiting each establishment as often as once a year, and not uncommon advice to a junior inspector in Great Britain is: "Visit places that were not inspected last year." Handicapped by limited appropriations and realizing the utter impracticability of frequent inspection of all establishments, the administrators have increasingly encouraged more concentration upon the establishments believed to be in special need of attention.

In 1929 a departmental committee on factory inspectorate, among whose six members were the parliamentary under-secretary of the Home Office (chairman), the former chief factory inspector and the woman deputy chief inspector, made a report based on testimony received from more than 30 witnesses, including representatives of employers' and workers' organizations as well as members of the inspectorate. This authoritative report as published in 1930 contains the following significant discussion of inspection frequency:

It was suggested by one or two witnesses that visits of inspection ought to be made at considerably shorter intervals than at present, and we had evidence that coroners' juries are sometimes inclined to think the inspector is to blame, if a factory, in which an accident occurs, has not been visited within the preceding few months, and indeed to hold him responsible for any defect which led to the accident. We think it necessary to point out that Parliament has placed upon the occupier the responsibility of observing the law and that the suggestion that the inspector should be regarded as responsible involves a theory of Government responsibility, which is alien to the traditions of this country \* \* \*.

The existing instruction is that every factory and workshop should, as far as possible, be visited at least once a year, in addition to visits for special purposes only, such as the investigation of complaints or accidents or cases of poisoning, and check visits to verify that irregularities found at a previous visit have been remedied. At the end of each year the district inspectors are instructed to report to their superintending inspectors the number of works in their districts, which have not been visited in the preceding 12 months, and to arrange that such works are visited as early as possible in the ensuing year. They are warned, however, that the routine inspection of small outlying works should not be allowed to interfere with the thoroughness or frequency of the inspection of more important works.

Inspectors are also instructed to make exhaustive and detailed inspection of selected works from time to time in respect of all matters coming within the purview of the department and to record such visits distinctively in their registers. The visits are in fact marked in the registers with a square around the date and are known among the inspectors as "square" visits.

As regards places under regulations, the instruction is that, when new codes come into force, close and repeated inspection must be made of all works to which the codes apply, until compliance is secured. Thereafter a standard of one visit a quarter should be aimed at.

The report pointed out that the British factory inspectors had never achieved the standard of at least one inspection a year for each establishment. Of the total number of factories subject to inspec-

tion, between 20 and 25 percent had not been visited by the end of the year in 1926, 1927, and 1928. The proportion of workshops not visited was about 40 percent during these years. The report continued:

In our view too much importance can be attached to the annual visit. The standard of inspection achieved cannot be judged merely from the number of places unvisited in any year. The inspectors who have given evidence before us have agreed almost unanimously that there are many small and unimportant works to which a visit every year as a matter of routine is not really necessary. \* \* \* It cannot be regarded as a serious matter that a proportion of these smaller places should not (in the absence of complaint or other special cause) have been visited in any given year, and in our opinion the district inspector should be able to concentrate his efforts in those directions where he knows they are most needed without being fettered by a standard which makes no distinction between factories where thousands are employed and places of the kind we have mentioned.

We consider that thoroughness of inspection is far more important than frequency of routine visits. We find that there has been a tendency for small works to be thoroughly inspected at almost every visit, but this has been far from the case as regards larger works. The reason for this with the present shortage of staff is easily understood. An inspector visiting a small works—whether as a matter of routine or on complaint or to investigate an accident—will naturally take the opportunity of making a thorough inspection while he is there; the time occupied would be only slightly increased. The thorough inspection of a large works on the other hand may take half a day or perhaps several days, and, if the inspector on visiting the works in the ordinary way finds that the general standard of observance of the law is high, he will naturally be disposed to go on to other places where the standard may be lower. In the absence, however, of a thorough inspection of the whole works the same defect may escape detection year after year until perhaps an accident occurs. \* \* \*

Thorough inspections on the lines indicated above will take up considerable time, but we think they will yield the best value in proportion to the time expended. Our recommendation on this point will involve increased inspection of the larger works and this we think is right, not because the standard of observance of the law is lower in large works than in small ones but because there is so much more machinery and so many more provisions of the Acts and Regulations apply in the larger works. Once a thorough inspection has been made in any works or department it should not be necessary—unless numerous irregularities have been found—to inspect again with the same thoroughness for the next few years.

We agree with the existing instruction, that, whenever a new code of regulations comes into force, close and repeated inspections should be made until the new standard is complied with, but once compliance has been secured we do not think that specially frequent inspections are needed in the case of every code of regulations in order to secure that observance is maintained. Quarterly visits to every place under regulation have been entirely beyond the compass of the Inspectorate for many years. \* \* \*

We feel strongly that the best results will be obtained if the district inspectors are given considerable discretion to employ their time in visiting those places which their experience tells them most need to be visited. We have already pointed out that an annual visit is not necessary in all cases. In the

case of small outlying works, which cannot be inspected without a disproportionate time being spent in travelling and which have been found to be well conducted, an inspector might well feel that a visit once in 3 years would be sufficient.

## (2) SELF-INSPECTION

In addition to the increased exercise of personal judgment in determining which establishments most need inspection, attention has naturally been directed toward the possibility of inducing employers to provide a measure of daily "self-inspection" within their own plants. This applies especially to stimulated voluntary provision "for safety-first" measures, but in some instances it has extended into the domain of legal regulation. In the mining industry for many years the practice has prevailed of supplementing official supervision with provision for internal inspection through certified managers and assistants. A variation of this self-inspection has been attempted in British inspection in the pottery industry.

The numerous dangers to health and safety in the manufacture or decoration of pottery resulted in a code of rules in 1913 of unexampled elaboration. Section 27 of this special order makes it the duty of the employer to see that "a person or persons shall be appointed who shall see to the observance throughout the factory of the regulations, and whose duty it shall be to carry out systematic inspection of the working of all the regulations in the departments for which they are individually responsible." The names of these internal inspectors must be recorded in the factory register, and each person so appointed must be a competent person fully conversant with the meaning and application of the regulations. Each establishment inspector must keep a book in the factory, and record in it each 24 hours any breach of the regulations, or any failure of the safety equipment, together with a statement of the steps taken to remedy such defects. Each entry in the book must be dated and initialed by the person appointed, who at the end of each week must make a further entry stating that the inspection required has been carried out and that all the defects observed or brought to his notice have been appropriately recorded. Accurate legible extracts must be made of these entries once a week and, as signed by the occupier or his agent, must be displayed during the following week in a conspicuous place not only in the departments to which they refer but also in the mess rooms.

By 1919 the chief inspector of factories could report a limited success of self-inspection in the pottery industry, and into the Workmen's Compensation Act of 1923 was drafted a special section (28 (3)) providing for special orders by the Secretary of State requiring employers in hazardous industries to make "arrangements for special supervision in regard to safety, investigation of the cir-

cumstances and causes of accidents, and otherwise as may be specified." These powers, as pointed out in the following section, were expressly enacted by Parliament for the purpose of promoting the establishment of special safety organizations in factories. The appropriate draft order drawn up in 1927, but still held in abeyance pending the trial of voluntary action, proposed that the occupier of the factory should employ a "competent safety supervisor, responsible directly to the occupier", and whose sole duty should be to maintain constant supervision of the plant in regard to safety, instruct the newly engaged workers, investigate every accident, inculcate "safety-first" principles, see that safety devices and first-aid and ambulance equipment are maintained in proper order, make and sign a careful record of investigation of every accident and make this record available to the government factory inspector. As explained later, this order has never been put into mandatory effect, but for 10 years has been held like the sword of Damocles while many employers have "voluntarily" instituted the plan of self-inspection.

## 11. COOPERATION WITH OTHER AGENCIES

Cooperation with other agencies has been a long-continued practice in the British factory-inspection work. By the very nature of the somewhat involved and extensive social legislation which has grown up piecemeal over a long period, with resulting administration through numerous government bodies, both local and central, it has been necessary to keep in fairly close touch with officials of other government departments in order to avoid troublesome overlapping. This has been accomplished with considerable success by the factory inspectorate.

The annual reports have a special section on cooperation, which reflects the outstanding development of interest during the year. The meetings listed are for the most part with associations of employers, although representatives of the unions are often included. The work of the department in preparing for and attending the meetings of the official International Labor Organization at Geneva also receives appropriate mention.

Through friendly collaboration with representative employers and employees the work of industrial safety and health promotion has clearly been advanced. Great care has been exercised in conferring with the interests affected before new legislation is introduced or new regulations made. By this method the inspectors are able to reduce subsequent objections while securing help from the industries in making the legal requirements practically valuable.

There is a suggestion that with the understandable desire to be on the most friendly terms with employers the inspectorate may have delayed too much the adoption for some industries of legally binding administrative regulations. Under the Workmen's Compensation Act of 1923, in which the Home Office was specifically authorized to proceed with orders for the development of safety organizations in the hazardous industries, there is also continued delay. This is a special field where the desire of employers to work out voluntary arrangements may well be encouraged. But despite some specific safety standards in the factory act of 1901 it cannot be overlooked that even today in Great Britain, after more than 40 years of general authorization, there are comparatively few legally binding administrative codes on industrial safety. These safety codes, it is true, have comparatively wide application, but most of the 43 legally binding administrative regulations deal with matters of health. Large employers have protested that they prefer to deal with accident-prevention problems without specific legal requirements, and the government officials have acquiesced. As a result, in many of the strongly organized industries there are, instead of legal codes, a series of gentlemen's agreements under which there is no corresponding increase in legal liability of the employer in case of accidents. There is also no increase in the spread of government authority, which some employers appear to fear might become a troublesome matter under some future government.

A survey of the voluntary cooperative effort in promoting safety through the factory-inspection system is instructive. Former Chief Inspector Bellhouse, who entered the inspection service in 1891, became district inspector in 1895, a superintending inspector in 1908, a deputy chief inspector in 1917, and chief inspector from 1922 to 1932, was especially interested in safety work. It was in 1923, one year after he became the head of the inspectorate, that the workmen's compensation amendment provided for a special order requiring the establishment throughout all dangerous trades of safety organization. As already indicated, large employers objected to the issuance of such regulation, and inasmuch as it was believed that safety organizations are likely to be most effective when they are established with sufficient interest on a voluntary basis, the industries were encouraged to proceed.

Three years later, in his annual report for 1926, the chief inspector showed that progress in the safety movement had been "disappointingly slow", despite striking successes in individual cases. In view of the fact that so little had been accomplished on voluntary lines it was felt that the time had arrived to issue the formal order in

an effort to reduce the number of accidents. Accordingly a draft regulation was issued but limited to the iron and steel trade, to iron foundries in which more than 50 persons were employed, to the heavier side of the engineering industry and to shipbuilding. But it was accompanied by a covering letter suggesting that perhaps some of the employers might prefer voluntarily to take some such steps, and with the promise that in such cases the order would not be made mandatory.

Immediately great opposition to the order developed. Employers read into it much that was never intended, and were especially excited over the feature requiring a safety supervisor who they declared would dictate to the management, although he was to be appointed and paid by the management themselves and responsible to them alone. As a result of this opposition discussions took place between the employers concerned and the Home Secretary who then wrote another letter indicating that the government would hold up the order in respect to any industrial organization that would give assurance that it would take up the matter energetically with its members. During the next year five such trade organizations made promises of this kind, but in the annual report for 1927 it was stated: "There has been no time as yet to obtain any full information as to the results of these assurances."

However, the inspectors had continued their educational efforts, and applications for copies of the order were received from 33 individual firms, and from inquiries made at 29 of these it was found that 18 had developed some kind of safety organization, "using the term in its widest sense as covering any system under which accidents are especially investigated by an individual or a committee." Regret was expressed that there appeared to be a tendency to ignore the importance of enlisting the interest of the workers through representation on safety committees.

The inspectorate was nevertheless encouraged by distinct progress, and in this same year 1927 the Home Office organized jointly with the National Safety First Association the first British "Safety Congress." The Duke of York came to open the proceedings. Papers on the value of safety work were presented by an employer and by an employee, and these were followed by discussion. "A few years ago a conference of this kind would hardly have been possible", states the annual report of the chief inspector of factories, "but this conference was attended by some 450 delegates, sent by firms and associations from all parts of the country, and from the remarks that were made afterwards it was quite evident that the discussion had served to bring home what is not yet realized by industry as a whole, how

much can be accomplished by organized safety work." That was in 1927.<sup>13</sup> Since then the government has not joined in the organization of the more recent safety congresses, although represented in the discussions by various factory inspectors.

Meanwhile, through indefatigable efforts of the factory inspectorate, and through the general advance in understanding among industrialists of the importance of safety work, more and more committees have been formed in British industries to promote safety. Many of these have been successful, but in some other cases their work, in the published opinion of the inspectorate, has been "perfunctory or worse." There is a continuing tendency to minimize the participation of the workers in accident prevention, and to depend upon a safety officer whose duties are not always confined to safety work alone.

The draft order for safety organization which was provided for by legislation in 1923, and issued but suspended in 1927, was in 1936 still held in abeyance. It is an extraordinary example of an obviously conscious effort to capitalize the urge of pending legislation. And it illustrates the amazing patience of the British factory inspectors in dealing with industrial managers.

Recently special consideration has been given to the excess of accidents among young persons under 18 as compared with adults. The chief inspector of factories in his report for 1934 drew attention to this serious situation, and the Home Secretary invited the cooperation of the National Confederation of Employers' Organizations in working out a satisfactory solution of the problem. On October 7, 1936, a printed memorandum was circulated among employers' organizations generally by the confederation, embodying the various "Suggested safety measures for juveniles" thus cooperatively developed, and assuring the Home Office of continued support and cooperation.

In reference to safety organizations in any country, as stated in the beginning, the method of patient and persistent encouragement to voluntary action by employers has very much to commend it. But even when limited to the best organized industries which may perhaps be better trusted to observe them, it is not so clear that the practice of substituting gentlemen's agreements for legally binding safety codes is in the interest of the wage earners.

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<sup>13</sup> In the United States the safety-first movement was well under way as early as 1912 with the organization of the National Safety Council, which holds an annual congress of several days' duration, with an extensive program and safety exhibit for the several thousand delegates. Important industrial States through their labor departments likewise hold annual safety conferences. The governmental labor officials also meet annually for extended reports and discussion on their safety and other public administrative responsibilities.

## 12. INDUSTRIAL MUSEUM

It was not until December 1927 that Great Britain finally opened an industrial museum, although its establishment had been decided upon and a building erected prior to the World War. Characteristically, this important step in industrial safety education was preceded by a committee study, which included a survey of a number of the long-established safety museums on the Continent, particularly those remarkable institutions which for a generation have been a prominent factor in this field in various German cities. As a result of this survey there was erected in London, under the authority of the Home Office, a specially constructed modern building at a cost of approximately \$100,000. In 1935 a considerable addition to the structure was completed.

The industrial museum, which is an exhibition of methods, arrangements, and appliances for promoting safety, health, and welfare of industrial workers, is operated in very close relation to the work of factory inspection. In rotation, various factory inspectors have spent 1 month each at the institution explaining the various exhibits to visitors. The effective display of safety devices on the machines, which are all in motion, and the special exhibits of factory lighting and industrial hygiene are kept up to date. This highly commendable vital feature of a safety exhibit is made possible by careful Home Office selection of machines and devices, which are merely loaned by the manufacturers and can thus be changed as rapidly as improvements are made in safety methods. Within 2 months of the opening one exhibitor exchanged a machine valued at approximately \$4,000, which was up to date on the day of opening for another similar one with later improvements. Organizations such as the heating and ventilating engineers have cooperated in order to make the museum constantly represent the best practice in industry.

Reference is made elsewhere to the use of the museum in the 2 weeks' training course for new inspectors. It is constantly available for individual study by the inspectors, and safety leaflets issued from time to time also go to industrialists. A substantial descriptive booklet is also sold through the government stationery office at 4 shillings. No admission fee is charged, and the museum is open week days from 10 until 4 o'clock. Parties of visitors from various industrial associations and districts are encouraged to visit the institution and are conducted through the series of exhibits by an experienced inspector. In 1934 a total of about 9,500 visitors registered, and in 1935 the total was 14,200.

An encouraging development has been the visits of industrial managers when erecting new factory buildings. As a result of visits



to the museum, hoists with automatic interlocking gates have been installed; stairs have been constructed with nonskid surfaces; lighting has been so arranged as to avoid glare and double shadows; and one industrialist afterward declared: "10 minutes with the actual exhibits gave me more information than 10 hours spent in examining illustrations and drawings elsewhere."

### 13. OFFICIAL PUBLICATIONS

An important feature of any adequate inspection system is the published record of its work and its educational material. In this matter Great Britain sets a commendable example in her concise but comprehensive reports.

Of first importance for the information of the public is the 100 to 150 printed page annual report issued in July by the chief inspector of factories. The general introduction by the chief inspector is a concise statement upon the work of the preceding year. This is followed by an introductory summary chapter of comment on distinctive developments in industry which have affected the various duties of the inspectors, brief reports upon changes in staff, new legislation, conferences, and special investigations. Then follows a series of brief chapters on the several subjects—safety, health, hours of work, and so forth, usually written by senior inspectors of the technical branches, or by superintendents of divisions. This text is in turn followed by a series of statistical tables which admirably summarize the work of the year.

An illustrated serial, entitled "Industrial Accidents", is published quarterly and contains detailed account of about 3 dozen typical current accidents with suggestions for avoiding their repetition. It has more than 3,000 annual subscribers at 1 shilling each.

Other safety publications include a series of pamphlets dealing with various problems of safety and health. Of special importance are several relating to transmission machinery, hoists, cotton spinning and weaving machinery, abrasive wheels, woodworking machinery, bakehouse machinery, belt mounting, derrick cranes, and fire protection in factories. These pamphlets are helpful to the inspectors, who thus have brought together for convenient use the latest information on special hazards as well as on the best standard practices for avoiding these dangers. In addition there are occasional technical reports dealing with such matters as use of cellulose sprays and methods of dust suppression in asbestos factories. Booklets are also printed to warn employees of special risks arising in their work; and more than 20,000 copies of one of these, on the treatment and use of chains, have been sold. Short leaflets, stating

briefly how power presses or laundry machinery, for example, can be safeguarded, and the steps by which various dangers can be avoided, are useful to the inspectors who send them to employers instead of having to give detailed oral or written advice in each case. Finally, there is a series of welfare pamphlets dealing with such matters as ventilation, seats, lighting, protective clothing, wash-rooms, lunchrooms, cloakrooms, and first-aid equipment.<sup>14</sup>

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<sup>14</sup> Particularly useful in connection with the factory-inspection publications are occasional reports by the Industrial Health Research Board of the Medical Research Council, which is the successor of the old Industrial Fatigue Research Board.

## VI. General Observations

The difficulties in comparing the merits of factory-inspection systems in different countries are apparent to anyone who has ever attempted a comparative study in this field. There is no completely satisfactory yardstick with which to measure inspection work or results. Moreover, in the absence of anything like desirable uniformity between the countries in the most essential employment and accident statistics, and even in the elementary essentials of adequate reports of factory inspection, quantitative comparisons are exceedingly dangerous.

It is possible, however, through field studies, to gain helpful impressions of the directing spirit of the administrative organizations, the character and efficiency of the personnel, and the methods employed in the daily work. Far less difficult is the comparison of factory laws which provide the legal safeguards and the available equipment for their enforcement.

In a visit to a foreign country it is the things that are different that especially arrest the attention of the observer. Since these differences include attitudes toward law observance and enforcement, which are based on traditions growing out of generations of local experience the observer from elsewhere must consider them with caution and due respect. At the same time one need not refrain from respectful criticism of obvious defects—more diplomatically and delightfully known in Great Britain as “anomalies.”

Recognizing then the difficulties of comparison, and with a view solely to suggesting opportunities for improvement in one's own country, it is possible at the close of a somewhat detailed but all too brief study to make a few general observations.

Perhaps it may be particularly interesting to attempt to indicate in this conclusion of the report some of the points at which the British-factory inspection system appears upon investigation to be superior to the systems in successful operation in a number of the most important American States. The superiority is distinctly not in her factory acts, which are now admittedly out of date.<sup>1</sup> And, somewhat surprisingly, it is not in her supplemental administrative codes, which despite her supposed greater freedom in the delegation

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<sup>1</sup> This in considerable measure is due to failure to extend the act of 1901 to cover neglected fields such, for example, as demolition of buildings, building construction where and while mechanical power is not being used, excavations below the ground level, ship repairing in wet docks, general requirements for factory lighting, and more generally, failure to provide modern limitation upon the maximum working day and week for women and young persons, failure to enact a modern type one-day-of-rest-in-seven law, and failure to provide for the reporting of any factory accidents which do not result in death or in disability lasting more than 3 days. (See, for confirmation of many of these “anomalies”, Report of the Chief Inspector of Factories, for the year 1932, p. 9.)

of legislative power are in some fields either lacking or suspended in the form of gentlemen's agreements.

Is the form of organization of the British inspection system better adapted to her need than is, say, the Wisconsin Industrial Commission to the needs of that State? Study of both jurisdictions compels one to answer "no." Is there higher specialization of function in Great Britain than one finds today in the medical and engineering safety services of the New York State Department of Labor? Again, there is not. Is there anything notably new or challenging in the inspection methods employed in Britain? One does not recall any, although the industrial museum and the annual report of the chief inspector of factories are outstanding educational features meriting the highest praise.

Most striking, perhaps, in this comparison is the failure of Great Britain to adopt various modern devices or "social inventions", which in American States have long served as automatic aids in securing compliance with the law. The familiar provisions in related social legislation in many States in America, such as substantial additional accident compensation at the direct cost of the employer in cases of personal injury received under illegal working conditions, are not applied in England in the way found most effective in America. Part of the reason for this is probably in her more remote administration of workmen's compensation, which is still through the county courts, but that is another story.

Adequate financing of factory-inspection work like that of all other labor-law administration, has become in England as in America an increasing problem with the growing burdens imposed by industrial progress. In this connection it is noteworthy that there is nothing in British experience comparable to the provision in the New York Workmen's Compensation Act whereby the cost of administering that law is reimbursed to the labor department through assessments on the various casualty insurance carriers in proportion to the amount of compensation payments made by each carrier. Also absent in England is such supplemental official inspection of workplaces as that provided in New York through the State compensation insurance fund, which writes nearly one-third of all compensation insurance in that State, and through its own staff does a substantial amount of official safety-inspection work at the expense of the industry. Another somewhat related example of special financial provision in labor legislation found in many laws in the United States but not in Great Britain is the requirement that in fatal cases where the worker leaves no dependents, compensation-insurance carriers must pay a fixed sum into a special State fund from which permanently disabled workers are assisted during the period of retraining under the State vocational rehabilitation law.

Such social inventions as these financial aids to more adequate administration have had little or no development in Great Britain.<sup>2</sup>

The problem of prosecutions to secure compliance in especially difficult cases is always an interesting one. But the number of prosecutions is not a satisfactory measure of the extent of law violations, nor is the record of fines imposed an accurate indication of inspection efficiency. Much can be said for the system of inspector-prosecutors—for Great Britain, where carefully selected cases are apparently carried through to an almost perfect score of convictions. This procedure is not so adaptable to our American customs and laws, and the appearance in the same court trial of the same individual as prosecutor and as witness is not generally recommended here where the weakest point in the case is often the presiding magistrate.

Where then is the highest point of merit in the British system? It most certainly is in the selection, training, and tenure of a personnel made up of men and women of exceptional character and ability.

There can be no doubt that taken as a whole the factory inspectors of Great Britain are of higher caliber than the inspectors as a whole in the United States. This does not mean that there are not a considerable number of trained American inspectors of equally high character and ability, but in the main they are, despite the steady improvement of recent years, still scattering even in the more advanced States. The British inspectorate is much more evenly made up of technically superior men and women. The tradition of high quality has been developed during a much longer period of experience and is sustained and encouraged by a public opinion that is as yet equalled in but few American States.

After years of agitation the merit or competitive civil-service method of selection of factory inspectors is required by law in but 10 American States, representing but about one-half of the total wage earners in the manufacturing establishments of the whole country. Making due allowance for interesting recent adaptations of the principle of merit selection on a voluntary basis under some labor laws in some additional States, the fact remains that too many of our factory inspectors are still appointed without sufficient regard for the special qualifications required for the exacting duties to be performed. With provisions made for full-time and State-wide inspection, full recognition of the necessity of a thoroughly competent personnel in labor-law administration is the most important next step toward fundamental improvement.

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<sup>2</sup> Recent debates in Parliament, however, indicate a growing demand for industrial cripple rehabilitation and for the creation of a national board to administer the workmen's compensation law on a nonprofit basis. See Parliamentary Debates, July 30, 1936, on Home Office Administration.