

DEPARTMENT OF COMMERCE AND LABOR

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**BULLETIN**  
**OF THE**  
**BUREAU OF LABOR**

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**No. 86—JANUARY, 1910**

**ISSUED EVERY OTHER MONTH**



**WASHINGTON**  
**GOVERNMENT PRINTING OFFICE**  
**1910**



# CONTENTS.

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**Canadian Industrial Disputes Investigation Act of 1907, by Victor S. Clark,  
Ph. D.:**

	Page.
Introduction.....	1
Description of the act.....	1-3
Disputes considered.....	3-9
Public opinion toward the act.....	9-16
Suggested amendments.....	17-21
Bills presented in New York and in Wisconsin.....	21
Conclusion.....	21, 22
Applications for boards of conciliation and investigation, January, 1908, to August, 1909.....	24-29

**Phosphorus poisoning in the match industry in the United States, by John B.  
Andrews, Ph. D.:**

Editorial note.....	31
Introduction.....	32
Summary of the results of the investigation.....	32-36
Summary of European experience.....	36-39
Processes of manufacture and phosphorus poisoning.....	39-42
Development of the match industry in the United States.....	42-45
Employees of match factories in the United States.....	45-50
Wages of employees .....	48, 49
Employees exposed to dangers of phosphorus poisoning.....	50
Description of processes in match manufacture.....	50-57
Phosphorus used in match manufacture and its effect upon the health of the workers .....	57-66
European experience with phosphorus poisoning—	
Finland.....	67
Denmark.....	67, 68
France.....	68, 69
Switzerland.....	69, 70
Netherlands.....	70
Luxemburg.....	70
Italy.....	71
Germany.....	71, 72
Great Britain.....	72-76
Belgium.....	76, 77
Austria-Hungary.....	77-81
Norway.....	81, 82
Sweden.....	82-84
Spain.....	84
Russia.....	84, 85
Japan.....	85

<b>Phosphorus poisoning in the match industry in the United States—Concluded.</b>	<b>Page.</b>
<b>Factory conditions and phosphorus poisoning in American factories—</b>	
Maine.....	86-98
Wisconsin.....	98-106
Minnesota.....	106-110
Indiana.....	110-117
Ohio.....	118-124
Pennsylvania.....	124-133
New Jersey.....	135
New York.....	133-137
Michigan.....	137-139
Illinois.....	139, 140
Appendix A. Regulation of the match industry in Switzerland.....	141-144
Appendix B. British White Phosphorus Matches Prohibition Act, 1908..	145
Appendix C. International convention respecting the prohibition of the use of white phosphorus in the manufacture of matches.	146
<b>List of industrial poisons, prepared for the International Association for Labor Legislation, by Dr. Th. Sommerfeld in collaboration with Sir Thos. Oliver, M. D., and Dr. Felix Putzeys:</b>	
Introduction.....	147-150
Nature of industrial poisons.....	150
Methods of entry of industrial poisons into the system.....	151
Extent of the danger of industrial poisons.....	152, 153
Methods of combating industrial poisons.....	153, 154
List of industrial poisons.....	155-168
<b>International Association for Labor Legislation and its publications.....</b>	<b>169-184</b>
<b>British Trade Boards Act, 1909.....</b>	<b>185-191</b>
<b>Earnings and hours of labor in British clothing industries:</b>	
General summary.....	192-195
Dressmaking, millinery, and mantle-making industries.....	196-198
Shirt, blouse, underclothing, etc., industry.....	198, 199
Tailoring industries.....	199-202
Boot and shoe industry.....	202, 203
Silk and felt hat industry.....	203, 204
Miscellaneous clothing industries.....	204
Dyeing and cleaning.....	204, 205
Laundries.....	205, 206
<b>Digest of recent reports of state bureaus of labor statistics:</b>	
Louisiana—Fourth Biennial Report.....	207
Massachusetts—	
Thirty-ninth Annual Report on the Statistics of Labor for the year 1908: Strikes and lockouts for the year 1908—Labor organizations— Changes in rates of wages and hours of labor.....	207-210
Twenty-third Annual Report on Statistics of Manufactures for the year 1908.....	210, 211
Minnesota—Eleventh Biennial Report: Child labor—Free employment offices—Labor organizations—Railroad switch yards—Mining.....	211-213
New York—	
Seventh Annual Report of the Department of Labor.....	213
Twenty-fifth Annual Report of the Bureau of Labor Statistics: State of employment—Wages and earnings—Cost of living—Hours of labor—Trade unions—Union fees and dues.....	213-218



<b>Digest of recent reports of state bureaus of labor statistics—Concluded.</b>	<b>Page.</b>
North Carolina—Twenty-second Annual Report, 1908: Condition of farmers—Condition of the trades—Miscellaneous factories—Cotton, woolen, and knitting mills—Furniture factories—Railroad employees..	218–220
Virginia—Eleventh Annual Report, 1908: Industrial statistics.....	221, 222
Washington—Sixth Biennial Report, 1907–8: Accidents to labor—Strikes and lockouts—Cost of living—Organized labor—Free employment offices—Statistics of manufactures.....	223, 224
West Virginia—Tenth Biennial Report, 1907–1908: Statistics of manufactures—New industries established—Free employment bureau.....	224–226
<b>Digest of recent foreign statistical publications:</b>	
Reports on strikes and lockouts:	
Austria, 1907.....	227–232
France, 1907.....	233–239
Germany, 1907.....	239–244
Great Britain, 1907.....	245–252
Italy, 1905.....	252–264
Netherlands, 1906.....	264–269
Norway, 1903–1906.....	269, 270
Russia, 1905.....	270–284
Spain, 1906.....	284–288
Sweden, 1903–1907.....	288–294
<b>Opinions of the Attorney-General on questions affecting labor:</b>	
Compensation for injuries to employees—accidents—construction of statute.....	295–300
Eight-hour law—laborers cutting timber on Indian reservations.....	300
Immigration—inducements by States and Territories—alien laborers—construction of statutes.....	300–305
Leaves of absence for employees of the United States—who entitled—arsenals—per diem employees—pieceworkers.....	306–309
<b>Decisions of courts affecting labor:</b>	
Decisions under statute law:	
Employers' liability—railroad companies—acceptance of relief benefits—construction of statute ( <i>Potter v. Baltimore and Ohio Railroad Company</i> ).....	310–313
Employers' liability—railroad companies—federal statute—injuries causing death—damages ( <i>Duke v. St. Louis and San Francisco Railroad Company</i> ).....	313–315
Employers' liability—railroad companies—federal statute—injuries causing death—survival of right of action ( <i>Fulgham v. Midland Valley Railroad Company</i> ).....	315, 316
Employers' liability—railroad companies—federal statute of 1906—validity in Territories and District of Columbia ( <i>El Paso and North-eastern Railroad Company v. Gutierrez</i> ).....	316–319
Employers' liability—railroad companies—fellow-servants—instantaneous death—survival of right of action—construction of statute ( <i>Dillon v. Great Northern Railway Company</i> ).....	319–322
Employers' liability—railroad companies—powers of Federal Government—constitutionality of statute ( <i>Hoxie v. New York, New Haven and Hartford Railroad Company</i> ).....	322–328
Employers' liability—railroad companies—powers of Federal Government—constitutionality of statute ( <i>Watson v. St. Louis, Iron Mountain and Southern Railway Company</i> ).....	328–331

	Page.
<b>Decisions of courts affecting labor—Concluded.</b>	
<b>Decisions under statute law—Concluded.</b>	
Hours of labor on public works—municipal corporations—constitutionality of statute ( <i>Byars v. State</i> ).....	332-334
Injunction—strikes—boycotts—secondary boycotts—picketing ( <i>Pierce v. Stablemen's Union, Local No. 8760, et al.</i> ) .....	334-340
Payment of wages—semimonthly pay day for railroad companies—constitutionality of statute ( <i>New York Central and Hudson River Railroad v. Williams</i> ).....	340-347
Railroads—safety appliances—equipment and repairs ( <i>United States v. Baltimore and Ohio Railroad Company</i> ).....	347
Railroads—safety appliances—equipment and repairs ( <i>United States v. Illinois Central Railroad Company</i> ).....	347-349
<b>Decisions under common law:</b>	
Assignment of wages—future earnings—future employment—revocation of power of attorney—interest—equity ( <i>Cox v. Hughes et al.</i> )..	349-353
Employers' liability—evidence of negligence—excessive hours of labor ( <i>McCrary v. Southern Railway Company</i> ).....	353-355
Injunction—contempt—nature of proceedings—appeals ( <i>Gompers et al. v. Buck Stove and Range Company</i> ) .....	355-370
Intimidation—interference with employment—injunction—rights of bondholders to sue ( <i>Carter et al. v. Fortney et al.</i> ).....	370-372
Labor organizations—municipal corporations—discrimination in letting public contracts ( <i>Miller et al. v. City of Des Moines et al.</i> )...	372-375
<b>Index</b> .....	377-381

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**CANADIAN INDUSTRIAL DISPUTES INVESTIGATION ACT  
OF 1907.**

BY VICTOR S. CLARK, PH. D.

**INTRODUCTION.**

The purpose of this article is to review the operation of the Canadian Industrial Disputes Act from April, 1908, to August, 1909. An earlier report, published in the Bulletin of the Bureau of Labor for May, 1908, describes the purpose, administration, and results of the law, and sentiment toward it during the first year it was in force, and contains a detailed commentary on its provisions. Since then the act has not been amended, but subsequent experience enables a maturer judgment to be formed of its strong features, as well as of the deficiencies that accompany such experimental legislation, and makes possible a fairer estimate of its usefulness. On the whole it does not seem necessary to revise the conclusions of the previous report, which the following observations will supplement rather than supersede. But the nearness of Canada, the similarity of its industrial conditions to our own, the fact that this law directly affects trade unions and corporations on both sides the border, and the advocacy of like legislation in the United States make of value to Americans current information upon this subject.

**DESCRIPTION OF THE ACT.**

The act applies to all public utilities, including municipal service corporations, transportation companies of all kinds, and occupations (like stevedoring) subsidiary to transportation, and also to coal and to metal mines. In these industries and occupations it is unlawful for employers to lock out their workmen or for employees to strike until

an investigation of the causes of the dispute has been made by a government board appointed for this particular case and the board's report has been published. After the investigation is completed and the report made, either party may refuse to accept the findings and start a lockout or a strike. The investigating board usually tries by conciliation to bring the parties to an agreement, so that the functions of the board considerably exceed those of a body appointed solely to procure information.

The law does not aim at compulsory arbitration or to force men to work against their will after all chance of an amicable settlement has disappeared. Neither employer nor employee is compelled to become party to a bargain he does not voluntarily accept. The purpose of the act is limited to discouraging strikes and lockouts in industries that serve immediately the entire public, and to preventing the cessation of such industries through the arbitrary or unwarranted acts of either employers or workmen. It seeks to enforce the right of the people who use railways and burn coal, for instance, to know on how just grounds, in case of an industrial dispute, they are deprived of so necessary a service or commodity.

The procedure and machinery for accomplishing this end are as follows: In the industries in question any change in working conditions affecting hours or wages, whether demanded by employers or workers, must be preceded by thirty days' notice. If such a contemplated change, or if any other point at issue between the parties, threatens to end in a strike or a lockout, either party may upon affidavit to that effect apply to the Dominion Labor Department, which has recently become a separate ministry, for a board of investigation and conciliation. Thereupon the minister of labor or his deputy appoints a board of three members, one upon the recommendation of the employers, another upon the recommendation of the workers, and a chairman selected either by the first two members of the board, or, in case they fail to agree, by the government. If the workers or the employers, either through indifference or in order to block an investigation, refuse to recommend a representative for appointment, the minister of labor selects at his discretion a suitable person to fill the place. The members of the board are paid for the time they serve and for the necessary traveling expenses incurred. The government also provides for necessary clerical expenses and for the fees of witnesses called by either party.

Each board controls its own procedure, which varies greatly under different chairmen and in different cases. Usually the most information is obtained and the quickest settlements are made where

the board discusses informally with committees representing both sides in joint session the various points at issue without laying much stress on technical evidence. Such informal meetings are apt to reveal sentiment, air grievances, and explain misunderstandings. But some boards, on account either of the judicial training of their members or of the technical character of the points at controversy, have conducted their proceedings like a law court. If the board succeeds in bringing the parties to an agreement, it embodies the terms of this agreement in its findings. But if it is unable to end the controversy it presents a report, or majority and minority reports, describing the conditions that cause the dispute and usually recommending what appear fair terms of settlement. The report or reports are at once published by the government, and the employers and employees involved, if unable otherwise to agree, may then resort to the last measures of industrial warfare.

The penalty for causing a lockout before the board has reported is a fine upon the employer ranging from \$100 to \$1,000, and the penalty for striking, under like conditions, is a fine of from \$10 to \$50 upon each striker. Prosecutions are brought by the aggrieved party, not by a public officer.

#### DISPUTES CONSIDERED.

Statistics only imperfectly present what has been accomplished by the law during two years and a half of operation. There is a record of the number of boards appointed and of the number of agreements and disagreements following their sessions, of approximately the number of workers affected by the disputes investigated, and the number and duration of lockouts and strikes, lawful and unlawful, which have occurred in industries subject to the act. But it is not possible to measure the margin between these statistics and the figures which would have represented corresponding data if the act had not been in existence. It can not be assumed that every settlement made by a board stands for a case where a strike would have occurred if no board had been appointed or that these settlements were in each instance better than a settlement would have been without government intervention. It is not absolutely certain but that in exceptional cases a strike or lockout is a more wholesome culmination of an aggravated dispute than a series of temporizing and unsatisfactory compromises.

The following table shows the interventions with and without strikes from March 22, 1907, when the law went into force, to the latest information obtainable, in August, 1909:

NUMBER OF BOARDS APPOINTED, EMPLOYEES AFFECTED, STRIKERS IN ILLEGAL STRIKES AND IN LEGAL STRIKES, AND SETTLEMENTS WITHOUT STRIKES, BY INDUSTRIES.

Industry.	Boards appointed.	Em- ployees affected. ( <i>a</i> )	Illegal strikes (begun before or pend- ing in- vesti- gation).	Strikers in illegal strikes.	Legal strikes (begun after report of a board).	Strikers in legal strikes.	Settle- ments with- out strikes.
Coal mines.....	25	27,400	<i>b</i> 5	6,450	2	<i>c</i> 4,700	18
Metal mines.....	5	900			2	<i>d</i> 625	3
Railways.....	17	27,600			1	5,000	16
Electric railways.....	4	1,100					4
Shipping.....	5	2,700	3	<i>e</i> 2,200			2
City employees.....	1	300					
Cotton mills ( <i>f</i> ).....	2	5,200					1
Shoe factories ( <i>f</i> ).....	1	300					1
	59	65,500	8	8,650	5	10,325	45

*a* On account of the difficulty of distinguishing uniformly between those affected directly and those affected indirectly by a dispute, these figures are far from exact.

*b* These strikes were as follows: (1) April, 1907, Alberta, 7 companies, 3,600 strikers, act not yet familiar to strikers; (2) May, 1908, Fort Hood, N. S., 300 men struck 4 days; (3) spring of 1909, Nicola Valley, B. C., 150 men struck during formation of board, which was delayed by fault of employers; (4) April 1 to July, 1909, Alberta and British Columbia, 2,100 to 2,500 men on strike; (5) April 22 to August 2, 1909, Taber, Alta., 300 men on strike; also at Inverness Mines, N. S., 200 to 300 men in strike in July, 1909, no board reported appointed.

*c* August 1 to October 31, 1907, Spring Hill, N. S., 1,700 men; and July 6 to September, 1909, Glace Bay, N. S., about 3,000 men, strike not ended at date of writing.

*d* January, 1908, Moyle, B. C., 400 men 3 days; June 26, till late in July, 1909, Greenwood, B. C., 225 men.

*e* All were wharf laborers, most of whom were probably ignorant of the act.

*f* No strikes are illegal in these industries, and intervention occurs at the consent of both parties. One cotton mill strike was terminated by the appointment of a board.

The number of boards appointed corresponds only by legal definition with the number of disputes investigated. During the first nine months the act was in force three boards were established, and others have been in session more recently, to settle a perennial dispute or series of disputes at a single Nova Scotia coal mine. On the other hand, among the small mines of Alberta several independent controversies are sometimes referred, upon the application of the parties interested, to one board.

In a majority of cases, though this is not invariable, the application for a board is made by employees. Employers have sometimes refused to recommend a member for appointment, so that the government has been obliged to select their representative on these bodies. Likewise employers have in a few instances refused to appear at proceedings, and it has been necessary to subpoena them as witnesses to enable the board to procure information needed in making up its findings. But more frequently both sides have cooperated cordially to make the proceedings a success. When reluctance to do this appears, it is usually caused by distrust of the personnel of the board, or because one side is prejudiced by an earlier unfavorable decision.

In appraising the value of board intervention, mere numerical statements of the number of hearings resulting in settlements and the number followed by strikes may be more misleading than enlightening. The probability of reaching an agreement is much greater in a case affecting a weak union or a small number of employees than it is in one backed by a strong organization and reaching a large body of workers. (Yet if the strong union has prestige and a well-established policy of collective bargaining, and exercises sufficient control over its own members and the industry to avoid frequent or petty strikes, the work of the board is often made very easy: In possibly four disputes out of five, or nine out of ten (in case of such a union), government intervention simply substitutes a public for a private agency in making a bargain. But the tenth dispute may threaten consequences of vital concern to the whole community, quite justifying what would be unnecessary precautions in the other nine disputes. Finally, in dealing with a large body of unorganized and unskilled workers, of lower intelligence as a rule—such as wharf laborers—a board faces a problem of unusual difficulty, because the men have no responsible representatives and because the unenlightened and undirected sentiment of such workers veers with the uncertainty of the wind. The relative success of the act in avoiding actual cessation of work has been greatest where it has dealt with strong unions of educated and highly skilled employees, and least where it has dealt with unorganized or partly organized common laborers. Between these classes come the metal and coal miners, who are well organized, but not sufficiently skilled to be protected from the competition of the unspecialized labor market. Most miners' unions adopt collective bargaining, but employ the strike as subsidiary to their negotiations more frequently than do the railway orders; so mining disputes usually threaten a strike in good earnest and the intervention of a board in such disputes seldom is a perfunctory service.

In Canada the two principal coal-mining districts are Nova Scotia in the east, and in the west a region in southern Alberta and British Columbia close to the American boundary. The Nova Scotia mines fall into three main groups, in the vicinity of Spring Hill, around Pictou, and in Cape Breton Island. The Cape Breton collieries, which are the most important of the three, employ from 7,000 to 10,000 men. Some of the mines have been in operation for three-quarters of a century, supplying the markets of the St. Lawrence and the maritime provinces, accessible by water, and of recent years the neighboring steel works. They also ship some coal to New England. The Alberta and British Columbia field normally gives work to about 4,000 miners and furnishes fuel to the western sections of the Canadian Pacific and Great Northern railways, to the boundary smelters, and to domestic consumers throughout the prairie districts of Canada.

A stoppage of these mines, which are the only accessible source of coal supply in this section, not only seriously embarrasses transportation and local manufactures, causing a shortage of merchandise and provisions as well as throwing other labor out of employment, but in winter imposes an extreme hardship upon the farmers of the northern Provinces.

The organized coal miners of Alberta and of British Columbia have for some years belonged to the United Mine Workers of America, while those of Nova Scotia up to last year belonged to a long-established and conservative local society known as the Provincial Workers' Association. The latter was formerly a composite union embracing many trades, but gradually became a specialized miners' society. Its lodges are incorporated under a special provincial act. The association has had large influence in shaping the labor and mines legislation of Nova Scotia and its leaders are understood to have held intimate relations with the local government and the party in power. In 1908 a factional fight in this organization, said to have been caused partly by party politics, partly by personal differences among leaders, and in no small degree by a feeling among the rank and file of the members that the organization officially was too closely allied with employing and government interests, caused disaffection among a large element, who invited organizers of the United Mine Workers of America to enter the district and form branches. Several entire lodges by referendum vote, and a considerable part of the membership of other lodges, separated from the local society and became unions of the international body. But the Provincial Workers' Association still remains strong enough to play an important part in labor matters. Consequently, while in the west the United Mine Workers of America has a monopoly as a labor organization, in the east it meets strong competition.

Meantime, in these two fields the condition of employers is almost the reverse of this, the control of mining property in the east—especially at Spring Hill and in Cape Breton—being centralized, while in the west it is dispersed. The western operators have an association which is intended to deal as a unit with labor matters; but the strongest mines in the district have withdrawn from this association on account of a difference of labor policy and deal directly with the unions. Out of these general conditions of organization of both workers and employers have followed crises at these two extremities of the Dominion in which the Disputes Act has failed to prevent a stoppage of work at the mines.

In Nova Scotia the Provincial Workers' Association and the Dominion Coal Company, which is the largest employer in the Province, made an agreement over a year ago, as the result of the intervention of a board appointed under the act, by which the terms of employ-



ment of 7,000 miners were to be governed from March 16, 1908, to December 31, 1909. Soon after this agreement, which has not proved fully satisfactory to the workers, had been concluded the United Mine Workers, as just stated, entered the district and enrolled in their own numbers a large part of the Provincial Workers' Association membership. Consequently what was probably a majority of the workers in these mines came to be employed under an agreement which did not receive their support and which had been made with a rival union. The company refused to recognize or even to deal indirectly with representatives of the United Mine Workers of America, on the ground that its agreement with the Provincial Workers' Association was and should continue to be the only basis of contract with its employees. The members of the international union also claimed that they were discriminated against in receiving work and in the assignment of places in the mines. These and other grievances caused them to apply for a board, which heard their case and presented two reports, the chairman siding with the representative of the employers. This majority report dealt unfavorably with international unionism, making the latter a factor in its decision, and by these animadversions was calculated under the existing conditions to aggravate rather than to alleviate the controversy. As a result, early in July, 1909, some 3,000 or more employees of the company struck and at the present writing, two months later, have not returned to work. The outbreak of the strike was accompanied by some violence, the troops were called out, and the conditions that usually attend a severe and protracted labor disturbance prevailed in the district. Under the law this strike was quite legal, because the required hearings of the points at issue had been made and the board had reported. While the strike fever was at its height, however, a smaller and apparently illegal strike occurred in connection with another dispute at some neighboring mines. In the larger trouble, though the act was not directly violated, yet it was a failure to the extent that an unfortunately constituted board seems to have lost view of its first object—to conciliate the disputants and compromise their difficulties—and judging from the sentiment of the strikers this had an influence toward widening rather than narrowing the breach between employers and employed. This in turn reacted upon the status of the law itself, which in July, 1909, was decidedly less popular in Cape Breton than it was when the same district was visited sixteen months previously.

In the Alberta coal district the regular agreement between the operators and the United Mine Workers of America terminated last March, when it was subject to modifications and renewal. While negotiations looking to this end were in progress delays occurred and issues were raised by some of the operators that seemed likely to

lead to a disagreement. As a result the Crow's Nest Pass Company, the largest single employer in the district, withdrew from the operator's association and made an independent contract with the United Mine Workers of America, granting the union concessions which the other operators were not ready to allow. As a result the United Mine Workers of America stood out for similar concessions from the companies remaining in the association and brought the matter to an issue by suddenly declaring a strike at the expiration of the old agreement. Between 2,000 and 2,500 miners immediately ceased work in the mines affected. No board had been applied for by either side and the strike was directly in violation of the disputes act. After the mines had been closed several weeks the strikers applied for a board, which was granted, and early in July an agreement based upon the board's recommendations was finally signed and the miners went back to work. This important violation of the law passed officially unnoticed, and up to the time the district was visited (August, 1909) no proceedings had been instituted or were reported in contemplation against the strikers. Employers do not care to start suits from which they foresee no benefit to themselves or to their business whatever the court's decision, the general public was not during the summer sufficiently interested to agitate the matter, and the government avowedly leaves the enforcement of the penal clauses of the act to the parties directly affected by its violation.

The application of the law to railway disputes covers what would be the chief field of jurisdiction of a similar federal statute, should one ever be enacted, in the United States. The Canadian boards have investigated seventeen such disputes, and in only one instance has their decision been followed by a strike. No strikes have occurred prior to the publication of a board's decision. These disputes have been the most important, in respect to the number of employees affected, the seriousness of the points at issue, and the prospective disturbance of business that have arisen in Canada since the law was passed. The settlements have applied not only to railways in that country, but also to considerable sections of railway in the United States, and they have covered every organized branch of the railway and railway telegraph service. While most of these controversies might have been settled by direct negotiation without the disputes act, yet two or three of the crises thus tided over were so acute that an extended, protracted, and bitter strike was seriously to be apprehended. There seems to be little question that the boards averted these strikes, with one exception to be mentioned, and in so doing they performed a service of greatest value not only to the disputants but also to the general public, and saved money losses far exceeding the cost of administering the law.

The only railway strike that has occurred in Canada since the act went into operation was called by the machinists and other mechanics employed on the Canadian Pacific, after a board had investigated their grievances and reported. The men struck early in August, 1908, and two months later went back to work on the terms that had been recommended by the board. The dispute originated in a thirty-day notice, posted by the company in accordance with the law, abrogating its old agreements with the complainant unions and reducing wages. The employees invoked the act, and two reports were presented as a result of the investigation that followed. The majority report, concurred in by the chairman and the representative of the railway, sustained the company on many points, but in certain matters supported the contentions of the men. The strike involved 5,000 employees, and their defeat was attributed in part, by both the unions and the officers of the railway, to the adverse public sentiment caused by their rejection of the board's findings.

In several instances a strike already under way has been terminated by the appointment of a board of conciliation and investigation under the terms of the act, or such a board after appointment has succeeded in bringing the parties to an agreement. At Montreal, at Owen's Sound, and at Fort William unorganized or partly organized wharf laborers have struck at different times without applying for a board or waiting for an investigation of their grievances. Most of the strikers, many of whom were foreigners, probably knew nothing of the law. In all these cases a board has ultimately been appointed. The one at Fort William has not yet reported, but the others succeeded in bringing the parties to an agreement. A strike at the Valleyfield cotton mills was ended by both sides agreeing to refer the dispute to a board.

#### PUBLIC OPINION TOWARD THE ACT.

The attitude of public opinion in Canada toward the disputes act can not be determined precisely, because it has not been a dominant political issue at any election, and any estimate of general sentiment regarding it needs qualification. Approval or disapproval is often conditioned by some pet theory or demand for amendment made by the speaker. Political affiliations have a decided influence in determining the favor or disfavor with which the law is viewed. In case of an act so closely identified with the policy of the present government, it is as difficult for a Conservative cordially to commend as it is for a Liberal unreservedly to condemn. Many people know nothing definite about the act, or too little to form an intelligent judgment of its merits. A mere poll of opinions, giving each equal weight, has no value under such conditions except to persons interested in votes.

In the class not identified either with organized labor or with the industries to which the act applies, the law has generally been viewed with favor. Newspaper readers regard it as a measure intended to protect them from the inconvenience of arbitrary strikes. Sober business men welcome any attempt to keep the railways running and to prevent a coal famine. Little men of capitalistic bias speak of it as a wholesome device to curb the power of irresponsible labor agitators. Broad-minded men with enlightened social sympathies believe that the hardships of labor, as well as of capital, will be lessened by its mediation. A popular belief prevails that the law reaches out in the logical line of development toward the coming better way of adjusting the relations of capital and labor. This favorable sentiment, in its various forms, seemed to be stronger and more general in the summer of 1909 than in the spring of 1908, principally because in the meantime people had become better informed about the provisions, purpose, and operation of the act. Some Canadians appeared to regard the law with added complacency as an evidence of superior governmental and industrial conditions in the Dominion, as compared with similar conditions in the United States. Thus it happened that, though some were lukewarm, hardly a person belonging to this neutral class was met who seriously opposed the law or who advocated its repeal. However, several persons suggested amendments or pointed out what they considered defects in its administration. But such criticism was entirely of details, not of the central principle or of the general provisions of the statute.

Employers showed almost equal unanimity in favor of the law. Railway officers without an exception supported it, as did nearly every employer not directly affected by the act. It has many warm friends among mine managers, especially in the east. But here there was more difference of opinion, and in the west some operators of both coal and metal mines, while not actively hostile, were skeptical as to its value. The indorsements of employers, like those of employees, were usually accompanied by some demand for amendment, and often the amendments suggested by the two sides were incompatible with each other. Upon the whole, during the last sixteen months, taking the whole Dominion into account, the act has probably gained rather than lost in the esteem of employers, though in some cases unexpected weaknesses—from their point of view—have developed. However, these defects have been more than counterbalanced by the gradual disappearance of that distrust with which a new law interfering in industrial matters is always regarded by those immediately affected. A year and a half ago this distrust had a marked influence on the attitude of many large employers, while in the summer of 1909 it was hardly observable.

On the labor side there is less unanimity of opinion and more positive opposition to the statute. Here the trend of sentiment is more difficult to detect. The views of different unions differ, and in each union there is an official opinion and an opinion of the rank and file, which do not always correspond. Finally, nothing whatever is known of what unorganized labor thinks about such legislation, if it thinks about it at all.

As the law applies only to a limited number of industries many unions are not directly affected by its provisions, and the opinion of their members and officers is almost as much the opinion of outsiders as is that of the general public. Most of these unions are members of the Trades and Labor Congress of Canada, which at its last two annual meetings has discussed the act, at the first meeting indorsing it and at the second suggesting amendments and taking a rather equivocal attitude. In both congresses the law has evoked vigorous debate and a strong minority opposition. Most of the unions represented in this congress are affiliated with the American Federation of Labor, which is not officially in sympathy with this legislation.

Just at present the question of international unionism is a live issue in Canada—at least with a small section of the general public outside of labor ranks but interested in labor questions, with some employers, and with a minority of uncertain strength among trade unionists themselves. A movement exists, which is watched with significant sympathy by some employing and political interests, toward organizing exclusively Canadian unions. The importance of this issue in the Nova Scotia coal fields has been mentioned. It has given rise to a group of small organizations in central Canada, including several French speaking societies, which is associated in the National Trades and Labor Congress of Canada. This assembly is now seven years old and is a rival of the more important Trades and Labor Congress, which has reached its twenty-fifth year. A national union has also been discussed and may have been the object of some factional scheming among the leaders, in the western district, of the United Mine Workers of America. The objects and interests involved in this agitation and the arguments used in its support have nothing to do with the disputes act; but they have incidentally brought out certain points of conflict between international unionism and a regulative statute of this character. The first of these arises from a possible difference of policy with regard to such legislation between the branches of an international union within a particular country and the larger organization of which they are a part. But this is a matter affecting chiefly the internal affairs of the union. A practically more important point is that some international unions

lodge in their executive authority to call a sympathetic or supporting strike in any district, in order to enforce demands made in another district. Suppose the Grand Trunk switchmen were ordered by the international to strike in order to enforce a demand on connecting railways at Chicago, for instance, to prevent the handling of freight from such roads. If the strike were called without first applying for a board and having an investigation, it would be illegal, though the first offenders might be without the reach of Canadian law. But if a board were appointed and made an investigation, it would find no grievance existing on the railway for which it was appointed and could not justify the intending strikers. Such an order, under the present constitution of most railway unions, would be impossible, but it might occur in case of other international organizations. The board in the Dominion Coal Company dispute, which was followed by the present strike in Cape Breton, quoted in this connection the following extract from the constitution of the United Mine Workers of America:

The international officials shall at any time they deem it to the best interests of mine workers in a district that is idle, for just and sufficient reasons order a suspension in any other district or districts that would not in any way impede the settlement of the districts affected, provided such action would conserve to the best interests of the U. M. W. of America.

A law has been seriously proposed in Canada making any society the constitution of which contains provisions contrary to the laws of the country an illegal society within the Dominion. The main purpose of such an act would be to meet such situations as the one here suggested. What influence such a law would have upon the attitude of organized labor in Canada toward the disputes act is impossible to predict, and might depend on the yet uncertain strength of the present movement in favor of national as contrasted with international unionism.

When the disputes act was passed the railway unions opposed it in principle and detail. These unions held that since their policy was to resort to strikes only in extreme cases, and they normally negotiated peaceably with their employers and observed the contracts made, there was no need for such a law to interpose its machinery in place of their own well tried system of adjustment committees and trained negotiators. They also felt that they were weakened in treating with the companies by the postponement of a strike until after an investigation, during which period the railways could procure new employees. These unions and their members were more responsible financially than many other classes of workers, and so realized more vividly the burden of the penalties which the act imposed. Consequently in the spring of 1908 uncompromising opposition to the

law was nearly universal among the official representatives of the large railway unions. Some local officials were more favorable, and among the rank and file there were supporters of the act. However, with longer experience this opposition seems to be lessening, and officers who were vigorously hostile to the law last year now only criticise mildly some of its provisions. A leading union official, whose jurisdiction covers nearly the whole Dominion, said: "To give the devil his due, the act has worked very well." The demand for certain amendments affecting procedure is as strong as ever, but these would not affect the principle of the law. The judgment of men whose whole interest is absorbed in the welfare of their union and in bettering the terms of employment of its members depends almost wholly on concrete results obtained by applying the act. Therefore, an unfavorable decision in an important dispute might change sentiment back to its former unfavorable position. The union officials point out that hitherto boards have for the most part dealt with questions involving the equalizing of working conditions on different roads or different sections of the same road. Several decisions have been obtained leveling up conditions in a poorer district to those in a better district. But when the best existing standard has been reached by all the roads and there are practically uniform terms of employment throughout large regions then, these officials fear, it will be very difficult to get a board to advance beyond that standard and to recommend a general increase of wages or a shortening of hours. But this is at present a theoretical difficulty. In short, it is safe to say that a change of sentiment in favor of the disputes act has occurred among railway employees and their officers during the past year. This change might easily be overestimated on the basis of a few interviews in particular districts. But it is appreciable, and where it has not won positive supporters of the law, it has at least mitigated the previous opposition to it.

Among miners, if opinion has shifted at all, it has been rather adversely to this legislation than in its favor. Perhaps it would be better to say that latent opposition which always existed has in some quarters become more active and apparent. This is due to special causes, peculiar to each particular locality, such as the failure of certain boards to remedy grievances in Cape Breton and in the west. In Nova Scotia the Provincial Workers' Association, though it rather opposed the passage of the law, has cooperated cordially with the government and with employers to make it a success; and the general officers of the union commend its influence. The members of the United Mine Workers of America in the same Province might be expected to oppose a measure indorsed by the rival union, and their brief experience with the law has not been of a kind to win their favor. However, in the midst of a big strike, such as has

disturbed this Province the present summer, it is difficult to get candid opinions from labor leaders. The United Mine Workers of America officials at Glace Bay professed to have much respect for the disputes act, its main virtue at that moment being that it did not interfere with the strike then in progress. Since the union was fighting for recognition in the contract between employers and miners, its interest might lie in supporting a law that afforded the most likely agency for future negotiations to secure this end. Among the rank and file of the miners were many who thought that because there was a strike the law was a failure. Such comments as "You can see for yourself all the good the law is" were the usual reply of workmen to an inquiry as to its value. Some few suggested amendments, a larger number were unthinkingly hostile, and a majority were indifferent to the act. The strike was the absorbing and real thing in their minds, the strike weapon the only remedy for labor grievances in which they had real confidence, and such legislation as the disputes act was something dim, far off, academic, in which they had no vital interest.

The United Mine Workers of America in the west, while part of the same international organization as the eastern unions, are affiliated with the latter only through the Indianapolis executive and the general convention, and in matters of local policy are to all intents and purposes a distinct organization. The western members are mostly Socialists, while the eastern miners still preserve conservative trade union ideals. Principally upon the Socialist issue the Alberta district of the United Mine Workers of America recently withdrew from the Trades and Labor Congress. The official paper of that district is a Socialist organ. In this section union leaders were agreed that a referendum of their members would be overwhelmingly against the disputes act, and this was confirmed by talks with the miners themselves. Back of this opposition lay Socialist doctrine and distrust of the fairness of the government, which was believed to have a class bias in favor of capital. It was not unusual to meet miners who thought the law would be an excellent measure if it could be administered with absolute impartiality. In spite of this attitude, however, the miners in this district are continually applying for boards. The recent president of the district has served as labor member on some 12 boards, or nearly every one appointed to consider coal mine disputes in this region since the act went into operation, including the important board named to settle this summer's strike; and he has on occasions commended the influence of the law.

The United Mine Workers of America and the Provincial Workers' Association are the only unions of coal miners in Canada. The metal miners belong to a single international union, the Western Federation of Labor, which is strongly entrenched in British Columbia and



has several branches in the Cobalt silver district of Ontario. The policies of the United Mine Workers of America and the Western Federation of Labor differ in this important respect, that while the former union usually works under written contracts with employers, running for a specific term, and many of its strikes are to secure such an agreement, the Western Federation of Labor by its constitution forbids all forms of agreements with employers except a wage scale. The purpose of the latter policy is to leave the union free to strike at any favorable moment, in the belief that it can thus most quickly force wages up to the highest point. It is hardly necessary to add that the general organization of the Western Federation of Labor is Socialist, while, in spite of divergent policies in particular districts, the international United Mine Workers of America are old-style trade unionists.

Both the constitution and the general policy of the Western Federation of Labor array it against the disputes act. Being a Socialist society, it opposes any governmental propping up of the wage system by facilitating agreements and preventing strikes; and since its unions can not make contracts with employers the only form of settlement that a board can arrive at must remain for them in the air, so to speak, and for that reason hardly worth obtaining. Nevertheless the union has applied for boards in a few instances and wage scales have been adopted based on board recommendations. But in two cases out of the five heard the decision was followed by a strike. The officers and members of this union, both in British Columbia and in Cobalt, oppose the disputes act without qualification and advocate its repeal. This has been their settled attitude from the first and there is no present indication that it will be modified.

Both the Western Federation of Labor and the United Mine Workers of America have at their last general conventions officially condemned the Canadian law, and they are reported to have taken this action at the instance and upon the information of Canadian delegates. This is clearly stated in the resolution unanimously adopted by the United Mine Workers of America at their Indianapolis convention last January, which reads as follows:

Whereas, From press reports and other sources it would appear that several States are contemplating the introduction of a bill to be modeled from the Industrial Trades Disputes Bill of Canada; and

Whereas, It would appear that the workers of the United States, misled by false reports as to the workings of this bill, are viewing it with favor; therefore, be it

Resolved, That we, the delegates from Canada, having had almost two years' experience with said bill, herewith advise our brothers on this side of the line to oppose any such measure of like nature to the utmost of their powers; and be it further

Resolved, That we, the United Mine Workers of America, in twentieth annual convention assembled, emphatically resent any

interference with our right to quit work, and will in no wise tolerate any legislation which will force us to submit our grievances to a court, which must in the very nature of things be prejudiced against us, if we can prevent it.

Without questioning that these resolutions fairly represent the sentiment of the coal miners, the formal action of labor conventions, either in opposing or in supporting this legislation, does not always stand for an active, settled, and permanent conviction. Clever committee manipulators and ready speakers can usually procure the presentation and the adoption of resolutions suiting their personal views and objects by a good-natured and not vitally interested assembly. Labor men who have never viewed the act directly in operation and who know of its influence and provisions only from hearsay conceive it as an attempt to curtail their right to strike, and instinctively oppose it for that reason alone. The Canadian Socialists are in the west a political party, and it belongs as much to their tactics as to those of the Conservatives to discredit the legislation of their Liberal opponents. These extraneous and sometimes accidental influences qualify the candor of the formal public utterances of labor bodies as they do those of other popular organizations. It is by talking man to man that one gets the best measure of sentiment and learns whether that sentiment is intelligent or uninformed. Such interviews suggest that while labor in masses is inclined to oppose this law, the individual workman who has studied it and forms an independent judgment of its merits and deficiencies is not unqualified in his disapproval, and in many cases indorses its purpose and effect.

In résumé, therefore, observation and interviews with different classes of people in all parts of Canada indicate that the disputes act has with some exceptions the support of the general public and of employers and of the parliamentary "laborists" and of the unions not directly affected by its provisions. The officials of the railway orders are divided in their opinion, but on the whole are more favorably inclined toward the law than when it first went into operation, and the rank and file of these orders is probably even more friendly. The leaders and the aggressive membership of the western mining unions are vigorous opponents of the act, although there is a considerable quiet element in these organizations that probably regards it with more favor. The Nova Scotia miners officially indorse the law, and it has support among their members, but the result of a referendum vote upon it would be difficult to predict. Some public men regard as significant that at the last general elections the Liberal party lost seats in several important labor centers, such as Glace Bay, Cobalt, Winnipeg, and one or two points farther west, where the act had recently been applied to serious local disputes.

## SUGGESTED AMENDMENTS.

The experience of the last sixteen months has not materially changed the arguments upon which the law is supported or opposed by different persons, and the demand these persons make for amendments. Such arguments and amendments were fully discussed in a previous report and require only summary repetition here. The practical value of the law depends almost wholly upon the tact and skill of the boards appointed. Personnel and procedure are the kernel around which the rest of the law is merely a dry husk. The principal service of a board is in bringing the parties to the controversy together for an amicable discussion and in guiding their negotiations to a voluntary settlement. If the parties can not agree in this way, the board seldom presents a unanimous report. Two and sometimes three contradictory findings in one case do not have a remarkable influence upon public opinion. Neither is public opinion alone so decisive in preventing strikes, though it may influence their results, as social optimists sometimes imagine. The trouble is that the public opinion that reaches the worker is not the public opinion that emanates from the well-to-do citizen who reads his newspaper on the front porch. The chief merit of the law, then, lies not so much in its compulsory or penal features as in its conciliatory provisions; though its original and interesting element is the temporary prohibition of strikes and lockouts in order that conciliation may not be sacrificed by default.

Those trade unionists who oppose this legislation on principle object mainly to the provision making strikes illegal pending investigation. They urge that the delay enables employers to prepare for a strike by bringing in strike breakers, curtailing penalty contracts, and other measures, thus blunting the edge of labor's most effective weapon. They say they are forced by the law to sell their labor on a future market when they could get a better price for it at current quotations. Most unionists, also, distrust the fairness of the investigating boards, asserting that a chairman appointed by the government always has a class bias in favor of capital and that the majority report, if the board fails of an agreement, consequently sides with the employers and places the workers at a disadvantage in any strike their union may order after the investigation has been held. This fear of bias or improper influence is one of the greatest difficulties a board encounters in its proceedings. In case of a British Columbia mining dispute recently the mere fact that the chairman of the board and the representative of the employers left town on the same train—the only one leaving that day in the direction of their homes—subjected the former to considerable criticism from the labor people of the Province.

The most important amendment not affecting the vital principle of the act has been suggested and advocated by the railway orders. The law at present requires the party applying for a board to file an affidavit that a strike or lockout will occur unless a board is granted. The purpose of this provision is to avoid the expense and trouble of appointing boards for trivial disputes. But by their constitution the railway unions are required to take a referendum vote before making a strike issue of any demand upon their employers. Such a vote costs the larger orders several thousand dollars and causes unrest among the members. Therefore, these unions want this clause of the act modified so as to allow the representatives of the organization to apply for a board without the formality of a vote. Parliament may consider such an amendment, applying to cases where the members of the union are widely dispersed in different parts of the country.

The strike of the Canadian Pacific machinists, in 1908, was caused by changes in the conditions of employment made by the railway company, but the board, as was to be expected in such a case, was applied for by the employees. When the latter refused to accept the decision of this board they were placed at an additional disadvantage by the fact that it was a board of their own seeking. The public erroneously confused the proceedings with an arbitration and assumed that the applicants were especially obligated to abide by the decision. In order to prevent being prejudiced in this manner, the unions advocate an amendment requiring the party asking for or making a change in existing conditions of employment to apply for the board; so that the aggressor, so to speak, in a dispute may be additionally bound, in public opinion, to abide by the settlement recommended.

The main modification of the present law suggested by employers relates to the constitution of the boards. Sentiment in favor of permanent boards, or at least of permanent chairmen, seems to be growing, especially in the west. A permanent board with local assessors representing the two sides, to be appointed for each dispute, was in some instances recommended. One railway manager said he would prefer to present his case to a board presided over by an outright labor man, provided the latter had had an extended experience in arbitrating disputes and occupied his office by secure and independent tenure, than to present it to a temporary and inexperienced chairman appointed from the employing or the professional class. A mine manager in another part of the country, in referring to a recent dispute, said both parties gambled on the ignorance of the chairman. Yet as the law stands at present, the same person is appointed repeatedly to preside over different boards, and both employers and employees recognize the advantage of having an experienced arbitrator represent them on these bodies. Men sometimes are selected to serve in these capacities, even when such service will entail a

personal and financial sacrifice, because they are thought particularly equipped to adjust the dispute in question. Labor men distrust permanent boards, as likely in time to become subject to influences hostile to their interests.

It will be recalled that if either an employee or an employer violates the law by causing a strike or lockout before an investigation has been held, he is practically immune from prosecution unless the other party to the dispute brings action in the court to punish him. In districts where the law has been violated or evaded in these respects there is a demand by the party that has suffered by the violation that the government assume these prosecutions. The Cobalt miners, in Ontario, are urgent that the federal authorities prosecute some of the mining companies for locking out their employees in order to enforce lower wages. The law has been evaded several times by metal mining companies, who have discharged all their men at the end of a week, and reemployed such as wished to come back at lower pay the following Monday morning. Whether such an obvious evasion of the law could be defended in the courts is uncertain; but in face of the probable expense of a protracted suit, and their distrust of the fairness of the courts, the miners are unwilling to venture their funds in a prosecution. In the west a mine manager has been fined several hundred dollars for a lockout, and the judgment was sustained on appeal.

On the other hand, in the Alberta and British Columbia coal region, where the men have recently been on a three months' strike in defiance of the act, the employers insist that the government should punish the strikers. Managers assert that they can not afford personally to institute criminal proceedings against their workmen on account of the permanent ill will this would occasion. Mine superintendents are in charge of valuable property, with weak police protection, in a country with little resident population except the miners themselves and store and saloon keepers and professional men in sympathy with them. Naturally these superintendents do not wish to push matters to a point that might result in open violence or in covert injury to the mines. Besides they want their laborers in the mines, and not in jail or in neighboring States and Provinces dodging fines. Employers in this district cherish as an additional grievance that last summer the application of these law-breaking strikers for a board to be established under the act they were violating was favorably considered by the government.

This situation in Alberta and British Columbia raises an important question as to the continued application of the disputes act in that part of the Dominion. If men can strike with impunity in disregard of the law, what is the value of the latter in preventing or postponing strikes? Will the act not fall into abeyance except in those minor

and less acute disputes where there is least call for government intervention? Has a law any force at all that operates only by the tolerance of lawbreakers? It should be recognized that expediency must constantly be consulted in administering such an act; but it would seem that the latter, though it may retain some residuary value as providing convenient machinery for public mediation, must lose its distinctive character and its interest as experimental legislation unless some way is discovered to secure the observance of the clauses deferring strikes and lockouts until after an investigation has been held. Unless these clauses are enforced, the law becomes an ordinary conciliation act, burdened by the discredit of its unenforced provisions.

It is hoped that some remedy will be found for this difficulty, which has become serious only during the present year. In eastern and in central Canada there has not been so much disposition to disregard the prohibitions of the act, and in those sections there might be less tolerance of outright violations. At Cobalt two union officers were indicted, convicted, and heavily fined for inciting a strike contrary to law; but the case was appealed, and though not reversed, the penalties were never enforced.

The interpretation of the law by the provincial courts has revealed some anomalies in its application. The first effort of a board appointed in any dispute is naturally to get the parties to agree upon some sort of a contract covering the conditions of employment in question. The desirable end of these negotiations, then, is a formal agreement or contract. But when the United Mine Workers of America tried in the courts of Alberta to enforce an agreement made under the auspices of a board, the court ruled that as the union was neither an individual nor a corporation it had no power to make agreements, and the contract in question was therefore void, and the union had no remedy against the mining company that had violated it. Moreover, in an obiter dictum, the judge expressed the opinion that an agreement under the act had no more validity than a private agreement between an employer and a labor organization; that there was no special way of enforcing the agreements signed before the boards, and that as the union was incompetent to contract under any conditions the observance of such understandings must rest solely upon the good will of the parties making them. Because of this decision workers in the western Provinces advocate an amendment to the law, making agreements entered into through the mediation of a board enforceable like ordinary business contracts between corporations or individuals. Such an amendment, if practicable, would add much to the authority of the law, especially in that part of the Dominion where at present it particularly needs strengthening.

The law is better established than it was sixteen months ago, but it is still regarded as experimental legislation and does not occupy the same position of assured authority as older statutes. The amendments now proposed are fewer than they were at the earlier date, but they are more clearly of a constructive character. There is no observable tendency to extend the law in the direction of compulsory arbitration or state regulation of industry. A few persons advocate broadening its application to other industries than public utilities and mines. One or two petitions to this effect have been presented by employers, and two years ago the Trades and Labor Congress recorded itself in favor of such an amendment. However, this demand is not general or urgent enough to make its serious consideration in the near future very probable. But, though the scope of the law does not promise to be extended, amendments may be presented in Parliament in the near future to strengthen the application of the law within present limits and to perfect its administration. Hitherto the ministry have been waiting for sufficient experience with its working to guide them wisely in making changes.

#### **BILLS PRESENTED IN NEW YORK AND IN WISCONSIN.**

During the last session bills embodying some of the provisions of the Canadian legislation were introduced into the state assemblies of New York and of Wisconsin. The New York project, which appears not to have got out of committee, provided for a single permanent board, and in detail followed the Canadian law chiefly in making a strike or lockout subject to injunction and penalty if the parties in case of any industry had previously bound themselves by a written contract not to strike or lockout. The Wisconsin bill received more consideration from the legislature. It followed very closely the provisions of the Canadian act, except that in case of disputes affecting public utilities the board was to be appointed by the state railway commission, and at the option of the parties the dispute might be referred to a permanent board of arbitration, provided for in the bill, or to a special board appointed for the occasion. The bill is reported to have been opposed by organized labor on the ground that it would weaken the unions. Up to the present there is nothing in Canadian experience to suggest that this fear is well grounded. In fact it has been found so difficult to apply the law to disputes where the workers are not well organized that a strong union seems almost essential to the success of such legislation.

#### **CONCLUSION.**

In conclusion, the Industrial Disputes Investigation Act seems to be gaining support in Canada with longer experience, and has very few opponents outside of labor ranks. The labor opposition is strong-

est where socialism is strongest. There seems to be less unqualified opposition to the law among the members of the unions than among the officials, but this is stated as a conjecture rather than as an assured fact. The act has afforded machinery for settling most of the disputes that have occurred in the industries to which it applies; but in some cases it has postponed rather than prevented strikes, and in other cases strikers have defied the law with impunity. Most of the amendments proposed look toward perfecting details rather than toward revising the structure of the law. There is no likelihood that the act will be repealed, or that it will be extended to other industries or toward compulsory arbitration. The most serious danger it faces is the nonenforcement of the strike and lockout penalties in cases where the law is violated for the express purpose of weakening its authority. The adoption of a similar statute in any State or by the United States Government, whether desirable or not, is likely to be opposed by organized labor, and probably could be secured only after some industrial crisis profoundly affecting public opinion had centered popular attention upon the question of strike prevention. The enforcement of the penal clauses of the law would probably be more difficult in the United States than it is in Canada, and for that reason the success of such a statute somewhat less probable. Under the conditions for which it was devised, however, the Canadian law, in spite of some setbacks, is useful legislation, and it promises more for the future than most measures—perhaps more than any other measure—for promoting industrial peace by government intervention.

The statement following, taken from reports published in the Labor Gazette, issued by the Canadian Department of Labor, shows the proceedings under the act from January, 1908, to August, 1909.





APPLICATIONS FOR BOARDS OF  
A.—MINES, AGENCIES OF TRANSPORTATION AND COMMU  
*Coal mines.*

Date of receipt of application.	Parties to dispute.	Party making application.	Locality.	Number of persons affected.	Nature of dispute.
1908.					
Jan. 4	Dominion Coal Co. (Limited) and members of the Provincial Workmen's Association.	Employees.	Dominion, C. B. ....	7,000	Concerning wages and conditions of employment.
Feb. 10	John Marsh, John Howells, Stevens Bros., coal mine operators, dealt with as a whole, and employees.	Employers.	Woodpecker, Alta. ...	100	.....do.....
Mar. 16	Western Dominion Collieries (Limited) and employees.	Employees.	Taylorton, Sask. ....	90	Concerning wages and hours.
Mar. 16	Manitoba and Saskatchewan Coal Co. (Limited) and employees.	.....do.....	Bieufait, Sask. ....	50	.....do.....
Mar. 25	Cumberland Railway and Coal Co. (Limited) and employees.	.....do.....	Springhill, N. S. ....	1,600	Concerning wages. ....
May 2	Standard Coal Co. and employees.	.....do.....	Edmonton, Alta. ....	20	Concerning wages and conditions of labor.
May 12	Nova Scotia Steel and Coal Co. and employees.	.....do.....	North Sydney, N. S. .	1,750	.....do.....
May 14	International Coal and Coke Co. and employees.	.....do.....	Westville, N. S. ....	800	.....do.....
May 15	Acadia Coal Co. and employees.	.....do.....	Stellarton, N. S. ....	800	.....do.....
May 18	Port Hood and Richmond Railway Coal Co. and employees.	.....do.....	Port Hood, N. S. ....	300	.....do.....
July 2	Maritime Coal, Railway and Power Co. (Limited) and employees.	.....do.....	Chignecto, N. S. ....	200	.....do.....
Oct. 19	Galbraith Coal Co. (Limited) and employees.	.....do.....	Lundbreck, Alta. ....	30	.....do.....
1909.					
Mar. 4	Dominion Coal Co. and employees, members of U. M. W. of A.	.....do.....	Glace Bay, N. S. ....	<sup>b</sup> 3,000	Alleged discrimination against members of U. M. W. of A.
Mar. 19	Nicola Valley Coal and Coke Co. and employees.	.....do.....	Middlesboro, B. C. ...	150	Dismissal of men. ....
Apr. —	Nova Scotia Steel and Coal Co. and employees, members of U. M. W. of A.	.....do.....	Florence, C. B. ....	<sup>c</sup> 460	Concerning wages, recognition of union, etc.
May —	Western Coal Operators' Association and employees.	.....do.....	Alberta and British Columbia.	2,100	Conditions of labor and for closed shop.
May —	Cumberland Railway and Coal Co. and employees.	.....do.....	Springhill, N. S. ....	1,550	Conditions of labor and recognition of union.
June —	Canada West Coal Co. (Limited) and employees, members of the U. M. W. of A.	.....do.....	Taber, Alta. ....	300	Conditions of labor. ....

<sup>a</sup> C, chairman; E, employer; M, men.

<sup>b</sup> Directly, 3,000; indirectly, 6,500.

## CONCILIATION AND INVESTIGATION.

## NICATION, AND OTHER PUBLIC-SERVICE UTILITIES.

*Coal mines.*

Names of members of board.(*)	Date on which board was constituted.	Date of receipt of report of board.	
Prof. A. Shortt, C; J. Dix Fraser, E; Dr. A. Kendall, M. P. P. M.	1908. Feb. 18	1908. Mar. 23	Differences adjusted and an agreement concluded before the board, effective from March 18, 1908, to December 31, 1909, a strike thereby being averted.
Mr. Justice Stuart, C; W. E. Bullock, E; F. H. Sherman, M.	Feb. 25	Apr. 6	The report of the board stated that the act did not apply in this case, the mines having closed down for lack of orders before the investigation occurred. A wage scale was, however, recommended. The report was accompanied by a minority report, making other recommendation.
Judge Myers, C; J. O. Hannah, E; F. H. Sherman, M.	Apr. 10	May 5	Differences adjusted and agreement concluded before board, effective from May 1, 1908, to May 1, 1909, a strike being thereby averted.
Judge Dawson, C; G. C. Crowe, E; F. H. Sherman, M.	Apr. 22	Dec. 8	The board disagreed in its findings, but no cessation of work was reported.
Judge Wallace, C; John Armstrong, E; R. B. Murray, M.	Apr. 29	May 26	The report found against the claims of the men, and was accompanied by a minority report, finding generally, but not wholly, in favor of the men; the employees declared the minority report acceptable to them. No cessation of work was reported.
Judge Taylor, C; F. B. Smith, E; F. H. Sherman, M.	June 19	July 22	Board decided to leave intact existing agreements between company and individual employees, and the arrangement appears to have been satisfactory, a strike being thereby averted.
Prof. A. Shortt, C; Dr. D. Allison, E; J. W. Maddin, M.	....do....	Aug. 1	An agreement concluded before the board on all points, and a strike was thereby averted.
			No report was established, the parties having come to an amicable agreement subsequent to forwarding the application, a strike being thereby averted.
Judge McGillivray, C; Geo. S. Campbell, E; Jas. Macdonald, M.	June 8	July 2	Unanimous report was made by board, with recommendations for a settlement of all differences, which is understood to have been accepted as a basis of working operations, a strike being thereby averted.
Rev. Chas. Wilson, C; B. Barnhill, E; R. B. Murray, M.	July 6	July 27	An agreement was effected before the board on all points at issue and covering the period of two years from July 31, 1908, a strike being thereby averted.
Chas. Simister, C; F. B. Smith, C. E., E; Jas. A. Macdonald, M.	Nov. 25	Dec. 14	The board presented a unanimous report, recommending a basis of settlement, which was subsequently accepted by both parties to the dispute, a strike being thereby averted.
Judge Wallace, C; G. S. Campbell, E; Daniel McDougall, M.	1909. Mar. 22	1909. Apr. 14	The report found against the men and was accompanied by a minority report finding generally in favor of the men. Men went on strike July 6, there being no settlement to date (September).
Judge Lampman, C; Thos. Kiddie, E; Thos. Chas. Brooke, M.	May 6	June 3	The men went on strike April 28, before the board was constituted. The company stated, in writing, that it was unwilling to be bound by the decision of the board and the men were willing to be bound only in case of a unanimous decision. The board disagreed, and no settlement was effected.
Judge J. P. Chipman, C; Judge McGillivray, E; Daniel McDougall, M.	June —	July 23	The report found against the men and was accompanied by a minority report finding generally in favor of the men. No strike, however, occurred.
Rev. H. R. Grant, C; Colin MacLeod, E; F. H. Sherman, M.	May —	June 21	Employees went on strike before applying for a board. The board disagreed in its findings, but dispute was settled by independent agreement, which will be in effect until March 31, 1911.
Justice Longley, C; Chas. Archibald, E; E. B. Paul, M.	June —	July 23	The report of the board was signed by the three members, but was accompanied by a footnote signed by the representative of the men modifying his acquiescence in the findings. There was no cessation of work.
Judge Winter, C; Colin MacLeod, E; W. C. Simmons, M.	July 2	July 19	The employees went on strike April 23, before an application for a board was made. After the report of the board, in which a compromise was suggested, an agreement was signed on July 31, and work in the mines was resumed August 2.

\* Directly, 340; Indirectly, 120.

## APPLICATIONS FOR BOARDS OF CON

## A.—MINES, AGENCIES OF TRANSPORTATION AND COMMUNICA

*Metalliferous mines.*

Date of receipt of application.	Parties to dispute.	Party making application.	Locality.	Number of persons affected.	Nature of dispute.
1908. Jan. 9	Temiskaming and Hudson Bay Mining Co. (Limited) and employees.	Employees.	Cobalt, Ont. ....	50	Concerning wages and hours.
July 20	Cobalt Central Mining Co. (Limited) and employees.	.....do.....	.....do.....	105	.....do.....
1909. Mar. 30	British Columbia Copper Co. and employees.	.....do.....	Greenwood, B. C. ....	225	Concerning dismissal of men, etc.

*Railways.*

1908. Jan. 8	Grand Trunk Railway Co. and car men in its employ.	Employees.	G. T. R. system....	800	Concerning wages and condition of labor.
Apr. 28	Canadian Pacific Railway Co. and various trades in its mechanical departments.	.....do.....	C. P. R. system....	8,000	.....do.....
May 14	Intercolonial Railway of Canada and station freight clerks' unions Nos. 1 and 2, of Halifax, N. S., and St. John, N. B.	.....do.....	Halifax, N. S., and St. John, N. B.	.....do.....	.....do.....
May 29	Canadian Pacific Railway Co. and railway telegraphers in its employ.	.....do.....	C. P. R. system....	1,605	Concerning alleged wrongful dismissal of certain employees.
Aug. 21	Canadian Northern Railway Co. and car men on its Lake St. John division.	.....do.....	Lake St. John division, C. N. R.	49	Concerning wages and conditions of labor.
Aug. 22	Canadian Pacific Railway Co. and firemen and engineers in its employ.	.....do.....	C. P. R. system....	7,000	Concerning alleged wrongful dismissal of certain employees.
Do..	Canadian Northern Railway Co. and locomotive engineers in its employ.	.....do.....	C. N. R. system....	341	Concerning wages and condition of labor.
Dec. 26	Kingston and Pembroke Railway Co. and employees, members of Order of Railroad Telegraphers.	.....do.....	K. and P. Ry. system	*1,619	.....do.....
Dec. 29	Great Northwestern Telegraph Co. and certain railroad telegraphers on the M. C. R. system.	.....do.....	Michigan Central Rwy. system.	*75	Abolition of commission by commercial business on M. C. R. system by G. N. W. Co. without due notice.

\* Mr. Fullerton, finding himself at an early stage of the proceedings unable to agree with his colleagues, resigned from the board, and the company declining to make a further recommendation, the minister appointed Mr. Galt without recommendation.

\* Owing to inability of Mr. R. E. Finn to act as member of the board, Mr. J. G. O'Donoghue was appointed in his stead.

## CILIATION AND INVESTIGATION—Continued.

## TION, AND OTHER PUBLIC-SERVICE UTILITIES—Continued.

*Metalliferous mines.*

Names of members of board.	Date on which board was constituted.	Date of receipt of report of board.	
Prof. S. J. Maclean, C.; M. F. Pumaville, E.; C. B. Duke, M.	1908. Jan. 31	1908. Feb. 13	Unanimous report was presented by board making recommendations for the settlement of the dispute. The findings of the board were accepted by the men, but not by the company. No cessation of work, however, was reported.
Prof. S. J. Maclean, C.; E. L. Fraleck, E.; C. B. Duke, M.	Aug. 22	Aug. 29	Unanimous report was presented by the board making recommendations for the settlement of the dispute, and no cessation of work was reported.
Judge P. E. Wilson, C.; Edward Cronyn, E.; John McInnes, M. P. P., M.	1909. Apr. 29	1909. May 21	Each member of the board made a separate report, no two agreeing. This was followed by a strike—beginning June 26 and ending July 24—which resulted favorably to the employees.

*Railways.*

Prof. A. Shortt, C.; Wallace Nesbitt, E.; J. G. O'Donoghue, M.	1908. Jan. 28	1908. Feb. 28	Differences amicably adjusted before a board and a strike thereby averted.
P. A. Macdonald, C.; C. F. Fullerton, E.; (a) G. F. Galt, E.; Jas. Somerville, M.	May 13	July 16	The board did not present a unanimous report, Mr. Somerville presenting a minority report. The board made certain recommendations for settlement of dispute which were accepted by company with some demur. Men refused to accept findings of board and ceased work on August 5. They returned to work on October 5, accepting finally recommendations of board.
Judge McGibbon, C.; H. Holgate, F. E., E.; J. G. O'Donoghue, M.; R. E. Finn, M. (b)	Sept. 8	Oct. 6	The proceedings in this case were under the Conciliation and Labor Act by request of the employees and were subject to delay through the inability to act of the member of the committee of mediation and investigation first appointed on the recommendation of the men. The committee was finally constituted and a settlement of all differences effected, a strike being thereby averted.
Justice Fortin, C.; C. Campbell, K. C., E.; W. T. J. Lee, M.	June 17	Sept. 26	Unanimous report was made by the board with recommendations for a settlement of all differences, which were accepted by both parties, a strike being thereby averted.
Ludovic Brunet, C.; E. A. Evans, E.; P. J. Jobin, M.; A. Chartrain, M. (c)	Sept. 30	Nov. 19	Do.
Judge Fortin, C.; W. Nesbitt, K. C., E.; J. G. O'Donoghue, M.	1909. Jan. 5	1909. Jan. 25	Do.
Judge Gunn, C.; F. H. Richardson, E.; J. Harvey Hall, M.	1908. Sept. 14	1908. Nov. 16	Do.
Judge Gunn, C.; J. L. Whiting, K. C., E.; J. G. O'Donoghue, M.	1909. Jan. 15	1909. Apr. 22	Do.
Judge McGibbon, C.; J. F. Mackay, E.; J. G. O'Donoghue, M.	Feb. 8	Mar. 22	Unanimous report presented by the board, making certain recommendations for the settlement of the dispute. The report was substantially in favor of the employees. The company had refused to nominate to the board, and claimed irresponsibility in the matter. The inquiry, though not resulting in the agreement, is understood to have modified the situation to such a degree that danger of the threatened strike was averted.

<sup>a</sup> Owing to inability of A. Chartrain to act as member of the board, P. J. Jobin was appointed in his stead.

<sup>b</sup> Directly, 19; indirectly, 1,600.

<sup>c</sup> Directly, 25; indirectly, 50.

## APPLICATIONS FOR BOARDS OF CON

## A.—MINES, AGENCIES OF TRANSPORTATION AND COMMUNICA

*Railways—Concluded.*

Date of receipt of application.	Parties to dispute.	Party making application.	Locality.	Number of persons affected.	Nature of dispute.
1909. Feb. 10	Manitoba Cartage Co. (Limited) and employees.	Employees.	Winnipeg, Man. ....	a 300	Concerning alleged discrimination against men connected with the union.
May —	Canadian Pacific Railway Co. and railroad telegraphers on its system.	.....do.....	C. P. R. system.....	1, 600	Concerning dismissal of man and alleged breach of contract.
June —	Grand Trunk Pacific Railway Co. and its employees (several orders).	.....do.....	Western lines of G. T. P. R.	b 1, 100	Concerning conditions of labor.
June —	Canadian Northern Railway Co. and its employees. (Maintenance of way.)	.....do.....	C. N. R. system.....	c 1, 800	.....

*Street railways.*

1908. May 8	Ottawa Electric Railway and its employees.	Employees.	Ottawa, Ont. ....	256	Concerning wages and conditions of labor.
Sept. 3	Quebec Heat, Light, and Power Co. and its street railway employees.	.....do.....	Quebec, Que. ....	116	Concerning alleged wrongful dismissal of certain employees.
1909. Apr. 16	Winnipeg Street Railway Co. and its employees.	.....do.....	Winnipeg, Man. ....	d 600	Concerning wages and hours of labor.

*Shipping.*

1908. Mar. 6	Dominion Marine Association and Lake Seamen's Union.	Employees.	Kingston, Ont., and ports of Great Lakes.	450	Concerning wages and conditions of labor.
1909. May —	Canadian Pacific Railway Co. and longshoremen in its employ.	.....do.....	Owen Sound, Ont. ...	250	Concerning wages and time of payment.

## B.—INDUSTRIES OTHER THAN MINES, AGENCIES OF TRANSPORTA

1908. Dec. 17	The John Ritchie Co. (Limited) and certain employees (lasters).	Employers and employees.	Quebec, Que. ....	300	Concerning introduction of certain machine, and wages.
1909. Apr. 26	Dominion Textile Co. and certain of its employees (mule spinners).	Employees.	Montreal, Que. ....	e 3, 070	Concerning wages and the abolition of black list.
July —	City of Saskatoon and members of Federal Labor Union.	.....do.....	Saskatoon, Sask. ....	f 300	Concerning wages and conditions of labor, etc.

a Directly, 40; indirectly, 260.

b Directly, 300; indirectly, 800.

c Directly, 1,100; indirectly, 700.

## CILIATION AND INVESTIGATION—Concluded.

## TION, AND OTHER PUBLIC-SERVICE UTILITIES—Concluded.

*Railways—Concluded.*

Names of members of board.	Date on which board was constituted.	Date of receipt of report of board.	
Rev. C. W. Gordon, C.; Prof. R. Cochran, E.; T. J. Murray, M.	1909. Mar. 2	1909. Apr. 1	Differences amicably arranged before the board, and strike thereby averted.
Justice Fortin, C.; Wallace Nesbitt, K. C., E.; W. T. J. Lee, M.	May —	June 11	Unanimous report by the board in favor of the company, which was accepted by the employees, and strike thereby averted.
W. P. Sutherland, M. P., C.; F. H. McGuigan, E.; John G. O'Donoghue, M.	June 24	.....	Proceedings unfinished.
Judge Myers, C.; W. J. Christie, E.; J. G. O'Donoghue, M.	June 14	July 21	In the main the findings of the board were in favor of the men. There was no cessation of work.

*Street railways.*

Prof. A. Shortt, C.; J. F. Henderson, E.; J. G. O'Donoghue, M.	1908. May 22	1908. June 15	Differences amicably arranged before the board and strike thereby averted.
Omer Brunet, M.; W. H. Moore, E.	.....	Oct. 6	The two members of the board, appointed respectively on the nomination of employing company and employees, presented a joint statement making certain recommendations for a settlement of the disputed points, which recommendations were accepted by both parties to the dispute, a strike being thereby averted.
Rev. C. W. Gordon, C.; W. J. Christie, E.; J. G. O'Donoghue, M.	1909. May —	1909. May —	The board recommended a change in the running schedules to conform as nearly as possible to a nine-hour day instead of the ten-hour day in operation. There was no cessation of work.

*Shipping.*

Prof. A. Shortt, C.; Jas. Stewart, E.; John A. Flett, M.	1908. Apr. 1	1908. Apr. 14	Differences amicably arranged before the board and strike thereby averted.
Donald Ross, C.; Wallace Nesbitt, E.; J. G. O'Donoghue, M.	1909. May —	1909. June 17	Men went on strike before applying for board. After the board had reported in favor of the men only as regards a higher rate of pay, all recommendations were accepted by both parties to the dispute and work resumed.

## TION AND COMMUNICATION, AND OTHER PUBLIC-SERVICE UTILITIES.

Dr. Chas. Cote, C.; Felix Marois, E.; Z. Bérubé, M.	1908. Dec. 31	1909. Feb. 17	An agreement was concluded before the board covering all matters in dispute effective from February 12, 1909, to May 1, 1910, a strike being thereby averted.
Justice Fortin, C.; F. G. Daniels, E.; Arthur A. Gibeault, M.	1909. May —	May 27	Unanimous report in favor of the company in general, although one member's opinion was that the company "ought to increase the present schedule by 5 per cent." The findings were accepted by the men, a strike being thereby averted.
E. J. Mellick, C.; Alexander Smith, E.; Edward J. Stephenson, M.	Aug. 4	.....	Proceedings unfinished.

d Directly, 500; indirectly, 100.  
e Directly, 70; indirectly, 3,000.  
f Directly, 150; indirectly, 150.





## PHOSPHORUS POISONING IN THE MATCH INDUSTRY IN THE UNITED STATES.

BY JOHN B. ANDREWS, PH. D.

In connection with the general investigation of the employment of women and children, visits were made by agents of the Bureau of Labor in December, 1908, and during the early part of 1909 to 15 match factories in the United States, and information was secured in regard to the labor force, the hours of work, the wages, the conditions under which the work was carried on, etc. Although in this investigation the inquiries of the agents of the Bureau were for the most part limited to the factory officials and to employees interviewed in the factories, 16 definite cases of phosphorus poisoning were found, and it was learned that many other cases had occurred, not only running through a long period of years, but also during recent years in some of the factories where the best conditions prevailed. It was clearly evident that in all factories there was among both the workers and the employers an imperfect realization of the dangers of working with phosphorus and that in but few factories were the necessary precautions fully observed. Before the field work in connection with the investigation as to working conditions in match factories had been completed it was learned that the American Association for Labor Legislation had begun through its secretary, Dr. John B. Andrews, a study of the extent of phosphorus poisoning from the use of white phosphorus in the manufacture of matches in the United States. The facts disclosed by the Bureau's investigation in connection with the woman and child labor work, when considered in the light of known European experience in the use of white phosphorus, warranted a more extended study of the subject in this country. In order to avoid duplication of work a plan of cooperation was arranged between the Bureau and the American Association for Labor Legislation, and the investigation of the secretary of that association was carried out under the auspices of the Bureau of Labor. The results of the entire investigation are presented in the report which follows.—C. P. N.

### INTRODUCTION.

Those who have followed the results of studies of the conditions surrounding industrial employments with reference to the effect upon the health of the employees are impressed by the possibilities of a scientific movement to improve working conditions and reduce occupational dangers. The manufacture of matches in the United States beyond any other industry presents an opportunity to improve conditions and easily to make a most dangerous industry entirely harmless. Peculiar to this industry is a disease which, without great expense, without a long struggle against poverty, indifference, ignorance, and neglect, may be absolutely eliminated by the prohibition of the use of white phosphorus. This disease, known to the medical and dental professions as phosphorus necrosis, continually threatens those who work in match factories where poisonous phosphorus is used. The phosphorus most frequently attacks the jaw bones, and sometimes necessitates the removal of an entire jaw by surgical operation. A harmless substitute for the poison that is commercially practicable is readily available. Why, then, do our manufacturers not use this substitute? Many would gladly do so, but it costs just a little more to make the nonpoisonous matches. Competition is so keen that a single manufacturer can not place himself at a natural disadvantage with his rivals in business.

In the leading countries of Europe the governments have come to the aid of both workers and manufacturers by requiring all manufacturers to discontinue the use of the poison. In these countries the manufacturers are all on an equal footing in competition and the danger of phosphorus poisoning is entirely eliminated.

### SUMMARY OF THE RESULTS OF THE INVESTIGATION.

The investigation of 15 of our 16 match factories during the year 1909 proved conclusively that in spite of modern methods and precautions phosphorus poisoning not only occurs in this country but exists in a form so serious as to warrant legislative action to eliminate the disease. Sixteen definite cases of phosphorus poisoning were discovered by special agents of the Government who visited these factories and talked with the factory managers, and it was learned that many other cases had occurred. An intensive investigation by the writer in the homes of the work people of 3 of the factories yielded a total of 82 cases. In 2 factories at least 8 perfectly authenticated serious cases are known to have occurred during the year 1909, and references have been found to 3 more. The records of more than 100 cases of the disease were discovered by the writer of this report within a very short time, though it has been the claim of some of

the match manufacturers and there is a popular impression that the trouble has not existed in a serious form for twenty years in this country.

In 1 small factory records were secured of more than 20 serious cases during the past thirty years, many of them requiring the removal of an entire jaw. This factory has been under its present ownership since 1892. In one of the most modern establishments, owned by the same company since 1880, records of 40 cases of phosphorus poisoning were secured. Of this number 15 resulted in permanent deformity through the loss of one or both jaws, and several cases resulted in death. One death occurred at this factory in June, 1908. In another factory the records of 21 cases were secured, 6 of which were in the year 1909.

For an account of phosphorus poisoning in a modern well-equipped factory owned and operated by the same company during a period of thirty years—under conditions of careful dental supervision—the reader is referred to the report of a study of the Wisconsin factory, beginning with page 98 of this report.

Detailed investigation in the 15 factories showed that 65 per cent were working under conditions exposing them to the fumes of phosphorus and the dangers of phosphorus poisoning. The women and children are much more exposed than the men. Ninety-five per cent of the women and 83 per cent of the children under 16 years of age are so exposed. The 15 factories investigated, according to statements by the manufacturers, employed 3,591 persons, of whom 2,024 were men, and 1,253 were women 16 years of age and over. Children under 16 numbered 314—121 boys and 193 girls.

At the beginning of this investigation the dentist of the principal manufacturing company in the United States stated that cases of necrosis were not uncommon twenty years ago, but that this company has had no bad cases during the past four years. He spoke, however, of some recent trouble at the factory of another company where but little effort had been made to regulate factory conditions, and remarked that a dentist told him of two recent cases there, one of which was operated upon in a hospital and resulted in the loss of a jaw.

This dentist also mentioned an old woman who as a result of phosphorus poisoning for twenty years has had no lower jaw, but masticates her food by pressing it against her upper jaw with her thumb. He also mentioned an Italian who had a tooth drawn by a physician and then upon going back to work got phosphorus necrosis and had to endure an operation.

The difficulties encountered in securing information concerning the existence of phosphorus poisoning are in some respects unusual. The

labor element, particularly the female employees, in match factories appears to be constantly changing. Some there are among the hundreds of match-factory girls who have worked ten, fifteen, or even more years in a single establishment, but such cases are uncommon. It is difficult, therefore, to find among the employees one whose memory goes back over many years to recall cases of necrosis that may have occurred several years ago, important as the knowledge of such cases is in determining the degree of danger in any particular factory. Girls who formerly worked in match factories are usually difficult to find, because of change of name by marriage or because of change of occupation and residence. And when finally located these older women often, from reasons of social pride, reluctantly admit that they ever worked in a match factory or they disclaim any interest in the subject of phosphorus poisoning on the ground that they are no longer personally concerned in the matter.

Employees now at work in the factories frequently express the greatest alarm, even when met at their homes, lest the giving of information cost them the loss of their positions. Sometimes, however, starting with the statement that they never heard of more than one case, they are later able to recall, after some careful thinking, half a dozen or more specific instances and to give names and even approximate dates. This, too, when it is a fact that employees leave the factory immediately upon learning the nature of their trouble, often without telling their most intimate friends at the bench the true cause of their leaving.

Ignorance of the dangers involved and of the practice of the most fundamental precautions is one of the difficult features of the problem. A physician in one of the towns where a match factory is located had under treatment a very serious case of phosphorus necrosis, and when asked what kind of phosphorus was used in the factory where the disease was contracted, replied that he did not know. Several dentists interviewed stated that they had been unable to find anything written on the subject of phosphorus poisoning, and several confessed that they had been "experimenting" and hoping in that way to learn what to do for their patients.

The manager of one factory even stated that they had gone on for five years, in no way suspecting that there was anything dangerous about the material they were using. Their attention was first called to the dangers of the industry by an "epidemic" of necrosis, which broke out almost simultaneously among their employees. The forewoman in one factory believed that sulphur was the cause of the disease, and another old employee declared the poisonous element was brimstone.

There is no doubt that the manufacturer in some instances leaves the employees in ignorance of the serious dangers of the occupation. Whether from selfish personal interest in maintaining regularity of employment and a relatively low wage or from ignorance on his own part, it is nevertheless true that an employer sometimes fails utterly to instruct properly his employees concerning the most fundamental precautions to minimize the dangers of this disease.

In several factories visited, for some years owned and operated by a company which has for many years prided itself (and to a large extent justly) upon its extraordinary forethought and expenditures in the interest of the health of the workers, the writer was unable to discover a single placard upon the walls warning the employees of the peculiar dangers that were imminent. Furthermore, in more than one case, while an obvious and fairly successful attempt had been made to ventilate generally the packing room by means of air pipes from the outside, there was no provision for directly carrying away the fumes which rose visibly from the wooden benches at which the packers worked. The wash-room facilities were insufficient and uninviting. Lunches were kept in paper bags in the wash room, which was also the cloakroom and closet and opened directly through an open corridor into the packing room. The girls, it was said, are forbidden to carry food to their benches, but several girls were seen carrying glasses of water from the wash room to the benches, and they drank it freely. A woman who had worked in one factory for many years was asked if mouth wash was used by the girls and if the company had ever furnished it at the factory, and she replied: "No."

Several years ago the ——— Match Company demonstrated the practicability of manufacturing the nonpoisonous "strike-anywhere" match in this country and put thousands of boxes upon the market. With each box of ordinary matches they then inclosed an advertisement of the "new discovery," and upon the box containing the latter they printed the following words:

"These matches do not contain phosphorus. A new discovery."

These matches, manufactured no less than four or five years ago, are found, after many experiments, to strike perfectly on wood and cloth and other ordinary objects, completely refuting the statement that has been made that while successful in Europe they can not be manufactured and used in America "owing to climatic conditions."

One match factory superintendent spoke feelingly of the possibilities of the harmless substitute and expressed great regret when the company discontinued its use. "There was a great satisfaction in working without a lot of poison around," he said, "and then it was worth a whole lot to know you were putting out a match with a head that a baby might suck and still not die."

But the public at that time, ignorant of the dangers involved, did not demand the nonpoisonous match, and since it was a little more expensive than the poisonous kind the former was abandoned. The president of this company, however, recently stated that the additional expense involved in the manufacture of the nonpoisonous variety was less than 5 per cent. The company owning the patent rights for the use of sesquisulphide of phosphorus in the manufacture of matches in America, "believing this article to be a remedy for the prevailing trouble in manufacturing matches, namely phosphorus necrosis," has expressed (in writing) its willingness to permit the use of the sesquisulphide of phosphorus by other match manufacturers on equal terms, if the use of white phosphorus is prohibited by law. All manufacturers of matches would thus be put upon equal terms. Two other large manufacturers of matches—one in Ohio and one in Pennsylvania—have also stated that they would be glad to conform with any uniform law on the subject. As no expensive changes in factory equipment would be called for, and as no one company would have an advantage over another, the obstacles in the way of the prohibition of the use of white phosphorus do not appear to be serious.

Entirely aside from the evidence which appears irresistibly to favor the prohibition of the poison, as a reasonable protection for the employees in this country, the importance of the international aspects of the question should not be neglected. Very desirable are uniform regulations, in order that we may aid working people by raising the standard of legislation in the less advanced countries and States and at the same time aid capitalists and employers by placing them on similar footing in international and interstate competition.

From all of the facts the conclusion appears unavoidable that the only practicable and reasonable thing to do is to absolutely prohibit the use of poisonous phosphorus in the manufacture of matches, and as a protection to our own manufacturers connect with it the prohibition of the importation or sale of matches made from white phosphorus.

#### SUMMARY OF EUROPEAN EXPERIENCE.

The early manufacture of matches was often carried on in work-rooms ill ventilated and dirty, and exposing the employees to every danger of contact with phosphorus. As a result many employees contracted the disease which they called "phossy jaw." The doctors called it phosphorus necrosis and proceeded to operate forthwith. With the increasing demand for matches conditions grew worse, and within eleven years after the phosphorus match was discovered government investigators were studying the conditions which brought on the disease.

Finally, in one country, Austria, and in one particular city, Vienna, a few small match factories within ten years sent to the hospital one hundred and twenty-six sufferers from phosphorus necrosis. About this time, the various governments of Europe began to make rules and regulations for the manufacture of matches. The infant industry was driven out of the cellars. Better ventilation and better opportunities for bathing in the factories were insisted on. But, while conditions were greatly improved, phosphorus necrosis was not eliminated. In 1872 Finland gave up attempts at regulation and prohibited the use of white phosphorus in her match factories. Denmark, in 1874, with a similar experience, followed this lead. For thirty-five years they have had no cases of phosphorus necrosis. In other countries as long as investigations were followed by more and more strict regulations, but the use of white phosphorus was not given up, phosphorus necrosis has continued to occur.

In an attempt to "regulate" the effect of the poison upon the health of workers, the various governments necessarily made rules so strict that they aided in forcing the smaller manufacturers out of business. These regulations included such provisions as medical and dental inspection at the expense of the employer, factories built according to architectural plans furnished by the government, and separate dressing rooms, wash rooms, and lunch rooms, with mouth wash and soap and towels furnished by the employer. The hours of labor were also strictly regulated and women and children were rigidly excluded from many departments. The percentage of phosphorus in the paste was limited until many manufacturers rebelled and made matches in defiance of the laws. Notices warning employees of the dangers involved in the handling of phosphorus matches were posted, and employers were required to read the warnings to their employees at stated intervals. Partly as a result of these extraordinary and expensive precautions the industry was rapidly concentrated in the hands of a comparatively few employers, and conditions were improved. But so serious was the result of the use of poisonous phosphorus, even under such careful and expensive regulations, that within the last few years the leading countries of Europe have abandoned the attempt to regulate, and have prohibited absolutely the use of the dangerous ingredient in the manufacture of matches.

In France, where the manufacture of matches is a state monopoly, the elimination of the occupational disease through prohibition came quickly as a matter of business policy. The French Government, called upon to bear the expense of the cases of poisoning, discovered the substitute for white phosphorus and lost no time in adopting its use, prohibiting the use of white phosphorus in 1897. Switzerland

decided upon prohibition in 1898, the Netherlands followed three years later, and in 1906, on account of the difficulties of eliminating the use of phosphorus in countries with an important export trade, the International Association for Labor Legislation secured an International Conference at Berne, which resulted in an international treaty providing for the absolute prohibition of the manufacture, importation, or sale of matches made from white phosphorus. This treaty was signed by France, Denmark, Luxemburg, Italy, Switzerland, the Netherlands, and Germany.

Great Britain, after a most thorough scientific investigation twelve years ago, drew up particularly stringent regulations and with an inspection system far superior to our own gave another decade to another experiment with regulation. In December, 1908, regulation having failed to eliminate phosphorus necrosis, Great Britain enacted a law prohibiting the manufacture or importation of matches containing white phosphorus, to be effective January 1, 1910, and joined the other countries in signing the Berne treaty.

Belgium's vigorous attempt to properly regulate the industry became so irksome to manufacturers that as early as 1895 they expressed a desire for prohibition just as soon as other countries would take the same step.

In Austria, after investigations which proved that in spite of "compulsory notification" the majority of cases of phosphorus necrosis remained unknown, the House of Representatives in July, 1908, passed a resolution requesting the Austrian Government to prohibit the use of the poison. Hungary has strict regulations for the protection of workers in her match factories, but is considering the advisability of absolute prohibition.

In Norway the danger of phosphorus poisoning has accelerated the movement for the substitution of safety matches, until in 1904 there were only 88 people employed under conditions exposing them to danger, and it is said to be probable that a prohibitive act will be signed within the near future.

Sweden, the home of the safety match, does not permit the use of poisonous matches at home, but she allows their manufacture for export to other countries, including the United States. This temptation to manufacture and export a commodity recognized as too dangerous for home consumption suggests the need of greater uniformity in labor legislation.

In Spain the question of prohibition is under serious consideration by the Government. Portugal has only a small interest in the manufacture of matches, which is there carried on under the direct control of the Government.



In Russia an attempt has been made, since 1892, to tax white phosphorus matches out of existence. In 1905 the tax was doubled, and in 1906 only one Russian match in fifty contained the poison.

Thus the leading countries of Europe have gone on record as favoring the absolute elimination of this occupational disease.

No American State has yet made adequate provision for the protection of the health of workers in her match factories, although for over fifty years the dangers of working with white phosphorus have been known. As early as 1855 a surgeon published a pamphlet giving the history of nine serious cases of phosphorus poisoning in New York City.<sup>(a)</sup> One of these earliest cases required the removal of an entire jaw.

From that time to the present, phosphorus necrosis has claimed its victims in the United States. In 1864, twelve more serious cases from the match factories in New York City were recorded in a letter to the New York Evening Post.<sup>(b)</sup> At that time there were seventy-five match factories scattered through the Eastern States, but the toll taken by phosphorus from these many establishments is unknown. That phosphorus necrosis, however, was a common malady twenty years ago among workers in match factories in this country is not denied by anyone. It has already been said that conditions in recent years have been greatly improved by the introduction of modern methods of ventilation to carry away the phosphorus fumes, by modern improved machinery bringing the worker less in contact with the phosphorus, and by better lavatory facilities for removing particles of phosphorus from the hands and mouths of the workers. But wherever special study has been made of phosphorus poisoning, the malady has been found to exist in serious form. It has existed, moreover, year after year, in some factories during all of the past generation, and in spite of modern attempts on the part of the most intelligent and humane employers to minimize and regulate, it still exists and claims its victims one by one. When everything is considered, it appears almost criminal to permit longer the use of a poison for which there is a harmless substitute.

#### PROCESSES OF MANUFACTURE AND PHOSPHORUS POISONING.

Although complicated by modern methods and machines, the fundamental processes in the manufacture of matches may be described in a few words. The wooden match splint is prepared; the phosphorus composition for the head of the match is mixed; one end

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<sup>a</sup> Removal of the entire lower jaw for necrosis caused by phosphoric acid gas, by James R. Wood, M. D. New York, Miller & Holman. 1856.

<sup>b</sup> Quoted in Fincher's Trades' Review of April 9, 1864, Philadelphia, Pa.

of the splint is dipped into this paste; the "green" match is allowed to dry; and finally it is boxed and wrapped.

The processes which are especially dangerous in this industry are all those which bring the employee within range of the poisonous phosphorus. In the mixing, dipping, drying, and packing rooms the danger from breathing the phosphorus fumes and from contact with the phosphorus is always present, although it may be much diminished by thorough ventilation and by the rigid enforcement of preventive measures. Also particles of phosphorus become attached to the hands and later are transferred to the mouth by the employees.

Poisoning from phosphorus has many evil effects. Some are local, others general. The general effect most frequently noted in cases of chronic phosphorus poisoning is anæmia. The daily breathing of air laden with phosphorus fumes and continual contact with the particles of phosphorus result in a gradual lowering of vitality, which in turn invites other forms of disease. This is one of the most prevalent and most serious results of phosphorus poisoning. But such general effects are much more difficult of actual determination, and consequently the local effects which are more conspicuous receive the greater attention.

Phosphorus necrosis, the peculiar local form of the disease, is caused by the absorption of phosphorus through the teeth or gums. The generally accepted theory is that minute particles of the poison enter, usually, through the cavities of decayed teeth, setting up an inflammation which, if not quickly arrested, extends along the jaw, killing the teeth and bones. The gums become swollen and purple, the teeth loosen and drop out, and the jawbones slowly decompose and pass away in the form of nauseating pus, which sometimes breaks through the neck in the form of an abscess or, if not almost continually washed out, oozes into the mouth where it mixes with the saliva and is swallowed.

Treatment is largely preventive, but when the disease is once established a serious surgical operation is often the only means of arresting the process of decay. In many instances of poisoning it is necessary to remove an entire jaw, and in several cases both jaws have been removed at a single operation. A number of cases of necrosis have resulted in death.

It is the awfulness of this disease and the ease with which it can be prevented that has led many countries, where the effects of the disease and the means for its prevention have been studied, to do away with the disease forever.

Two kinds of phosphorus are used in the manufacture of matches. One is the red or amorphous variety contained in the friction surface of safety-match boxes. This, when pure, is entirely harmless. It is

made by baking in a closed vessel the poisonous or white (yellow) phosphorus, and is consequently more expensive. The poisonous phosphorus is made from bones, and when sold for commercial purposes is usually in the form of sticks in appearance not unlike lemon candy. A very small amount of this poison is sufficient to cause death.

Broadly speaking, three kinds of matches are manufactured. One is the "safety" match, which must be struck on a prepared surface on the box. This match contains no phosphorus and is harmless. The igniting composition is painted on the box and contains red phosphorus, which, when pure, is nonpoisonous. Although used almost exclusively in one or two countries of Europe, their manufacture in this country is still very limited, and requires no more than passing comment.

The second kind of match can be struck on any ordinary rough surface, and is called the "strike-anywhere" phosphorus match. This is the familiar parlor match. As made in America the paste for the head of this ordinary match contains poisonous phosphorus, which is the cause of the peculiar occupational disease, phosphorus necrosis, among workers in match factories. The use of this poisonous element is now prohibited in the leading civilized countries of the world, but no special action has yet been taken for the protection of working people in this country.<sup>(a)</sup>

The third variety of match also possesses the desirable quality of striking anywhere and is at the same time nonpoisonous. This is the strike-anywhere match, now manufactured and used in those countries where public sentiment has been sufficiently aroused to prohibit the use of the white phosphorus in match making. In France, where the substitute for white phosphorus was discovered and where it was first used, the match business has been a government monopoly for more than twenty years, and as such threw upon the Government the burden of bearing the human loss resulting from the peculiar hazards of the industry. French government officials noticed that the profit they had hoped to receive from this business was rapidly drawn away in the form of compensation for sickness and death from phosphorus poisoning. Experts were set to work to find a substitute for the poisonous element, and they found it in the sesquisulphide of phos-

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<sup>a</sup> At the time of this investigation only one State—Ohio—had any specific provision restricting the employment of children in match factories. More recently, several other States—New York, Pennsylvania, and Oklahoma—have endeavored to prevent employers from using children of tender years in match manufacture, but the administration of these provisions offers no adequate protection for older workers. In one State visited, the chief factory inspector and his chief clerk were unaware of the existence of two match factories in their State, although the factories were not new.

phorus. For twelve years, in France, this substitute has been successfully employed, and its use has been extended to several other countries, which have absolutely prohibited the manufacture, importation, and sale of matches made from white phosphorus.

#### DEVELOPMENT OF THE MATCH INDUSTRY IN THE UNITED STATES.

The first patent granted in the United States for a friction match was to Alonzo D. Phillips, of Springfield, Mass., in 1836.<sup>(a)</sup> The manufacture of matches in this country began the same year, and in 1842, Reuben Partridge invented the first splint cutting machine. From that time to the present the principal inventions of machinery in this industry have been made by Americans.

The industry developed slowly for a short time. In 1850 there were only 250 wage-earners engaged in the manufacture of matches. All of these were free males 15 years and over. But ten years later there were 75 establishments employing a total of 1,252 wage-earners, of whom 648 were women. The capital employed was given as \$361,750, and the value of product as \$698,566. At the end of another decade, in 1870, the number of establishments was the same, but the number of employees was more than doubled. Out of a total of 2,556 wage-earners, only 609 were men 16 years of age and over. There were 858 children under 16 years of age and the remainder, 1,089, were women 16 years of age and over.<sup>(b)</sup> By 1870, too, the capital invested was more than one and one-half millions, the cost of materials used was over one million dollars, and the value of the product exceeded three and one-half millions of dollars.

During the decade 1860 to 1870, however, a new influence began to affect the match industry. As a result of the civil war the Federal Government required manufacturers of matches to place a 1-cent revenue stamp on each ordinary small box of matches. A discount was given to manufacturers who purchased stamps in large quantities, and the discount increased with the amount of the purchase. If the manufacturer furnished his own design for the stamp, the Commissioner of Internal Revenue was authorized to give 5 per cent discount on purchases ranging from \$50 to \$500 and of 10 per cent on purchases in excess of \$500.

A credit of sixty days was specially given to those manufacturers of matches who could offer satisfactory security for payment. Formerly

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<sup>a</sup> One Hundred Years of American Commerce, edited by Chauncey M. Depew, LL.D., v. 2, pp. 460-465. New York, 1895.

<sup>b</sup> A committee which visited the match factories of Detroit in 1866 found a large number of girls, many of them not over 10 and some even as young as 7 years of age.—Detroit Daily Union quoted in Boston Daily Evening Voice, May 3, 1866.

it was a simple matter for anyone to manufacture matches in a small way in the home or a little shop, but the entire business fell into the hands of a monopoly.<sup>(a)</sup>

The tax was removed in 1883, and in Baltimore the retail price of matches immediately decreased 50 per cent more than the amount of the tax.

In 1880, at the time of the organization of the Diamond Match Company, the number of factories had been reduced from seventy-five to thirty-seven. Ten years later, in 1890, the number had been further reduced to twenty-seven, and in 1900 there were twenty-two. At present (1909) the number is but sixteen.

The following table, drawn from the reports of the United States Census Office, shows how the concentration of the industry has been accompanied by a remarkable development until in 1905, with five and one-third millions of dollars of capital invested, and with an annual product valued at a little more than the capital invested, only 3,185 wage-earners were employed:

NUMBER OF ESTABLISHMENTS, CAPITAL INVESTED, WAGES AND AVERAGE NUMBER OF WAGE-EARNERS, COST OF MATERIAL USED AND VALUE OF PRODUCTS, IN THE MANUFACTURE OF MATCHES IN THE UNITED STATES, EACH CENSUS YEAR 1850 TO 1900 AND IN 1905.

[From United States censuses of 1850, 1860, 1870, and census Report on Manufactures, 1905, Part 1.]

Census.	Number of establishments.	Capital.	Average number of wage-earners.				Wages.	Cost of materials used.	Value of products.
			Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Total.			
1850.....	.....	.....	<sup>a</sup> 250	.....	.....	250	.....	.....	.....
1860.....	75	\$361,750	<sup>b</sup> 604	<sup>c</sup> 648	.....	1,252	\$179,450	\$229,720	\$698,566
1870.....	75	1,521,820	<sup>d</sup> 609	<sup>e</sup> 1,089	<sup>f</sup> 858	2,556	616,714	1,179,666	3,540,008
1880.....	37	2,114,850	868	1,120	231	2,219	535,911	3,298,562	4,668,446
1890.....	27	1,941,092	780	847	69	1,696	473,556	935,008	2,193,638
1900.....	22	3,893,000	1,054	793	200	2,047	612,715	3,420,740	6,005,937
1905.....	23	5,334,035	1,764	1,248	173	3,185	1,100,890	3,284,855	5,646,741

<sup>a</sup> Free males 15 years and over.

<sup>b</sup> Males.

<sup>c</sup> Females.

<sup>d</sup> Males over 16.

<sup>e</sup> Females over 15.

<sup>f</sup> Youths.

The value of domestic-made matches exported in 1908 (\$68,426) was not much more than one-half of the value of the product exported in 1869. The value of matches imported in 1908 (\$220,708) was considerably higher than in any year except one (1904) since the beginning of the industry.

The following table compiled from the Statistical Abstracts of the Bureau of Statistics shows the volume of matches imported and exported during the past eighteen years, together with the incon-

<sup>a</sup> Taxation in American States and Cities, R. T. Ely, p. 84.

siderable value of foreign-made matches reexported from the United States:

VALUE OF MATCHES IMPORTED INTO THE UNITED STATES AND VALUE OF MATCHES OF DOMESTIC AND OF FOREIGN MAKE EXPORTED EACH YEAR 1891 TO 1908.

[From the Statistical Abstracts of the Bureau of Statistics.]

Year.(a)	Value of matches.			Year.(a)	Value of matches.		
	Im-ported.	Exported.			Im-ported.	Exported.	
		Of do- mestic make.	Of foreign make.			Of do- mestic make.	Of for- eign make.
1891.....	\$93,180	\$73,220	\$3,297	1900.....	\$156,705	\$95,422	\$1,056
1892.....	94,368	73,666	2,993	1901.....	165,113	88,739	1,131
1893.....	135,250	67,974	3,562	1902.....	184,819	57,742	724
1894.....	156,495	66,614	2,983	1903.....	161,197	56,330	885
1895.....	203,890	94,799	2,990	1904.....	230,867	68,003	1,518
1896.....	157,486	90,315	4,201	1905.....	187,951	52,834	6,742
1897.....	207,671	70,988	2,118	1906.....	193,802	72,297	2,475
1898.....	135,611	78,548	2,832	1907.....	201,927	71,035	1,740
1899.....	128,873	103,693	2,992	1908.....	220,708	68,426	104

a Fiscal year ending June 30.

The Annual Reports on the Commerce and Navigation of the United States for the principal countries from which the \$200,000 worth of foreign-made matches now come each year into this country reveal the following data:

VALUE OF MATCHES ENTERED FOR CONSUMPTION IN THE UNITED STATES, BY PRINCIPAL COUNTRIES OF EXPORT, EACH FISCAL YEAR 1894, 1900, 1905, AND 1907.

[From Annual Reports on the Commerce and Navigation of the United States, Bureau of Statistics.]

Countries.	Matches entered for consumption during fiscal year ending June 30—			
	1894.	1900.	1905.	1907.
Austria-Hungary.....	\$2,915	\$195	\$5,743	\$14,852
Belgium.....	7,786	18,057	17,840	23,532
Canada.....	64	44	27	2,216
Denmark.....	19	238	342	563
Germany.....	7,392	21,011	27,665	19,886
Italy.....	4,092	7,590	2,506	3,016
Japan.....	476	872	636	972
Netherlands.....	9,545	553	174	24
Sweden and Norway.....	116,962	95,875	116,665	128,637
United Kingdom (England).....	7,244	12,269	15,417	7,788
Total.....	156,495	156,704	187,015	201,486

The value of domestic matches annually exported from the United States to foreign countries is almost inconsiderable. The following table, drawn from the same sources as the above, serves to emphasize the unimportance of the export item of domestic matches:

VALUE OF DOMESTIC-MADE MATCHES EXPORTED FROM THE UNITED STATES, BY PRINCIPAL COUNTRIES OF IMPORT, EACH FISCAL YEAR 1880, 1890, 1900, AND 1905.

[From Annual Reports on the Commerce and Navigation of the United States, Bureau of Statistics.]

Countries.	Value of domestic-made matches exported during fiscal year ending June 30—			
	1880.	1890.	1900.	1905.
British Honduras.....	\$1,999	\$1,035	\$3,502	\$7,826
British West Indies.....	19,459	4,031	8,078	6,069
Canada.....	3,867	3,675	18,983	8,660
Central American States.....	3,609	5,843	8,825	10,120
Colombia, South America.....	32,585	7,018	12,339	9,530
Cuba.....	1,275	257	1,976	690
French Guiana.....	1,024	1,520	.....	.....
Haiti.....	10,373	8,133	7,195	3,309
Hawaii.....	2,202	12,709	17,638	.....
Japan.....	845	1,760	.....	.....
Mexico.....	2,278	1,632	10,346	2,358
Russia (Asiatic).....	5,504	1,102	.....	1,907
Total.....	85,020	48,715	88,882	50,469

The export of foreign-made matches from the United States in 1905 was of still less importance. The principal values were reshipments of \$1,805 worth to the Central American States and \$4,500 worth to Venezuela.

Practically all of the more than five and one-half millions of dollars worth of matches manufactured in the United States in 1905 were consumed here, and only about \$200,000 worth more were imported.

The consumption of matches has increased proportionately much more rapidly than the population. Prices, it may be added, have been reduced through the improvement of machinery which literally counts matches into the boxes by the million. The factories have been established with special reference to timber supply as well as to convenience in distributing the finished product.

#### EMPLOYEES OF MATCH FACTORIES.

Full reports in regard to the employees in 15 factories (all but one of those known to exist in the United States) in 1909 show 3,591 persons, of which 2,024 are males and 1,253 females 16 years of age and over. Children under 16 years of age numbered 314—121 boys and 193 girls. These figures are those furnished by the establishments as the usual number employed.

Reports in greater detail covering employees on the pay rolls at a particular date were secured for 3,383 employees. For these employees the facts in regard to sex, age, race, conjugal condition, occupation, etc., were secured. As in a few cases not every employee reported as to each particular item, the total number reporting is in some cases somewhat less than the total number on the pay rolls—3,383.

The following table shows the age distribution of males and females employed in the 15 factories:

NUMBER AND PER CENT OF EMPLOYEES OF SPECIFIED AGES IN 15 MATCH FACTORIES IN THE UNITED STATES, 1909, BY SEX.

Age.	Number of employees.			Per cent.	
	Males.	Females.	Total.	Males.	Females.
14 years.....	44	66	110	2.27	4.98
15 years.....	62	111	173	3.19	8.38
16 years.....	119	197	316	6.13	14.87
17 years.....	90	177	267	4.64	13.36
18 years.....	122	194	316	6.28	14.64
19 years.....	93	150	243	4.79	11.32
20 years.....	90	97	187	4.64	7.32
21 years.....	83	63	146	4.28	4.76
22 years.....	76	39	115	3.91	2.94
23 years.....	60	38	98	3.09	2.87
24 years.....	60	24	84	3.09	1.81
25 to 29 years.....	275	70	345	14.17	5.25
30 to 34 years.....	186	31	217	9.58	2.34
35 to 39 years.....	156	31	187	8.04	2.34
40 to 44 years.....	123	14	137	6.34	1.06
45 to 54 years.....	202	19	221	10.41	1.43
55 to 64 years.....	80	4	84	4.12	.30
65 years and over.....	20	.....	20	1.03	.....
Total age reported.....	1,941	1,325	3,266	100.00	100.00
Age not reported.....	47	70	117	.....	.....
Total.....	1,988	1,395	3,383	.....	.....

A second table shows the number of males and females of each race and of each age in the 15 match factories investigated. It will be seen from the table that approximately one-third of all the employees were Americans, there being only a slight difference between the males and females in this respect. The children, as well as the adult workers, represented many races, although for some races no child workers were reported.

NUMBER OF EMPLOYEES IN 15 MATCH FACTORIES IN THE UNITED STATES, 1909, BY AGE AND RACE.

[47 males and 70 females age reported and 5 males race not reported are omitted from this table.]

Sex and race.	Age (years).															Total.
	14.	15.	16.	17.	18.	19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 54.	55 to 64.	65 and over.		
MALES.																
American, white.....	11	20	53	29	47	37	130	99	71	51	48	69	23	8	696	
Austrian.....			1				2	1	1	2	4	1			12	
English.....		1	4	2	6	5	16	16	7	8	6	11	7	2	91	
English Canadian.....			1			3	2	2	2	2	1	7	1		21	
French.....			1			1	4	2	2			3	3	1	17	
French Canadian.....	1			1	4	2	6		1	3	6	5	3	1	34	
German.....	18	19	21	22	20	17	62	41	32	40	24	44	18	3	381	
Greek.....		1		3		1	8	3	1	1					18	
Hungarian.....		1	5	2	4	5	22	16	11	8	9	13	2		98	
Irish.....			2	2	4	2	9	8	4	7	9	14	10	3	74	
Italian.....	4	5	5	11	16	12	49	31	20	8	5	4	1		171	
Polish.....	7	9	17	6	11	1	21	20	10	4	2	9	5		122	
Russian.....							5	2	2	3	1	1			14	
Scandinavian.....	1	3	3	4	1	3	2	2	1	3	2	3			28	
Scotch.....							1		1	1	1	8	5		17	
Servian.....			1	1		1	3	4	4	1					19	
Slav.....			1	4	5	2	21	13	10	8	2				66	
Welsh.....					1		2	4	1	2	2	1		1	14	
All others.....	1	3	1	2	3	1	4	10	5	4	1	5	2	1	43	
Total.....	43	62	117	83	122	93	369	274	186	156	123	202	80	20	1,936	



NUMBER OF EMPLOYEES IN 15 MATCH FACTORIES IN THE UNITED STATES, 1909, BY AGE AND RACE—Continued.

Sex and race.	(Age (years).														Total.
	14.	15.	16.	17.	18.	19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 54.	55 to 64.	65 and over.	
FEMALES.															
American, white.....	17	33	73	53	67	59	99	32	11	13	5-	7	2	.....	471
Canadian.....	2	1	2	6	1	1	4	.....	.....	.....	.....	.....	.....	.....	17
English.....	1	1	3	4	5	3	8	.....	2	.....	1	.....	.....	.....	28
English Canadian.....	1	3	4	3	1	4	3	.....	.....	.....	.....	1	.....	.....	20
French Canadian.....	.....	2	8	5	4	.....	5	3	.....	.....	.....	.....	.....	.....	27
German.....	36	44	50	56	66	51	80	12	4	3	1	5	1	.....	410
Hungarian.....	.....	.....	1	2	6	4	3	3	3	3	.....	1	.....	.....	26
Irish.....	.....	5	6	5	2	4	8	5	5	7	2	3	.....	.....	52
Italian.....	1	8	3	3	2	3	2	1	2	1	3	2	1	.....	32
Polish.....	7	10	35	27	17	11	25	2	.....	2	.....	.....	.....	.....	136
Scotch.....	.....	1	.....	1	.....	1	1	.....	1	.....	1	.....	.....	.....	5
Scandinavian.....	1	2	4	1	4	1	2	1	.....	.....	.....	.....	.....	.....	16
Slav.....	.....	.....	2	8	12	3	14	3	1	.....	1	.....	.....	.....	44
Welsh.....	.....	.....	1	2	1	.....	1	1	.....	1	.....	.....	.....	.....	7
All others.....	.....	1	5	1	6	6	5	7	2	1	.....	.....	.....	.....	34
Total.....	66	111	197	177	194	150	261	70	31	31	14	19	4	.....	1,325

Another table shows the conjugal condition of all employees, male and female, in the 15 match factories investigated, classified by race. It will be seen from the table that nearly half of the males were married, while of the females only about 7.5 per cent were married. Considerable differences will be noticed between the several races as to the per cent of those who are married. Among the males, for example, for several of the foreign races, as Greeks, Italians, Polish, and Scandinavians, the per cent of married workers is very low. Among the females of certain races, also, scarcely any married women workers were found.

CONJUGAL CONDITION OF EMPLOYEES IN 15 MATCH FACTORIES, BY SEX AND RACE.

Sex and race.	Single.	Married.	Wid- owed.	Total.	Conjugal condition not re- ported.
<b>MALES.</b>					
American, white.....	343	345	8	696	1
Austrian.....	2	9	1	12	.....
English.....	35	47	7	89	2
English Canadian.....	7	14	.....	21	.....
French.....	5	11	1	17	.....
French Canadian.....	16	18	.....	34	.....
German.....	193	187	2	382	.....
Greek.....	14	4	.....	18	.....
Hungarian.....	41	56	1	98	.....
Irish.....	26	40	7	73	1
Italian.....	128	41	2	171	.....
Polish.....	78	44	.....	122	.....
Russian.....	6	8	.....	14	.....
Scandinavian.....	20	8	.....	28	.....
Scotch.....	3	14	.....	17	.....
Servian.....	9	9	1	19	.....
Slav.....	34	32	.....	66	.....
Welsh.....	5	9	.....	14	.....
All others.....	18	25	.....	43	.....
Total.....	983	921	30	1,934	4
Race not reported.....	.....	.....	.....	.....	50
Grand total.....	.....	.....	.....	1,988	.....

## CONJUGAL CONDITION OF EMPLOYEES IN 15 MATCH FACTORIES, BY SEX AND RACE—Concluded.

Sex and race.	Single.	Married.	Widowed.	Total.	Conjugal condition not reported.
<b>FEMALES.</b>					
American, white.....	420	34	18	472	
Canadian.....	17			17	
English.....	25	3		28	
English Canadian.....	18	1	1	20	
French Canadian.....	25	1	1	27	
German.....	392	12	4	408	1
Hungarian.....	9	14	3	26	
Irish.....	47	2	3	52	
Italian.....	20	7	5	32	
Polish.....	131	5	1	137	
Scotch.....	4	1		5	
Scandinavian.....	16			16	
Slav.....	33	9	2	44	
Welsh.....	6		1	7	
All others.....	22	11	1	34	
Total.....	1,185	100	40	1,325	1
Race not reported.....					69
Grand total.....				1,395	

## WAGES OF EMPLOYEES.

A study of the record of weekly earnings of the employees of the 15 match factories indicates that the dangers connected with the employment in match factories have not made it necessary to pay a high wage in order to secure an adequate working force. Thus, of 1,888 male employees whose earnings and ages were ascertained in the 15 factories investigated, 23.26 per cent earned under \$6 per week in the pay roll period reported, and only 33.52 per cent earned \$10 or more. For the 1,278 female employees whose earnings and ages were reported, 53.75 per cent earned under \$6, and only 4.47 per cent earned \$10 and over. These figures apply to employees of all ages, but an examination of the table will give full information in regard to the variation in earnings according to age groups. An examination of the second of the tables following shows that there was considerable variations in the earnings in the various factories. Thus, while in one of the larger factories only 20.8 per cent of the females earned less than \$6 in the representative week covered by the reports as to earnings, in other factories over 70 per cent, and in one case over 90 per cent, earned less than \$6.

## PER CENT OF EMPLOYEES IN 15 MATCH FACTORIES IN THE UNITED STATES EARNING LESS THAN SPECIFIED AMOUNTS IN A REPRESENTATIVE WEEK, 1909, BY SEX.

Establishment number.	Males.					Females.				
	Total employees.	Per cent earning under—				Total employees.	Per cent earning under—			
		\$4.00.	\$6.00.	\$8.00.	\$10.00.		\$4.00.	\$6.00.	\$8.00.	\$10.00.
1.....	48		8.3	39.6	62.5	65	35.4	86.2	100.0	100.0
2.....	39	10.3	30.8	66.7	79.5	33	15.2	69.7	97.0	100.0
3.....	298	7	8.8	34.3	65.5	160	1.9	21.9	58.2	82.0
4.....	38	5.3	18.5	42.2	79.0	20	50.0	85.0	100.0	100.0
5.....	57	3.5	29.8	63.1	78.9	38	15.8	76.3	100.0	100.0
6.....	10		10.0	10.0	20.0	4		75.0	100.0	100.0
7.....	18	11.1	50.0	72.2	83.3	22	31.8	77.3	100.0	100.0
8.....	441	5.7	14.8	44.3	81.9	161	18.0	68.3	96.3	99.4
9.....	184	1.6	4.3	11.9	36.9	115	1.7	20.8	39.1	80.8
10.....	132	22.0	34.9	56.1	72.0	93	43.0	79.6	94.6	100.0
11.....	65			24.6	41.5	56	5.4	44.7	94.7	96.5
12.....	58	8.6	10.3	18.9	24.1	57	22.8	52.6	84.2	94.7
13.....	237	30.8	48.9	61.1	69.1	221	11.8	54.3	100.0	100.0
14.....	255	25.9	45.5	53.3	67.0	169	5.9	38.4	76.3	100.0
15.....	8	25.0	75.0	87.5	87.5	64	71.9	92.2	95.3	100.0
Total, 15 factories.....	1,888	11.4	23.3	43.4	66.5	1,278	17.5	53.8	84.1	95.6

## NUMBER AND PER CENT OF EMPLOYEES IN 15 MATCH FACTORIES IN THE UNITED STATES EARNING SPECIFIED AMOUNTS IN A REPRESENTATIVE WEEK, BY AGE AND SEX, 1909.

## NUMBER.

Actual weekly earnings.	Males.							Females.						
	Under 16 years.	16 and 17 years.	18 to 20 years.	21 to 24 years.	25 years and over.	Total.	Not re-ported.	Under 16 years.	16 and 17 years.	18 to 20 years.	21 to 24 years.	25 years and over.	Total.	Not re-ported.
Under \$3.00...	20	32	30	24	45	151	21	25	43	16	10	14	108	24
\$3.00 to \$3.99...	19	16	8	6	15	64	2	27	42	28	5	13	115	5
\$4.00 to \$4.99...	34	47	12	3	18	114	4	69	63	45	15	23	215	7
\$5.00 to \$5.99...	22	30	18	10	30	110	3	32	89	77	26	25	249	6
\$6.00 to \$6.99...	6	37	38	30	21	132	3	11	63	77	21	23	195	6
\$7.00 to \$7.99...		18	73	44	113	248	1	3	49	84	29	27	192	11
\$8.00 to \$9.99...		11	81	76	268	436	6	1	19	70	33	24	147	10
\$10.00 to \$11.99...		5	22	46	201	274	1			26	20	9	55	
\$12.00 and over		4	15	38	302	359	4			1		1	2	1
Total....	101	200	297	277	1,013	1,888	45	168	368	424	159	159	1,278	70
Earnings not reported....	5	6	9	4	30	54	1	9	7	16	5	10	47	

## PER CENT.

Under \$3.00...	19.80	16.00	10.10	8.66	4.44	8.00	.....	14.88	11.69	3.77	6.29	8.80	8.45	.....
\$3.00 to \$3.99...	18.81	8.00	2.69	2.17	1.48	3.39	.....	16.07	11.41	6.61	3.14	8.18	9.00	.....
\$4.00 to \$4.99...	33.67	23.50	4.04	1.08	1.78	6.04	.....	41.07	17.12	10.61	9.43	14.47	16.82	.....
\$5.00 to \$5.99...	21.78	15.00	6.06	3.61	2.96	5.83	.....	19.05	24.19	18.16	16.35	15.72	19.48	.....
\$6.00 to \$6.99...	5.94	18.50	12.80	10.83	2.07	6.99	.....	6.55	17.12	18.16	13.21	14.47	15.26	.....
\$7.00 to \$7.99...		9.00	24.58	15.88	11.16	13.14	.....	1.79	13.31	19.81	18.24	16.98	15.02	.....
\$8.00 to \$9.99...		5.50	27.27	27.44	26.46	23.09	.....	.59	5.16	16.51	20.76	15.09	11.50	.....
\$10.00 to \$11.99...		2.50	7.41	16.61	19.84	14.51	.....			6.13	12.58	5.66	4.31	.....
\$12.00 and over		2.00	5.05	13.72	29.81	19.01	.....			.24		.63	.16	.....
Total....	100.00	100.00	100.00	100.00	100.00	100.00	.....	100.00	100.00	100.00	100.00	100.00	100.00	.....

The following shows the proportion of the total employees exposed to the dangers of phosphorus poisoning, by age and sex:

NUMBER OF EMPLOYEES EXPOSED TO PHOSPHORUS FUMES AND NUMBER NOT SO EXPOSED IN 15 MATCH FACTORIES IN THE UNITED STATES, 1909, BY AGE AND BY SEX.

	Age.								Total.
	14 years.	15 years.	16 years.	17 years.	18 years.	19 years.	20 years and over.	Not re- ported.	
<b>Males:</b>									
Exposed to phosphorus fumes.....	28	42	80	44	62	53	541	31	881
Not exposed to phosphorus fumes.....	16	20	39	46	60	40	870	16	1,107
Total.....	44	62	119	90	122	93	1,411	47	1,988
<b>Females:</b>									
Exposed to phosphorus fumes.....	60	102	186	171	188	146	406	67	1,326
Not exposed to phosphorus fumes.....	6	9	11	6	6	4	24	3	69
Total.....	66	111	197	177	194	150	430	70	1,395
<b>All employees:</b>									
Exposed to phosphorus fumes.....	88	144	266	215	250	199	947	98	2,207
Not exposed to phosphorus fumes.....	22	29	50	52	66	44	894	19	1,176
Total.....	110	173	316	267	316	243	1,841	117	3,383

It will be seen from the above table that of the 3,383 employees 65 per cent were working under conditions exposing them to the fumes of phosphorus and the dangers of phosphorus poisoning. The female employees were much more largely exposed than the males, 95 per cent of the former being so exposed against only 44 per cent of the latter. The 283 children employed were very largely in occupations bringing them in contact with the phosphorus fumes, 82 per cent of all children being so exposed.

#### DESCRIPTION OF PROCESSES IN MATCH MANUFACTURE.

A modern up-to-date match factory is an establishment of many different activities which are so related as to bring under one roof the processes of converting a rough unpeeled log into a neatly printed, pasted, and labeled box of 1,000 matches for 5 cents.

The rear of a match factory might easily be mistaken for a sawmill. And it is a sawmill. It is also a planing mill, a blacksmith shop, a machine shop, a paint shop, a carpenter shop, a paper-box factory, a printing establishment, and a chemical laboratory. One match factory in this country employs men exclusively in 52 distinct occupations. It employs women exclusively in four more distinct occupations, and back 1,000 miles in the woods it keeps a big gang of lumber jacks busy bringing out one of the raw products.

The lumber from which match splints are made is usually pine, poplar, or basswood. White pine makes the best splints, but it is

hard to get and poplar and basswood are now commonly used in making the round and square splints for parlor matches.

The head of the match is formed by dipping that end of the wooden splint into a paste which usually contains glue, powdered glass, oxide of zinc, chlorate of potassium, and a coloring mixture, in addition to white phosphorus. (<sup>a</sup>) The phosphorus element is usually only about 5 to 7 per cent of the composition.

Broadly speaking, there are only three kinds of matches. One, the "safety" match, which lights only when struck on a prepared surface, contains no phosphorus, and consequently is not dangerous to the health of the workers. Two factories in this country employ a part of their establishments in manufacturing safety matches, both the box and the book variety, but it is still a relatively unimportant industry in this country, and on account of the nonpoisonous nature of the composition used, requires little attention in this report.

The second kind of match, and the one with which this report deals almost exclusively, is the lucifer, or parlor, or strike-anywhere match. This is the ordinary match, made either with a square or round splint and headed with a paste containing white phosphorus, which ignites when struck anywhere. An older form of the phosphorus match, now nearly forgotten outside of New England and California, is the sulphur or card (or block) match, so named on account of the presence of sulphur in the head and the card (or block) form in which the matches are sold. The card (or block) match, however, is no longer manufactured except in two factories, and its sale in this country is practically confined to New England and the Pacific coast. A brief description of the distinctive processes of its manufacture will be given when the Maine factory is described.

The common phosphorus match, so common that we have ceased to wonder at its intrinsic marvels, is manufactured in modern factories by processes little less marvelous than the product itself. Mechanical invention has worked wonders in the substitution of nearly automatic devices in place of the work of the human hand.

The actual processes through which the rough log passes before it emerges neatly boxed for the retail trade vary somewhat in different factories according to the standards of method and machine. Methods of handling differ even in the making of a single variety of match, and several kinds are manufactured. But on the whole the fundamental process is the same. The splint is prepared by machinery; the paste is mixed; the splint is dipped in this paste; the "green" match is dried, and then finally it is wrapped and boxed.

The process, however, in a modern establishment is complicated. A description of one factory of modern type will answer for all, and

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<sup>a</sup>Also called yellow phosphorus, because when exposed to the light it becomes yellowish.

the degree to which less modern establishments fail to measure up to this standard will be indicated hereafter in connection with the description of local conditions.

The product of this factory is matches of several trade varieties, which may be divided into two kinds, safety matches which can only be struck on the prepared surface, and matches which may be struck anywhere.

The work is continuous throughout the year.

The labor force concerned in the turning out of the product is unskilled.

It is a machine industry, as highly organized as the character of the product will permit.

In this factory no children are employed and the employment of women is limited to the occupations of packer, wrapper, slider, and dining-room attendant. In these occupations no men are employed. Men are employed exclusively as—

Blacksmith,	Porter,	Carpenter,
Block surveyor,	Laborer,	Trucker,
Block feeder,	Filer, saw,	Sweeper,
Case maker,	Gauger, composition,	Cleaner,
Composition man,	Block sorter,	Elevator man,
Composition mixer,	Case coverer,	Press feeder,
Paper cutter,	Glue carrier,	Box feeder,
Printer,	Printer,	Ink maker,
Pressman,	Book machine operator,	Lumber sorter,
Box maker,	Book match dipper,	Engineer,
Slide maker,	Planer,	Electrician,
Scorer,	Machinist,	Chemist,
Strip cutter,	Fitter, pipe,	Fireman,
Shuck machine operator,	Die maker,	Steam fitter,
Slip maker,	Oiler,	Gateman,
Auto driver,	Painter,	Dressing-room attendant.
Teamster,	Electrician,	
Janitor,	Plumber and steam fitter,	

The match machines in this factory, while they are called automatic are not really so, for attention is required at various operations and adjustment of many of its parts. The machine actually is made up of five different parts, viz:

1. Block cutting into match splints.
2. Dipping splints in paraffin.
3. Dipping splints in composition paste.
4. Drying matches.
5. Filling boxes.

Blocks of white pine, which have been selected so as to be free from knots and of a certain dimension, are fed into the machine by an operative called a "block feeder." The machinery of this section holds the block against knives, which cut out the splints and

force them into the perforations in a series of hinged iron plates, which move as an endless chain over the entire length of the machine. These iron plates leave the front end of the machine where the splints have been inserted, projecting from their under surfaces. They are now passed through a bath of melted paraffin and finally over a roller which is coated with the phosphorus paste by running in a trough containing the composition, which trough is in turn supplied by a pipe leading from a covered tank on the machine holding a supply properly heated. This last operation puts the head on the match. The finished match is now ready to be dried, which in this factory is accomplished by the movement of the endless chain of plates over a series of drums, bringing them during their transit in contact with currents of air and drying them, an operation which may vary in time with the weather, but which usually would take an hour. Arriving again at the front of the machine, the matches are punched out of the plates by a mechanical feature of the machine, and are then handled by the filling mechanism, passing finally to a revolving table at which girls are seated, who slide the covers on the boxes.

Different machines in this establishment have a different composition of crew, due to the character of the packing. On the packing of "searchlights" there are the following:

- 1 block feeder.
- 1 straightener.
- 1 slider.
- 1 wrapper to two machines.
- 1 composition man, gauging and tending rolls and composition on 7 machines.
- 3 porters at work in this department.

In this factory the automatic machine is used in which the match remains on the machine until it is ready to be packed. On some new machines the boxes are filled also.

*Block feeder.*—The block feeders are adult males who may either sit or stand at their work. They feed dimension blocks into the machine, and use a hatchet to cut knots out of blocks before feeding. There is no dangerous feature of the work, and they are paid an hourly rate.

*Straightener.*—An adult male who attends to the automatic box-filling section of the match machine. He stands at his work, and is paid an hourly rate.

*"Sliders"* are adult females who do their work seated at the side of the automatic machine, and their work is to slide the outer box cover over the filled box of matches. They handle no matches directly, as the box is filled at the machine. The rate of pay varies from 1 to 5½ cents per case, piecework, to 8 and 9 cents per hour, day work. They have nothing to do with machinery.

*Wrapper.*—The wrappers, who are adult females, wrap in paper a certain number of boxes of matches (usually 12). They work standing at a table and use paste and brush. They have to do no heavy lifting, nor do they operate any machine. The rate paid ranges from 1 to 5½ cents per case and from 25 to 80 cents per 100 gross, piece rate, and from 8 to 10 cents per hour, time rate. They are frequently changed from one variety of packing to another, as the needs of the factory may require. At times one girl wrapping will take care of the output of two match machines.

*Composition man.*—One man, called a composition man, attends to the supply of composition on seven automatic machines, and also to the temperature of the paraffin and its supply. He has nothing to do with the operation of the machine. He is paid an hourly rate.

*Porters.*—Porters are male adults, who attend to sweeping the floor and general work of cleaning.

On the automatic match machine, packing 200's on a circular table with revolving outer side and a hopper in the center of the table holding a supply of slides, the following persons are employed: One block feeder, 1 box feeder, 2 pickers, 1 straightener, 2 sliders, 1 wrapper.

*Box feeder.*—The box feeder is an adult male, who stands at work and feeds into the machine, by hand, pasteboard boxes which are automatically filled. He is not exposed to any dangerous machinery, and the work requires no skill.

*Straightener.*—When the filled boxes come from the machine they are in disorder, and the top of the filled box must be arranged before it goes to the packer. Adult females do this work, which is paid for at an hourly rate. They use no machine and they stand at their work.

*Pickers* are adult females, who sort out imperfect matches. They are paid an hourly rate. There is no dangerous machinery; they stand at worktable.

*Sliders.*—The boxes of filled matches pass in front of the "sliders" on the revolving table, and a supply of the pasteboard slide covers are in a hopper in the center, which is stationary. The "slider" takes a slide and slips it over the filled box, and the box of matches is then ready for the wrapper. They do not have anything to do with machinery.

*Box-machine operator.*—The operators on paper box machines are all adult males, who stand at their work. One man attends three or four machines. The strawboard is fed from a roll of proper dimension, and the various parts of the box are glued and the machine finishes the box. It does not require continuous attention, as it is



automatic after the feed is adjusted. They are paid from 12½ to 17½ cents an hour.

*Slide-machine operator.*—The operators on these machines are all adult males, who stand at their work, and each attends three machines. This machine from printed strip makes slide covers, and lays the sand strip on the side of the cover. The machine is automatic, and the attendant is protected by the needful guards. They are paid an hourly rate.

*Strip cutter.*—This machine cuts strips of strawboard into lengths used to lay over the matches in box. The operator is an adult male, who is paid an hourly rate.

*Shuck-machine operator.*—The shuck machines are operated by adult males, who stand at their work. The machine is fed by a continuous roll of strawboard, which it scores, folds, forms, prints, and lays a sand line, finishing a slide for a match box. A single operative attends each machine and is paid from 16 to 20 cents an hour. The operations are automatic, and there is no dangerous feature.

*Stripper-machine operator.*—The stripping-machine operators are adult males, who attend cutting machines, which cut strawboard into strips of a size to be used in box machine. They are paid a rate of 16 to 18½ cents an hour. The machines have no dangerous feature.

The operation of the "stick" machine differs from the other automatic machines for the reason that the block is not fed into the machine, but the splints are prepared and fed to the machine. The other operations do not differ. The force is composed of the following persons:

1 splint feeder.....	Male.	6 sliders.....	Females.
2 box feeders.....	Males.	2 wrappers.....	Females.
1 straightener.....	Male.	1 shaker.....	Male.

The occupations concerned in the operation of the stick match machine are not sufficiently different from others which have been described to warrant giving the details. The composition used has a white phosphorus base.

The book matches, as made in this establishment, are not made for sale to consumers, but for free distribution as an advertising device. They are made entirely of paper, and the composition is a safety head, with the striking surface laid on the cover. Each match strip is printed, and the holder is also ornamented and printed. The force of this department is composed of the following:

Cutting and printing machine attendant.....	Male.
Packers.....	Females.
Dippers, paraffin.....	Males.
Dippers, composition.....	Males.
Cutter.....	Male.

Cover feeder.....	Male.
Match feeder.....	Male.
Taker-off.....	Male.
Packers.....	Females.
Porters.....	Males.

In the composition used in making the heads of book matches, which in this establishment are "safeties," there is no white phosphorus, and consequently there is no suspicion of its being injurious.

The processes which are particularly dangerous to health in the manufacture of matches are those which bring the worker into contact with the white phosphorus or its fumes. With imperfect ventilation, the fumes pervade the air of the mixing, dipping, drying, and packing room. With handling of matches the particles of phosphorus become attached to the hands and are transferred to the mouths of the workers. Without proper wash-room and lunch-room facilities, both fumes and particles of phosphorus are likely to cause necrosis of the jaw and other ailments of a serious nature. Without frequent and careful dental examination the disease is likely to fix itself upon the workers and result in death, or disfigurement and agony worse than death. It is now agreed by practically all qualified students of this question that the only certain way to eliminate the danger of disease in all processes is to prohibit the use of white phosphorus.

There is a third variety of match which has the desirable feature of striking anywhere, and which is at the same time nonpoisonous. It was brought into existence to abolish phosphorus necrosis, and the manner of its coming was as follows:

The French Government conceived the idea of getting a revenue by making the manufacture of matches a state monopoly. But soon it was found that state compensation to the sufferers from phosphorus poisoning was eating up this revenue. Therefore the Government of France asked its scientists to find a substitute for poisonous phosphorus in the manufacture of matches, and after many attempts, it was discovered. It was found that one of the phosphorus salts, namely, the sesquisulphide, could be substituted for the white phosphorus. At first, as with most discoveries, there were unsatisfactory results, but it has now been thoroughly demonstrated that the substitute is in every way practicable.

The new process does not involve any great amount of additional expense either in the production of the substitute or in the rearrangement of factory equipment. It makes possible the elimination of many expensive and annoying regulations. It absolutely eliminates the occupational disease, phosphorus necrosis.

The formula from which these nonpoisonous, strike-anywhere matches are made is as follows:<sup>(a)</sup>

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<sup>a</sup> Diseases of Occupation, by Thomas Oliver, 1908, p. 50.

	Parts.
Sesquisulphide of phosphorus.....	6
Chlorate of potassium.....	24
Oxide of zinc.....	6
Red ocher.....	6
Powdered glass.....	6
Glue.....	18
Water.....	34

The exclusive right to the use of this formula in the United States is owned by a single company, but this company has offered to grant the use of its patents on equal terms to independent manufacturers, if by governmental action the use of poisonous phosphorus in the manufacture of matches is prohibited.

#### PHOSPHORUS USED IN MATCH MANUFACTURE AND ITS EFFECT UPON THE HEALTH OF THE WORKERS.

Two kinds of phosphorus are used in the manufacture of matches. One is harmless. The other is a deadly poison. The harmless variety is known as red or amorphous phosphorus and is used in the manufacture of the paste which, when painted on the outside of the box, furnishes the friction surface for safety matches. All of the phosphorus used in the safety-match industry is of this kind. It is obtained by exposing the white or poisonous phosphorus to a high temperature in a closed vessel. It is insoluble in the juices of the alimentary canal and when pure is regarded as harmless. Unfortunately the manufacture of safety matches is still too small an item in this country to merit much consideration.

It is the manufacture of the ordinary parlor or poisonous phosphorus match, the predominating part of the match industry in this country, that demands attention. The element which makes this ordinary match "light" when struck on a rough surface, the element which is so dangerous to the health of workers in match factories and also to small children who now and then innocently suck off the heads, is white or yellow phosphorus.

Before presenting the factory conditions in the United States and for the purpose of showing the results which have attended the use of white phosphorus elsewhere, the results of expert investigations in foreign countries are herewith epitomized, together with some of the remedial measures adopted.

Prof. T. E. Thorpe, principal chemist of the government laboratory and one of the British government commission reporting in 1898 on the use of phosphorus in the manufacture of matches, made the following statements in regard to the chemical nature of the kinds of phosphorus at that time used in the manufacture of matches, and

which are now used by the factories for the manufacture of matches in the United States:

The phosphorus employed in the manufacture of matches is of two kinds. The first is the ordinary or so-called white or yellow phosphorus, discovered by Brand, of Hamburg, in 1669. \* \* \*

Commercial phosphorus is obtained from bone ash by treating it with sulphuric acid, filtering and evaporating the product, heating this with charcoal, and afterwards distilling it.

When pure it is a colorless, transparent, highly refractive crystalline substance, forming regular dodecahedrons, of specific gravity 1.836, melting at  $44^{\circ}\text{C}$ . ( $111.2^{\circ}\text{F}$ .), practically insoluble in water, but readily soluble in carbon disulphide, less so in benzene and oil of turpentine. It readily becomes yellow when exposed to light, and absorbs oxygen from the air if moist. The absorption under ordinary atmospheric tension is accompanied by a feeble greenish-white light, or phosphorescence, which is at once arrested by traces of many essential oils, such as turpentine, eucalyptus, peppermint, etc. The products of the oxidation are phosphorous oxide and phosphoric oxide. The glow is invariably accompanied by, and is probably dependent on, the formation of ozone. Phosphorus is very inflammable, igniting at a temperature of  $34^{\circ}\text{C}$ . ( $93.2^{\circ}\text{F}$ .) and forming, with a plentiful supply of air, phosphoric oxide  $\text{P}_4\text{O}_{10}$ . If the supply of air is limited, more or less phosphorous oxide  $\text{P}_4\text{O}_6$  is produced. The so-called white or yellow phosphorus is sensibly volatile at the ordinary temperature of the air, and is readily volatilized in a current of steam. It boils at about  $270^{\circ}\text{C}$ . ( $518^{\circ}\text{F}$ .), and is highly poisonous.<sup>a</sup>)

This poisonous phosphorus is usually purchased by match manufacturers in the United States in the form of sticks of about half an inch in diameter and nearly one foot in length. These yellow sticks, which look like lemon candy, are shipped to the factory in cans weighing about 11 pounds, and are kept submerged in tanks of water until needed in the mixing room.

Continuing Professor Thorpe wrote:

The second kind of phosphorus used by the matchmaker is the red or so-called amorphous modification, the existence of which was first definitely established by Schrötter, of Vienna, in 1845. It is a microcrystalline powder obtained by heating the ordinary form at a temperature of  $230^{\circ}\text{C}$ . ( $446^{\circ}\text{F}$ .) in a closed space or in an atmosphere incapable of acting chemically upon it. It differs in all its physical attributes from the ordinary variety. It has a specific gravity of 2.2 and is insoluble in carbon disulphide, turpentine, etc. It is non-inflammable, and may therefore be handled with impunity. It may be heated to  $350^{\circ}\text{C}$ . ( $662^{\circ}\text{F}$ .) without inflaming. It is nonvolatile and absorbs oxygen at ordinary temperatures only with extreme slowness. In hot, damp climates, however, it is more prone to change. It has been alleged that it tends to revert to the ordinary

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 5.

modification, but the statement requires confirmation, and is probably based upon observations made with imperfectly purified material. In any case the process must be extremely slow, and has no practical significance to the manufacturer of matches.

All authorities agree that pure red phosphorus is not acted upon by the solvent fluids of the alimentary canal, and therefore it has no poisonous effects when swallowed.<sup>(a)</sup>

According to Dr. Thomas Oliver, also a member of the British government commission already referred to—

Swedish, or safety matches, are manufactured from red phosphorus. These only strike on the box, upon a specially prepared surface. The matches themselves do not contain the red phosphorus. This is present along with antimony sulphide in the paste that has been applied to the side of the match box. The match heads contain potassium chlorate, or chromate, and other compounds rich in oxygen, from which the oxygen necessary to induce conflagration is evolved.<sup>(b)</sup>

The head of an ordinary strike-anywhere match contains glue, phosphorus, chlorate of potassium, powdered glass, and magenta, or some such coloring agent. The paste, or "composition," contains on an average 5 per cent of phosphorus. \* \* \* Thorpe found 0.02 milligram of phosphorus in 100 liters (3.53 cubic feet) of air in the dipping room of a match factory, and in the same quantity of air in the boxing room 0.12 milligram of phosphorus. Since during several hours of each working day the dippers and boxers are inhaling this poisonous atmosphere, the fumes become dissolved in the saliva of the mouth and exercise a solvent action upon the teeth. It is not alone the air breathed that is the source of danger. The poison clings to the fingers and hands of the work people. On examining the hands of a boxer they are seen to be deeply stained by the dye given off by the heads of the matches, and they emit the characteristic garlicky odor. They glow in the dark. On analyzing the water in which 22 work people had washed their hands on leaving the factory, Thorpe found 37.3 milligrams of phosphorus, an amount equal to 4.2 milligrams of phosphorus per person for each ten hours' work.<sup>(c)</sup>

The manufacture of matches had gone on for a few years without any mishap occurring, until 1838, when Doctor Lorinser, of Vienna, diagnosed phosphorus necrosis in a female worker, Marie Jankovits. This is the first authentic case of industrial phosphorus poisoning on record. Three years previously the manufacture of lucifer matches had been forbidden by several of the German States as being too dangerous, not so much to the health of the work people as to the safety of the community on account of fire. Shortly after 1838, Doctor Knolz having reported other cases of the malady, the Austrian Government appointed a commission to make an inquiry into the conditions of work in the seven match factories that at that time existed

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 5.

<sup>b</sup> Diseases of Occupation, by Thomas Oliver, 1908, p. 35.

<sup>c</sup> Idem, pp. 42-44.

in Vienna. Although certain recommendations were made by the committee and were given consent to by the states council in 1846, they never became effective, for between 1866 and 1875 there occurred 126 cases of phosphorus necrosis in the hospitals of Vienna alone.<sup>(a)</sup>

The 22 match manufactories in Great Britain give employment to upward of 4,000 persons, of whom three-fourths are females. It was the death of a lucifer-match maker in London about eleven years ago, and the announcement in the daily papers of a considerable amount of ill health among lucifer matchmakers, that brought the subject of industrial phosphorus poisoning before the public and gained for the trade an unenviable reputation. Out of the human suffering that was then experienced and the stigma under which the trade labored, good has come.<sup>(b)</sup>

The subject of phosphorus poisoning, after having been much discussed in Parliament, was referred by the home secretary to a small committee, composed of Prof. T. E. Thorpe, principal chemist of the government laboratory, Prof. Thomas Oliver, M. D., and Dr. George Cunningham, senior dental surgeon to the London Hospital, to make an inquiry into and report upon (1) the nature and extent of the dangers attending the use of yellow and white phosphorus; (2) the means whereby these can be lessened; and (3) the practicability of discontinuing the use of yellow and white phosphorus. The English report on the "Use of Phosphorus in the Manufacture of Lucifer Matches," published in 1899, presents in detail the results of the exhaustive investigations of this committee.

The malady of the lucifer-match maker that is most dreaded is, according to Doctor Oliver, what is known in this country as phosphorus necrosis, or "phossy jaw," and in France as *mal chimique*, a localized inflammatory affection of the jawbone, extremely painful in the early stages, which lasts a long time, and invariably ends in death of the bone. As it is only within the last few years that cases of phosphorus necrosis have been reported to the home office it is difficult to say how many lucifer-match makers in this country have suffered. The total number of cases of industrial phosphorus poisoning reported in this country until the year 1899 was 102, of which 19 were known to have terminated fatally. Three other cases occurred in 1900, so that 105 cases of phosphorus necrosis are known to have occurred during the latter part of the last century. Since then only eight or nine fresh cases of phosphorus necrosis have been notified. Dr. T. M. Legge, medical inspector of factories, informs me (Dec., 1907) that since 1900, inclusive, there have been 12 cases of phosphorus necrosis notified, and of these 5 proved fatal. In Great Britain all cases of phosphorus necrosis, whether mild or severe, are reported.<sup>(b)</sup>

The dearth of literature on the effect of poisonous phosphorus upon the health of workers in match factories in the United States has been most unfortunate, and since dentists and physicians as well as non-professional people have frequently expressed a desire for such infor-

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<sup>a</sup> Diseases of Occupation, by Thomas Oliver, 1908, p. 39.

<sup>b</sup> *Idem*, p. 36.

mation, an extensive extract from Doctor Oliver's discussion is here quoted:(<sup>a</sup>)

Phosphorus necrosis, or phossy jaw, is the unique malady of lucifer-match makers. It is a localized manifestation of phosphorus poisoning. That the system, generally speaking, is also affected as well is more than probable. French physicians describe a general morbid condition of the body, or a cachexia, met with principally in female workers, characterized by pallor of the face, dyspepsia, albuminuria, and a tendency to bronchitis, to which the term "phosphorisme" has been applied. During my visits to the French match works I had the opportunity of discussing with Doctor Arnaud, of Marseille, the liability of young female workers to bronchitis, as it is not a common affection in this country. In his opinion 28 per cent of the young women suffered from bronchitis. \* \* \*

In Great Britain phosphorisme, or the constitutional form of phosphorus poisoning, is not of common occurrence. The malady that is dreaded is phosphorus necrosis. The presence of decayed teeth predisposes a matchmaker to the disease, for the phosphorus fumes penetrate carious teeth, and readily induce a periostitis or acute inflammation of the covering of the jawbone. The gum becomes swollen, and both it and the jawbone painful. Sooner or later pus forms, and although the tooth, or teeth, are extracted, the pain continues, but in a less severe form. The inflammation gradually extends to the bone, which undergoes a process of slow destruction. For months pus keeps oozing out into the mouth in minute quantities, some of which is swallowed, and tends to induce a chronic toxæmia. By means of the use of antiseptic mouth washes the morbid process gradually ceases by a piece of dead bone being thrown off, or the decayed bone is removed by surgical operation, when the patient recovers, with or without facial deformity.

Opinions are divided as to the cause of phosphorus necrosis in lucifer matchmakers. Is it the result solely of phosphorus fumes acting upon the jawbone through decayed teeth setting up inflammation of the bone and allowing, therefore, the micro-organisms present in the mouth to carry the morbid processes further; or is phosphorus necrosis, as Professor Stockman, of Glasgow, informs us, a tuberculous affection of the jawbone, and due to infection by the tubercle bacillus? My own opinion is that the disease of the bone is the result of a mixed infection, and that phosphorus fumes by primarily inducing pathological changes in the teeth and jawbone make it possible for micro-organisms to carry on their baneful operations. \* \* \*

Stubenrauch maintains that the first stage in the morbid process is thrombosis of the small blood vessels of the bone (*Archiv. f. Klin. Chir.*, Berlin, April 7, 1899). Lewin, of Berlin, does not believe that it is primarily necessary for a lucifer matchmaker to have decayed teeth. The phosphorus fumes, in his opinion, inflame the gums in the first instance, and as a consequence there is induced a septic gingivitis, which is followed by disease of the bone. In Wegner's experiments with phosphorus upon animals the cancellous part of the bone became hard and sclerosed. Although phosphorus has

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<sup>a</sup> Diseases of Occupation, by Thomas Oliver, 1908, pp. 44-51.

some special predilection for bone, the fact that in animals exposed to it necrosis of the jawbone does not follow suggests that in the human subject there is probably, over and above the phosphorus fumes, some other factor in operation.

Phosphorus when absorbed is only slightly altered in the blood. When exposed to the air phosphorus is slowly oxidized, but this occurs hardly at all in the blood vessels. If, for example, to freshly drawn arterial blood phosphorus is added, and the glass tube is hermetically sealed, the bright red arterial color is not lost earlier than in a control experiment where none of the metalloid is used. Phosphorus, therefore, can not be said to absorb oxygen from the blood, so that the amount of phosphoric acid formed in the blood must be too small to cause poisoning. The blood loses its power of clotting, probably owing to the action of phosphorus upon the blood ferment.

Lucifer matchmakers are liable to another affection of the bones, one of which has a special relation to the constitutional effects of phosphorus poisoning. When visiting the match works in Grammont, Belgium, I had the opportunity of meeting Doctor Brocoorens, who has had large experience of matchmakers and their diseases. He drew my attention to the fact that several of the men who have been employed as dippers in the factories, and who in their earlier years had suffered from phosphorus necrosis and had recovered, exhibited an unusual tendency to fracture of their long bones, especially the femur, often on the slightest exertion. The town of Grammont contains six match factories, which give employment to upwards of 1,100 persons. During the thirty years Doctor Brocoorens has resided there he has treated upwards of 30 cases of spontaneous fracture of the long bones consequent upon such simple muscular effort as that required when walking to lift the foot from the roadway to the pavement. Spontaneous fracture of the bones has not occurred in England with anything like the frequency as in Belgium, but Doctor Garman, of Bow, for many years medical officer to Messrs. Bryant and May's works, informs me that he had known of 9 cases, and Doctor Dearden, of Manchester (*Brit. Med. Journ.*, 1899, Vol. II, p. 270), has reported the occurrence of the accident in two dippers, "each of whom has had separately and at different times both thighs broken in a ridiculously simple fashion." Doctor Kocher, of Berne, has had experience of a matchmaker who broke his thigh bones five times. The readiness with which the long bones snap in matchmakers indicates that the bony tissue is in some way or other influenced by phosphorus or its compounds, whereby they are unable to withstand external violence. It is Dearden's opinion that the bones of match dippers contains an excess of phosphoric acid, which combines with the preexisting neutral phosphate of lime to form a slightly acid salt and thereby to cause the "fragilitas ossium" of lucifer matchmakers.

In Great Britain less than 1 per cent of the matchmakers have suffered from phosphorus necrosis, in Switzerland it was formerly 1.6 to 3 per cent, and in France 2 to 3 per cent. Of 51 cases of phosphorus necrosis communicated to me by Doctor Garman 9 ended fatally. Eighty-three per cent of his patients recovered and returned to work. Of the 51 cases 31 were females and 20 were males. In



the women the upper jaw was effected 15 times and the lower 16. In the men the numbers were respectfully 11 and 9. Doctor Brocoorens found that the dippers were more liable to necrosis of the upper jaw, and that in boxers, who are usually females, it was the lower jaw that was more frequently affected. When phosphorus necrosis has attacked the upper jaw the inflammatory process is apt to extend to the brain and induce a septic inflammation, which in every instance has been fatal. A person may follow his occupation in a match works for years without suffering, or he may have left the works for two years or more when unexpectedly symptoms and physical signs of phosphorus necrosis show themselves. The ages at death of Garman's patients were 19, 19, 21, 22, 22, 22, 23, 27, and 27. It does not always require an exposure of many years to the fumes of phosphorus for a fatal result to follow. In two of the patients included above pulmonary consumption doubtless contributed to the fatal result.

The questions submitted [for investigation by the English home secretary] were briefly whether anything could be done to render lucifer matchmaking from white phosphorus a more healthy employment and whether a harmless substitute could be found for the dangerous metalloid. Since it has been recognized that the fumes of white phosphorus by penetrating carious teeth must play some part in causing necrosis of the jawbone, periodical examination of the teeth of the work people by a qualified dentist, and treatment when necessary, improved ventilation of the workrooms, reduction of the amount of phosphorus in the paste for heading the lucifers, and suspension from the factory of all workers on the slightest appearance of symptoms, have done much to diminish phosphorus necrosis in match-makers. Only 12 cases of phosphorus poisoning have been reported to the home office since 1900, and in three of these the disease probably existed before the new rules were drafted. The introduction of machinery whereby the wooden splints are cut, the matches dipped, dried, and boxed without being handled by the workers, has in the Diamond Match Works, Liverpool, been followed by the greatest success. When these processes are carried on in large, well-ventilated workrooms and the mixing of the paste takes place in covered iron vessels provided with ventilating shafts, the risk from phosphorus necrosis is considerably diminished. The fact remains, however, that so long as white phosphorus is used absolute freedom from risk to health can not be assured.

Manufacturers have, therefore, been obliged to turn their attention to the use of a harmless substitute for white phosphorus. The difficulty at first was to produce a satisfactory strike-anywhere match, for valuable as the Swedish or safety match is, the public demand for this kind of a match does not increase in the same proportion as for the ordinary lucifers. \* \* \* Meanwhile the Belgian Government had offered a prize of 50,000 francs (\$9,650) to any person who would invent a safety strike-anywhere match free from white phosphorus. France solved the problem. After many trials MM. Sevene and Cahen demonstrated that in sesquisulphide of phosphorus was to be found a substitute practically capable of accomplishing all that white phosphorus could do without causing symptoms of poisoning. \* \* \*

It was thought at first that matches made from sesquisulphide of phosphorus would not carry well across the ocean and that they would not keep well in all climates, but experience has not confirmed these forebodings. The sesquisulphide is almost an inodorous powder, and is, practically speaking, nonpoisonous. It may contain a trace of red or amorphous phosphorus and at times give off a slight odor of sulphur. The results of the substitution of phosphorus sesquisulphide for the harmful white phosphorus at Pantin-Aubervilliers were at once apparent in the improved health of the work people and in the cessation of monetary claims for injured health. Doctor Courtois-Suffit, medical inspector of the French match factories, informs me that lucifer matchmaking is no longer regarded as a dangerous trade by his Government. The sesquisulphide has found its way into Great Britain and its use has been followed by success. One good, but quite unexpected result of the substitution of the harmless for the dangerous form of phosphorus in matchmaking is the diminution in the severity of the symptoms and in the number of cases of fatal suicide due to the use of matches. Phosphorus poisoning, which was the cause of a few deaths every year in the Royal Infirmary, Newcastle, has, practically speaking, disappeared from our statistical tables, and in the patients admitted the symptoms are usually less serious, a circumstance which shows that in this city, at any rate, the matches that are sold have been mostly prepared from the sesquisulphide. \* \* \*

Since the introduction into France of the manufacture of the sesquisulphide match there has not been in the factories one case of phosphorus poisoning, nor has there been any explosion or fire in any of the match works. The slight trace of sulphuretted hydrogen given off by the new material has not produced illness of any moment. Readiness to catch fire and the evolution of unwholesome gases have been prevented by the regulations requiring that the sesquisulphide shall contain 3 to 4 per cent of red phosphorus; this prevents the formation of unstable subsulphides. \* \* \*

In our country [England] a similar improvement has been observed. Mr. Bartholomew, managing director of Messrs. Bryant and May's works, London, writes to me that "we are well satisfied with our long trial of the new composition. There has not been, and there can not be, from the nature of the composition, any sickness among the work people." In the future we shall hear less and less of the frightful ravages of white phosphorus. The manufacture of lucifer matches is therefore an illustration of at least one industry which, from being of a dangerous and unhealthy nature, has become by vigilance and scientific invention, comparatively speaking, healthy. This change for the better has been secured without great cost to the manufacturers, for it has not necessitated any great change of plant, and yet what a gain it has been to hundreds of work people who have to earn their living in the trade.

The conclusions of the three scientific experts who studied the question of phosphorus poisoning in the match industry and reported to the British home office ten years ago were made from widely differing standpoints. One member of the commission was a chemist, another a dentist, and the third a medical expert. The latter of these

three men, Doctor Oliver, in discussing means of prevention reported as follows: (a)

The treatment of phosphorus necrosis is mainly preventive. New workers on being taken on at the factory should be medically examined, special attention being paid to the state of their teeth. There ought to be periodical examination by a dentist of the teeth of all workers in a match factory, with power to suspend when necessary. Personal cleanliness is a requisite, and the frequent use of antiseptic mouth washes a desideratum. The workrooms should be well ventilated, and fans should be running to withdraw all fumes away from the face of the workers. Washing accommodation should be ample, hot and cold water being provided along with plenty of soap and towels. On complaint of pain in the jaw, the mouth should be examined by a dentist, loose and carious teeth should be extracted, and the use of antiseptic mouth washes encouraged. Once phosphorus necrosis has developed, the malady may be treated simply by keeping the affected part clean as far as possible by mouth washes, and by maintaining the general health of the patient by good food and fresh air; but healing is a slow process, for the disease may go on for several months before it is arrested or the piece of dead bone thrown off. To expedite recovery, surgeons occasionally remove by operation the dead bone. Eighty per cent of the cases of phosphorus necrosis recover, whether dealt with surgically or treated by antiseptic washes. The most fatal cases are those where the disease extends from the upper jaw into the base of the skull and sets up septic meningitis, or those in which, owing to rather profuse and protracted suppuration of the jawbone, pus keeps escaping into the mouth, mixes with the food, and causes toxæmia, or gains access to the respiratory canals and lights up pulmonary disease.

The question of the total prohibition of white phosphorus has frequently been discussed. Elsewhere I have expressed the opinion that nothing short of its total abolition will render the manufacture of lucifer matches a safe industry from a health point of view, but there are economic and commercial considerations which can not be altogether ignored even in the lucifer-match trade. \* \* \*

In these pages I have dealt with the signs and symptoms of industrial phosphorus poisoning. When persons have accidentally swallowed phosphorus, or drunk a solution of match heads with suicidal intention, they have usually become jaundiced by the third day, and most of them have died shortly afterwards from toxæmia. After death the liver and kidneys have been found to have undergone fatty degeneration. Recently a child 2 years of age was admitted into the Royal Victoria Infirmary, Newcastle, who had sucked several match heads. She died within thirty hours of the event, and although she was never jaundiced, there was yet found at the autopsy advanced fatty degeneration of the liver and kidneys. The case is exceptional as regards the rapidity of death, absence of jaundice, and the presence of extreme fatty degeneration of the internal organs in the short time. The matches had been made in Flanders and contained white phosphorus.

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<sup>a</sup> Diseases of Occupation, by Thomas Oliver, 1908, pp. 52, 53.

The recommendations which were submitted by Doctor Oliver at the close of the match investigation are as follows:<sup>(a)</sup>

If white phosphorus is to continue to be used in this country it is absolutely necessary that such structural alterations should be made in factories which will separate the mixing, dipping, drying and boxing rooms from each other, and that each should be thoroughly ventilated by fans; \* \* \* that the boxing rooms should be lofty, and ventilated by fans; that ventilating hoods or shafts should be placed above each bench so that the fumes are drawn away from the worker as she fills the boxes. \* \* \*

Provision should be made for washing; soap and towels should be provided by the firm and facilities for washing should be offered to the work people. \* \* \*

Gargles should be provided and each worker should have his own mug.

Overalls should be worn, and there should be dental and medical inspection of the work people on entering the factory and at stated intervals afterwards.

There should be a change of occupation for the workers; men and women should not be allowed to remain more than a few weeks at any time in any one department.

The mixing of the phosphorus paste should be done in closed vessels and the paste kept until required in covered iron tanks. \* \* \*

A medical and dental register should be kept in the factory.

In the same reports the recommendations of Doctor Cunningham who approached the question from the standpoint of the dentist were that:

The dangers to the work people of phosphorus poisoning could be met by proper precautions, and the strengthening of the rules affecting the trade.<sup>(b)</sup>

The home office and Parliament at first accepted Doctor Cunningham's optimistic view that special rules be strengthened, medical and dental examinations be made periodically and that those measures with other precautionary features would be sufficient to safeguard the health of persons in the industry.

But under these improved conditions and during the period from 1899 to 1908, cases of necrosis continued to appear, with such insistence,<sup>(c)</sup> that in 1908, Parliament considered the feasibility of enacting legislation which would absolutely prohibit the use of white or yellow phosphorus and prohibit the importation and sale of matches in which the poisonous element was used. An act of Parliament embodying all of these features was unanimously passed in December, 1908, taking effect as law January 1, 1910. <sup>(d)</sup>

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, p. 96.

<sup>b</sup> *Idem.*, p. 215.

<sup>c</sup> Between August, 1908, and the summer of 1909 in spite of every precaution, there were at least four cases of phosphorus necrosis in England.

<sup>d</sup> For a copy of the text of this act, see Appendix B, p. 145.

**EUROPEAN EXPERIENCE WITH PHOSPHORUS POISONING.**

In Europe, for seventy years and more, the effect of white phosphorus upon the health of workers in match factories has been recognized as a serious problem. One country after another has attempted to minimize the poisonous effects of the phosphorus by strict government regulations, and, one by one, those countries which have taken an interest in improving the conditions of workers have now reached the conclusion that the only safe method is to prohibit absolutely the manufacture, importation, or sale of matches made from white phosphorus.

**FINLAND.**

As early as 1872 Finland prohibited the use of poisonous phosphorus in her match industries.

**DENMARK.**

In Denmark, for the last thirty-five years, no matches made from poisonous phosphorus have been manufactured, imported, or used. The circumstances which induced the Danish Government to take this early step are of special interest. As early as 1866 the health commission of Denmark had drawn up stringent regulations to be observed in match factories. These regulations, after a fair test, proved ineffective. The ministry of justice instituted an investigation, and found that a disproportionate number of cases of necrosis occurred in one factory which lived up to the regulations in all respects.

The Royal College of Health, when requested to express an opinion on the subject, came to the conclusion that since "no regulations had ever sufficed to prevent the danger to health from the manufacture of matches with ordinary phosphorus, and, in view of the carelessness of children and adults employed, its use should be prohibited."

The Government, upon careful consideration, decided that regulation would be impracticable, since the employers would regard additional restrictions as burdensome, while by prohibition, on the other hand, the employers would merely be required to use nonpoisonous processes in the same factories. The Government also pointed out that out of 5,041 fires which occurred in the ten years from 1862 to 1872 no less than 291 could be set down to the use of strike-anywhere matches, and that the prohibitive act would encourage the use of safety matches. It also looked with favor upon the prohibition of poisonous phosphorus matches, as a means of removing one convenient method of suicide. Of 32 cases of poisoning between the years 1857 and 1872, in Denmark, 18 were due to phosphorus matches.

With all of these considerations in mind the ministry of justice thought the simplest method to adopt was the entire prohibition of

the manufacture of matches made with poisonous phosphorus. Since the enactment of the law in 1874 not a single case of phosphorus necrosis has been known in Denmark. During the thirty-five years the act has been in force the people have become wholly accustomed to the use of safety matches, and practically neither know of, nor have any desire for, any other kind.

The bill absolutely forbidding the manufacture or sale of matches containing ordinary phosphorus received the royal assent February 14, 1874. Its provisions follow:<sup>(a)</sup>

**SECTION 1.** After January 1, 1875, the manufacture of matches containing ordinary phosphorus, or of any other matches, except such as are intended to strike on surfaces specially prepared for that purpose, is forbidden.

The importation into the country of matches made with ordinary phosphorus is also prohibited from the same date, and the sale of them is prohibited after July 1, 1875.

**SEC. 2.** In match manufactories, where red phosphorus and potassium chlorate are used, the room where the work with red phosphorus goes on shall be well separated from the places where the work with potassium chlorate takes place.

**SEC. 3.** Violations of this law shall be punished by fines of from 20 to 200 kroners [\$5.36 to \$53.60] and confiscation of the prohibited matches. The offenses to be treated as ordinary police cases.

The circumstances which induced the Danish Government to introduce the bill of 1874 were—

- (1) The recognized danger to the health of the workers from the use of the ordinary phosphorus.

- (2) The danger from fires in houses and buildings.

- (3) The fact that a ready means of poisoning was placed in the hands of everyone.

Denmark signed the international phosphorus prohibition treaty in 1906.

#### FRANCE.

The manufacture of matches in this country is a state monopoly. The regulations in force are as follows:

#### HYGIENIC REGULATIONS.

It is forbidden to bring food or drink into the workshops. These articles of consumption must be left in the refectory.

Work people who desire to make a light repast during the day or to take their meal in the establishment during cessation of work must attend at the refectory at the hours fixed for that purpose, and having previously conformed to the following regulations:

1. To leave in the cloakroom their working costumes.

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, and Dr. George Cunningham. London, 1899, p. 37.

2. To wash their hands with soft soap.

3. To rinse the mouth with the mouth wash which the management provides. Similar precautions must be taken at the time of leaving off work.

The heads of departments and the foremen and forewomen will see that all those under their charge have rigorously observed these regulations; they will take care that the vessels which contain the mouth wash as well as those containing the essence of turpentine are kept clean and filled each day; they will take care that the mouth wash is always in perfect condition.

Finally, they will make the necessary arrangements for the work people being examined regularly by the dentist on the days appointed.

These rules will be posted in all the workshops and will be read aloud on the first Saturday of each month; the foreman of each workshop will inscribe in his memorandum book the date on which the monthly reading of the rules has been made.

Since 1897, France has prohibited the use and manufacture of poisonous phosphorus matches, and in 1906 she signed the international phosphorus prohibition treaty.

#### SWITZERLAND.

In Switzerland, the Medical Society of Berne, directed the attention of the Federal Assembly to the subject of phosphorus poisoning as early as 1870. Eight years later provision was made for government regulation, with the command to report methods used and results obtained. At the end of one year the factory inspectors presented a report urging the prohibition of the use of poisonous phosphorus in the match industry, and six months later a bill was approved by the General Assembly, prohibiting the manufacture, importation, and sale of such matches. The law went into effect in January 1881, but on account of the protest raised because of the poor quality of matches that could then be made without the ordinary phosphorus, the law was repealed in 1882. Switzerland then entered upon another period of attempted regulation, with the result that the factory inspectors in 1886 urged that the former law be reimposed. Failing that, they recommended that the manufacture of ordinary phosphorus matches should become a monopoly of the State, as the only means promising a reduction in the number of cases of necrosis and a chance of pecuniary compensation to those attacked. Careful preparations were made with this last recommendation in mind, and the president of the federal council in 1895 pointed out, in addition to the object of safeguarding the health of the workers, the advantages which would be derived from a greater centralization of the business, and the guarantee of an article of superior quality. But this scheme was killed by a popular referendum on account of its centralizing influence.

The question was settled a few years later by the adoption of a federal law, <sup>(a)</sup> absolutely prohibiting the manufacture, importation, or sale of poisonous phosphorus matches. And in 1906, Switzerland joined in the international treaty proposed by the International Association for Labor Legislation at the World Congress at Berne.

#### NETHERLANDS.

##### GOVERNMENTAL DECREE, JUNE 24, 1898.<sup>(b)</sup>

I. No person under 16 years of age or woman shall be allowed to work in a factory or workshop where match paste containing ordinary (white or yellow) phosphorus is prepared.

II. No person under 16 years of age or woman shall be employed in a factory or workshop where matches tipped with a composition containing more than 5 per cent of ordinary (white or yellow) phosphorus are dipped, dried, boxed, or packed.

III. No person under 16 years of age or woman shall be employed in a factory or workshop where matches tipped with a composition containing 5 per cent or less of ordinary (white or yellow) phosphorus are dipped, dried, boxed, or packed, unless—

(a) The head or manager of the factory or workshop is in possession of a written certificate, given by a medical man within the previous two months, stating that the young person or woman can be so employed without danger to his or her health.

(b) This certificate shall be at once exhibited on demand to one of the officials named in Paragraph I of article 18 of the labor law.

(c) A medical man may be appointed by the minister of dikes, commerce and industry to certify to the fitness for such work of the young persons or women, should the minister deem this necessary.

(d) Sufficient opportunity shall be afforded to all work people for rinsing the mouth and washing the face and hands with means indicated by the inspector and provided by the head or manager of the factory or workshop, the inspector to decide as to the adequacy of the opportunities afforded for making use of these means.

(e) The head or manager of the factory or workshop shall, on the demand of one of the officials mentioned in Paragraph I of article 18 of the labor law, furnish any sample of the paste or matches required by the official, such sample to be duly packed and sealed by the head or manager in the presence of the official.

Holland signed the international phosphorus prohibition treaty in 1906.

#### LUXEMBURG.

Although no match industry exists in Luxemburg, that country signed the international treaty in 1906, thereby prohibiting the importation and sale of poisonous phosphorus matches.

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<sup>a</sup>For a copy of the text of this act see Appendix A, p. 141.

<sup>b</sup>Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, and Dr. George Cunningham. London, 1899, p. 23.



## ITALY.

A review of a report on the Italian match industry with recommendations for lessening the evils of phosphorus poisoning will be found in Bulletin of the Bureau of Labor No. 80, January, 1909, pages 114 to 116. Italy signed the international phosphorus prohibition treaty in 1906.

## GERMANY.

In Germany, as in most countries, the tendency to supplant ordinary phosphorus matches with safeties had been very marked. Regulations had been in force for many years, which, however, did not put an end to phosphorus necrosis. Inspectors reported cases which had been concealed from year to year by the manufacturers, the poor law medical officers, and the patients themselves. One inspector reported that considering "the way in which such cases are concealed, the fact that none are notified does not exclude the possibility of their occurrence. If work people become affected, it is only by chance that they are discovered."

As a result of many unsuccessful attempts to regulate the danger to health, the German Empire has decided upon prohibition.

The regulations as to the suitable arrangements to be adopted in factories where matches were made with ordinary phosphorus were in part as follows: <sup>(a)</sup>

SECTION 1. A special room must be set apart for the following operations:

- (a) Preparation of the paste.
- (b) Dipping the matches.
- (c) Drying the dipped matches.
- (d) Filling and preliminary packing.

Each kind of work must be carried on exclusively in the room appointed for that purpose, but it is permitted to treat the splints with paraffin and sulphur in the dipping rooms.

SEC. 3. The rooms in which the paste is prepared must be so arranged that a continual change of air takes place sufficient to dispel any phosphorus vapors that may have been evolved. The preparation of the paste must take place only in vessels closed air-tight, the charging orifice of which must be so contrived as to act simultaneously as a safety valve. Vessels containing paste must always be kept closed.

SEC. 6. The filling room, and, if there is a special room for the preliminary packing, this also, must be of such dimensions that an air space of at least ten cubic meters [353.1 cubic feet] is allowed for every worker therein. The said rooms must be provided with windows which can be opened, and with effective ventilating apparatus.

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 63.

SEC. 8. The employer is to see that the workers in rooms under (a) to (d) wear an "overall" or apron covering the upper part of the body. These are to be taken off and kept in a special room apart from the workrooms, every time the workrooms are vacated. In these dressing rooms special receptacles must be provided for hanging the working clothes and the ordinary clothes taken off before beginning work.

SEC. 10. A sufficient supply of washing utensils and vessels for the purpose of washing out the mouth must be provided outside the workrooms, but in close proximity thereto.

SEC. 11. The employer must see that the work people before meals and on leaving off work thoroughly wash their hands, rinse their mouths, and put away the overalls used during work.

SEC. 12. Employers are to allow only those persons to work in the rooms referred to under (a) to (d) who bring a certificate from an approved physician that they do not suffer from phosphorus necrosis, and that their bodily health is such that they are not in any special degree liable to contract this disease. The certificates are to be collected and kept, and shown on demand to the inspector.

SEC. 13. The employer is to commission an approved physician, to be named to the inspector, to superintend the health of the employees. The doctor is to make an examination of the work people at least quarterly, and is to acquaint the employer with an ascertained case of illness from phosphorus necrosis.

SEC. 14. The employer is required to keep a register in which must be stated the Christian name, surname, age, address, and date of entrance and leaving of each of his employees. In this register the factory doctor must enter the date and the results of his examinations. This is to be submitted to the inspector when required.

SEC. 15. A copy of section 2 of the act of May 13, 1884, and sections 1 to 14 of these regulations must be hung up in a conspicuous position in every room, as well as instructions for the work people in each special room. A copy of these instructions shall be handed to every worker employed in rooms under (a) to (d).

Germany signed the international phosphorus prohibition treaty in 1906.

#### GREAT BRITAIN.

In Great Britain, following the investigation and report of the government commission in 1899 stringent regulations were formulated and were in force up to the end of 1909.<sup>(a)</sup>

Bryant and May Company (Limited), London, and The Diamond Match Company (Limited), Liverpool, at the close of the investigation (1899) in Great Britain, at the suggestion of Doctor Cunningham, posted in their workrooms a copy of the following notice: <sup>(b)</sup>

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<sup>a</sup> Reprinted in Bulletin of the United States Bureau of Labor, No. 75, pp. 574-576.

<sup>b</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 233.

## THE PRESERVATION OF THE TEETH.

Without good teeth there can not be thorough mastication.

Without thorough mastication there can not be perfect digestion, and poor health results.

Hence the paramount importance of sound teeth.

Clean teeth do not decay.

Food left on the teeth ferments and the acid formed produces decay.

Decay leads to pain and the total destruction of the tooth.

When decay occurs, it should be attended to, whether giving pain or not.

The immediate stopping of a small cavity is of the greatest service in preventing the necessity for extraction.

The following rules should therefore be closely observed:

1. The teeth should be cleansed at least once daily with toothbrush and powder.
2. The best time to clean the teeth is after the last meal.
3. A small toothbrush with stiff bristles should be used, brushing up and down and across, inside and outside, and in between the teeth.
4. A simple tooth powder, or a little soap and some precipitated chalk, taken up on the brush should be used. If the teeth are dirty or stained, a little fine pumice powder may be used, but very occasionally.
5. It is a good practice to rinse the mouth out after each meal.
6. All rough usage of the teeth, such as cracking nuts, biting thread, etc., should be avoided; but the proper use of the teeth in chewing is good for them.
7. All persons engaged in these works should rinse their mouths thoroughly before meals and before leaving the works.

The following rules and regulations were in force at the factory of the Diamond Match Company, at Liverpool. A copy of the letter of transmittal of the same by the president of the company is also presented:<sup>(a)</sup>

## CIRCULAR OF THE DIAMOND MATCH COMPANY.

Since the organization of The Diamond Match Company, the management have been keenly alive to the horrible distress and misery caused by phosphorus necrosis, a disease incident to the manufacture of matches by old methods. It has spent many thousands of dollars in remedial methods to prevent the disease. The management are now quite confident that they have so perfected the system of manufacture of matches and ventilation of factories that no fear need exist of the disease if the operatives will take ordinary care of themselves.

Dr. S. D. Stewart, who has made a study of the disease and its treatment for many years, has prepared the following paper on the preventive measures which should be taken by the operatives in match factories. The respective managers of the factories of The Diamond Match Company are directed to see that each employee of The Diamond Match Company under their charge be furnished with a copy of the same.

(Signed) O. C. BARBER, *President*.

To secure immunity from necrotic conditions to employees of factories proper environment is absolutely necessary and certain rules of action indispensable.

Environment, which pertains almost wholly to internal arrangements of factories, is one of the most important elements in securing the greatly desired freedom from necrotic troubles.

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 234.

In this an abundant supply of fresh air is, perhaps, the greatest factor, for in securing this important element you are at the same time being freed of phospho-sulphurous fumes and increasing the quantity of oxygen in rooms as well. While this is a very important point in factory environment, it is only a part of the preventive system, which system must include, among other things, well arranged and properly located lunch rooms, a sufficient number of and conveniently located lavatories and running closets, all of which must be kept in a thoroughly hygienic condition.

#### *A.—Operatives in Factories—Rules of Action.*

While operating, the operatives should avoid the putting of their hands up to their mouths for the purpose of picking at teeth or gums, as the fingers are not only covered with sand or glass from boxes, which by lodging in the mouth is liable to irritate gum margins, but they are also constantly in contact with the phosphoric compound of the heads of matches, particles of which are forced under finger nails. At the same time, the hands and finger surfaces retain certain quantities of this compound, which in picking at teeth or gums there is a liability of particles being left in contact with same. The necessity of refraining from this thoughtless and uncleanly habit is perfectly plain to thoughtful operatives.

#### *B.—Lavatory and lunch room.*

Before luncheon the lavatory should always be resorted to, using utmost care in efforts to free the hands and finger nails of all foreign matter. This need not necessarily require so much time as it requires thoughtfulness as to intent and purpose of the act.

The lunches of operatives should never be deposited in rooms or adjacent to rooms where the fumes of the phospho-sulphurous compound has access, for both meats and butter will readily take up and absorb the same, thereby not only rendering the foods less nutritious, but adding largely to risk of future troubles.

#### *Second—Personal and home hygiene.*

The operatives should on returning to their homes immediately change their outer clothing at least, after which comes a thorough washing of hands, arms, face, and neck, and at least once a week in winter and twice a week or more in summer take a full bath, not forgetting at the same time to wash the hair and scalp thoroughly. This is a most important and valuable precautionary measure, as unctuous surfaces of scalp and hair retain the phosphoric odor longer than the body, and possibly hold it in greater quantity than any other surface of the body.

#### *Third—Mouth and teeth.*

The thorough cleansing of the mouth and teeth and gums is an absolute necessity, not only to health of same, but to securing immunity from the ravages of necrotic conditions. They must be thoroughly cleansed by use of toothbrush, with castile soap (it being both efficacious and cheap), every morning immediately before breakfast, then again after supper in the evening, preferably before retiring, using a sufficient quantity of the soap to make "suds," and while the

"suds" made from the friction of the brush and soap is in the mouth make a sort of "bellows" out of the cheeks and force the same between and around the teeth and into every part of the mouth, thereby securing thorough and complete hygienic condition of mouth, gums, and teeth.

The teeth must necessarily be kept in comparatively good repair and absolutely free from all deposits. At first symptoms of decay a thorough and competent dentist should be consulted at once.

### *Résumé.*

All persons with scrofulous habits or taint should avoid working in match factories, as they, perhaps more than any other class of people, from the abnormal condition of the blood, are liable to have serious trouble from the phospho-sulphurous fumes. This should be seriously considered by all who propose to enter the employ of match manufacturing companies.

*A strict compliance with the above rules of action for employees is absolutely necessary to obtain the results desired. It is also true that any deviation from the same will add to the risk of employees in almost exact ratio to the deviation.*

To all of its employees was sent the following: (<sup>a</sup>)

### NOTICE.

To the employees of the Diamond Match Company (Limited), Liverpool.

I. All employees on entering the works shall receive a check ticket bearing their number, which must be delivered up at meal hours and on leaving off work.

II. All coats, shawls, hats, lunches, food, etc., must be delivered up to the official in charge of the cloakroom, the employees giving number of check ticket, so that they may be kept apart. These will be returned at meal hours and at stopping time on production of check ticket.

III. All employees must carefully wash their hands, using the brushes provided for their finger nails, before lunching or dining, and before leaving the works.

IV. Employees are urged to thoroughly cleanse the mouth, teeth, or gums after meals, using a toothbrush to the teeth with borax and castile soap powder every morning and evening in their homes. Toothbrushes and tooth powder will be supplied free.

V. Employees requiring attention to their teeth will be received in the dental surgery, on the second floor, between the hours of 9.30 a. m. and 1 p. m. each Saturday, unless otherwise specially arranged.

By order.

In spite of these precautions cases of phosphorus poisoning occurred from time to time, as the following official figures will show:

	Cas:s.-
1902.....	2
1903.....	—
1904.....	1
1905.....	3
1906.....	
1907.....	6 1
1908, till the end of June.....	—

<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 147.

<sup>b</sup> Fatal.

The repeated occurrence of cases of this disease disproved the prevailing view that, mainly as a result of the technical perfection of the installations, cases of poisoning had been entirely avoided.

As a result of this experience, in December, 1908, by unanimous vote of both houses of Parliament, Great Britain decided to prohibit the manufacture, importation, or sale of poisonous phosphorus matches after January 1, 1910.<sup>(a)</sup>

Following the change in the manufacture in England, the Diamond Match Company and others in the United Kingdom will use the Sevéne and Cahen formula, of which the Diamond Match Company is the licensee for that country as well as for the United States. The Diamond Match Company permits the other manufacturers to use these patents on the same royalty basis as it enjoys as original licensee.

#### BELGIUM.

Upon the advice of a special medical commission, the "Conseil Supérieur d'Hygiène Publique" proposed to prohibit the use of poisonous phosphorus in the manufacture of matches in Belgium, in 1880. Commercial interests, however, decreed otherwise at that time. But attempts to regulate the industry under an act of 1890 were so irksome to the manufacturers that within five years sentiment had so changed among manufacturers and workmen as to favor prohibition, providing some international agreement could be arranged.

Under the Belgium act of December 26, 1892, children and youths under 16 years of age, or women between the ages of 16 and 21, may not be employed in the manufacture of phosphorus, nor in the shops where paste containing ordinary phosphorus is made, nor in the rooms where matches dipped in such paste are dried. No child under 14 years of age may be employed in filling boxes with matches containing ordinary phosphorus.

The special regulations relating to match factories in Belgium (in force 1899) are as follows:

#### ARTICLE 1.

A. In factories for making matches with ordinary phosphorus each of the operations of making the paste and drying the dipped matches shall take place in premises specially devoted to that purpose.

B. The preparation of the ordinary phosphorus paste shall be effected in an apparatus closed hermetically, or at least surmounted by a wide and low hood communicating with a chimney with a powerful draft.

It is forbidden to introduce into the paste an amount of ordinary phosphorus exceeding 8 per cent of the total matter, exclusive of water.<sup>(b)</sup>

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<sup>a</sup> A copy of this act is reprinted as Appendix B.

<sup>b</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 35.

According to the Belgian inspectors' report for 1906 (p. 380), out of 11 match factories in Belgium 2 used white phosphorus. In the remainder 1,251 persons were employed who had been submitted to 8,860 medical examinations. In 2 of these factories, employing together 169 persons, it was found that two-thirds of the employees had affections of the teeth or were in a weak state owing to anæmia, the average for all the factories being 16 to 18 per cent of the work people. With regard to the above high percentage, the medical inspectors stated that it was most probably not due to specially unhealthy conditions in the factories in question, but to a particularly careful and accurate investigation. The Belgian match industry was subjected to a number of precautionary regulations against necrosis by special orders issued on March 25, 1890, and on November 17, 1902. The inflammable material used must not contain more than 8 per cent of white phosphorus in proportion to the weight of all the other fixed ingredients. The expenses of the monthly examination must be paid by the employer; a worker suffering from chronic necrosis must be permanently removed from the workshop, while anyone suffering from inflammation of the gums must be temporarily sent away. It is evident that these precautionary measures, although carefully carried out, have had very small results.<sup>(a)</sup>

#### AUSTRIA-HUNGARY.

In Bohemia, Galicia, and Hungary the manufacture of matches is a considerable industry. Large quantities are distributed to south-eastern Europe. One of the Bohemian factories was established as early as in 1838, and to it belongs the distinction of having first begun the manufacture of safety matches in 1854. Leading manufacturers here have long expressed a desire to do away entirely with the use of poisonous phosphorus, but have been deterred by foreign competition, particularly with Japan. Attempts to regulate the dangerous features of the industry have met with frequent evasion and disappointment.

#### AUSTRIA.

In Austria, according to a monograph by Dr. Ludwig Teleky, in 1907, in spite of compulsory notification, the majority of cases of phosphorus necrosis in Austria remained unknown, and that on account of the extent to which matchmaking was carried on as a domestic industry nothing would avail but an entire prohibition of white phosphorus. The Government attempted at first to cure the evils by increased stringency in the existing precautionary regulations. Its draft proposal aroused the most vigorous opposition among the match manufacturers and was declared so impracticable by an

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<sup>a</sup> Publication No. 6, International Association for Labor Legislation, London, 1909, pp. 46, 47.

advisory authority, the accident insurance council, that it refused to go any further into the consideration of the draft. Under these circumstances the prohibition of white phosphorus was brought forward as a motion of urgency in the Austrian House of Representatives on July 7, 1908. The minister of commerce stated that the Government itself recognized the impracticability of the precautionary regulations, and merely called attention to some of the difficulties in the way of a complete prohibition. After a short debate the house passed the following resolution:

"The Government is requested to issue a prohibition of the use of white (yellow) phosphorus in the manufacture of matches, and to accede to the Berne Convention before the lapse of the time allowed for its ratification (December 31, 1908)."<sup>(a)</sup>

#### HUNGARY.

The Hungarian match industry in 1901 employed 2,410 work people, of whom 56 per cent were women.<sup>(b)</sup>

A government ordinance issued January 17, 1885, contained the following provisions regulating the internal arrangements of the factories and workshops in which ordinary phosphorus is used:<sup>(c)</sup>

2. The rooms in which the processes of mixing, dipping, drying, and sulphuring are carried on must be well ventilated and distinct from one another.

7. Perfectly healthy persons shall alone be employed in the processes of mixing, dipping, and drying. They shall from time to time be allowed a change of work, and such change must immediately be made should the least symptom of toothache or jaw disease present itself.

8. The employer must provide special clothes for those engaged in the processes of mixing, dipping, drying, and the removal of the matches. The clothes shall be well aired after the work is done.

9. The employer shall provide a special room for the work people to leave their ordinary clothes, and shall not allow them to be left in the workrooms. He shall further provide the necessary number of basins and glasses for enabling the workers before meals and before leaving the factory to wash their faces and hands and wash out their mouths.

10. No food may be taken into the workrooms, and the employer must use his utmost efforts to induce the workers before changing their clothes to wash their hands and faces and rinse out their mouths. The workpeople must not remain in the workrooms during the mid-day interval.

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<sup>a</sup> Publication No. 6, International Association for Labor Legislation, London, 1909, p. 46.

<sup>b</sup> *Idem*, p. 48.

<sup>c</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 69.



11. The employer must appoint a surgeon to look after the health of the work people. The latter must certify them before their employment, and at stated intervals afterwards. He shall certify such as are tuberculous or have defective teeth as unfit for work in the processes mentioned in paragraph 7. He must enter the details of his examination in a special register, which must be shown to the inspector on demand. He shall also satisfy himself that the precautionary measures adopted for the preservation of health are observed, and advise the employer or his manager of defects in this respect, and the way in which they must be remedied. \* \* \*

12. The district medical officers of health must from time to time visit the factories to see whether the sanitary arrangements are satisfactory, and if their previous recommendations have been carried out.

\* \* \* \* \*

A copy of the above regulations must be posted up in a prominent place in every match factory.

The following were the regulations which were in force in Hungary in 1899:<sup>(a)</sup>

ARTICLE 1. In all factories where ordinary phosphorus is used in the manufacture of lucifer matches, the rooms in which the operations mentioned below are carried on must be especially constructed, viz:

- (a) Preparing the paste.
- (b) Dipping the splints.
- (c) Drying.
- (d) Boxing.

All these workrooms must be situated in buildings separate from each other, and be provided with ventilation shafts for the effective ventilation of the premises. \* \* \*

ART. 3. The mixing rooms, where the paste is prepared, must be so constructed as to allow of the phosphorus fumes being carried off by means of separate ventilating arrangements. Only covered vessels can be used for mixing and preparing the paste, which must be fitted with ventilating pipes to carry the phosphorus vapor off into the atmosphere. All vessels containing paste must be kept constantly covered up. Turpentine (one-twentieth part) must be added to the paste, and in all localities where work is carried on, as mentioned under (a), (b), and (d), linen cloths saturated with turpentine must be suspended.

ART. 6. All workshops used for filling and packing operations must be of such dimensions as to give to every workman employed therein not less than 10 cubic meters [353.1 cubic feet] of air space.

ART. 9. The employer shall see that all workers employed in localities wherein work is carried on, as described under (a), (b), (c), (d), are provided with overalls, to be used for that purpose during working, and, when not in use, to be kept in a special dressing room separate from the workrooms. This dressing room shall be fitted with lockers for the keeping of the ordinary clothes, which the workers must take off before commencing work.

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<sup>a</sup> Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 70.

ART. 10. The employer shall not allow the work people to take food or drink to the workrooms. He shall provide a proper place in which the workers can take their meals, and where they may deposit such provisions as they may happen to bring with them; such place to be separate from the workshops and the dressing room.

ART. 11. Outside the workshops, but in close proximity, special facilities for washing must be provided, such washing arrangements to be of such size and so numerous that at least one-fifth of the total number of the workers may be accommodated at a time. On the working premises a glass or cup for each worker is to be kept, and a sufficient quantity of rinsing liquid, composed of permanganate of potash, must be provided.

ART. 12. The employer shall see that the workmen thoroughly wash their hands, rinse their mouths, and take off the dress worn during work time before taking their meals and before leaving the factory premises.

ART. 13. In the rooms mentioned under (a), (b), and (d) of article 1, only such workmen shall be employed who prove their fitness for the work in question by a certificate from a medical practitioner, stating that the person does not suffer from phosphorus necrosis, or caries of the teeth, is not tuberculous, and, judging from his or her bodily constitution, is not specially liable to such diseases.

These medical certificates are to be kept for inspection by the controlling authorities.

ART. 14. The employer shall employ a qualified medical officer to superintend the sanitary condition of his work people. The medical officer shall examine each worker as to diseases attributable to phosphorus poisoning at least once every quarter, and must report to the employer every case of such disease. The name and residence of the medical officer shall be communicated to the sanitary authority in the first instance, and to the factory inspector of the district. The employer shall report at once to the sanitary authority and to the factory inspector every case of disease attributable to phosphorus poisoning of which he may become cognizant by report or otherwise. It is strictly prohibited to continue to employ, on the premises described in article 1 under (a), (b), (c), and (d), persons found suffering from such diseases.

ART. 15. The employer shall keep a register of all his work people. This register must contain, besides the columns prescribed by the Statute Laws XVII, 1884, special columns for inserting data with regard to the medical certificates, the employment upon which the worker has been engaged, by whom and when it was given, when he was last examined, and also on the state of the workman's health at the time of examination, this last column to be signed by the examining medical officer.

ART. 21. This order of regulation, together with the "observations" given below, must be exhibited in every work shop or room in some easily accessible place.

#### "OBSERVATIONS."

The phosphorus used in the manufacture of lucifer matches acts injuriously upon human health, and causes diseases. The first symptoms of disease are swelling of the gums, accompanied by pain and an inclination to bleeding; the gums afterwards become sore and

ulcerated. The teeth are loosened, and dull, persistent pain follows. In other instances, coughing and pains in the chest manifest themselves.

Those persons in whom such symptoms develop are requested, for their own sakes, to report themselves to the medical officer, to leave off work, and to submit to a regular course of medical treatment, if they desire to avoid more serious consequences.

For those who have wounds on the body, suppuration in the mouth, or whose gums begin to bleed, or those whose teeth have only recently become decayed, to work in mixing, dipping, or packing rooms is especially fraught with danger.

Workmen engaged in these operations are enjoined to leave these places at once, the more so because they are sure to be dismissed from them at the next quarterly examination.

To avoid the noxious action of the phosphorus every workman must well wash his hands, rinse his mouth with the violet-colored lotion kept for this purpose in the washing rooms, or at least thoroughly wash his hands and rinse his mouth with clean water before taking his meals. The overalls worn during working hours must also be taken off before washing and before meals are taken. Persons employed can obtain gratuitously a copy of these regulations from the factory inspector of the district.

ART. 22. The sanitary authorities and their experts shall inspect the lucifer match factories at least once in every three months, and satisfy themselves that the preventive arrangements ordered by these regulations are effectively carried out.

#### NORWAY.

Great precautions have been taken in Norway to prevent necrosis among workers in match factories. For many years it has been common to require the work people to rinse their mouths before meals with special solutions and to have them medically inspected every month. The dentist is paid by the employer, and whenever it is necessary for the employee to stop work he is paid by the firm for time lost. In spite of these precautions, Norway health reports indicate that between 1880 and 1893 no less than 28 cases of phosphorus necrosis were treated.

Norway manufactures safety matches for home consumption, but until recently exported poisonous phosphorus matches to the East Indies, until Japan has in the last twelve years flooded that market and forced Norway to build up a trade with India.

"The Norwegian Government was represented at the Berne international conference on labor legislation in 1905, empowering its delegates, however, merely to accept the resolutions ad referendum. At the conference in 1906, Norway was not represented. From 1895 to 1899 there were 6 cases of phosphorus necrosis; from 1900 till 1904, 3 cases. The 7 Norwegian match factories employ altogether 808 persons. The majority of these work in factories where only non-poisonous matches are made, and according to the inspectors' report for 1904-5 (Christiania, 1906), the number of work people directly

exposed to the influence of phosphorus in 1896 was 306 and the number of cases of necrosis was 3; in 1900 the numbers were 123 and 2, respectively, and in 1904 the number of work people so exposed was only 88, and there were no cases of necrosis. Thus it is the decreased production of poisonous matches which has led to the decrease in the cases of necrosis. It is equally clear that under these conditions a complete prohibition of the use of phosphorus would involve no sacrifice whatever on the part of the Norwegian industry." (<sup>a</sup>)

#### SWEDEN.

Sweden is the main seat of the manufacture of safety matches, and less than one-tenth of her work people in match factories are engaged in the making of matches from poisonous phosphorus. In spite of the cheapness of labor in Sweden the Jönköping factory especially is remarkable for the extent to which manual labor has been replaced by machinery. One girl, attending two machines, controls the filling of 40,000 boxes in ten hours. Two girls in the same time, with wrapping machines, pack a quarter of a million boxes into wrapped, pasted, and labeled parcels of 10 or 12 boxes.

In spite of the predominance of the manufacture of safety matches which contain no poisonous phosphorus, scarcely a session of the Swedish Parliament has passed during the last forty years without a discussion of the phosphorus question by people who contend that the only solution possible is the complete prohibition of the use of poisonous phosphorus. While the regulations in force have resulted in much improvement, they are regarded as merely palliative. Recently it has been urged that the distribution of poisonous phosphorus matches should be prohibited also on the ground that they furnish a ready means of suicide.

The regulations in force in Sweden date from 1870, and are the direct results of a motion in the Riksdag urging prohibition as far back as 1863. Agitation continued as the result of the increase of cases of phosphorus necrosis, and in 1891 a commission appointed by Parliament unanimously recommended the prohibition of the manufacture, importation, or sale of the ordinary phosphorus matches. But in spite of this unanimous recommendation, the Swedish Parliament rejected the proposal on the ground that regulation ought to suffice.

A few years later, in 1897, the Lower Chamber passed a bill prohibiting the importation, exportation, and sale of the poisonous matches in every part of Sweden. In the Upper Chamber, however, it was argued that these matches might still be exported, but should no longer be made for home consumption. The majority in the Upper Chamber were adverse to any change, principally on the ground that

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<sup>a</sup> Publication No. 6, International Association for Labor Legislation, London, 1909, p. 49.

no effective substitute had then been discovered, and that in the absence of an international agreement the total prohibition act would seriously cripple Sweden's export trade.

"The Swedish match industry which, in respect to the number of persons employed, comes next in importance to those of Japan, Russia, and Italy, included in 1905, 20 factories and 5,678 work people. Of the latter, 44.8 per cent were women and 26.1 per cent were young persons. Matches containing white phosphorus are manufactured for export only, and the number of workpeople who may be exposed to necrosis is thus much smaller than that given above. In spite of this there were in Sweden between 1902 and 1906, 17 cases of phosphorus necrosis, which thus could not be avoided through mere precautionary regulations, notwithstanding the very advanced technical arrangements." (a)

The regulations at present in force in Sweden date from 1870. and some of them are as follows: (b)

SECTION 1. Matches, the paste of which contains ordinary phosphorus, shall be made only in factories specially arranged for the purpose.

SEC. 4. Factories referred to in this order must be situated in an open and dry position. The following processes shall each be carried on in a separate room:

(a) Preparation of the paste and dipping of matches, (b) drying, (c) packing. These rooms shall be separated from the remaining workrooms, but shall communicate with each other by tightly fitting doors, closing by means of springs, weights, or similar means. In each of the rooms above mentioned there must be a thorough change of air, either by means of mechanical ventilation or else by a sufficiently high draft chimney, under which a fire shall be kept up on a special hearth during work time. The said rooms must be at least 10 feet high and a floor space of at least 30 square feet be allowed for each worker engaged therein. The walls must be coated with oil paint and the floor covered with asphalt, cement, or closely fitting flagstones. In rooms used for the preparation of the paste and dipping the matches these operations must take place only under flues connected with the ventilating apparatus.

SEC. 6. No worker under 15 years of age shall be employed in the operations of preparing the paste or in dipping the matches, and no one may be engaged for more than six months at any time in these operations. He may not return to this kind of work until the expiration of at least two months, during which no detrimental effects of the work have been shown in regard to his health. In order to enforce the strict observance of these regulations there shall be a special register in the factory in which shall be entered the Christian name, surname, and age of every worker, as well as the date on which he commences or ceases to work in any particular department of the factory.

SEC. 7. The manager of the factory shall see that every worker engaged in the operations mentioned in section 4 wears the proper

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a Publication No. 6, International Association for Labor Legislation, London, 1909, p. 50.

b Reports to the Secretary of State for the Home Department on the Use of Phosphorus in the Manufacture of Lucifer Matches, by Prof. T. E. Thorpe, Prof. Thomas Oliver, M. D., and Dr. George Cunningham. London, 1899, p. 56.

working dress, which is to be put aside in a special room on leaving off work, that clean water is available in a convenient part of the factory for the purpose of rinsing the mouth on the conclusion of work, and that soap is provided by the proprietor, so that the employees may wash their hands and face before leaving the factory or at meal times. The manager shall also see that the employees do not remain longer in the room referred to than is necessary for the work, that no eatables shall be consumed therein, and that these rooms shall not be used for dwelling rooms, sleeping places, or for keeping eatables or clothes.

SEC. 8. The doctor appointed by the owner of the factory shall carefully examine the employees at least once a quarter. The result of this inspection and advice with respect to the removal or transference of the work people to other branches of the work shall be entered in the register provided under section 6. Observations made during any occasional visits of the doctor to the factory as to the general state of health should be entered in the same register.

SEC. 9. The rooms mentioned in section 4 and the tables and working places therein shall be cleaned at least once a day. The floors and walls shall be washed down at least once a fortnight. Refuse must be immediately burnt. The water used for washing and rinsing the mouth must not be poured into a sink or open place, but only into a specially constructed drain.

SEC. 10. The manager is required to exercise great vigilance in seeing that the regulations and protective measures are carried out, and to watch carefully the state of health of the employees, especially those who suffer from decayed teeth or unhealthy gums. When such present themselves he shall send immediately for medical assistance.

SEC. 11. In every workroom the manager shall have this order posted up in a convenient place, as well as any other regulations which may be arranged between the manager and the doctor.

#### SPAIN.

In Spain the ministry has promised to give serious consideration to the prohibition of white phosphorus so soon as the contract for the monopoly of the match industry, which employed 5,000 work people, mostly women, should expire.<sup>(a)</sup>

#### RUSSIA.

In Russia the ministry of finances has endeavored to limit the manufacture of ordinary phosphorus matches by doubling the excise duty on such matches. In 1892 a law to this effect was passed and has resulted in the gradual diminution in the number of factories devoted to their manufacture and the increase in the number of factories engaged in making nonpoisonous (safety) matches. In 1898 the department of trade and manufacture reported that "the only efficacious measure of protection for the workmen consists in the total prohibition of the use of ordinary (white or yellow) phosphorus."

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<sup>a</sup> Publication No. 6, International Association for Labor Legislation, London, 1909.

"According to reliable official information there was in Russia in 1906 one factory employing white phosphorus exclusively, 8 employing white phosphorus in addition to nonpoisonous substitutes, 93 employing no white phosphorus; only 449,000,000 matches containing phosphorus were made, as opposed to 244,778,000,000 containing no phosphorus. The number of work people was: 1903, 18,510; 1904, 18,006; 1905, 17,164; 1906, 18,190 (of whom 7,902 were adult men and 7,297 were adult women). The excise on all matches was doubled by a law of April 13, 1905. The number of cases of necrosis is unknown, since there is no system of compulsory notification. But it is evident from the facts just stated that the agreement of Russia to the Berne convention offers no serious difficulties."<sup>(a)</sup>

#### JAPAN.

As is well known, the Japanese exports have increased in a marked degree since the conclusion of the war, and Japan may be said to have the command of the Chinese market. The Indian market it shares with Sweden, and the Australasian market, with the exception of New Zealand, is practically untouched by it. In 1908 according to reliable information there were 209 factories in Japan, 60 of which manufacture for export and 149 for home consumption. Thirty thousand persons are employed in these factories, and nearly 4,500,000 cubic meters [158,913,000 cubic feet] of wood are used in a year. The raw materials for the match industry have nearly all to be imported; the value of the imports of wood alone amounts to 6,000,000 marks [\$1,428,000]. The export of matches considerably exceeds the home consumption; in 1907 it was valued at 26,000,000 francs [\$5,018,000]. The principal customers are China, Hongkong, Singapore, India, and Korea. \* \* \*

The Chinese boycott of Japanese matches, which began in March, 1908, and which affected almost half the industry, showed that the Chinese market is not closed to nonpoisonous matches.<sup>(b)</sup>

Among the requirements prevailing in Japan are the separation of the different departments, namely, dipping, drying, and boxing; the provision of ventilation by hoods and fans; the prohibition of employment of persons when their teeth are decayed; the interdiction of food taken into and eaten in the factory; and of the presence of a larger percentage of phosphorus in the paste than 10 per cent. In Japan no match factory can be built without the consent of the Government, and no workers can be employed under 16 years of age.

<sup>a</sup> Publication No. 6, International Association for Labor Legislation. London, 1909, p. 49.

<sup>b</sup> Idem, pp. 48 and 49.

**FACTORY CONDITIONS AND PHOSPHORUS POISONING IN AMERICAN FACTORIES.**

This investigation of factory conditions and phosphorus poisoning in the manufacture of matches in the United States has included a study of 15 of the 16 match factories known to be in operation during the year 1909. All of these factories were visited by special agents of the Bureau of Labor, and 4 were studied intensively by the writer of this report. The 4 establishments selected for intensive study include 2 factories owned by a single company, 1 an old but modernized plant in Maine and the other a new and modern factory in Wisconsin; 2 other factories, neither very old, 1 an Indiana factory operated under somewhat unfavorable circumstances and the other a Minnesota factory more modern in equipment. This selection was made with the desire to make a perfectly fair test of the effect upon the health of the workers of work under the very best conditions and under ordinary factory conditions.

The remaining 11 factories visited by agents of the Bureau are 3 in Ohio, 2 in Pennsylvania, 1 in New Jersey, 2 in New York, 2 in Michigan, and 1 in Illinois. Information gathered concerning phosphorus poisoning in these 11 establishments was almost wholly limited to inquiries made in the factories. This fact should be remembered. The information secured in these brief inquiries showed clearly that a careful local study of these last-named factories would reveal many additional cases of disease and death from phosphorus poisoning.

All of the specific cases of phosphorus poisoning which are given in connection with this report in the following pages were clearly identified, and the names of the patients secured; but as, for obvious reasons, in many cases it is not desirable to identify these unfortunate victims, fictitious names are used in the descriptions.

**FACTORY AT ———, ME.**

The factory at ———, Me., alone remains of all the New England establishments, once so influential for the important inventions they gave to the trade. It, too, is the only remaining factory in this country that still manufactures, to the exclusion of all other kinds, the old "New England," "nine-day," "sulphur," or "card" match.

A brief description of the distinctive processes in the manufacture of these matches, together with a description of dangerous conditions, will help to make the whole subject clear.

Rough logs are brought up to the rear of the factory, which from that side presents the appearance of an ordinary sawmill. From the unhewn log until in the form of matches it is wrapped in thin paper and boxed for the retail trade one may follow the processes



step by step past the saws which convert the log into boards, past the machines which slit the boards into thin strips and later into short pieces twice the length of a match, through an intermediary stage when the lumber is so poor as to require steaming to remove sap and pitch, past a machine which cuts the slip of wood crosswise through the middle and notches one end of each piece, and past the final wood-working machine which slits the notches deeper until they extend comblike through three-fourths of the length of the wooden card.

These wooden cards, or combs, with 23 teeth or "matches" on each card, are locked up in frames somewhat after the fashion of type in the printer's forms. These frames, presenting on either side a surface of match splints, are next taken to the sulphur-dipping room, where two men work. One man takes a frame, dips the lower side perhaps one-fourth of an inch into a tank of melted sulphur and brimstone, then passes it on to the second man, who dips the reverse side in his tank of the compound.

This brimstone or sulphur room is ventilated with great difficulty, but there is ample evidence of modern attempts to furnish fresh air to the workmen. In fact, the factory throughout has the "made-over" appearance so frequently noticeable in the smaller and older establishments. Large air pipes open from above and furnish in summer time a noticeable current of cooler air. "But in winter time," said the superintendent, "we can't have much cold air here, for it would cool the sulphur too much." The odor of sulphur was very noticeable in this room, but not particularly troublesome.

After the brimstone tip has passed through an intermediate stage of drying the frame full of matches is taken to the phosphorus room, and there passes through a similar process of dipping. A man stands at one side of a tank and, by sense of touch, dips one frame after another into the fuming dark liquid paste. A boy stands at one end of the tank and between each operation pulls a broad hoe-like instrument over the top of the liquid to smooth it. When the writer visited this factory, in June, 1909, the man and the boy each wore below his eyes, and completely encircling the lower part of his face, a rubber funnel-shaped mask, which extended in the form of a tube and connected with a fresh-air ventilator. "This apparatus," said the superintendent, "is to protect them from the phosphorus fumes which when they enter bad teeth cause the teeth to rot and finally the jawbones to decay." He said he had never known of but one case of phosphorus poisoning, and that was a girl in the packing room.

In a corner of the same room, which is also the drying room, is the "mixing department," where the paste or composition is made. A large kettle with a thick wooden cover is used for this purpose. Two other kettles were said to contain glue. Submerged in a tank of

water, in a corner, were eight or ten 11-pound tin cans of the poisonous phosphorus. "We get two shipments of this phosphorus a month, of about 8 cases of 10 cans each," said the superintendent. "We mix every day, and then twice during the week we mix two times a day. We get our phosphorus from Niagara."

In another part of this large room, which is used for drying, as well as for mixing and dipping, boys lift the frames and shake the matches into trays beneath, using their hands freely to poke the matches into place. The trays, full of matches, are taken to the boxing room, where, on the day the factory was visited, 62 women and girls, some of them surprisingly young looking, were seated at wooden benches. They wrap 4 cards containing 23 matches each with thin paper and then put a number of these "bunches" together in a box. The work itself is not at all difficult. But fires occur frequently here, as also in the drying department, and the fumes arise constantly in various parts of the room. Wet sponges are kept at hand for use in extinguishing the flames, which sometimes burn the girls painfully.

The wash room is about 20 feet square, with windows on one side and a door opening into the corridor which connects directly with the packing room. In one corner are 3 inclosed closets, and next to them an iron sink about 6 feet long, to be used as a wash basin. Running the length of this sink, about a foot from the bottom, is a pipe with perforations through which hot and cold water runs when faucets are turned. The other half of the room is occupied with coat racks and hooks, from which a great array of hats and jackets hang. Along the opposite wall, in the same room, is an open cupboard containing, in paper bags, the noonday meal.

Obvious attempts have been made within recent years to provide ventilation. The light on pleasant days is fairly good. But one man was seen—the feeder at the planing machine—who had lost a hand. Notices are posted warning the men against "cleaning machinery while in motion," but nowhere was a single notice explaining the dangers of phosphorus poisoning seen. Young children, boys and girls, are here doing work much too heavy and too dangerous for them. When the superintendent was asked what precautions were taken to prevent phosphorus poisoning he said: "Oh, we have a dentist to examine their teeth every three months, and then we expect 'em to keep clean, that's all." In reply to the next question, he answered, "No, we haven't any here now that are poisoned. We won't let 'em stay a minute when we find out. They have to get out, and they can't come back until they are all right again."

A few of the girls go home at noon, others have their luncheons brought at 12 by smaller sisters or brothers, and the remainder eat out of the paper bags which since morning have reposed in the "wash room." The management now provides a clean room with two long

oilcloth covered tables, and wooden benches for the use of the girls at noon. This lunch room is some distance from the packing room fumes and odors and is reasonably light and clean. The floors are scrubbed once or twice a week.

An agent of the bureau who visited this factory in January, 1909, found that the total number of persons employed was 140, of whom 75 men and 53 women were over 16 years of age, and 12 girls were not yet 16. The ten-hour day, with a Saturday half-holiday was the rule for all females, while the men worked sixty hours a week. Sixty minutes was reported as the regular allowance for lunch.

For the supply of fresh air to the workrooms, and for the removal of fumes, he found thirteen 12-inch air pipes in the wrapping room, and that the air space per person in the factory was 671 cubic feet for women, and 1,100 for men, which is regarded as ample. The establishment furnished soap and towels, and washing facilities were reported as "sufficient."

In order to learn at first hand some of the facts concerning the effect of phosphorus upon the health of workers in match factories, many inquiries were made of various people, including manufacturers, working people, dentists, physicians, and others. The information thus secured was verified and supplemented by an examination of the records kept by three local hospitals, wherever there was a sufficient clue to justify the expenditure of the necessary time.

In spite of many difficulties and from such clues as could be picked up in inquiries about town, the records of several cases of phosphorus necrosis were collected, which indicate the seriousness of this occupational disease in this factory at least.

Without further preliminary comment, and with every desire to furnish the reader a view of conditions unprejudiced in the slightest manner by sympathy for actual suffering, the records as found are here given.

#### GEORGE K.

George K. worked several years as a dipper in the match factory before he had serious trouble in November, 1878. He didn't know the occupation was dangerous. No protection was then provided for the faces of the dippers. He had some teeth extracted once on Saturday and went back to work Monday morning. Finally Doctor M. examined him and told him his jaw was "like honeycomb." Doctor M. called Doctor F. in consultation and they decided he must go to the hospital for an operation.

He went to the hospital for the first operation in November, 1878. Several teeth were removed, but the trouble continued.

In January, 1879, he returned to the same hospital and his entire lower jaw was removed. From that time until his death in December, 1901 (twenty-two years), he ate no solid food.

For a time after the operation, when he had sufficiently recovered, he worked as engineer at the match factory. Later he became night watchman for another company, a position he filled until his last sickness.

The writer was shown a photograph, taken years after the operation, showing Mr. K. with a heavy beard. "His face looked much worse than it does in the picture, because the sides were drawn in, and we had great difficulty in inducing him to have his picture taken," said the daughter, "but the photographer fixed him up." This photograph gives the impression of a man just in the act of swallowing a massive beard. When a man suffers such disfigurement he immediately grows a beard, a refuge denied to the women sufferers who sometimes go through the remaining years of life frightfully disfigured.

In complete confirmation of the above report the following record was later copied from the books of the hospital:

*George K., November 6, 1878.*—Was sent by Doctor M. Lived in C.; age, 42; married; employee in match factory. Came of strumous family, but own health always good. Had dipped matches for last four years. Three weeks prior to consulting M., he had all of the teeth in the lower jaw removed, excepting the wisdom teeth, on account of their sudden loosening accompanied by pain in the jaw. Afterwards there was great pain, with discharge and offensive odor. Great depression of spirits present.

*November 7.*—Consultation to-day. The jaw was examined with probe and the alveolar processes were found carious for their entire extent. It was decided to save the jawbone if possible, removing only what was diseased. Patient received usual preparation.

*November 8.*—This noon Doctor F. removed with bone forceps, chisel, etc., all diseased bone possible. The burrer and rasp were then used thoroughly over the exposed surface.

*November 9-12.*—For these three days there was great pain and soreness, expectoration of blood, severe headache, weakness, and depression of spirits. Opiates and liquid nourishment were given.

*November 13-20.*—During this week patient was quite comfortable and in better spirits. Granulation sprang up from the periosteum in many places. Still the prognosis for saving the bone seemed grave. Patient went home of nights and as he lived near by was dismissed the 20th with injunctions to return once per week in order that further developments might be watched.

*December 6.*—Patient readmitted in an unpromising condition. Fungous granulations present on jaw, bleeding easily and profusely. Large abscess in submental region. General condition poor, weakness and despondency being present. Dr. F. opened abscess, evacuated contents, and ordered flax-seed poultice. Patient allowed to remain at home.

*December 9.*—Visited hospital. Much discharge present. Dead bone discovered by probe. Patient put upon Tr. Ferri Chl. m. xx t. d. and Ol. Morr. tablespoonful t. d.

*December 9-January 1, 1879.*—Patient visited hospital at intervals of a week. Discharge increased, pus coming away both by sinus and mouth. General condition getting worse. January 1, service of F. ended.

*January 1-14.*—Service of Doctor H. Patient visited hospital on 4th, 6th, and 11th. Doctor H. endeavored on each of these occasions to separate the periosteum from the dead bone by means of probe, having decided to operate as soon as practicable. 14th, patient visited hospital, prepared for operation.

*January 15.*—Operation for removal of body of lower jaw. Owing to peculiar position of the bone, incision was made farther back than usual. Bone divided with chain-saw. Operation complete success. String attached to tongue to prevent suffocation, opiates given, and patient put to bed.

*January 16-25.*—Patient improved almost immediately after operation. No febrile reaction present. For first four days remained mostly in bed. Mouth greatly swollen and copious discharge of a thick brownish mucus. Headache present. Liquid nourishment freely. 18th—stitches removed. 19th—patient up and dressed. Water dressing for wound. Old sinuses which led to bone seem to be transformed into fistulæ, which became very annoying, allowing food and mucus to escape. Patient continued to improve and went home 25th.

This case occurred at this factory in 1878, and is given above in some detail in order to show that the disease has been known there for a generation at least. The same manufacturer operated this factory during the next twenty-five years, and it is reasonable to suppose that he knew of the dangers of the occupation. The following cases from the same factory are set down in chronological order, with only such comment as appears necessary to make the facts clear to the reader.

#### ANNIE L.

Annie L. was one of the earlier cases mentioned by several residents. From her sister it was learned that the trouble occurred twenty-six years ago, and that "she did not go to any hospital or any other charitable institution," but employed their own family physician. "We look out for ourselves in our own way. We blame no one for our trouble, and we desire no publicity. We are not interested in any way. You can not get information here—and no evidence whatever," said her sister.

In this instance, as in several others, it was necessary before the facts were given to satisfy the family that the purpose was not to bring a suit for damages against the manufacturer.

From several different sources it was learned that Annie L. had a jaw cut out and is badly disfigured.

## BRIDGET D.

Bridget D., a proud-spirited girl, who would not admit even to her dentist (Doctor E.) that she worked in a factory, had been in the match factory only a year or two when, as a result of phosphorus poisoning, she was obliged to have her entire lower jaw removed. This was about twenty years ago. The operation was at the home of her parents and consequently there is no written record, but Doctor J., who was one of the surgeons, stated that it was a very bad case, requiring the removal of the entire lower jaw.

These facts were corroborated by Mrs. L. and the Misses A., and by the father and mother of Bridget D., who still live in the neighborhood of the factory. They both told in detail the story of their daughter's suffering. For a long time the mother had kept hot poultices on her daughter's face, and Bridget would hold her face against the warm wall behind the kitchen stove in the hope of stopping the trouble. "But," says her mother, "my work was all for nothing. Poison it was that was there."

## EMMA I.

Emma I. was out of town for the week at the time of the writer's visit, but her sister-in-law and a friend living in the same house gave much information. Emma I., before the removal of her jaw, they said, was a good-looking young woman, and they showed a tintype to prove it. They remembered that she was obliged to leave the match factory and that she had several operations in the hospital about fifteen years ago. In a letter under date of November 17, 1909, she informs the writer of this; that she had never regained her health since she was first affected by the poison. The hospital records in this case are as follows:

*Emma I.—Single, age 20; admitted January 22, 1894.*—Patient has been at work in match factory, and about two months ago began to have pain in right side of lower jaw. Found to be a case of phosphorus poisoning. Doctor F. extracted two teeth and curetted away some dead bone; also opened swelling on outside—found dead bone at bottom—removed and dressed. Discharged same day. Cured.

*Admitted April 23, 1894.*—Sinus still discharging. Opened sinus and curetted and gouged out dead bone. Sinus opened into mouth through jaw, April 25. Discharged (relieved) May 1.

*Admitted May 31, 1894.*—Has returned for removal of jaw. Doctor S. removed left side (June 4) of inferior maxillary bone from symph to ramus—found it in very bad shape. Filling in well—very little discharge (June 14). Is going home and came in for dressing. Discharged, cured, June 14.

*Admitted August 26, 1898.*—Single, age 24. Has swelling on left side of lower jaw accompanied by pain. One week ago had tooth extracted there. August 27, Doctor H., assisted by Doctor R., cut down and curetted the bone; August 31, discharged, relieved

## MARY E.

The superintendent of Doctor H.'s hospital referred to a Miss E., who suffered from a bad case of phosphorus poisoning which occurred about twelve years ago and resulted in the removal of an entire jaw while the superintendent was nurse at the hospital. This case was mentioned by several others, who remarked that "she lost a jaw, too." From these accounts it appears that she had been over from Ireland but a short time when she entered the match factory, and that after about a year she had trouble and went to the hospital for an operation. The record books of the hospital tell this story:

MARY E. (nativity, Ireland); age 21.—Admitted January 15, 1896.

*Diagnosis.*—Necrosis of right side of jaw (inferior). Present illness began two months prior to admission. Face began to swell, was painful. Abscess formed which broke—girl works in match factory.

*January 16.*—Operation. Doctor S. and Doctor A. extracted two teeth and curetted away portion of jaw.

*February 10.*—Second operation—no improvement from first.—Opened abscess which had formed under the jaw at seat of previous operation. Wound packed. Dressed daily. Discharges pus.

*March 11.*—Doctor S., assisted by Doctor V. Excision of right half of inferior maxillary. Uninterrupted recovery.

*April 4.*—Discharged cured, except a small sinus for which she comes in occasionally and has dressed.

## ALICE A.

According to the statement of two sisters of Alice A., both educated and refined women, she left school after one year in the academy—upon the death of her father—and went to work in the match factory. She was then about 17 years old, had perfect teeth, and always took good care of them, going on her own account to a dentist every three or four months to be sure they were perfectly sound.

About 1901, after she had worked in the match factory perhaps seventeen years, she had trouble with her teeth and went to a dentist who removed several splinters from her jaw. (Doctor A. administered the ether.) She never went back to the factory. Two years later, in 1903, when she was 36 years old, she was obliged to go to the hospital, where she had two operations a few weeks apart. Her right lower jaw was entirely removed—and also the teeth on her left jaws, leaving only a few teeth in front. She suffered terribly.

Several other local people added similar statements with reference to this case, but here again the record books of the hospital furnish the documentary evidence.

ALICE A., age 35.—Admitted October 15, 1903. Private patient of Doctor S. October 15, Doctor S. curetted the jaw. Has had an ulcerated tooth for four weeks. Has pain and swelling. Discharged,

relieved. October 15 (p. 271) Doctor S. opened, curetted and put in gauze drain. (P. 291.) Same entry as at top, with this addition: "Six weeks ago had a tooth extracted, an abscess formed at seat of cavity, and Doctor S. opened it at his office. The bone became involved and he advised her to go to the hospital. She came in October 15 and Doctor S. curetted out the diseased bone and she went home at night."

Returned to hospital November 3, 1903, with more bone involved. Doctors S. and R. removed more diseased bone November 3.

"November 26, wound nearly closed. Allowed to go home, but advised to come to hospital to have wound dressed." (P. 143, vol. 36, Sing. Rec.)

Wound did not heal well. Returned to hospital April 30, 1904. Operation April 30, 1904. Doctors V., A. and G. Incision made over border of right side lower jaw. Right half of jaw removed just outside of symphysis. Wound did well. Pack still left in and patient allowed to go home. To have dressing done outside. May 13, 1904.

The suffering from the phosphorus poisoning finally affected her mind, said her sisters, until at times she is unable to recall that she ever worked in the match factory. Although she was a very pretty young woman, she is now frightfully disfigured and shuns everybody.

#### MRS. SARAH E.

Mrs. Sarah E. worked in the match factory from about her 14th to her 20th year. In 1903, she told the writer she had two operations at home for the poison in her left inferior jaw. It came, she thought, from going back to work immediately after having a tooth extracted. After the first two operations she never returned to the factory, but suffered from severe toothache, and then for two years or more from a running sore on her jaw. She now has an ugly scar to show where Doctor H. lanced it.

In April, 1905, she was obliged to go to the hospital for another operation and Doctor H. took her to the infirmary. After this operation the wound healed well and she has had little trouble since. At least an inch of the lower jaw is missing.

The records at the infirmary show that she was admitted to that hospital April 12, 1905, and discharged April 16, and that Doctor H. was the surgeon. No further record was made on the books.

#### MRS. ELLA B.

A very recent hospital case is that of Mrs. Ella B. Upon the advice of the local dentist (Doctor S.) who in recent years has had most of the match factory practice in ———, she went in February, 1909, to Doctor H.'s hospital for treatment. The meager hospital records show that she was admitted to the hospital February 3, 1909, and departed February 7. The diagnosis is given as "Phosphoric necrosis of jaw."



From additional information secured from the superintendent of this hospital as well as from Doctor H. and several others, it appears that Mrs. B. has worked in the match factory for a number of years and was working there at the time of her trouble early in 1909. According to her dentist she had no natural teeth, had been using false teeth for years, and yet necrosis of the bone set in, probably where the rubber base of her artificial teeth produced irritation. Doctor H. told the writer that the case was not an especially serious one, that he removed a part of the superior maxillary about three-fourths of an inch in diameter, and that Mrs. B. (four months after the operation) was doing well under his treatment.

The local dentist had advised her not to go back to work, but she was supporting and educating her two children, and her regard for her children was stronger than her fear of the poison.

The above detailed records of eight cases are sufficient to demonstrate the long-continued existence and serious nature of the disease in this factory, but the following additional cases from the same factory must likewise be considered.

#### ANNIE B.

One of the worst cases at this factory, according to several informants, was Annie B., who many years ago had phosphorus necrosis which caused the loss of an eye as well as her upper jaw, and finally after terrible suffering resulted in her death.

#### MR. V.

Several people in ——— referred to a Mr. V., who it is reported worked as a dipper in the factory and suffered much from bad teeth and an abscess, if not the loss of an entire jaw, perhaps twenty years ago.

#### LENA A.

Lena A. worked in the match factory for about twelve years and then was obliged to leave on account of the poison. About 1896 she had serious trouble with her teeth, and according to one informant "lost both bones." Doctor C. had her case.

Doctor C. remembers this case very well. Miss A. came to him first about 1896 with a sore tooth—a left inferior molar. She had had a few teeth drawn before coming to Doctor C., but now she began to lose one tooth after another until she had lost every tooth on her lower jaw. Doctor C. attended her for perhaps six years before cutting out the left inferior jawbone, a piece of which he still displays in his dental offices.

Miss A. married and now lives at K. In a recent communication on the subject of phosphorus poison, under date of November 18,

1909, she says: "I lost every tooth on my under jaw and not one of them decayed; so you see the poison enters through the system and not through the teeth. My mouth did not heal, and it discharged all the time for over three years. Doctor B. also removed several pieces of the dead bone. I do not like to think about it, I suffered so much."

MARY B.

Mary B., it is reported, worked in the factory several years, when suddenly her bones became brittle, an affliction sometimes caused by phosphorus poisoning. After fracturing her limbs several times she left the factory, but still lives in ———.

MARY C.

Mary C. worked in the match factory and went to Doctor S. about five years ago with a slight case of necrosis. He cut away the necrosed bone and she left the factory. She was about 24 years old.

MINNIE V.

Another girl, Minnie V., worked in the match factory until she had to have a piece of her jaw removed.

MRS. T.

Mrs. T., according to Doctor S., came to him about five years ago for several weeks' treatment, but would not take care of herself, and finally stopped coming. Her younger sister remembered that several years ago Mrs. T. "had the poison and suffered from pus," but that "the company dentist told her recently that she is all right again now."

MOLLIE C.

About five years ago Doctor C. examined the mouth of Mollie C. He "found some bad conditions" and recommended immediate treatment, but never saw her again. "If she didn't get treatment at once she must be in a fearful condition now," said dentist C.

MISS K.

About four years ago, according to dentist C., a Miss K. came to him suffering from a right inferior bicuspid. She was about 20 years old and had worked in the match factory. Doctor C. says: "I sacrificed the adjacent teeth and cut beyond the diseased tissue. She was anæmic and suffering from malnutrition, but under treatment she thrived and has had no recurrent trouble."

## ANNIE N.

About four years ago, according to Doctor C., Annie N., then a girl of about 19, came to him for treatment of a superior maxillary bicuspid. He filled it. Soon after the membrane began to creep away. He then removed the tooth and all of the cancellated bone. The case progressed well under treatment for a year and a half, when suddenly small particles of bone commenced to come out, and he opened the tissues and scraped the roots of the adjacent teeth. About a year ago she left the factory and married. No record of trouble since.

## ELLA X.

Ella X., who is still employed in the factory, came to Doctor S. for treatment three or four years ago, when she was about 17. She had apparently gone back to work almost immediately after having a tooth extracted. Doctor S. treated her and kept her out of the factory for several months, much to her annoyance, as she was the only support of the family.

## GEORGIA G.

In the summer of 1908 Georgia G. "had an abscess on her gum" and left the factory. Her trouble, according to local reports, was due to phosphorus poisoning.

## KATE A.

When the factory was visited early in June, 1909, Kate A. had been out of the factory about one week it was said "with an abscess on her tooth."

There are other rather hazy recollections of individual suffering as a result of phosphorus poisoning at this factory and one instance is mentioned of a "man with a piece of silver in his jaw." Doctor S., too, tells of having been called to the factory once several years ago, and of having found some terrible cases. "One old man," he says, "with teeth rotted out, pus oozing from the sockets, and with necrosed bone protruding from the gums, was a disgusting object."

According to the story of an employee who has been in this factory for many years, conditions were very bad in the factory "until about eight years ago." Before that windows furnished the only ventilation, and the air got very bad. The rubbish was not taken up often, broken matches accumulated—and the girls ate their lunches at the bench, often keeping them in paper bags in the drawer of the bench, where they also at times kept "bunched" matches that were not yet wrapped in packages. At that time there was but one toilet, and but one small sink—in the workroom. The girls' wraps then hung in the alleyway directly off the workroom.

Now, she declares, they have soap, and each girl has a towel each week. She never heard of the need of brushes for the hands and nails, or of antiseptic mouth wash. Nothing of the kind has ever been furnished by the company, and the company dentist has never, to her knowledge, suggested that they should have mouth wash of their own.

At present the teeth of the factory employees are inspected by the regular dentist of the company, who does this work for five of the company's factories. He is supposed to visit this factory every three months, but when the writer was there in June, he was six weeks overdue. He usually spends two days at this factory. He fills out a slip of paper (a diagram of the teeth) which the employee takes to a local dentist to have the needed work done. The local dentist, too, is required to fill out a blank when the employee is in proper condition to return to work.

Cases that require examination during the long intervals of three months or more that the company dentist is away are sent to a local dentist. He naturally has a considerable part of the work, although the employees are free to go, and frequently do go, to other dentists for treatment. The examinations are made at the expense of the company, but the employees pay for treatments.

One dentist estimated that he has had about 25 cases of phosphorus necrosis in the past seven years, and another states that he had fully that number during the previous fifteen years. Unfortunately, in common with most dentists, neither has kept written records. Much of this class of work is necessarily done without charge, and no record is kept by the dentist.

#### FACTORY AT ———, WIS.

The factory at ———, Wis., dates from 1867, when it was originally established. Sales increased from less than 3,000,000 matches in 1867 to more than 50,000,000 in 1875. The factory in the latter year consumed 150 tons of brimstone, 11 tons of phosphorus, 320 tons of strawboard and paper, and 4,000,000 feet of lumber, employing nearly 600 people. In December, 1880, the factory passed into the hands of its present owners, by purchase from its founder, and with continual additions and improvements the same company has operated the factory for nearly thirty years. The daily capacity of this one establishment is now about 173,000,000 matches. One hundred thousand feet of lumber and more than 500 pounds of poisonous phosphorus are consumed each day.

The present plant has been remodeled and rebuilt with special provisions in respect to ventilation and lavatory facilities, and there is close dental supervision of the employees. The factory proper is a four-story brick building, 600 by 150 feet, and is an example of the general disposition of the company to provide humane conditions for

their work people. Practically all of the provisions for the protection of the employees mentioned in connection with the description of processes of manufacture at the Ohio factory of the same company are duplicated at this factory. Hoods are provided for the removal of fumes from the closed kettles in the mixing room, and the mixers are directly exposed to the fumes from open kettles only while adding the phosphorus to the liquid paste. The composition is kept until required in kettles which are placed in a special well-ventilated storeroom. The dipping, drying, packing, and wrapping processes are conducted in two immense rooms where 25 continuous process machines are kept in operation. The rooms are lofty, well lighted, and reasonably well ventilated by fresh-air and exhaust pipes. Only at the farther end of the long machines, where the matches are automatically dipped in the phosphorus paste, are fumes particularly noticeable. The floors are kept free from waste, and there is very little accidental "firing" of matches. The claim is made that the air is entirely changed every three minutes. Lavatory facilities are provided, and employees are expected, although not required, to wash before eating. Eating is absolutely prohibited in the workrooms, and the superintendent remarked that he would instantly discharge anyone found violating this regulation, although his attention was called a few minutes later to a young woman packer, whose facial motions with frequent parting of the lips indicated most clearly that she was chewing gum. The company provides a large kitchen and lunch room in the opposite end of the building, where a cup of hot coffee with sugar and milk and a plate and spoon are furnished without cost to all employees. During the winter months a bowl of hot soup is added to the noonday lunch, and the company spends \$3,000 a year on this employees' restaurant, in the belief that it pays.

It thus appears that careful provision has been made for the protection of workpeople exposed to phosphorus fumes in this factory. The present superintendent has worked for this company in this factory twenty-one years. In this factory a system of regular medical and dental examinations was established and has been in force for many years. Inspection and health regulations where poisonous phosphorus is used have apparently been given a fair trial under favorable conditions. Here, if anywhere, careful regulation and inspection under favorable conditions should have resulted in the complete disappearance of phosphorus necrosis.

The facts, however, while indicating considerable improvement in recent years, nevertheless present a condition of affairs little less than pitiful. In a few days spent in ——— during December, 1909, the records of 40 cases of phosphorus poisoning were secured. No less than 25 were serious cases of phosphorus necrosis, and of this number several died. Many of the other victims, including at least 15 who

lost jaws by operations, have existed for years with terrible deformities, and one woman after eight years of medical treatment and regular visits of the company's dental expert, still lives under conditions that to most people would make the grave appear a most fortunate refuge.

All of the specific cases of phosphorus poisoning which are given in connection with this report in the following pages were clearly identified, and the names of the patients secured; but as for obvious reasons in many cases it is not desirable to identify these unfortunate victims, fictitious names are used in the descriptions.

A mere enumeration of many of the earlier cases is sufficient to indicate that for a generation the problem of protecting workers in this match factory has baffled the best trained experts who have striven to eliminate phosphorus poisoning while continuing to use the poisonous phosphorus. The private records of local physicians and dentists, the record books of local hospitals and surgeons, and the death certificates at the state department of health, as well as the corroborative testimony of the workers, the superintendent, and the company's dental examiner, go to make up the cumulative evidence of the following cases.

AUGUST B. still works in one of the departments of this match factory. For six years he was employed in the dipping room, and lost his left lower jaw as a result of phosphorus poisoning many years ago. The operation was performed by Doctor C, now dead many years. Mr. B. gave the writer an account of his own case, together with the names of several other victims.

PATRICK T. was another victim of the poison. He worked about half a dozen years in the dipping room and then was forced to have his entire right lower jaw removed. A Milwaukee surgeon performed the operation. Mr. T. died only two years ago.

JOHANN Y., was another of the early sufferers, who lost a jaw as a result of the poison. He still lives, and works for a local company.

HANS R. worked in the dipping room at the match factory about six years, and lost his right upper jaw in consequence of phosphorus poisoning. The operation was performed in Milwaukee. Mr. R. died about seven years ago.

JAMES D. several years ago suffered the removal of part of his jaw as a result of his occupation in the match factory. He is still living, and works in a local establishment.

GEORGE F. has worked in this factory for nearly twenty years in one capacity or another. In July, 1894, he went to Doctor T. for treatment, and on January 17, 1895, submitted to an operation for phosphorus necrosis of the right upper jaw. A second operation was necessary on April 3 of the same year, when the whole lower jaw was removed.

HEINRICH H., a dipper, suffered a long time in 1895 and 1896 with "phossy jaw" and was out of the factory for months while undergoing treatment. Doctor R. removed some teeth, found pus, and ordered an operation. His lower jaw was removed by two operations, one on January 24, 1895, and the second on March 2, 1896. He still works for the match company.

FRANK M., also paid the penalty of working with poisonous phosphorus and suffered for a long time. On April 17, 1895, he underwent a serious operation for necrosis of an upper jaw. He still works for the match company, but in an occupation which does not bring him in contact with the phosphorus.

MISS B. suffered from phosphorus poisoning many years ago, and she is now disfigured as a result of operations to remove dead bone. Doctor F. treated this case.

WILLIAM V., many years ago, was one of the sufferers from "phossy jaw." He lost his lower jaw and is badly deformed. He is still living.

KARL W., when 29 years of age, suffered two severe operations for phosphorus necrosis. The entry under his name in the record books at ——— hospital contains the following information: "Admitted October 30, 1896; discharged December 12, 1896; admitted December 22, 1896; discharged December 23, 1896. Phosphorus necrosis of left side of upper jaw. Operated on by Doctor B., of Chicago." He was again treated for the same trouble as late as November 28, 1899. He now wears an artificial plate, made by Doctor D., but nevertheless suffers a decided facial disfigurement.

MISS E., another victim of phosphorus poisoning, was treated by Doctor R. several years ago, but her case yielded to treatment, and according to the dentist's report a serious operation was not required.

WILLIAM J.—Undoubtedly one of the most remarkable cases of phosphorus necrosis that has ever come within the observation of medical men. This was an instance where the necrosis attacked not only the bones of the jaw, but the bones of the ear as well. A pamphlet prepared by H. V. Wurdemann, M. D., of Milwaukee, the surgeon who performed the final operations, and entitled "Phosphor-Necrosis of the Temporal Bone," is devoted to this remarkable instance.

Briefly stated in nontechnical language, this victim of the use of poisonous phosphorus in the manufacture of matches had worked, first, as a fireman in the boiler room for fourteen months, then as watchman for two years, then as a melter of phosphoric composition and a roller man for six weeks. In 1894 he had a painful left upper jaw and had all of the teeth extracted. He was kept from work five weeks, but later, about January 1, 1895, he had pain in the ear, from which foul muco-pus discharged. His mouth was sore, and in May,

1895, sequestrum from the upper jaw was removed by a dentist. More than one year later the decayed upper jaw was scraped, but beyond occasional slight trouble of this nature the remainder of the treatment was for necrosis of the bones of the ear.

On January 1, 1896, the patient was sent to Doctor Wurdemann, of Milwaukee, for treatment, which continued with several operations during the next two years. After that the patient was treated from time to time in his own city, where he still lives, with a permanent opening which discharges pus from the middle ear.

EMIL H.—A case of death as a result of working with poisonous phosphorus in the manufacture of matches occurred about the first of the year 1897. This case is well known in ———, while nearly all of the other cases here given have never been generally heard of by the residents of the city, or else have been forgotten.

Mr. H., on December 6, 1895, went to Doctor T. for treatment for necrosis of the jaw. According to the hospital records, when 46 years of age and married, he was first admitted to the hospital on June 9, 1896, and remained ten days. As a part of the record, the following note is included: "Phosphorus necrosis; Doctor B., of Chicago, removed both upper and lower maxillæ."

While on the operating table the patient swallowed his tongue, and in order to relieve imminent suffocation the surgeon cut an opening through the throat.

With both upper and lower jaws entirely removed, and with the poison still continuing its deadly work, this man lived month after month, suffering untold agonies, and taking only occasional nourishment through a tube. Those who have experienced the fearful odor from advanced cases of phosphorus poisoning will understand the nature of this man's condition.

The hospital records show that the patient was readmitted to the hospital on July 14 and discharged on August 3, 1896. A third entry shows that he was again admitted October 22 and discharged December 5. And a fourth and last entry records his admission on December 22 and his discharge on December 24, 1896. From current reports it appears that this victim lived but a few weeks longer.

HENRY B.—About ten years ago Henry B., an employee in the match factory, suffered great pain in his jaw, and went to Doctor T., who removed the roots of several teeth. Pus oozed out of the sockets. Doctor T. took the patient to the hospital, where Doctor N. performed a serious operation on June 29, 1899, and a second operation on August 20, 1899.

MARIA M.—She had worked for some time in the packing room at the match factory when she began to suffer from "toothache." She had the tooth extracted, and after a time received the usual dental certificate allowing her to go back to work. Three weeks before the



expiration of the time limit permitted by the certificate trouble began again. Doctor T. treated her, but afterwards she went to Doctor B., who lanced her jaw from the outside, leaving a bad scar. Finally she went to Doctor P., who took her to the hospital for a further operation. The hospital records tell the story as follows:

"Maria M., Wisconsin, age 19. Admitted, January 1, 1896; discharged, March 14, 1896; admitted, March 21, 1896; discharged, April 16, 1896.

"Diagnosis and treatment: Phosphorus necrosis of both upper and lower jaw on left side. One-half the lower jaw and the alveolar process of the upper were removed by Doctor J. in June, 1896. Doctor J. is the surgeon for the match company by which she was employed.

"The result is good, the disease is stopped, although a sinus existed for months."

Further progress of the disease is, however, clearly indicated by subsequent records. On June 9 of the same year, for example, the records say that she was again admitted to the same hospital, when the diagnosis was: "Phosphorus necrosis." One year and a quarter later the record books of the same hospital continue the story:

"Maria M., ———, Wis., age 20. Admitted, October 16, 1897; discharged, October 26, 1897. Date of operation, October 16, 1897.

"Diagnosis and treatment: Phosphor-necrosis lower jaw; operation (secondary) removal of dead bone."

Again, on November 11, 1898, according to the record books of Doctor T., she suffered still another operation, but this was apparently the last of her six operations for phosphorus necrosis. Within about two years after the beginning of serious trouble her jaws and face healed. A local dentist made a strong plate and artificial teeth which in a measure relieved the deformity, although her face is badly disfigured. Her entire left lower jaw from the hinge to near the chin, as well as her lower front teeth, were removed. When the writer saw her in December, 1909, she said she had never entirely recovered her former good health.

In addition to these specific cases given above and in addition to the three recent serious and perfectly authenticated cases to follow, several leading dentists and physicians mentioned a large number of cases of phosphorus necrosis and phosphorus poisoning. But only occasionally were they able to give names and dates and specific information. For instance, one dentist recalled having seven girls from the match factory in his office one Sunday morning to be treated for phosphorus poisoning. He received for this work little or no pay, kept no records, and remembered none of the names. He did, however, give the names of several of his patients, and later his statements with reference to these particular ones were verified. Another dentist stated he had treated perhaps half a dozen minor cases of phosphorus poisoning, and recalled particularly one young girl who came

to him two years ago with purple gums, highly inflamed, and with granulated bone near an upper molar. He looked through his financial records, but was unable, on account of the incompleteness of description, to say with certainty which one he had first had in mind.

Another dentist stated that he had been called in last winter by a neighboring practitioner to see a young woman (Marie R.) from the match factory, who appeared to be affected somewhat seriously by poisonous phosphorus. Still another dentist showed the writer one of the match company's certificates, bearing the name of a young girl (Matilda D.) and dated —, 1909, ordering the extraction of the lower left first molar. The dentist extracted the tooth and found an abscess which discharged pus and required treatment for a month before it finally healed. "It is possible that this was not a case of phosphorus poisoning," said the dentist, "but the girl never went back to the match factory."

A physician, Doctor P., remembered having treated a German girl of about 17 for phosphorus poisoning some five years or more ago, but could not remember her name. Another physician said he had treated three or four minor cases during the past ten years. Still another physician brought his big record books from the office safe, and, together with the writer, went through, page by page, the notes on examinations, treatments, and operations. In this way the names of 14 cases of phosphorus necrosis requiring operations were secured, and 17 additional cases of phosphorus poisoning which yielded to ordinary treatment. The remainder of his records were too indefinite to justify exact statements. This physician excluded from the list every case of which he felt he could not speak with absolute certainty.

Among those not already mentioned who came from the match factory to this physician for operations, were:

Lizzie R., who on January 20, 1895, submitted to a minor operation for phosphorus necrosis of the jaw.

Annie F., for a similar operation on January 22, 1895.

Alice E., for a similar operation on March 5, 1895.

Mary A., for a similar operation on October 28, 1899.

Anne O., November 24, 1900, for removal of dead bone.

Albert L., for the removal of dead bone on April 5, 1904.

Among those otherwise treated by this physician for phosphorus poisoning in this factory, and not elsewhere mentioned, were—

Annie C., May 13, 1899.

Frank L., May 3, 1901.

Belle R., May 6 and 7, 1902.

Karl H., May 12, 1902.

James A., June 25, 1903.

Mary V., November 2, 1903.

Jacob L., May 3, 1904.

John A., July 23, 1904.

Lewis R., July 26, 1904.

Patrick T., August 1, 1904.

Fanny I., August 23, 1904.

Mary B., October 3, 1905.

Wallace D., April 13, 1907.

These were, for the most part, minor cases which showed the evil effects of phosphorus poisoning, but were discovered and treated before they had an opportunity to develop necrosis of the bone. It is for the purpose of discovering cases of this kind, in the incipient stages of poisoning, that the match company has for many years kept in its employ a specially trained dentist who goes from factory to factory seeking to minimize the occupational disease.

Three recent cases of phosphorus necrosis among the match-factory employees at ——— require individual and particular mention.

MARY R., one of the girls who worked in the packing room at this match factory, was a strong, vigorous girl. She had worked as a match packer for two or three years when the trouble began, and a local dentist, Doctor T., extracted one of her lower left molars. She then worked for two months in a brush factory until the wound healed, and she was pronounced fit to return to her old work as a match packer. At the end of the third week after she went back, trouble began again in a serious form. The local dentist treated her during April, June, July, and October, 1905, and then she went, upon the advice of a friend, to a dentist in ———, who extracted several more teeth. She was temporarily relieved, but within a few weeks the suffering again became so severe that she went to Chicago, determined to end the trouble. She remained in Chicago during the year 1906, and was operated on four times—in January, March, June, and October—by a well-known dental surgeon of Chicago. Large pieces of bone were removed from her lower jaws. Pus continued to run from the wounds, but after another year of systematic treatment she recovered.

MARIA O., a strong and healthy girl, had worked for several years as a packer in the match factory. Eight years ago, at the age of 20, she married, but continued to work in the factory. Two months later she commenced to have trouble with her teeth. Doctor T. first treated her, beginning with the first operation November 15, 1901. He performed a second operation August 11, 1903, removing several large splinters of bone from her jaw. She grew no better, and through Doctor L., another dentist, she secured daily treatments at her home. Finally, as the trouble continued, she went to Doctors V. and N. for further medical aid, and is receiving treatment from them at the present time. Three years ago an abscess opened through her right jaw, and one year ago another opened on the left. Both require constant bandaging. When the writer saw her in December, 1909, she was scarcely able to open her lips enough to speak, and could not separate her upper from her six remaining lower teeth. All of her lower teeth except the middle six have come out and several inches of the jaw bone is bare, with pus oozing from the sockets.

The poison first manifested itself eight years ago, shortly after her marriage. She has a boy 6 years old, and a baby but 2 years old.

ANNA M., who died as a result of phosphorus poisoning at this factory, was, according to reports from all sides, the most recent case of death from this cause. She began work as a match packer when only 14 years of age. She had unusually good teeth and had no trouble of consequence until about eight months before her death, in 1908. Then she felt sensitive to cold and heat in the region of a molar that had been filled. This molar was adjacent to the lower left wisdom tooth, and a dentist, according to reports from her sister and mother, said the pain came from the wisdom tooth. She had the wisdom tooth extracted and found it perfectly sound. Later, since the pain continued, she had the molar extracted and the roots were so thoroughly affected as to permit the passage of an ordinary needle through them. Pus ran from the socket, and she was soon taken to the hospital to have the bone scraped. The record of one operation, under date April 17, 1908, in the record book of Doctor N., is as follows: "Abscess of left lower jaw extending down side of neck; curettage and drainage. Bone involved."

Several physicians, including the leading surgeons of ———, were called in consultation and treated her, but she suffered terrible agony. She could not eat, and slowly starved to death as a result of the poison.

Several physicians, and practically every one with whom the writer talked, referred to this as "the most recent death from phosphorus poisoning." The match company paid the costs of treatment and the funeral expenses.

A further documentary confirmation of the connection between the occupation and the disease is found in the death certificate filed in 1908 in the bureau of vital statistics of the State of Wisconsin, which records the occupation of the deceased as "packing matches in factory," and in the attending physician certifying the death as caused by "general debility due to phospho-necrosis of left inferior maxillary bone."

The odor from the suppurating bone is something that can not be described in words, and is so nauseating that dentists and physicians alike prefer to avoid patients afflicted with advanced cases of "phossy jaw."

#### FACTORY AT ———, MINN.

This factory is operated by a company formed some eight years ago. It manufactures round end parlor matches by processes similar to those described on pages 50 to 57.

The building at present occupied by the company as a factory was originally intended for an iron foundry. In addition to the outside

stock-making and box-making rooms, the factory consists of a long, high room with a partition running across one end. Behind this partition, in double rows of kettles, the "mixing" is done.

The usual ingredients are put into large kettles holding nearly 150 pounds, where they are heated by steam and mixed by ladles which are operated by machinery. The paste contains about 10 pounds of white phosphorus in a total of about 146 pounds of composition—making about a 7 per cent phosphorus mixture, according to the superintendent. In this establishment about 180 pounds of the poisonous phosphorus is used daily.

None but mixers and their assistants are permitted to enter this room, which is partially ventilated by means of windows, although there is no special apparatus for the removal of the fumes from the poisonous phosphorus used in making the composition for the match heads, and these fumes are very noticeable. The young man who has been mixer at this factory during the past four years reports that he has had no trouble with his teeth. The remainder of the long room, much the larger portion, is occupied with the 10 large match machines, and the benches of the fourscore or more female match "packers." The dipping, drying, and boxing and packing processes are thus carried on simultaneously in the same room, and on the two days the factory was visited the doors leading into the mixing room were wide open. The factory at this time, however, was running with greatly reduced forces. Less than 50 girls were busy at the benches, and but one machine was in motion. But even under such favorable circumstances the odor of phosphorus was heavy in the air. "On a hot day when all of the machines are working," said one of the girls, "you can cut the fumes with a knife."

No unusual effort is made to provide sufficient ventilation, but the height of the room is a partial protection and open windows serve as ventilators when the occasional air pipes are out of commission, as they were upon the days of the visits to this factory.

The floor of this room and the tables or benches where the girls work are of wood, which according to scientific experts soon absorbs the phosphorus and becomes a constant source of danger to the employees. The floor, however, is swept almost constantly by a robust woman, who has been "sweeper out" and "picker up" during the past six years, and reports that she has always been perfectly well. Another woman, too, who has worked in the factory four years, has apparently suffered no ill effects. They appreciate the dangers involved, and take more than the usual precautions. New employees in this room are instructed to wash before eating, and to rinse out their mouths, but no attempt is made at enforcing these instructions. The secretary of this establishment said: "It seems to us that an employee

having been cautioned in this regard can be expected to be careful, especially as it concerns his own welfare."

That the dangers of phosphorus poisoning were recognized as ever present by the manufacturers is evident from printed notices hung, one in each room, in not too conspicuous places.

In addition to the above caution little is done by the management to warn and protect the workers against the disease. Two separate "lunch rooms" are provided where the men and boys on one side of a partition and the women and girls on the other are required to eat their noonday lunches away from the direct fumes of the factory, and hot coffee is furnished by the company. Lockers are provided for the girls. The wash room, one of the most important requirements in this industry wherever the poisonous phosphorus is used, is totally inadequate. Three faucets over a sink and two towels furnish the equipment, although it is said that soap is sometimes, but not always, at hand. Several of the girls who had worked in the factory for considerable periods complained that the two towels a day got wet when used by so many, and that some were forced to "wipe their hands on the bottom of their aprons." No mouth wash of any kind is provided.

The company employs a local dentist to come to the factory and examine the teeth of the employees at intervals, it is said, of six weeks, approximately. When the dentist finds decayed or otherwise defective teeth, the employee is required to secure dental treatment and a written statement from the dentist employed that the teeth are in a satisfactory condition.

After a first visit to this factory, but before the manager had been interviewed, inquiries were made among local dentists and physicians to learn whether they had ever had any cases of phosphorus necrosis. In conversation with a dentist and a physician the writer learned of three cases.

GEORGE L.—One of the men who worked several years in this factory suffered from phosphorus poisoning in 1904 and 1905. This case was mentioned by several different people. Doctor J., the dentist who first treated the case and extracted several teeth, has moved to another city, but Doctor O., one of the leading physicians, stated that according to his records the case came to him from this dentist, and that he treated the man for phosphorus poisoning for about a month in August, 1904, and again in July and December, 1905. The physician stated to the writer that when he last treated the case, in December, 1905, the conditions as a result of phosphorus poisoning were no longer acute.

In 1903, Gertie W., a 16-year-old girl, began work at this match factory. Her duty consisted in taking the loose matches as they came to the bench and putting them in small pasteboard boxes.

Occasionally, to even up the work, she was "put on the machine to cover," which means that she took the boxes of matches as they came from the machine and slipped the covers on. She liked the work, although she coughed a great deal at first and sometimes she felt sick as a result of the fumes.

In the spring of 1905, she was seized one Saturday forenoon with a severe toothache and wanted to go home at noon. Although she was suffering great pain, the superintendent told her she had better stay until night. At his request she remained at work. On Monday she was obliged to have a tooth drawn, and for weeks afterwards she went almost daily to a local dentist (Doctor B.) for treatment. It was her left upper jaw that was affected, and the dentist showed her several small pieces which he removed from the jawbone. He also showed her from one of his books a picture of a man who was suffering from an advanced stage of phosphorus poisoning.

After about six months of treatment, the trouble ceased, although she says she still has pain occasionally. She enjoyed the work with the girls at the factory, and would have gone back again, she said, "but the dentist and my own people advised me to quit the match factory for good."

She is now living at home in a small town, ———, near ———, and looks back with pleasure upon her actual work in the factory, although she says she objected to wiping on the two towels furnished for the hundred or so girls, and adds: "I used to wipe my hands and face on my apron," a practice instanced by another case described below.

The dentist who treated her corroborated the facts as to treatment for phosphorus necrosis and furnished the name of this patient as well as the approximate dates.

MRS. TILLIE H.—One of the first women who worked in this factory (Mrs. H.), "the first girl on the machine when there was only one machine," to use her own words, suffered from phosphorus poisoning last year (1908) and left the factory. Several years ago, according to her statement, when she had three teeth drawn, she remained out of the factory for two weeks and had no further trouble until about the 1st of July, 1908. Then on a Saturday she was obliged to have another tooth drawn, and she states the company dentist (Doctor N.) told her she should go back to work the next day after the Fourth of July, which was but a few days off.

She went back to work, and her jaw soon began to pain her terribly. She went again to the company dentist. According to her report, he assured her that she was getting along nicely, and she claims this dentist, in order to make sure of getting his money, kept her waiting for treatments and encouraged her to work steadily in the factory, while insisting that she must pay in advance.

Finally, in despair, she says she went to the superintendent of the factory (Mr. R.), showed him the dentist's certificate allowing her to go back to work, and complained that her mouth was still sore. The superintendent then sent her to Doctor G., the company physician, who is advertised on placards in the factory as the only proper physician to go to at the expense of the company in case of accidental injuries while at work for the company. She says the physician said her mouth was bad and that "he burned it out" three times and scraped the bone. She suffered terribly for a long time and has never gone back to the factory.

When she was seen in August, 1909, she was still living at ———, but complained that she was in bad health. She stated that while she worked in the factory no mouth wash was ever provided, that the ventilation was poor, and that she usually wiped her hands and face on the bottom of her apron because "two towels soon get wet with so many girls using them."

Some three weeks after the first visit to this factory, the writer passed through the city and upon learning that the manager was at his office called to talk with him about conditions in his establishment and to learn if he was planning to employ any new special precautions to protect his work people from the dangers. The manager stated that there had never been any trouble from phosphorus poisoning at this place, and that while at one time there had been some serious cases at ———, Wis., and ———, N. Y., the disease has been practically unknown in America for many years.

When, about six weeks later, an agent of the Bureau of Labor visited this factory, he, too, reported that "both the secretary and superintendent of this factory stated that there never has been a case here of necrosis."

#### FACTORY AT ———, IND.

This match company began business in the summer of 1900, in an abandoned barbed-wire mill. The business has been increased from time to time until in this one building in 1909 over 200 employees are regularly engaged and the capacity of the establishment is between thirty and forty millions of matches per day. The composition used contains about 7 per cent of white phosphorus, of which about 25,000 pounds are used each year. The building is so low that there is not sufficient room to install modern continuous-process machines. The machinery in use is of the simple German type, manufactured in Berlin. The mixing of the composition is done in open vessels, and nowhere in the factory is there any attempt to carry the fumes directly away from the workrooms. The president of the company informed the writer that they used the fan system of ventilation. But when the factory was visited it was found that the fans were not



in use. An agent of the Government who visited this factory two months earlier also reported that the fans were not used and that the superintendent stated that they were useless.

In this plant the working conditions were found to be poor. The building used for the manufacture of matches is an abandoned wire mill, having low ceilings, poor light, and little ventilation. The fumes and smoke from burnt and burning matches and the odors from chemicals used in the composition for heads of matches permeate all of the workrooms. In the mixing room, the dipping and drying room, and the room where the packing and wrapping are done the fumes were exceedingly strong. There are no appliances in any of the rooms for the removal of fumes, excepting revolving fans in the packing and wrapping room which are not used.

The accommodations for washing are insufficient and there are no requirements enforced as to washing at any time. No mouth washes are provided by the establishment, nor is there any requirement for the use of a mouth wash, excepting that in a printed notice employees are told that they should rinse their mouths daily.

There is no rule here against eating in the factory. Several of the employees were found eating their noon lunch in the room where the packing and wrapping is done. The air was foul with odors and fumes at this time.

The superintendent at the factory took the writer through the establishment, explaining the various processes in detail, and offering every facility for obtaining information. He stated that he now and then gave soap to the foremen in the different departments, but that it quickly disappeared. He also said that the company once furnished bottles of mouth wash and instructed the employees how to use it, but were led to abandon this precaution upon finding some of the bottles broken or missing. The two towels which the company furnishes for the use of about 100 women in the packing department were discovered in a most filthy and uninviting condition. Three basins for the use of these women were found in the wash-room sink, but the cold water from one faucet could be turned on only with considerable difficulty, and the hot water from another faucet was almost scalding in temperature.

Upon the first request for information concerning the posting of notices warning employees of the dangers of phosphorus poisoning, attention was directed to a post in the dipping room where the placard was found firmly nailed upside down. The superintendent, however, after hunting several minutes in the factory office without finding a copy of the notice offered to tear one from its post in the packing room. A copy of this notice is as follows:

## NOTICE.

*Employees will please take note.*

1. Do not eat immediately after handling matches or composition without first washing the hands.
2. Keep the teeth in good order. Have dentist examine the teeth occasionally.

A small circular on "The preservation of the teeth" was also handed to the writer with the statement that copies of it had been distributed among the employees. It likewise contains no specific reference to the dangers of phosphorus poisoning. A copy of this circular follows:

## THE PRESERVATION OF THE TEETH.

Without good teeth there can not be thorough mastication.

Without thorough mastication there can not be perfect digestion, and without perfect digestion one can not have good health.

Hence the paramount importance of sound teeth.

Clean teeth do not decay.

Food left on the teeth ferments, and the acid formed produces decay.

Decay leads to pain and the total destruction of the teeth.

When decay occurs, it should be attended to, whether giving pain or not.

The immediate stopping of a small cavity is of the greatest service in preventing the necessity for extraction.

The following rules should therefore be closely observed:

1. The teeth should be cleansed at least once daily, with toothbrush and powder.
2. The best time to clean the teeth is after the last meal.
3. A small toothbrush with stiff bristles should be used, brushing up and down, and across; inside and outside, and in between the teeth.
4. A simple tooth powder, or a little soap and some precipitated chalk, taken upon the brush should be used. If the teeth are dirty or stained, a little fine pumice powder may be used; but only occasionally.
5. It is a good practice to rinse the mouth out after every meal.
6. All rough usage of the teeth, such as cracking nuts, biting thread, etc., should be avoided; but the proper use of the teeth in chewing is good for them.
7. All persons engaged in these works should rinse their mouths thoroughly before meals.

Beyond these precautions little is done at the factory to protect the workers from this occupational disease. The company employs no regular dental or medical examiner and requires its employees to visit a dentist but twice a year. Employees are expected to secure and present to the superintendent of the factory a certificate indicating their fitness for this dangerous occupation. The blank form is as follows:

—, IND., —, 190

To the — MATCH Co.:

This is to certify that I have examined the mouth and teeth of — and find them in such condition that I consider it safe for — to be employed in a match factory.

(Signed) —.

The local dentist who has had the most experience in treating match-factory employees, however, refuses to fill out this blank as printed and amends it to read: "This is to certify that I have examined the teeth of ——— and find them sound."

With all the unfavorable conditions enumerated above, one would scarcely expect to learn that the employees in this match factory had escaped the effects of phosphorus poisoning. They have not. Within a few hours among professional men in ———, it is possible to learn the names of a score or more of sufferers from phosphorus necrosis during the last eight years. At least six of these cases are of the year 1909. Several dentists estimate that they have each treated from one dozen to forty cases during the past few years. Necrosis of the jaw, moreover, is only one of the forms in which the evil effects of the poison manifests itself. The number of patients who have suffered from anæmia, and physical breakdown, and pulmonary weaknesses, as a result of work under the above conditions, is reputed to be much greater.

A brief enumeration of some of these cases, though the list is known to be very incomplete, will help to indicate how serious always is the risk involved where matches are made from white phosphorus.

HENRY B.—One of the first serious cases of phosphorus poisoning at this factory occurred about one year after its opening. Henry B., a man of perhaps 45 years of age, worked in the boxing room, which is usually considered one of the least dangerous departments. He suffered first with severe toothache, and found but temporary relief when several upper teeth were extracted by Doctor L. The trouble continued in a worse form, until Doctor R. removed a considerable portion of the upper jaw, which was found to be badly honeycombed.

GEORGE K.—An early case of poisoning which, with complications, resulted fatally, was that of George K. He was but 22 years and 8 months old, and worked in the dipping room. He suffered from aching teeth and general debility, caused, it is claimed, by the phosphorus fumes in the factory. Largely as a result of his run-down condition, on Christmas Day, 1900, he succumbed to a brief attack of pneumonia. The county records of death contain the following entry after his name: "Disease causing death: Phosphorus poisoning."

CHARLES M.—About two years after this factory started operations, Charles M., a man of about 45 years of age, suffered severely from phosphorus poisoning. Two operations, about three months apart, by Doctor S., dentist, were necessary in order to remove the affected part, which extended from the right upper cuspid back to the third molar. The lower plate of the antrum was also removed.

MINNIE H.—In 1904 Minnie H., a young woman of about 20 years of age, who worked in the boxing room at the factory, was operated on

by Doctor D. for necrosis of both the upper and lower left maxillaries. The trouble in this case, the dentist believes, was caused by roots that had not been removed when teeth had previously been extracted. After two months of treatment she apparently was entirely cured, although it was necessary to remove some of the jawbone in both upper and lower jaws.

**FRANK G.**—One of the most distressing cases which have occurred at this factory was in 1905. In that year Frank G., a Russian of about 60 years of age, who had worked for forty years in match factories as a dipper, first in his native city of Odessa and later in this country, suffered severely from phosphorus necrosis. He had worked so many years without apparent evil effect that he came to regard the danger as a myth. Then suddenly he was seized with what he thought was merely a severe toothache. Doctor M. extracted some teeth, but the pain continued. Doctor M. then removed some necrosed bone and did what he could to relieve the inflammation. But as the trouble grew steadily worse, Doctor M. decided to take his patient to Chicago for a more extensive operation. Three operations were performed by Doctor F., of Chicago, and the right lower jaw and part of the left had to be removed.

**WILLIAM T.**—One of the composition mixers who suffered severely from phosphorus necrosis was William T. He was exceedingly careful in taking every precaution to protect himself. He wore rubber gloves while at work, washed his hands carefully, brushed his teeth and nails regularly, changed his clothing before leaving the factory, visited a dentist frequently, and, in fact, earned a local reputation for punctiliousness. As an indication of his intelligence it may be added that he has recently displayed unusual ability in organizing a match company of his own.

Mr. T. had worked several years as composition mixer in this factory before he had serious trouble with his teeth. Doctor H., a local dentist, extracted a lower left cuspid, and from that time on several physicians and dentists treated the necrosed jaw. Doctor O. treated this case for some time and removed several pieces of dead bone. Finally Mr. T. went to Indianapolis for a further operation, where Doctor N., on March 27, 1907, removed much of the lower left maxillary, leaving only a rim of bone.

**DAISY R.**—In 1905 Daisy R., a girl of about 20, who worked in a factory as a packer, suffered severely from phosphorus necrosis of the lower right jaw. On October 5 of that year, Doctor G. extracted the root of a tooth which seemed to be the cause of the trouble. But the pain grew worse, and on October 10 she was taken to the hospital, where on the following day, according to the hospital records, Doctor N. removed "part of inferior maxillary." The wound was dressed daily, and was "healing nicely," when on the 16th she left the hospital

and was treated thereafter by various dentists and physicians about town. This was a very serious case and for eighteen months proved exceedingly painful and troublesome.

**HORACE B.**—During the same month of the preceding operation, October, 1905, there was another serious operation at the same hospital for the same trouble. Horace B., a lad of about 19, after suffering a long time from phosphorus necrosis of the right upper jaw, was taken to the hospital on October 4, 1905. On the following day, according to the hospital records, Doctor K. "removed part of superior maxillary." The wound was dressed daily by Doctor K., assisted on one occasion by Doctor C., and at the end of one month, on November 3, 1905, the patient was permitted to leave the hospital. After this, he was treated by several different local dentists and physicians. He finally recovered, although seriously disfigured, but no longer works in the match factory.

**MRS. A.**—One of the earlier cases of phosphorus poisoning at this factory was that of Mrs. A., a packer, who about six years ago suffered from necrosis of the upper right and left maxillaries, probably caused, according to the dentist, by the roots of two cuspids under the plate of an artificial set of teeth. She was then about 40 years of age, and with her face swollen until her nostrils were closed, she went to Doctor G. for treatment. He removed the necrosed tissue, and after a number of treatments she seemed completely cured and removed to a western State, but she has since had further trouble of the same nature.

**MAY S.**—Four years ago Miss May S. suffered from phosphorus necrosis of the right lower jaw, and a small piece of dead bone was removed by Doctor H. In this case a sequestrum had formed and the piece of necrosed bone came out easily.

**FRED H.**—About two years ago Fred H., a man about 45 years of age, had necrosis of the left inferior maxillary. He, for a long time, had been absolutely toothless, and in his case not even roots remained. Nevertheless necrosis developed and an operation was necessary in order to arrest the local decay of the bone. After the operation and several treatments by Doctor E., he recovered and appears completely cured.

**HAROLD W.**—Two years ago a young man, Harold W., had necrosis of the lower right jaw and Doctor D. removed the dead portion with a curetting burr. The poison in this instance is supposed to have entered a tooth through an imperfect filling. Mr. W. worked in the match factory as a "filler," that is, his work was to fill the frames with match splints before they had been dipped in the composition, a position that might easily be made entirely free from danger if departments were properly divided.

**KATE N.**—One of the girls at this factory who suffered from phosphorus poisoning a few years ago was Kate N. Necrosis, starting near the root of an extracted tooth, attacked her lower right jaw, but yielded readily to the treatment of Doctor B.

**RUTH J.**—A case that at first was supposed to be neuralgia, but later proved to be phosphorus necrosis, was treated some years ago by Doctor G.

**PHIL. R.**—In the summer of 1908, Phil. R., who worked in this match factory, went to Doctor P. with a troublesome case of phosphorus necrosis of the lower right jaw. Some time previous, the second bicuspid had been extracted, and the poison is supposed to have entered there. Three operations were necessary, although the piece of necrosed bone was at first no larger than two molar crowns.

**JOHN Q.**—A man of about 40 years of age, who has worked for several years in this match factory, was attacked with phosphorus necrosis of the left lower jaw in the spring of 1909. Three operations for the removal of necrosed bone have been performed by Doctor A. and the patient seems to be doing well, although there was still in December, 1909, a slight discharge from the wound.

**LESTER C.**—A young man of about 27, early in the summer of 1909 went to Doctor H. with his lower gums purple and swollen, and discharging slimy pus. The first operation, in which a piece of dead bone was removed, proved successful, and the wound healed within six weeks. Mr. C. still works about the match factory, and when seen in December, 1909, he appeared unusually robust and said he felt perfectly well.

**BERT N.**—In the summer of 1909, Bert N., assistant to the composition mixer, received treatment from Doctor D. for phosphorus necrosis. This was the second attack in his case. Three years ago he suffered a slight necrosis of the upper jaw which apparently healed. In the middle of the summer, 1909, he went to Doctor D. with necrosis of the lower jaw. The recent trouble was in the median anterior mouth and required the removal of a section of the bone. The operation was accomplished with the aid of the curetting burr.

**GRACE R.**—In the summer of 1909 Grace R., a girl from this match factory, was treated for phosphorus necrosis by Doctor L., who thinks the immediate trouble was caused by the root of a tooth. He removed the gum tissue and scraped the bone. Treatments were continued twice a week from July 21 to August 17. The girl was anæmic and should not have been permitted to work in a match factory.

**LOUISE B.** was treated by Doctor L. in September and October, 1909, for a slight necrosis in the region of the lower right wisdom tooth. Doctor L. removed the tooth and the inflamed gum tissue, but did

not scrape the bone. Although the girl was anæmic, she seemed to recover nicely under treatment.

RUFUS L.—One of the most pitiful cases of “phossy jaw” now under treatment at this city is that of Rufus L. For many years he had not had a tooth in his mouth, and congratulated himself upon escaping the semiannual dental examinations required by the match company. He is a somewhat feeble old man of 77 years of age, and these conditions have made the case more difficult.

Late in July, 1909, he was placed in care of a physician to prepare him for the first operation on August 2. He had used for years a full set of artificial teeth, and there were no roots to cause irritation or form a ready opening for the poison. The first operation involved the tissues of the region of the first and second molars of the lower right jaw. Treatments were continued daily by Doctor B., who also performed a second operation on October 18, 1909. Early in December, at the time of the writer’s visit to this city, Mr. L. was still coming for treatment every other day.

It is not pretended that the above list of cases of necrosis is at all complete for this match factory. On the contrary, there is reason to believe that a little further search would have revealed twice this number. An effort has been made to carefully eliminate those cases that were open to question either owing to uncertain diagnosis or on account of inability to secure the name of the sufferer. Uncertain diagnosis is frequent because of the failure of many dentists to keep adequate records.

The name of the sufferer is frequently difficult to secure for the same reason, and in most such cases must be excluded from the list on account of the danger of duplication because a patient frequently goes for treatment to more than one practitioner. One dentist, for example, referred to “a woman from the country” who came to him, had several teeth extracted on Sunday, and immediately went to work in the factory, from which she returned to her home within one month with phosphorus necrosis. This case is very likely not included in the list above, but for the sake of erring on the right side is purposely omitted. A physician also reported the case of a young woman, Cora K., who came to him from this factory in a very anæmic condition, which is one of the frequent indications of general phosphorus poisoning. Upon the physician’s advice this woman went to work in another establishment (not a match factory), and improved almost immediately. This is one of many such cases referred to by physicians in ———, which are not mentioned above. More than one physician said that he regarded this anæmic condition, due to poisonous phosphorus influence, as more serious than necrosis of the jaw.

## FACTORY AT ———, OHIO.

The match factory at ———, Ohio, is one of the smaller factories, and employs but 18 men and 22 women, all of whom are over 16 years of age. The factory is a 2-story brick building with a basement, and contains but two workrooms. It is ventilated by intake fans and ventilators in the roof. Suction fans are also used to carry away fumes, which, however, are very noticeable. The walls are white-washed or painted annually, but the floors are not kept clean. A separate lunch room is provided, and open sinks are provided in the wash room, where soap and towels are furnished by the company. The work day is ten hours, with a half holiday on Saturday. Sixty minutes are allowed for lunch.

This factory had no posted regulations cautioning the employees to use care in their work or to wash before meals, and there is no evidence that any effort is made by the management to explain personally the serious features of the work to the employees when they are first engaged.

In no other factory visited was the "firing" of matches so much in evidence as in this. The litter on the floors of the packing room was also unusual. The manager explained by saying that it was due to the fact that the man who attended to the sweeping was not at work on this day. The methods of operation were crude in all departments of this factory.

To the agent of the Bureau, while at ———, March 29, 1909, Doctor K., a leading dentist, said that an employee of the match company had called on him, professionally, a few days before, and an examination had disclosed necrosis of the upper jawbone, due to phosphorus poisoning, which had to such an extent involved the bone that the dentist referred the sufferer to a regular surgeon. The dentist said the man had been employed for the past two years as a "frame unloader," and that he had a bad case of necrosis that needed immediate hospital treatment.

Another recent case at this factory was that of a girl who had necrosis. This case was mentioned to the agent of the Bureau by the superintendent, who, in this connection, remarked that "after a while" they expected to have dental supervision.

The disease would probably be more prevalent if there were not a continual change of employees in this establishment. It is difficult for the management to retain the help very long, and it is likely that this explains an apparent immunity which the conditions do not warrant.

It may be well to emphasize here the fact that at this factory, and at the ten which follow, but little effort was made to follow up cited cases or to develop this phase of the inquiry beyond the inquiries within the factories.



## FACTORY AT ———, OHIO.

The factory at ———, Ohio, is the largest one in the United States. This mammoth, modern establishment has the capacity for turning out 225,000,000 matches per day. In addition to the match factory, the company maintains here a highly organized engineering department, where machinery for the other five factories of the company are designed and built.

This one factory employs 650 people, of whom 472 are men and 178 are women, all over 16 years. The product of the establishment is matches of two distinct kinds, safety matches which can only be struck on a prepared surface, and matches which can be struck anywhere.

The processes of manufacture in this factory, which is the most modern in equipment and method, has already been described in detail.

A matron has general charge of the female employees. Her duties are to see that they exercise proper care and cleanliness in the toilet rooms, to preserve order, and where any condition demands it she investigates the character of the women and may recommend their discharge. The matron also has charge of the rest room and takes temporary care of any of the women who may be ill. Conditions are said to be much improved since this position was created.

In the basement of the factory there are cloakrooms and attendants to care for the garments of both males and females. A lunch room is provided and coffee is furnished free to all the workers. An earlier custom of furnishing a bowl of hot soup to those employees who eat their noon lunch in the factory has been discontinued. Hot and cold water with towels is supplied, and no employee is supposed to eat in the lunch room until he has washed his hands.

The ventilation of the workrooms in all departments is quite thorough, although the cooking of the pastes is conducted in kettles which have no pipes to carry fumes outside of the building. But these operations were conducted in rooms which were entirely separate from the others, and the only workers exposed to these conditions were the mixers and their helpers. In these rooms, however, the general ventilation was good and may have been sufficient. In the rooms where the automatic machines were in operation the air was fresh at all times, and the "firing" of matches in packing seems to be much less than in other factories. One feature of ventilation on the match machine did appear to demand an improvement. A drying current of air was directed over the freshly dipped splints on the machine, and the fume-laden air, after having passed the splints, was directed toward the workers at the front of the machine. Apparently, provision could have been made to take

this air away from the machine as soon as it had done its duty and before it could reach any of the operatives.

There appeared to be no evidence of speeding among the operatives, although they seemed to work rapidly and some with great haste, but the flow of material to be packed from the machine is fairly uniform and conditions for that reason do not have to be readjusted to the machine speed.

Occasionally a girl may suffer a slight burn from matches "firing" on the packing table, but usually such accidents are not serious enough to interfere with work.

The floors, hallways, stairways, and toilets for men and women are clean, and toilet arrangements appear ample. The precautions against fire are not only complete but elaborate. A fire-fighting organization on duty day and night, with sprinkler system and fire hose on each machine, and fireproof stairways and exits furnish safeguards beyond criticism.

Elaborate provision is made for the ventilation of the factory buildings, the details of which follow:

**MAIN BUILDING.**—Four stories and two 2-story wings, total 1,423,750 cubic feet, ventilated by two fans, each 10 by 5 feet, at 165 revolutions per minute.

The fourth floor—match machine room—325,000 cubic feet, receives one-sixth of the air delivered from the two before-mentioned fans, which can change the cubic contents every five or six minutes.

**MAIN BUILDING ADDITION.**—Four stories and composition building four stories, 740,380 cubic feet, ventilated by one fan 12 by 5 feet at 135 revolutions per minute. The fourth floor match machine and the composition rooms, 275,640 cubic feet, receive about one-half of the air delivered from one fan 12 by 5 feet which changes the cubic contents every five or six minutes.

**ADDITION TO MAIN BUILDING (South).**—Four stories, total cubic contents 2,846,560 cubic feet. The match machine room on the fourth floor, 1,106,640 cubic feet, receives about one-half of the air delivered from three fans, 12 by 6 feet each at 137 revolutions per minute, and changes the contents every five or six minutes.

Although in this factory there were no posted regulations regarding the dangers surrounding the employment, it was explained that the heads of departments were charged with the duty of instructing the new employees concerning the character of materials used and the necessity of certain precautions. The matron's duties were said to be particularly in this direction.

The inquiries concerning the experience at this factory with phosphorus poisoning were mainly confined to the officials of the company. The factory conditions here are unusually good. One case of necrosis at this factory is of long standing (said to be thirty years).

The oral statement of Doctor D., a local dental surgeon, mentions three other cases within a period of ten years, only one of these cases being serious.

The following matter relating to conditions of dental supervision and inspection in the factories of the Diamond Match Company, located in the United States, has been furnished by the dental surgeon, who is in charge of this feature of the company's work:

1st. The attitude of the corporation toward the phosphorus proposition as it relates to the employees:

The Diamond Match Company are fully cognizant of the possible danger in all its different phases, and are continually devising means and putting into operation methods and devices for the prevention of the physical ills which are commonly regarded as associated with the match industry. Factories are remodeled or rebuilt as occasion arises in order to improve the conditions for the general good of the employees.

For many years the company has employed specialists to look after the welfare of the employees in every way possible, in order that they may be relieved of the dangers of phosphorus necrosis.

2d. The difficulty of enforcing necessary care or impressing them with the seriousness of personal negligence:

The employee is very apt to be quite indifferent to the dangers consequent to his personal neglect and naturally careless about observing the rules and regulations looking to their general welfare. No doubt this is largely due to the fact that through preventive measures the company's business, in recent years, has been relieved of its horrors to such an extent that only occasionally do cases occur, giving little opportunity for employees to become familiar with the actual necrosis. Such being the case, the employee fails to comprehend the necessity for strictly observing that which the employer through many years of experience has found essential to his physical welfare.

This being the case, compulsion in the observance of rules has to be resorted to at times in order that conditions conducive to their welfare may be brought about, as well as maintained. Frequently we find those who believe it a strictly personal affair as to whether they shall be allowed to take unnecessary chances even after the possibilities for trouble has been explained to them.

Not only are rules and regulations necessary, but their enforcement has to be constantly followed up in order that they may receive the necessary protection.

3d. What are the net results of all efforts up to the present time, and to what particular feature or features is ascribed the greatest results along preventive lines?

The efforts along preventive lines instituted by the Diamond Match Company, had practically eliminated phosphorus necrosis.

To the combined efforts as relating particularly to factory and personal cleanliness, ventilation, and especially mouths free from diseased gums or mucous membranes, as well as diseased and carious teeth, may be ascribed the more essential features for prevention.

4th. Describe system and procedure as minutely as possible. Specify safeguards, copies of warning signs, charts, as used by dental surgeon, etc.

A careful and thorough examination of the teeth and gums, and mucous membrane of the mouths of each and every employee, is made as often as every ninety days, together with a record of the same for future reference. The name of employee, check number, place or kind of employment, condition of teeth and gums, together with remarks relating to any special or out of the ordinary conditions, either local or systematic, which may be manifested at the time of said examination, go to make up this record. Also any advice or instruction thought necessary as applying to each individual case.

On examination, whatever work seems necessary in the way of treatments, cleaning, filling, extractions, etc., with the limit as to time in which the work must be attended to, is duplicated in certificate form.

These certificates are placed in the care of one whose duty it is to see that the employee receives it sufficiently early to enable him to have the indicated work done by his dentist and returned to him, properly signed within the time limit called for on the certificate. Should the mouth present conditions which would not justify his dentist in signing the certificate within the specified time, he either holds the certificate until such future time as he feels the case demands, or makes a note of such conditions on the certificate, and the employee is allowed to present the same to the one having him in charge.

No employee with unfavorable symptoms, either local or systematic, is permitted to remain in any department where chances for trouble are possible.

5th. Statement along professional lines by dental surgeon of company:

Am a graduate of the Philadelphia Dental College, year of 1888. In general dental practice until 1900, when I became connected with the Diamond Match Company as their dental examiner. My duties are the having entire supervision as regards the dental aspect of the Barberton, Ohio; Oshkosh, Wis.; Detroit, Mich.; Oswego, N. Y.; and Portland, Me., factories of said company.

Regular visits to each factory are made every ninety days or oftener at which time every employee comes before me for examination and advice. This includes males and females of various ages and of many nationalities.

The same system is in operation at all the factories as pertaining to my work. The number of employees varies somewhat. The Barberton factory, about 800; Oshkosh, 600; Oswego, 500; Detroit, 450; and Portland, 100.

Results far reaching for the general uplift, morally and financially, as well as physically follows as a consequence of the system in vogue.

#### FACTORY AT ———, OHIO.

The factory at ———, Ohio, is a 2-story and basement brick building with 14 rooms. Three hundred and nine work people, 187 men and 122 women, all over 16 years of age, are employed. A ten-hour day with five hours on Saturday, making a fifty-five hour week, is the rule. Females over 16 and under 18 years of age work eight

hours a day for five days, and five hours on Saturday. A full hour is allowed for lunch.

In this factory, as in the one immediately preceding, where an intake pipe for drying the matches was on the automatic machine, the air passed directly to the workers on the front of the machine, having first absorbed the fumes from the freshly dipped matches. A reasonable construction would, it seems, demand that an exhaust pipe of sufficient volume be arranged to take the fumes away from the operatives. In this factory the machines are so arranged that in all the packing operations the girls sit while at work. The floors are kept clean, and there was no serious "firing" of matches in packing.

At the time of the visit of the agent of the Bureau there were no posted regulations regarding the dangers surrounding the employment. The management rely solely upon the heads of departments to warn new employees of the particular dangers of the industry.

No case of phosphorus poisoning in connection with this factory was found by the agent, although this should not be taken to mean that no cases have occurred in recent years, for the time which was devoted to the factory here was limited and inquiries were confined to the factory.

The president of the match company, since the organization of the company up to a few years ago, had acted as the medical officer of the factory.

The dental surgeon who has had charge of the dental inspection of the factory for several years has written a statement submitted below, which is made a part of this report, covering such features of his work as may be of interest.

In complying with your request, I beg leave to report that the attitude of the company, since my connection with them in 1904 as dental surgeon, toward any trouble arising from phosphorus poisoning has been along the strictest lines. They at all times, seeming to have the interest of their employees in mind, are very willing to act on any suggestions that may tend to increase the healthful conditions and thereby lessen the possibility of bad results.

The strictest measures are adhered to in regard to cleanliness. Large wash basins supplied with hot and cold water and plenty of soap are placed near the dining room.

Examination of all the employees in the match-making departments takes place each month, and it is imperative with the company that the employees follow out the instructions of the examiner within fifteen days from such date. The work to be done is indicated on diagrams. Said work is then permitted to be done by any reputable dentist, who signs the certificate, which is then returned to the company and placed on file, thereby making it possible to keep in touch with the condition of employees at all times.

The company in taking on new employees causes the same to be examined before entering upon their work, thereby lessening the possibility of employing persons whose conditions otherwise would not be acceptable.

The employees are instructed to keep the hands from the mouth while working to further protect from the dangers that might arise.

We very firmly believe that where the rules of prophylaxis are strictly adhered to, and the gums kept in a healthy condition, and the proper ventilation, as we have, the great danger arising from the making of matches of phosphorus is very largely eliminated.

In phosphorus poisoning, as in all other diseased conditions, the general system plays an important part, because of the fact that a strong robust person eliminates a much larger amount of poison which may be taken into the system than one who is weaker, and as this is true, the care of the mouth and teeth are important factors in the general condition of the patient, because diseased teeth and gums are the source of a very large amount of poisonous matter which is taken into the stomach, thereby interfering seriously with the process of digestion, and by such interference keeps the repulsive forces at low ebb, which would necessarily cause a debilitated condition in the patient.

The results obtained by the treatment the employees receive here are very satisfactory, as we have had no difficulty arising from phosphorus poisoning since my connection with the company.

#### FACTORY AT —, PA.

This match factory occupies a building which is but one story and a basement; is constructed of brick, and is so situated that light and ventilation are unobstructed from all sides.

The employees in this factory—ten men and four women—work a ten-hour day with a half holiday on Saturday. No wash room or lunch room or dressing room is provided, and only thirty minutes are allowed for lunch. The establishment furnishes soap at an open sink, but no towels.

The machines are all of foreign make, and the operations are much simpler than in the factories where the American machines are used. The location is rural, and light and ventilation are supplied from unobstructed windows and doors on all sides. The matches made here are all of the square-splint type, and are hand dipped.

There is no regulation for employees washing their hands. The composition kettle is in the same room with several male and all of the female employees, and although the kettle is covered a small vent pipe permits the escape of phosphorus fumes. A slight odor of phosphorus was noticed. The dipping is done at a trough by a male attendant, and the whole arrangement is protected by a hood, from which an exhaust pipe carries the fumes to the outside of the building.

Only a few frames of drying matches were in the workrooms at any time. As soon as a rack was filled with frames of dipped matches,

it was rolled into the drying chambers, which are closed compartments in which the freshly dipped matches are subjected to a current of heated air, which is drawn out and discharged outside the building. Before the frames are unloaded and the matches finally go to the packing table, they are thoroughly dry.

The workrooms were clean and free from waste. No "firing" of matches was observed, and there was only a slight odor of phosphorus in the workrooms. There appears a lack of precaution in some matters which authorities have deemed very essential to the welfare of the help, particularly in respect to washing facilities.

The dippers stand at their work and attend a simple machine, the purpose of which is to tip the splint with the chemical composition for lighting. The machine is simply a trough in which arrangement is made for keeping the paste at a required temperature, and to make it possible to lower to the desired depth the splints which are intended to be tipped by passing across a roller. Over the entire machine is a hood, the front part being of glass. An exhaust pipe with proper connection draws away injurious vapors and carries them from the building.

The splints are placed in the machine, one frame at a time, and pass across a roller which dips into the trough containing the composition and which distributes the composition on the top of the splint, completing the match. The frame is then withdrawn from the machine and placed in a wheeled carrier. The carrier when filled is placed in the drying room. Not more than one carrier full of freshly dipped matches stands on the workroom floor at any time.

The dipper, having completed the filling of the wheeled carrier with the requisite complement of racks, rolls it with its contents of matches, the composition on the head yet moist, to the drying compartments. These are practically air-tight cabinets which have a supply of heated air continually forced in, and the vapor-laden air resulting is aspirated from the chamber and discharged outside the building. When the drying is completed the person who does the next operation (frame unloader), opens the compartment and rolls the wheeled carrier to his worktable.

The frame unloader is an adult male, who stands at his work and who takes the frame from the carrier and unclamps it, releasing the matches, which he then places in trays and carries a few feet to the tables at which the packers do their work.

The composition mixer is an adult male. His regular duties are to prepare chemicals, regulate proportions, and time the process of cooking. The mixture is cooked in a steam kettle, which is tightly covered with the exception of a small vent tube in the lid, from which, when the agent called, vapor was rising in thin curls and passing into the air of the workroom. The agent was told that this vent had at

one time been connected with a pipe to carry the fumes outside the building, but that it had ceased to be used. There was, however, no strong odor of phosphorus in the workrooms. The mixer appeared healthy, and said that he could not observe any injurious effect of the chemicals.

The packers are adult females, who sit at the packing table to do their work. By hand they place matches regularly in pasteboard or wooden boxes, which are made to contain a certain quantity. They appear to work with great speed and are said to acquire it very easily.

The one wrapper here is an adult female, who stands at her worktable and who wraps 12 wooden slide or pasteboard boxes of matches into one package, using paste and brush to fasten the ends.

The ventilation of the actual workroom is secured by ventilators in the roof and by windows. At the time of the agent's visit all of the processes were being carried on, but the room appeared to be quite free from odors. Windows on all sides supplement the roof ventilation. If the operatives in this factory continue to preserve their existing immunity from phosphorus poisoning it may be credited to the location of the factory which insures good ventilation, and to the use of drying chambers for the dipped matches, rather than to any precautionary measures, such as dental inspection or facilities for washing.

No regulations were posted, and there appeared to be no special effort made to explain to employees the dangerous features of the industry.

#### FACTORY AT ———, PA.

The buildings of the factory at ——— are of good construction. All of the workrooms are light and have opportunity for ventilation on all sides.

This company had been in business five or six years before they had a single case of necrosis, but at that time several cases at once demanded the attention of the management, and investigations were begun in order that the trouble might be remedied.<sup>(a)</sup>

They have installed a system of ventilating fans, intake and exhaust, with pipes leading to all parts of the factory building proper which is used for the handling of matches. On the machine floor there are hoods over the composition rolls for carrying off fumes. Over the packing tables, at which the female operatives work, there is a ventilating arrangement.

Boxes of matches on the tables were observed to have fumes of gray smoke-like vapor coming through the opening at the lids. But

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<sup>a</sup> This phase of the condition will be described later, as the establishment has furnished a statement by its medical officer, indicating the nature of the measures which have been taken for the prevention of phosphorus poisoning among the operatives, and other features connected with the health of the employees; also as to the character of the materials used.



these fumes were promptly taken away by the ventilating system. In all departments the air was fairly free from odor, and the design of the ventilating system is such that the makers have guaranteed to change the entire air of the workrooms every four minutes. But even this requirement has been exceeded, as a new fan has been installed since the above figure was given, so that at present the air is changed even with greater frequency. One of the difficulties of which the management complains is the carelessness of their employees in obeying regulations. Their neglect of ordinary precautions can not be laid to ignorance, as warning signs inform the employees of the nature of the materials used and of the great need for taking precautions. The superintendent cited cases which would show that there is a positive disregard on the part of some operatives for these plain warnings. Monthly inspection of the employees by a medical and dental surgeon has for some time been carried on, and it is hoped that it will tend to minimize future troubles from phosphorus poisoning.

The ventilating features of this establishment are as follows:

One 92-inch Arlington-Curtis exhaust fan at 400 revolutions per minute on 34-inch feed pipe, on same trunk; one 54-inch Sturtevant intake fan, 800 revolutions per minute, on 30-inch feed pipe; two 36-inch dust exhaust fans at 1,300 revolutions per minute; one 24-inch Sturtevant window fan installed over composition kettles. The arrangement is intended to provide for the change of the entire air of the machine room and packing floor every four minutes.

While this concern has made a real effort to improve the conditions, these conditions seem to fall short in several particulars. One of these has been mentioned, namely, the lack of covers and exhaust pipes on composition kettles. Also it would not be a difficult matter to have the drying machines fitted with ventilating hoods for their entire length. This would not only improve the air in the machine room but would facilitate the match-drying operations.

Hot water and soap are at each sink.

The following instructions and warnings to employees were found posted in the workrooms, or had been issued to employees in the factories named:

— MATCH CO.

[11½ by 7 inches.]

*Notice to employees.*

All employees are hereby notified that it will be necessary for them to furnish a dentist's certificate, stating that their mouths and teeth are in such condition that it will be safe for them to work in a match factory. Blank certificates will be supplied to each employee by the superintendent and must be returned, properly signed, within a period of one month from the time said blank is given them.

All applicants for positions will be required to furnish dentists' certificates before they can enter our service.

*The following rules and regulations will be strictly enforced.*

——— MATCH CO.

First. The chewing of matches, match sticks, or paraffin wax is strictly forbidden.

Second. The eating of food, candy, or fruit during working hours is strictly forbidden.

Third. As there are sinks with running water in each department, employees should be careful to wash their hands before eating luncheon.

The above rules and regulations are for the purpose of preserving the health of employees, and we ask their cooperation in enforcing them. Any violation of these rules will be considered an offense, punishable by dismissal.

THE ——— MATCH COMPANY,  
Treasurer.

———, PA., September 1, 1905.

——— MATCH CO.

[Printed in red ink; card 12 by 20.]

*Warning notice.*

All help must wash their hands thoroughly before meals; water and soap are provided for this purpose.

The phosphorus contained in the matches is very injurious if gotten into the mouth, particularly when the teeth are decayed.

This warning is for your benefit and

*It must be heeded.*

THE ——— MATCH COMPANY.

"All of our trouble," says the treasurer, "has been in the packing-room department, and we think this is largely due to the fact that women had not been employed in factories here to any extent before our plant was started. It therefore required a long time to get them accustomed to proper discipline."

The mixers are adult males who attend to the mixing of the composition, in which is used glue, chlorate of potash, whiting, white phosphorus, and other ingredients which are cooked in a jacketed kettle and which must be thoroughly mixed. This mixture gives off fumes in the cooking and stirring, both conducted in open kettles. Near the kettles is a powerful fan which exhausts the air from over the kettles, but the arrangement could be much improved as each kettle should be covered and a pipe should lead to the outside, or at least there might be a gas hood covering the several kettles which could be connected with an exhaust fan. At a small expense the exhaust fan, which is now in use, could be made of full value, while at present only a portion of its utility is being realized.

The plate feeders are adult males, who place in position in the automatic match machine the iron plates which are perforated with holes of the size of the splints; each plate has holes for 2,800 splints. The action of the machine is such that the splints are cut and forced

into the holes of the plate. The occupation of plate feeder requires some strength but no skill.

The composition man attends to the supply of composition and paraffin on the automatic machine. The composition is put on the heads of the splints by contact with rolls which revolve in a trough placed crosswise of the machine. Before reaching the composition the splints are moved through a vessel of hot paraffin, which impregnates a portion of the length of the splints. The supply of each kind of material, the condition of the paraffin, and the consistency of the composition need attention; also the gauging of the extent to which the head of the splint is dipped. Over that portion of the machine where the composition rolls are located is placed a hood by means of which the fumes are drawn away.

The plate handlers are adult males, who take the plates from the machine on which they have been dipped and place them on a conveyor, which is for the purpose of moving the plates toward the packing department and also drying the matches.

The plate unloaders are young men, some over and some under 16 years of age. Four attend each machine. The duty of the first one is to take the plate containing the dried matches from the conveyor and to place it in an inclined position on the unloading machine. On the unloading machine a knife, regulated by another attendant by means of a foot treadle, passes across the face of the plate and cuts off the full length of the match outside the plate. Another employee receives in a rack the matches as they are cut, and places them in larger racks holding about 2,800 each. Empty plates are taken away from the machine by an attendant on one side, who lays them on conveyors by which they are returned to the point where they were originally filled. The unloading machine is equipped with a hood to carry off the fumes.

The packing of matches is carried on in a department which is quite separate from the machine room. The only operations which are carried on in this room are packing, lidding, and wrapping.

Although the proprietors say they have never had an occasion to use them for this purpose, woollen blankets are at hand here for use in case the clothing of an employee catches fire.

Females, some over and some under 16 years of age, work as packers. A packing table about 35 feet long is arranged with all of one side for the packers. Directly opposite each packer is a space of the same length for each "litter." The "litters" do in this establishment the work which is called "sliding" in some of the other factories. The work table is hooded and there is an exhaust pipe continually removing the fume-laden air from between each "packer" and "litter."

Racks containing about 2,800 matches are brought to the packers' table by carriers. A supply of boxes, which vary in size, depending upon the style of matches being packed, is also placed upon the table. Taking a sufficient number of matches in her hand, without counting them, however, she fills one box after another and stacks them in front of her. Then she shoves the pile across the table toward the "liddler." Packers here, contrary to the usual custom, stand at their work. Fumes rise from the matches in the racks and from those being placed in boxes.

The "lidders" are males and females and are over 16. They stand at their work continuously, and each "liddler" works opposite a packer, who shoves from her side of the table a pile of filled boxes, on each of which the "liddler" slips the covering slides. The "lidders" are subject to the same conditions regarding fumes as are the packers. The rates for "lidding" are 5 and 10 cents per gross.

Wrappers are females over 16, who stand at their work table and who wrap in paper, using paste and brush, bundles of matches containing 1 dozen boxes. The boxes to be wrapped are brought to the work tables by carriers, and when wrapped they are placed in cases and sent to the nailers.

The carriers are males and are over 16. They use a wheeled truck to carry to the tables of the packers racks which are filled with matches in the machine department.

The sweeper here is a male over 16, whose duty is to sweep up the waste.

Doctor X. (dentist), of ———, Pa., has done a great deal of dental work for the match factory employees and has seen much of the phosphorus effects. A thorough investigation of the matter in this town would probably show very bad conditions. Physicians and dentists were not disposed to say much in regard to it, and one physician expressed a desire not to be quoted. As will be seen by the statement of the factory dentist and physician which accompanies this, additional precautions are now being taken:

THE ——— MATCH COMPANY,  
———, PENNSYLVANIA,  
March 5, 1909.

[Copy.]

Mr. ———,  
Bureau of Labor, Washington, D. C.

DEAR SIR: Answering your letter of February 27, in regard to the use of phosphorus, I am afraid we are hardly competent to say very much on this subject, for the reason that we have never used anything but what is known as the "white" phosphorus that is manufactured in this country.

We have never made anything but what is known as "Parlor" matches, both in the tip and in the ordinary parlor match.

The amorphous, or red phosphorus, as we understand it, is used exclusively, not only in this country, but abroad, in what is known as the "Safety" match. In fact, there is no phosphorus in the safety head itself, but it is put on the side of the box. \* \* \*

So far as we are concerned, one thing is sure, if there is any substitute for white phosphorus that would eliminate the danger, even if it would cost more money, and considerably more money, I know that our people will be only too glad to adopt it.

Yours, very truly,

———— MATCH COMPANY,  
*Treasurer.*

MEDICAL AND DENTAL INSPECTION OF EMPLOYEES OF THE ———  
MATCH COMPANY, ———, PA.

"Regular monthly examinations of all employees were instituted in June, 1908," according to the company dentist. "The manifestations of chronic phosphorus poisoning being dependent chiefly on pathological conditions of the teeth and jaws, attention in the monthly inspection has been especially directed to these parts. The company has furnished a dental chair and all instruments necessary for a thorough examination of each case. All cavities and other lesions of the teeth and gums are noted by means of a card-index system and the employee instructed to consult a dentist and have the work done if possible before the next inspection. If the teeth affected are deemed sufficiently decayed as to be a menace to the patient he or she is not allowed to return to work until the treatment is complete. This is as a rule unnecessary in simple caries, where the teeth pulp is not invaded or destroyed. But in cases of alveolar abscess, or in which teeth have to be extracted, the patients are not allowed to return to work until cured. At the present time the teeth of all employees, particularly of those actually working with the phosphorus, are in good condition. Of course some people take better care of their teeth than others, but it may be stated confidently that at present no one working in the factory is in danger of phosphorus poisoning from bad condition of the teeth.

"So far, while a general inspection of the patient has been made, no special methods have been used to determine the existence of anæmia and other disorders. Now that the condition of the teeth is well under control, more attention will be paid to the general health, and blood examinations will be made of those whose general appearance indicates anæmia. Other conditions, such as enlarged tonsils, which predispose to lowering of the vitality and form a possible entrance for phosphoric poisoning, will be sought for and treatment advised.

"So far, since the institution of monthly inspection, two cases of necrosis have been discovered. One is probably the result of delayed eruption of a canine tooth and not due to phosphorus at all. The other was a very small area of necrosis around the root of a tooth which had had an artificial crown on it, and it is questionable whether the phosphorus had anything to do with this. Both patients are undergoing appropriate treatment and are doing well.

"The regular monthly examinations have now had a fair trial and the results are most encouraging, showing that danger of phosphorus necrosis is practically eliminated.

————, M. D., D. D. S."

## SPECIAL CASE OF JOHN COLE.

"About February, 1908," continues the company dentist, "it was found that this man, an employee of the company for many years, was suffering from necrosis of the anterior portion of the upper jaw. Prior to that time he had never complained of trouble with his teeth. From time to time since the discovery of the trouble, he has had small pieces of dead bone and two or three teeth removed, but there still remains considerable sequestrum, which shows very little tendency to be thrown off, and there is absolutely no evidence of building of new bone characteristic of phosphorus necrosis. He positively denies syphilitic history. In spite of this, examination by physicians in Philadelphia, the location, appearance of the diseased parts, history and course of the lesion, all make it probable that it is syphilitic in origin. His working with phosphorus may have been a contributory factor in bringing about the necrosis. He is at present taking iodide of potassium, which appears to be preventing further spread of the necrosis, and in time the remaining dead bone will loosen and can then be removed.

—————, M. D., D. D. S."

—————, P. A., *March 5, 1909.*

Mr. —————,  
*Bureau of Labor,  
Washington, D. C.*

DEAR SIR: As requested on your recent visit, we herewith hand you statement in regard to our experience in preventing phosphorus necrosis among our employees; also statement showing what a hard battle it has been to get our employees to observe the rules and regulations which are adopted for their protection.

Our plant has been in operation nine years. During the first five years we had no trouble from phosphoric necrosis. Our first case occurred about four years ago. A girl by the name of Ella B., who had been in our employ for some little time, would not observe the caution notices to employees in regard to eating during working hours or in the factory at all. This girl had formed a habit of chewing match sticks. In fact, she seemed to have the habit to such an extent that it was almost impossible to break her of it, and our foreman, time after time, has taken the matches out of her mouth. She finally contracted a case of phosphoric necrosis. The first intimation we had that she had contracted this disease was by reading a notice in our local papers that she had been operated upon by a surgeon and a dental surgeon at the local hospital. After they had gotten through with their work, she appealed to us. We immediately sent her to the University of Pennsylvania, at Philadelphia, where she received proper treatment. She returned home a few months afterwards entirely cured and has never had a recurrence of the disease.<sup>(a)</sup>

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<sup>(a)</sup> Under date of November 24, 1909, the following was received from the hospital of the University of Pennsylvania.

"Ella B. was a patient in this hospital from April 12, 1905, to April 25, 1905, and again from February 28, 1907, to March 14, 1907.

"At the time of her first admission she was suffering from phosphorus necrosis of the inferior maxilla. According to our records, the upper jaw of the left side was removed,

Our greatest trouble has been to keep the employees, particularly in our packing-room department, from eating during working hours. Our foreman has often found that the girls had hidden candy in the green matches on their work benches. Another thing we had difficulty in breaking up, but have finally succeeded in doing, was to keep them from going to the small stores in the neighborhood of the factory, and purchasing cakes, candy, etc., and eating it, of course, in a secret way, because we instantly discharged anyone whom we caught eating in violation of our rules. All of these petty annoyances we have finally succeeded in breaking up, by discharging anyone violating any of our rules.

Before succeeding in doing this, however, several girls had slight attacks of necrosis poisoning. We are pleased to advise you, however, that all of these cases have now been cured, with the exceptions in the report of Doctor A., which is inclosed herewith. So far, we have had only one man affected, and a special report on this case, over Doctor A.'s signature, is herewith inclosed.

All of our trouble has been in the packing-room department, and we think this is largely due to the fact that woman labor in factories has not been employed to any extent here before our plant was started. It therefore required a long time to get them accustomed to proper discipline.

At this time, and for a year past, all persons coming into our employ are required to furnish us with a dental certificate (copy of the form we inclose) signed by a reputable dentist, before we put them to work. Within two or three weeks they are subject to the examination of our physician and dental surgeon.

We also hand you herewith copy of the rules and regulations posted throughout the factory, which are strictly enforced.

Soap, hot and cold water, and clean towels are furnished throughout the plant.

We have the Sturtevant heating and ventilating system, which, according to their engineers, gives us complete change of air in the factory every four or five minutes.

We can only add to all of the foregoing, that we are interested in protecting all employees from necrosis poisoning, or, in fact, any other disease, and are doing all that we know to do to keep the plant in such condition as will insure their perfect health.

Yours, very truly,

—— MATCH COMPANY,  
*Treasurer.*

FACTORY AT ——, N. Y.

This factory is an independent establishment started about six years ago. The building is a long rambling 2-story frame structure, with an unusual number of windows. Hung on a post about 50

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also the lower half of the lower jaw of the right, in December, 1904, previous to her admission here. At this time a simple curettement was done to the inferior maxilla, and the patient was discharged.

"At the time of her second admission patient complained of pus discharging from the roof of her mouth. Patient was discharged untreated, as no opening was found to warrant an operation.

"(Signed) —— ———, *Superintendent.*"

feet directly in front of the factory and half a block from the street car line, is an immense sign with the words, "Girls wanted." The machinery in use in this factory is old fashioned and of a type which is almost obsolete.

This firm manufactures square-end matches both plain and double tipped, after the German process. The principal product is a parlor match, sold at 5 cents per 1,000. The mixing of the composition for heads of matches is done in open vessels, but in rooms separated from the other workrooms. Fumes from chemicals used in mixing are noticeable, but not strong. There are no special appliances for the removal of fumes. Signs are posted forbidding entrance to the mixing rooms by all except those employed in these rooms.

Dipping, drying, packing, and wrapping are done in separate rooms, with open archways between. Fumes from composition and from burnt and burning matches are strong in the dipping and drying room, and also in the room where the packing and wrapping are done. There is no apparatus in operation for the removal of fumes.

This is a small plant, but arrangements for light and ventilation are good. Two entire sides of the dipping and drying room and the room for packing and wrapping are fitted with glass windows hung on center hinges and affording an abundance of fresh air and good light.

The dipping and drying room is fitted with large revolving fans. They were not in operation and apparently are seldom if ever used.

The accommodations for washing are entirely inadequate. A sink, approximately 2 by 3 feet in size, is all that is furnished by the establishment for washing purposes. Soap is furnished, but no towels. There are no orders, rules, or instructions as to the necessity of washing to avoid the danger of phosphorus poisoning.

There is no provision for dental examination, nor any requirement as to dental examinations, certificates from dentists, or any rule as to care of the teeth. The proprietor said: "We have not got to that yet."

The establishment does not furnish a mouth wash, there is no provision for mouth washes, nor any requirements, rules, or instructions as to the necessity of using a mouth wash.

There are no rules or regulations concerning eating in the factory. Adjoining the factory is a small park having stationary benches and tables. The employees usually eat their lunches there if weather conditions are favorable. They can eat in the factory, however, if they prefer to do so.

There are no printed or posted notices warning employees of the danger of phosphorus poisoning, nor is notice given to new employees of the danger.



No data was obtained as to cases of phosphorus poisoning other than the statements of the proprietor and the timekeeper that they never had a case of necrosis or phosphorus poisoning in this factory.

FACTORY AT ———, N. J.

The factory at ———, N. J., is one of the smaller match factories. The factory is a 1-story brick building. Seventy-two work people are employed, including 34 men and 20 women, and 5 boys and 13 girls under 16. The employees all work a fifty-seven hour week with a half-holiday on Saturday.

A ventilator in the ceiling supplies fresh air to the workroom and furnishes about 500 cubic feet of air space per person. The walls had not been whitewashed or painted during the year past. No regulations were posted and no attempt was made by the proprietors or managers to point out the perils of the industry to their work people.

The machine room is separate from the packing room and the mixing of the composition is done in a separate building. There is, however, no special ventilation attempted at the packers' tables, and there is no effort made by the management to enforce the washing of hands before meals, and no warning signs are in evidence which might indicate to the workers the dangerous character of the product on which they are engaged.

The class of employees at work packing matches here is such as would not be expected to take precautions sufficient to prevent infection, many of them being Italian and Polish immigrants and their children.

There is considerable "firing" of matches in the packing room and there appears to be neglect in cleaning up the litter in this department. No trouble has been reported here yet, but there is little doubt that if precautionary features are not installed soon, there will after a time be the usual experiences which surely follow such neglect.

The matches are made on automatic machines, but two female attendants take the matches from the machine and put them in trays. They are the only women who work in the machine room.

Uncovered pails of paste are kept in a hot bath in the machine room until they are used.

This factory has been in operation under the present management for over a year and it is claimed that there has been no case of necrosis.

FACTORY AT ———, N. Y.

This factory manufactures round-end parlor matches. The mixing of composition for making the heads of matches is done in open vessels, in rooms entirely separated from all other workrooms. To each one of the vessels a hood is connected when mixing is being done.

These hoods are attached to an exhaust pipe and the fumes are drawn through the pipes to the open air. Only a slight odor from the chemicals used in making composition is noticeable.

Fumes and odors from chemicals are noticeable but are not strong in the mixing rooms. The dipping, drying, packing, and wrapping are all done in the same rooms. Odors from burnt or burning matches and from chemicals are quite noticeable in these rooms. There are no special appliances for directly removing the fumes, although the air is changed every four minutes by the ventilating system in use.

Numerous sinks with hot and cold water faucets are located in the various workrooms, and at the entrance to the lunch room are two large sinks, one for the use of the men and the other for the women. The facilities for washing in the lunch room would not be adequate were it not for the fact that different departments lunch at different times.

Orders have been issued requiring all employees to wash before eating. The assistant manager said that infractions of this order would meet the same discipline as for disobeying any other order made by the establishment.

This establishment has a regularly employed dentist who visits this plant four times a year and examines the teeth of all employees. All cases of defective teeth are noted and employees directed to have treatments made as indicated within a time limit, as stated in each case. A certificate from a dentist that the treatments directed have been made and that the mouth of the employee is now in good condition must be indorsed on dental examiner's order and returned to the establishment within the time limit given; otherwise such employee is not permitted to continue at work.

The company does not supply a mouth wash nor are there any requirements as to the use of a mouth wash.

Eating in any of the workrooms of the factory is strictly forbidden. The women are not allowed even to chew gum. The men are permitted to chew tobacco, however, and the care taken not to touch the tobacco with their hands was noticed in the dipping, drying, packing, and wrapping rooms. Eatables of any character are not allowed to be brought into the workrooms of this factory.

There are no printed or posted notices warning employees of the danger of phosphorus poisoning nor are any warnings given other than the advice of the dentist as to the necessity of cleanliness, especially as to their mouths and teeth. The manager said: "We have been in business here so long that everybody about here knows everything about phosphorus poisoning and it is not necessary to tell them. The foreman would not take a new employee who looked unhealthy."

So far as the agent making this investigation learned, there has been but one case of real phosphorus poisoning in this factory for

several years. The man affected is still in ———, engaged in other business and reported as being entirely well.

FACTORY AT ———, MICH.

This establishment makes both parlor and safety matches. It occupies a four-story building constructed of brick and cement. The workrooms are large and roomy. They are well lighted and provision is made for ventilation, fresh air being forced into the rooms by compressed-air pipes. The rooms in which matches are made, in addition to the compressed-air pipes, are equipped with fans and have numerous windows.

The building is equipped with a sprinkler system, has fire hose on each floor and hose attached also to each match machine. In addition, fire buckets are provided, which are kept full of water, and there are standpipes on the building. There are three fire escapes on the inside of the building leading from the top floor to exit doors on the first floor. The fire escapes are constructed of fireproof shafts containing wooden stairs with hand rails and having landings at each story. All of the doors between rooms are sliding doors and are kept closed, but can be opened with little effort. The stairways are properly lighted and all are provided with hand rails. The floors, walls, and ceilings are clean, the walls being whitewashed or painted annually.

Separate wash rooms for the sexes are provided and the establishment furnishes towels and soap. Lunch rooms which are commodious and well lighted are also provided in the building for the female employees. The firm supplies hot coffee for lunch at no expense to the employees, but no rest rooms are provided.

Aside from the mixing rooms and the match rooms (the rooms where the dipping, drying, and boxing are done), working conditions are good. The nature of the work done in the match room (owing to the odors from chemicals used in the composition for making the heads of matches and the strong smells and smoke from burnt and burning matches) naturally makes working conditions in this room bad. Constant care and attention are given to burning matches and they are extinguished at once.

This establishment has a regularly employed dentist who visits this plant four times a year and examines the teeth of all employees. All cases of defective teeth are noted and employees directed to have treatments made as indicated within a time limit, as stated in each case. A certificate from a dentist that the treatments directed have been made and that the mouth of the employee is now in good condition must be indorsed on dental examiner's order and returned to the establishment within the time limit given; otherwise such employee is not permitted to continue at work.

The agent called on Doctor K., who was then making a quarterly examination. Mary G. was being examined. An examination of the records of her dental examinations showed that when she was examined in May, 1909, she had three teeth that she was directed to have filled by June 30, 1909. This had not been done, however. The superintendent explained that the reason she had been allowed to continue at work without furnishing a certificate stating that the order to have her teeth attended to by June 30 had been complied with and that her mouth was now in good condition, was that she said she had not had the dental work done because she had been out of work while the plant was closed during the summer and could not spare the money. He stated that such cases do not happen often, however.

There is no provision for mouth washes or requirements as to the use of a mouth wash. A circular was given to workers in the match factory some time ago telling them of the necessity of caring for their teeth, rinsing their mouths out daily, etc., but the agent was unable to secure a copy of this circular, the statement being made that there was none at hand.

The washing facilities are good and it is expected that all employees will wash their hands before eating lunch. Employees in the match room have been instructed that they must do so.

There is a rule prohibiting employees from eating in the factory outside of the lunch room furnished for that purpose. This rule is rigidly enforced excepting in the yard and machine shop and for one person in each department who is left as custodian at lunch time.

The mouths of all new applicants for employment in the match room are looked into by the superintendent, and if there is any evidence of defective teeth, employment is refused. The dentist at his regular examinations advises all new employees of the danger of phosphorus poisoning, and emphasizes the urgent necessity of rinsing their mouths frequently and keeping their teeth in good condition.

Cases of phosphorus poisoning develop occasionally, but prompt treatment by a dentist is said to cure the trouble in most cases.

#### FACTORY AT —, MICH.

This match factory manufactures round-end parlor matches, single and double tipped.

The mixing room, where the match composition is prepared, is a separate building. The dipping and drying room and the room where packing and wrapping are done are also separate. The former room in which the match machines are located is large and has a lofty ceiling. Windows and skylights furnish light and air. The room is also equipped with the simple device of having plain fans attached to the shafting. There is also one circular fan in this room.

The air in the dipping and drying rooms is highly charged with fumes from burnt or burning matches, and from phosphorus from the composition. There are no appliances for the removal of the fumes other than a circular fan and the fans attached to the shafting.

The accommodations for washing are inadequate. Wash rooms are not provided. Faucets and water pails are the only facilities for washing.

Since this factory was visited in the course of the investigation it has been entirely reconstructed, so that the conditions referred to here no longer exist.

It is reported that there have been several cases of phosphorus poisoning at this factory.

#### FACTORY AT ———, ILL.

This factory was established seven years ago. Square-end parlor matches are made.

The mixing of the chemicals used in making composition for heads of matches is done in a small detached building. The dipping, drying, and the packing and wrapping are done in separate rooms.

The dipping room has five machines, which operate automatically. They consist, essentially, of a series of wheels over which a continuous belt travels. This belt is made of about 800 plates joined together. Each plate has 600 perforations—that is, 12 rows of 50 each. At one point in its transit each plate passes in front of a hopper, into which the trays of splints are emptied. An automatic punch strikes the splints, forcing them into the holes in the plate. This punch operates at the rate of from 225 to 250 times per minute. As the belt moves, each plate, with its load of splints, passes over a vat of molten paraffine, into which the splints are dipped to a depth of about one-quarter of an inch.

A little beyond the paraffin vat is the composition pot. This contains the material which forms the striking head of the match. The paraffined splints are coated at one end with this composition by means of slowly revolving rollers, which bring up an even amount of composition. For the ordinary parlor match one dipping is sufficient. For the so-called double-tipped matches there is a second composition pot, with a different kind of material, into which the tip of the match is dipped.

After dipping, the matches traverse a distance of about 250 feet before they again return to their starting point. Just before reaching the splint hopper the matches are automatically punched out of the plates, falling on a moving belt, which carries them to the packers. The packers are all women, who place the matches in paper boxes holding from 120 to 1,000 each. One machine is fitted with

an automatic packing device. The boxes are fed into the machine and come out filled, the packing in this case requiring only the putting on of the cover. After the matches have been packed, the boxes are wrapped in packages of one dozen and placed in wooden cases.

The ventilation is by the windows and doors only. On first entering the room the agent's eyes were considerably irritated and kept smarting for some time. It was observed that the eyes of the employees in the dipping room appeared to be sore and irritated.

Fumes are noticeable in all of the working rooms. In the dipping and drying room fumes from the composition and from burnt or burning matches were strong. So hazy is the air at times from smoke from the burning matches that one can scarcely see objects 10 feet off. There are no appliances for removing the fumes.

Washing accommodations are poor and facilities are insufficient. The only provision for washing is a faucet in the yard.

Before employing any person in any of the rooms where they are liable to be affected by the chemicals used, the company requires an examination of the individual's teeth by its dentist. No one is employed unless the dentist certifies the teeth to be in good condition. While the company pays for the examination, the employee must pay for any necessary dental work. There are also quarterly examinations of the employees' teeth by the dentist. If it is found that anyone's teeth are in need of treatment, such person is not permitted to return to work until after having had the defects attended to.

The agent observed that the lunch boxes were kept in the work-rooms and that practically all of the employees ate their lunches in the factory.

The manager stated that in the seven years since this plant was established one serious case of necrosis had developed. The individual in question was an experienced employee who had worked in the mixing room for a number of years.

## APPENDIX A.

### REGULATION OF THE MATCH INDUSTRY IN SWITZERLAND.

#### SWISS FEDERAL LAW CONCERNING THE MANUFACTURE AND DISTRIBUTION OF MATCHES, NOVEMBER 2, 1898.

**ARTICLE 1.** The manufacture of matches falls under the regulations of the law concerning factory labor, without regard to number of workers or the extent of the establishment.

The manufacture may take place only in rooms that are exclusively devoted to such manufacturing operations.

The sale of matches, too, falls under the federal legislation in accord with the regulations contained in articles 4, 5, 6, 9, and 10 here following.

**ART. 2.** For the manufacture of matches there is needed the license of the cantonal government, which may be granted only after the approval of the federal council has been obtained.

The latter will fix those conditions which are necessary to a due regard for the health and safety of the laborers and the public.

If the cantonal government refuse the license, an appeal may be taken to the federal council.

**ART. 3.** To procure this license, there must be handed in by the cantonal government to the federal council—

(a) The detailed plans of the rooms to be used in the operations.

(b) A statement of the process of manufacture intended, and a description of the composition of the lighting and striking mass.

(c) A statement of the technical appliances to be used.

(d) A statement of the intended method of packing and transporting the manufactured goods.

**ART. 4.** Manufacture, importation, exportation, and sale of matches with yellow phosphorus is prohibited.

**ART. 5.** The importation and use of yellow phosphorus are permitted only for scientific and pharmaceutical purposes, and for other purposes that are not dangerous to health, for which a special permit from the federal council has been obtained.

For the purpose of control the customs office must notify the cantonal government concerned of every importation.

**ART. 6.** The sale of matches may take place only in packages, including large packages and boxes, that show the name of the firm or the officially registered trade-mark of the manufacturer.

These regulations apply also to imported and exported matches.

**ART. 7.** The officers intrusted with the supervision of match factories must be permitted at all times to enter all rooms which it may be reasonably supposed are used for the manufacture of matches.

**ART. 8.** The federal council is authorized to acquire and put at the disposal of manufacturers formulas of new processes that furnish a special guarantee for the health and safety of workers in match factories and of the public at large.

**ART. 9.** Violations are punished—

(a) Of article 1, section 2, articles 2 and 4, with a fine of 100 to 1,000 francs [\$19.30 to \$193].

(b) Of articles 5 and 6 with a fine of 50 to 500 francs [\$9.65 to \$96.50].

(c) Of the administrative regulations and the protective regulations of the federal council (art. 10) and of the directions of the competent authorities, that are to be issued in writing, with a fine of from 50 to 500 francs [\$9.65 to \$96.50].

The violation of article 1, section 2, articles 2 and 4, may be punished, moreover—

1. In case of repeated offenses with imprisonment up to three months.

2. With temporary or entire withdrawal or refusal of the license to manufacture (art. 2).

Goods manufactured, transported, or offered on sale or imported contrary to law are to be confiscated.

The fines are to be collected by the competent cantonal authorities.

The withdrawal of the license to manufacture is made by the cantonal government, upon demand of the federal office of factory inspection. Against such a decision an appeal to the federal council may be made.

Decrees and judgments made upon the basis of this article, together with the documents of investigation, are to be submitted for the information of the competent federal factory inspection office by the cantonal governments.

ART. 10. The administration of the present law is laid upon the cantons. The federal council is authorized to issue the regulations necessary for its execution, and especially to arrange for the necessary precautionary measures, in regard to manufacturing, transportation, sale, import, and export.

ART. 11. The federal law concerning the manufacture and sale of matches of June 22, 1882, is repealed.

#### DECREE OF THE FEDERAL COUNCIL OF MARCH 10, 1899.

Provides for the enforcement of the foregoing law, as to manufacture of matches, April 11, 1900; as to importation of matches with yellow phosphorus, June 1, 1899; as to exportation and sale of matches with yellow phosphorus, January 1, 1901; as to article 1, section 2, articles 8 and 10, immediately.

#### REGULATIONS OF EXECUTION OF THE FEDERAL LAW CONCERNING THE MANUFACTURE AND TRAFFIC IN MATCHES, DECEMBER 30, 1899.

ARTICLE 1. For the manufacture of matches and match candles the license of the cantonal government is necessary, which the latter may grant only after the approval of the federal council has been obtained.

To obtain this license application must be made to the cantonal government, giving the following information:

- (a) The detailed plans of the rooms to be used in the operations.
- (b) A statement of the process of manufacture intended and a description of the composition of the lighting and striking mass.
- (c) A statement of the technical appliances to be used.
- (d) A statement of the intended method of packing and transporting the manufactured goods, with samples of the packages.

ART. 2. Those applications which it intends to grant shall be forwarded by the cantonal government, together with its report and application, to the federal council in order to obtain the latter's approval thereto.

In those cases where the cantonal government has refused to grant the license, appeal to the federal council may be taken.

ART. 3. All workrooms in match factories must fulfill the demands of the federal regulations concerning the erection and building changes in factory buildings of December 13, 1897, article 6 (b), (c), (d), (e), (f), (i), (n), (o), (p), (q), (r), (s), (t), (u), (v), in every regard.

ART. 4. For the arrangement and the operation of factories in which matches or match candles with explosive components are to be prepared, the following regulations apply, the right being reserved to issue more stringent regulations for methods of manufacture that have not been in use hitherto:

- (a) On the ground floor must be situated all rooms in which the ignition mass or the striking mass is prepared, and where the matches are to be covered with the ignition mass, as well as the rooms for drying, taking out, and filling in of the matches.

With special permission the last-named operations may take place in the first story above, if there are provided sufficient exits that lead directly into the open, and if in the rooms situated immediately underneath, there are not performed manipulations that endanger the workers in the rooms above.

- (b) If above the rooms where the ignition mass is prepared or applied and where matches are dried, taken out, filled in or packed, there are situated other rooms, they may be used neither for workrooms nor may persons be permitted to stay in them at all.

- (c) The rooms in which the ignition mass and its components are worked over, or where finished matches are stored, must be separated by walls from the rooms in which the friction mass is prepared or stored.

Workmen who are working in one of these rooms must not enter the others, nor may goods or tools be brought from one of these rooms into another.

- (d) The rooms for drying the matches after being covered with the ignition mass must be used exclusively for this purpose; they must not communicate directly with any other rooms.

- (e) Sulphuring and paraffining of matches must take place in a room which is completely separated from rooms in which labor is performed on ignition mass.



(f) Rooms where ignition mass is worked over, or where finished matches are taken out or packed, must have exits directly into the open.

In rooms where more than 10 laborers are employed there must be provided two or more exits, according to the number of workmen.

(g) Cast-iron stoves may be used only if they are lined well.

The stoves of all rooms in which the ignition or striking mass is heated, or in which finished matches may be found, must be provided with a firm metal screen, up to at least 1 meter [39.4 inches] high and at least 30 centimeters [11.8 inches] distant from the heated surface.

Horizontally running heating pipes that are not placed at least 2 meters [79.7 inches] above the floor must be covered with a metal screen 5 centimeters [2 inches] distant from them in such a manner that no dust or refuse can collect on the screen and fall on the pipe from it.

(h) For the ignition and strike masses only well-powdered ingredients may be used. They must be ground in wet condition.

(i) The finished ignition mass may be heated only by steam or hot water.

(j) All rooms must be swept out at least once a day. The sweepings must be burned immediately.

(k) In the taking-out and filling-in rooms there must not be more than four filled frames per laborer.

(m) Taking-out machines that pile the matches in loose piles are prohibited.

(n) The work tables in the taking-out and filling-in rooms must be separated from each other by partitions of at least 30 centimeters [11.8 inches] in height in such a manner that the individual work places represent a space separated by a back wall and two side walls of at least 80 by 60 centimeters [31.5 by 23.6 inches]. The table surface must be covered with metal.

(o) The passageway along the tables must be at least 1½ meters [59.1 inches] wide, and if workers are placed on both sides, at least 2 meters [78.7 inches] wide. The passage must never be obstructed by articles of any kind.

(p) Wooden frames in the drying rooms must be placed in compartments 60 centimeters [23.6 inches] high, of the width of the frames, and they must be separated by vertical and horizontal partitions.

Frames on iron-wheel trucks may be placed anywhere in the drying rooms.

The drying rooms may be heated only from the outside. They must not be warmer than 25° C [77° F]. In the rooms thermometers must be placed, upon which the maximum temperature permissible is conspicuously marked.

(q) Storerooms for raw materials for the preparation of ignition and friction mass must be kept at least 5 meters [16.4 feet] distant from the other buildings. For the storing of chlorate of potassium there must be provided special containers in which no other material may be stored.

ART. 5. For the installation and operation of establishments in which matches or match candles without explosive components are manufactured, the technical and hygienic requirements are fixed for each individual case.

ART. 6. In every factory appropriate fire-extinguishing arrangements must be provided and constantly kept in a condition of readiness for use.

ART. 7. Children to and with completed sixteenth year may not be employed in match factories. An exception is permitted for children over 14 who are employed exclusively in manufacturing boxes. They are, however, forbidden under all circumstances to enter the other rooms of the factory.

Children and adults who are not employed in the factory are prohibited from entering match factories. Exceptions are made in the case of persons who are introduced by the manager of the establishment for the purpose of visiting the factory.

ART. 8. Matches and match candles may be sold only in packed condition, including packages and boxes, that bear the name of the manufacturer or his trade-mark, which is deposited with the federal patent, trade-mark, and copyright office [*Eidgenössisches Amt für geistiges Eigentum*]. This regulation applies also to imported goods and to goods for export.

ART. 9. The boxes must be of solid construction and of suitable material.

The friction mass may never be placed on the front side of the box, covers, etc.

ART. 10. The competent officers are authorized to take samples for examination as to whether they contain yellow phosphorus of all matches manufactured, imported, or offered for sale in Switzerland, as well as of the materials entering into their manufacture, by paying proper compensation therefor.

ART. 11. Goods confiscated on the basis of article 9 of the federal law of November 2, 1898, must be burned.

[Articles 12 and 13 relate to the date of enforcement of the law.]

## DECREE OF THE FEDERAL COUNCIL OF NOVEMBER 19, 1901.

**ARTICLE 1.** The transportation of matches with yellow phosphorus through Switzerland to a destination outside of Switzerland may take place only by railroad and in direct transit to a station in a foreign country.

The Swiss customs officials are bound to expedite such transit shipments on their entry into Switzerland with customs seal.

Reloading in Swiss territory is forbidden and will be punished as a violation of the prohibition to import. Exception is made only in case of reloading in consequence of railroad accidents, as provided in the executive regulations in the customs laws.

## APPENDIX B.

### BRITISH WHITE PHOSPHORUS MATCHES PROHIBITION ACT, 1908.

CHAPTER 42.—An act to prohibit the manufacture, sale, and importation of matches made with white phosphorus, and for other purposes in connection therewith [21st December, 1908].

1. (1) It shall not be lawful for any person to use white phosphorus in the manufacture of matches, and any factory in which white phosphorus is so used shall be deemed to be a factory not kept in conformity with the Factory and Workshop Act, 1901, and that act shall apply accordingly.

(2) The occupier of any factory in which the manufacture of matches is carried on shall allow an inspector under the Factory and Workshop Act, 1901, at any time to take for analysis sufficient samples of any material in use or mixed for use, and, if he refuses to do so, shall be guilty of obstructing the inspector in the execution of his duties under that act:

*Provided*, That the occupier may, at the time when the sample is taken, and on providing the necessary appliances, require the inspector to divide the sample so taken into two parts and to mark, seal, and deliver to him one part.

2. It shall not be lawful for any person to sell or to offer or expose for sale or to have in his possession for the purposes of sale any matches made with white phosphorus, and, if any person contravenes the provisions of this section, he may on complaint to a court of summary jurisdiction be ordered to forfeit any such matches in his possession, and any matches so forfeited shall be destroyed or otherwise dealt with as the court may think fit, but this provision shall not come into operation as respects any retail dealer until the 1st day of January, 1911.

3. It shall not be lawful to import into the United Kingdom matches made with white phosphorus, and matches so made shall be included amongst the goods enumerated and described in the table of prohibitions and restrictions contained in section forty-two of the Customs Consolidation Act, 1876.

4. (1) Any person who is manufacturing or proposing to manufacture matches by way of trade may present a petition to the Board of Trade, praying for the grant of a compulsory license to use any process patented at the passing of this act for the manufacture of matches without white phosphorus, other than matches intended to strike only on a surface specially prepared for the purpose.

(2) The Board of Trade, after considering any representations that may be made by the patentee as defined by the Patents and Designs Act, 1907, and any person claiming an interest in the patent as exclusive licensee or otherwise, and, after consultation with the secretary of state, may order the patentee to grant a license to the petitioner on such terms as the board may think just. The provisions of the Board of Trade Arbitrations, etc., Act, 1874, shall apply to proceedings under this section as if this act were a special act within the meaning of that act.

(3) An order of the board directing the grant of a license under this section shall, without prejudice to any other method of enforcement, operate as if it were embodied in a deed granting a license and made between the petitioner and the patentee and such other persons claiming an interest in the patent as aforesaid.

5. (1) This act may be cited as the White Phosphorus Matches Prohibition Act, 1908, and shall, except as otherwise expressly provided, come into operation on the 1st day of January, 1910.

(2) For the purposes of this act the expression "white phosphorus" means the substance usually known as white or yellow phosphorus.

## APPENDIX C.

### INTERNATIONAL CONVENTION RESPECTING THE PROHIBITION OF THE USE OF WHITE (YELLOW) PHOSPHORUS IN THE MANUFACTURE OF MATCHES.<sup>(a)</sup>

On September 26, 1906, seven countries of Europe—Germany, Denmark, France, Italy, Luxemburg, Switzerland, and the Netherlands—"desiring to facilitate the development of the industrial protection of work people by the adoption of common provisions," agreed upon the following articles respecting the use of poisonous phosphorus in the manufacture of matches:

ARTICLE 1. The high contracting parties bind themselves to prohibit in their respective territories the manufacture, importation, and sale of matches which contain white (yellow) phosphorus.

ART. 2. It is incumbent upon each of the contracting states to take the administrative measures necessary to insure the strict execution of the terms of the present convention within their respective territories.

Each Government shall communicate to the others through the diplomatic channel the laws and regulations which exist or shall hereafter come into force in their country with regard to the subject-matter of the present convention, as well as the reports on the manner in which the said laws and regulations are applied.

ART. 3. The present convention shall only apply to a colony, possession or protectorate when a notice to this effect shall have been given on its behalf by the Government of the mother country to the Swiss Federal Council.

ART. 4. The present convention shall be ratified, and the ratifications deposited with the Swiss Federal Council by December 31, 1908, at the latest.

A record of the deposit shall be drawn up, of which one certified copy shall be transmitted to each of the contracting states through the diplomatic channel.

The present convention shall come into force three years after the date on which the record of the deposit is closed.

ART. 5. The states nonsignatories to the present convention shall be allowed to declare their adhesion by an act addressed to the Swiss Federal Council, who will bring it to the notice of each of the other contracting states.

The time limit laid down in article 4 for the coming into force of the present convention is extended in the case of the nonsignatory states, as well as of their colonies, possessions or protectorates, to five years, counting from the date of the notification of their adhesion.

ART. 6. It shall not be possible for the signatory states, or the states, colonies, possessions, or protectorates who may subsequently adhere, to denounce the present convention before the expiration of five years from the date on which the record of the deposit of ratifications is closed.

Thenceforward the convention may be denounced from year to year.

The denunciation will only take effect after the lapse of one year from the time when written notice has been given to the Swiss Federal Council by the Government concerned, or in the case of a colony, possession or protectorate, by the Government of the mother country; the Federal Council shall communicate the denunciation immediately to the Government of each of the other contracting states.

The denunciation shall only be operative as regards the state, colony, possession or protectorate on whose behalf it has been notified.

In witness whereof the plenipotentiaries have signed the present convention.

Done at Berne this 26th day of September, 1906, in a single copy, which shall be kept in the archives of the Swiss Federation, and one copy of which, duly certified, shall be delivered to each of the contracting powers through the diplomatic channel.

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<sup>a</sup> Bulletin of the International Labor Office, Vol. I, p. 276.

## LIST OF INDUSTRIAL POISONS.<sup>(a)</sup>

PREPARED FOR THE INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION BY DR. TH. SOMMERFELD IN COLLABORATION WITH SIR THOMAS OLIVER, M. D., AND DR. FELIX PUTZEYS.

The International Association for Labor Legislation has from its foundation in 1901 recognized as one of its chief objects the collection and dissemination of information concerning those industrial poisons which are inimical to the health of the worker, with a view to the establishment of a scientific basis for international legislation to prohibit or regulate their use.

The efforts of the association were first directed toward securing the prohibition of the use of white phosphorus in the match industry, and the regulation of the use of white lead and its prohibition wherever possible. The first practical result of these efforts was the international convention signed at Berne, Switzerland, September 26, 1906, by Denmark, France, Germany, Italy, Luxemburg, the Netherlands, and Switzerland, which prohibited the use of white phosphorus as indicated above. Great Britain signed this treaty December 28, 1908, and the use of white phosphorus was prohibited in that country by a law which took effect January 1, 1910.

Meanwhile at the third general meeting of the delegates of the international association, which was held at Basel, Switzerland, in September, 1904, a wider scope was given to the work of the association in combating industrial poisons. Lead poisoning was considered independently, and it was decided that it would be necessary to study separately its different phases, as, for example, the manufacture of the metals, lead and zinc, the manufacture of lead colors,

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<sup>a</sup> This article is in large part a translation and summary of a report of a committee appointed by the International Association for Labor Legislation, for the purpose of preparing a list of industrial poisons. The full title of this report is "Entwurf einer Liste der gewerblichen Gifte, im Auftrage der Internationalen Vereinigung für gesetzlichen Arbeiterschutz unter Mitwirkung von Sir Thomas Oliver, M. D., und Prof. Dr. Felix Putzeys, verfasst von Prof. Dr. Th. Sommerfeld. Jena, Gustav Fischer, 1908." The translation of the list of industrial poisons which concludes the article was prepared in the Bureau of Labor. The list is reproduced here with the approval of Professor Sommerfeld and Sir Thomas Oliver. Sir Thomas Oliver kindly furnished the bureau with a brief translation of the list of poisons, which formed the basis of the complete translation which is presented herewith.

the pottery industry, its effect upon painters, the manufacture of electrical accumulators, the polygraphic industry, pipe fitters, file cutters, polishers of precious stones, dyers, etc. In accordance with this decision, a committee was designated to deal with these separate questions and to report to the International Labor Office. The association adhered to its original position, however, advocating the absolute prohibition of the use of lead colors wherever a substitute was possible, and urged the distribution to the various sections as rapidly as possible of Mr. Js. P. de Vooy's report upon the possibility of prohibiting lead glazes in the ceramic industry. The association at this time laid down certain principles upon which the work of regulating and eliminating industrial poisons should be based. These principles were briefly as follows:

(a) Physicians and hospitals should be compelled to make returns concerning cases of industrial diseases, to the existing sanitary authorities; physicians to be paid for this service a suitable fee.

(b) In those countries in which compulsory sick insurance exists, the physicians of the industries in which industrial poisons are manufactured, or used, should be made independent of the employer.

(c) The employer should be required to report the manufacture or use of industrial poisons.

(d) It is to the interests of the administrators of the sick insurance funds that it should be impressed upon them that they should devote especial attention to the health of their members employed in poisonous industries, and that they should make to the factory inspectors (officials having supervision of industries) special morbidity returns concerning these dangerous industries, to aid in overcoming the causes of these poisons.

(e) The study and knowledge of industrial poisons should be especially demanded in the instruction in medical colleges, and young physicians should, in special courses, pay attention to the chief prophylactic measures which are necessary for the systematic protection of the health of laborers.

(f) The special inspection of those industries which manufacture or employ industrial poisons is to be entrusted not only to the independent physicians of the various sick funds, but to official physicians especially instructed in industrial hygiene.

(g) The hours of labor of workers employed in poisonous industries should be shortened according to the degree of danger.

At the same time the association recommended the appointment of a commission of experts to make a list of such chemical substances as belong to the category of industrial poisons and to indicate their character and effect.

The Institute for General Welfare (*Das Institut für Gemeinwohl*) of Frankfurt a. Main came to the assistance of the association and

offered prizes for studies on five different phases of lead poisoning. In all 63 studies were presented, and 36 were either awarded prizes, or honorable mention.

The International Labor Office arranged for the prize studies of MM. Boulin and Ducrot to be published in the Bulletin of Labor Inspection of the French Ministry of Labor. The Institute for General Welfare itself provided for the printing of Dr. Richard Müller's study entitled "Combating Lead Poisoning in Lead Foundries."<sup>(a)</sup>

The remaining studies were, at the request of the International Labor Office, assembled as one work by Doctor Leymann, of Wiesbaden, and published under the title "Combating Lead Poisoning in Industry."<sup>(b)</sup>

In accordance with a resolution adopted at Basel September 28, 1904, the different national sections have directed their efforts toward the regulation of industrial poisons, and the work of the German Section (*Die Gesellschaft für Soziale Reform*) has met with a measure of success in legislation for the protection of painters, decorators, and lacquerers from lead poisoning. It seems safe to assume that this is only a first step in rendering the painting trade safe, since it is to-day the experience that white lead is not necessary for interior painting or lacquering on metal.

The fourth general meeting of delegates of the International Association for Labor Legislation at Geneva in 1906 advised the continuance of efforts to limit as much as possible the dangers from lead poisoning, and also the preparation and publication of a comprehensive list of industrial poisons. Accordingly the national sections were asked to make investigations concerning the prevention of danger from lead poisoning in the production and application of lead colors, as well as the danger from the use of lead in the pottery and poly-graphic industries. A committee of three experts from different countries was intrusted with the work of sifting and assembling these reports. The sections were especially charged to report concerning the prohibition of the use of white lead and the experiments which were being made with leadless colors. As a third task the sections were charged with the preparation of a list of the chief industrial poisons. A select committee was then to prepare a final list, with the reports of the various sections as a basis, which according to the terms of reference was to be arranged according to the five following heads:

1. Designation and nature of poisonous materials.
2. Divisions of industry in which the question of poison arises.

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<sup>a</sup> Die Bekämpfung der Bleigefahr in Bleithütten. Gustav Fischer, Jena, 1908.

<sup>b</sup> Die Bekämpfung der Bleigefahr in der Industrie. Gustav Fischer, Jena, 1908.

3. Means and methods of entering into the system.
4. Symptoms of poisoning.
5. Methods of regulation.

Dr. Th. Sommerfeld, of Berlin, Sir Thos. Oliver, M. D., of Newcastle-on-Tyne, and Mr. H. Vanderrydt, of Brussels, were named as the committee to prepare this list. In the place of Mr. H. Vanderrydt, Doctor Putzeys, of Liege, later became a member of the committee. The list herewith published is in no sense to be considered as a completed work. It is merely a foundation for the further treatment of the exceptionally difficult subject.

#### NATURE OF INDUSTRIAL POISONS.

Those substances are designated as industrial poisons which in their production, their use, or to a less extent occurring as by, or intermediate, products endanger by chemical processes the working capacity of the laborer. This deleterious chemical effect arises from the fact that certain gaseous fluids or solids which secure entrance to the body, regardless of the manner of that entry, produce chemical reactions with the compounds or elements of the body, thus lessening or destroying the efficiency of the component parts.

The recognition of the industrial poisons generally meets with great difficulties, and demands a special toxicological knowledge as well as large experience in industrial hygiene. It is for the most part easy only in the case of those substances which in small amounts and by immediate action produce severe injury. It is difficult for all materials which after a long period of continuous entry into the system gradually develop their effects. In the recognition of industrial poisons the further difficulty arises that not all persons react in the same manner to the absorption of poisons, so that one person may apparently remain perfectly well, another may be slightly ill, while a third may present the severest symptoms.

In the second place, difficulty in diagnosis arises from the fact that scarcely a disease originates from industrial poisons that can not originate with practically the same symptoms from other causes.

Lastly, several poisons may be acting upon an individual at the same time and make a clinical picture very complicated, sometimes undecipherable.

Because of these difficulties, observations in industrial establishments, and indeed the scientific analysis of symptoms in single cases, will not suffice. We must often depend for help upon experiments upon suitable animals and, if possible, upon men who may submit themselves voluntarily for trial.



**METHODS OF ENTRY OF INDUSTRIAL POISONS INTO THE SYSTEM.**

The methods by which industrial poisons may enter the body are three: (1) Through the mouth and digestive system; (2) through the respiratory system; (3) through the skin.

The admission of poisonous material through the digestive system follows usually through unwashed hands being brought into contact with the mouth in order to wipe away moisture from the lips, or because the food is touched with unclean hands or is allowed to lie open in contaminated workrooms. It must also be pointed out that poisonous gas, dust, or vapor may get into the mouth or nose, and falling upon the moist mucous membrane, be carried into the stomach with the saliva. Here it must be noted that only a few combinations of poisons are wholly insoluble, the most being easily soluble in water and especially so in the digestive fluids.

Poisons in a gaseous state are chiefly absorbed by means of respiration; but that solid particles of poison, as such, or as finest films coating otherwise impalpable dust, are soluble in the fluids of the body, that they reach the mucous membrane of the bronchial tubes and are absorbed in the lungs, there can be no doubt. In respect to this matter it is to be remembered as a peculiarity of the poisonous lead that it covers even the finest particles with a thin film.

Not least in importance is the danger from poisons operating through the skin. Many materials, especially nitro- and amido-derivatives, but also lead, quicksilver, and many other poisons may secure entry through the uninjured skin to say nothing of their admission through abrasions and wounds in which case the solubility of such substances in the oil of the sebaceous glands is especially to be taken into account.

The experiment of Lehmann furnishes a striking proof of the facility of absorption. "If a cat is confined in a close wooden box so that its head only projects through a padded opening, and the box protected from the sun is placed upon the roof of a house in the open air, the animal through many hours will show no sign of discomfort. If one, however, wraps the animal in a cloth upon which a moderate quantity (about 5 grams) of aniline, toluidin, nitrobenzol or nitrotoluol has been dropped, the animal dies in a few hours, although the breathing of nitrobenzol vapor produces almost no effect. A fatal result occurs much quicker if certain finely pulverized materials are rubbed into the fur of the cat. If five-tenths of a gram of dinitrotoluol, which is a very slightly volatile substance at a temperature of about 37° C. is so applied, the cat dies in a single hour."

**EXTENT OF THE DANGER OF INDUSTRIAL POISONS.**

In no country has it been possible to estimate with any accuracy the extent of the danger to the health of the worker arising from the presence of industrial poisons, for the reason that statistics on this subject are wanting. The chemical industries, partly because of legal regulation, partly of their own free will, employ factory doctors who are charged with the oversight of the health of the endangered workers, yet they rarely give publicity to the work of these physicians, though it has a great value, not only so far as it concerns the special industries where they are employed, but also in the general interests of science and the well-being of workers. Likewise the statistics of the sick insurance funds of Germany furnish us no index of the frequency of industrial poisoning among those workers insured in these funds. The physicians of these sick funds are responsible for this failure to a large degree, either because they have not sufficient toxicological knowledge or because they are so busy during their office hours that they have no leisure to investigate the specific nature of the employment of their patients. A true physician, however, should not be satisfied to discover the symptoms only of a disease, but he should search thoroughly for its causes, because he thus with stronger weapons can do battle with the enemy.

The preparation of a statistical compendium of all diseases possibly arising from industrial poisons is an important task of the near future. An outline of possible methods of collecting such statistics is given in the resolutions of the Basel conference already referred to.

At The Hague conference of the Central Councils for Laborers' Welfare Organizations, in 1905, all speakers, including the representatives of science, technologists, factory inspectors, medical authorities, and the medical profession agreed that an accurate knowledge of the extent of industrial diseases is necessary in order to combat successfully the poisons producing them. It is beyond question that such information can be secured only through physicians by means of a legal obligation requiring it. It is necessary that such reports should be required upon special forms showing name, age, sex, industry, occupation, and description of the disease for each case; such reports to be made to the proper authorities. In case microscopic and bacteriologic investigations are necessary for the certainty of the diagnosis, these should be carried out by state institutions upon the request of the proper officials. The duty of reporting industrial diseases should also be made obligatory upon factory and hospital physicians. To secure satisfactory reports of this nature, it would be necessary to issue uniform instructions containing a description of the clinical features of the different poisons and of the chief processes giving rise to them in industry and hand work. It is essential that

compulsory reports should be confined to those poisons which furnish a more or less sharply defined and sufficiently well-known clinical picture. First of all in such a list would appear poisonings by lead, phosphorus, quicksilver, arsenic, chromium, the carbonic oxides, anilines, benzol, nitrobenzol, dinitrobenzol, carbondisulphide, and nitrous gases.

#### METHODS OF COMBATING INDUSTRIAL POISONS.

The chief share in the prevention of industrial poisons falls to factory owners and managers of industries; in the first place, because upon them rests the responsibility of providing proper technical arrangements for the removal of gases, vapors, and dust, and proper precautionary measures to avert danger in filling, emptying, and transporting the substances above named; in the second place, because upon them lies likewise the responsibility for providing suitable washing facilities and shower baths, work clothes, respirators, protective helmets, and other similar effective aids, where the formation of dangerous gases and dust in the workroom can not be prevented. We must not, however, overlook the fact that the hygienic protection of labor by preventive industrial devices is often practicable only in large and heavily capitalized establishments. Thus the majority of workers in the smaller factories, and especially in the hand work industries, must remain dependent upon less effective regulations. It is important to note concerning the preceding considerations that the interests of the industry and of the worker are one, because, in general, the development of an industry depends upon the well-being of its employees, or at least the two are interdependent. The productivity of the employee conforms in general to the care which the employer has taken to protect his health. Accordingly we should wish that the management of the great chemical industry might present a model. It by no means proves to be such, however, even in isolated cases. Frequently workers become sick even in establishments that are well conducted hygienically, because of production by new methods, as a result of which new and unknown poisons develop. This danger might be avoided if, before the manufacture in large quantities, exhaustive experiments in regard to the physiological effects of all the yet unknown chemical constituents were made in a laboratory attached to the factory or in a public institution.

An important rôle in the prevention of industrial poisoning falls to the government factory inspectors in so far as the supervision and control of legal preventive measures are incumbent upon them. If, however, the work required of them is so great that there is danger of their visits to the factory being so far apart as to make the proprietor feel fairly safe from interference, their activity then needs supplementing through experienced workers who should be officially

designated as assistants to the factory inspectors. For a number of industries the appointment of factory physicians is prescribed by law in Germany. It is their duty to make a physical examination of each new worker and to watch over the health of those exposed to danger by the industry. This very valuable provision yet needs development. Especially should the factory physician be made entirely independent of the factory owner, and he should receive a competence sufficient to enable him to study the relation between sickness and nature of employment, so that he might be placed in a situation of usefulness in prescribing rules of conduct.

It is true, however, that in many cases upon the conduct of the worker himself entirely depends his well-being. Any watchful observer daily will note cases in which workers are poisoned by their indifference to the threatening danger. The enlightenment of the worker must therefore play an important part in overcoming the risks of industrial poisoning. It is useless here to argue whether the worker's own watchfulness or factory regulation is the more important. Instruction must come to the worker from many channels. This could begin conveniently in the higher classes of the public schools in connection with the instruction in natural sciences. Instruction in the conduct necessary to prevent industrial poisons, such instruction to be given by experienced physicians, should be emphasized in the continuation schools and especially in the technical schools. Much may also be done through the press, by public lectures, popular pamphlets, concise circulars of instruction, as well as by foremen and bosses.

Doctor Sommerfeld considers that the essential progress along these lines must be made, however, by means of the continuation schools of the various industries. It is usually a fruitless attempt to dissuade an adult laborer from exposing himself in his customary manner to a danger with which he is familiar and hence for which he has contempt. The youthful mind, however, is susceptible to enthusiastic and energetic instruction. The teacher of health for these young workers must be familiar not only with the scientific aspects of his subject, but with the technical methods of the industry.

## LIST OF INDUSTRIAL POISONS.

[Translated from Entwurf einer Liste der gewerblichen Gifte im Auftrage der Internationalen Vereinigung für gesetzlichen Arbeiterschutz, Jena, 1908.]

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>ALCOHOL, AMYL,</b> $C_6H_{11}OH$ : Chief compound of fusel oil; colorless; oily, acrid taste; penetrating, disagreeable smell; liquid.	Preparation of fruit essences, amyl nitrite, valeric acid, various aniline dyes, substance for lighting purposes.	In form of vapor, through respiratory organs.	Headache, pressure on chest.

*Preventive measure:* Ventilation of workrooms.

<b>ALCOHOL, METHYL,</b> wood spirit, $CH_3OH$ : Colorless, faint odor, burning with nonluminous flame.	In manufacture of varnish, polish, in denaturation of spirits, pure methyl alcohol in preparation of dyeing materials obtained from tar.	In form of vapor, in breathing.	Irritation of mucous membrane of respiratory organs and eyes; inclination to vomit, headache, tingling in ears, difficult breathing, temporary dizziness; when breathing large quantities, violent inflammation of throat and mucous membrane of the air passages, extending to the finest bronchia; inflammation of skin of hands and lower arms of people engaged in polishing furniture.
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*Preventive measures:* Powerful ventilation; careful ablutions of hands and arms.

<b>AMMONIA, <math>NH_3</math>:</b> Colorless gas, pungent smell. Solution of ammonia, liquor ammonii caustici—10 per cent ammonia.	Gas works, chemical works of the most varied types, manufacture of fixed sal ammoniac and carbonate of ammonia from gas water, manufacture of orsellie colors, manufacture of ice, cooling installations, varnish and dye works, ammonia soda process, calico printing, bleaching, tanning; in small quantities as by-product in the manufacture of coal gas.	In gaseous form, through respiratory organs; seldom pure, being usually in combination with other gases.	Long continued inhalation of small quantities produces a chronic bronchial catarrh. Acute symptoms are to be distinguished from this. Air containing more than 0.15 per cent rapidly affects health. Severe irritation of the respiratory organs, violent sneezing, lachrymation, reddening of eyes, burning in the throat and feeling of constriction, increased salivation; attacks of coughing with expectoration of a viscous, thickish, sometimes bloody substance; difficulty in breathing, attacks of suffocation; vomiting of serous material; odor of ammonia in the perspiration; retention of the urine for many hours, or even for 2 or 3 days; acute inflammation of respiratory organs, here and there patches of inflammation in the lungs. Severe cases result in death.
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*Preventive measures:* Use of closed vessels, exhaustion of gases; use of moistened respirator, consisting of several layers of fine woolen tissue.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<p><b>ANILINE</b>, <math>C_6H_5NH_2</math>: A colorless oil when pure, which soon turns a dark red on exposure to the air and light.</p> <p>Like aniline, also the homologous and closely related substances, toluidine, xylydine, anisidine, are poisonous, no matter in what state of aggregation.</p>	Making of anilines and aniline colors.	By breathing, in the form of vapor, or by absorption through the skin by saturation of the clothing.	<p>The susceptibility and resistance of different individuals to aniline and its homologues varies widely.</p> <p><b>ACUTE INTOXICATION.</b>—The severity of symptoms varies from slight temporary disturbance in mild cases to fatal termination in the severest cases.</p> <p>In the mildest cases there is a bluish color of the lips, without feeling of illness.</p> <p>In moderate cases there is a feeling of weariness and weakness, a fullness in the head, tired eyes, reeling, unsteady gait, want of elasticity of movement, slow, heavy speech. Such a case has the appearance of slight alcoholic intoxication. Sallow, pale complexion, blue lips, loss of appetite, sometimes flashes before the eyes, desire to urinate, dark urine. No inflammation of the mucous membranes of the air passages.</p> <p>After longer exposure to the gas, or exposure to it in more concentrated form, additional symptoms besides those noted above appear: Dark blue to black color of the lips, unsteadiness of gait, dizziness, fainting, retarded pulse, contraction of the pupils (which, however, usually react to the light), lessening of the sensibility, odor of aniline on the breath. After vomiting consciousness returns, violent headache, aversion to food; in isolated cases strangury, with dark, thick urine. Recovery after some days.</p> <p>In the most severe cases, sudden collapse; cold, pale skin; decrease and then loss of sensibility; death in a comatose condition, or sometimes in convulsions.</p> <p><b>CHRONIC INTOXICATION.</b>—Chiefly nervous symptoms, as general exhaustion, headache, roaring in the ears, disturbance of sensibility, often also high-grade motor disturbances. Later other symptoms appear, as disturbances of the digestive organs, nausea, vomiting, diarrhea, eczematous and pustulent eruptions on various parts of the body, especially upon the scrotum.</p>

*Preventive measures:* Instruction of the worker concerning the action of aniline, and observation of work regulations; protection of the worker from breathing the vapor and prevention of direct contact of skin and clothing by proper apparatus; care in emptying containers.

At the first symptoms of poisoning, removal from atmosphere in which aniline is present into the fresh air.

When the skin has become wet with aniline, removal of clothing, careful drying of the skin with absorbent cloth without rubbing, careful application of a paste of chloride of lime (bleaching powder), washing in warm water, hot baths at 37 to 40° C.

After breathing of aniline vapor, a warm bath containing 1 part per 1,000 of hydrochloric acid, to be followed 2 or 3 minutes later by a second hot bath of pure water.

Strong black coffee for sinking of bodily temperature; 1 tablespoonful of crystallized Glauber's salts, sulphate of soda, in one-half liter of water to stimulate vomiting, brushing of the body with weak vinegar, inhalation of oxygen, and artificial breathing for several hours.

All means of treatment should be kept in readiness, and special persons should be intrusted with their keeping and use.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>ANTIMONY, Sb:</b> White, silvery, very brittle. <b>Antimony colors:</b> Antimony oxychloride, antimony Cinnabar oxide, Naples yellow; antimony alloys; antimony compounds.	Extraction of antimony and stibnite (native trisulphide of antimony), preparation of numerous antimony compounds, antimony alloys (type metal, britannia metal, white metal), fireworks, paints, preparing and fixing aniline dyes, pottery glaze, used as golden sulphide in the vulcanization and red coloring of india rubber, tartar emetic as a mordant.	In form of vapor, through respiratory organs, as oxide of antimony, antimonious acid, sulphide of antimony; irritation of skin, in form of dust when working in britannia metal and type metal.	Cutaneous eruption through local application, especially by perspiration; inflammation of mouth, throat, and stomach; constipation, colic, debility; albumen in urine; weakness of heart, dizziness, and fainting.

*Preventive measures:* Protection against gases and dust; vapor baths, the effect of which is still an open question.

<b>ARSENIC, As:</b> When pure, whitish gray, with metallic luster. <b>White arsenic (arsenicum album),</b> arsenic trioxide, $As_2O_3$ : Formed in roasting arsenical ores, deposited during passage from the retort as a white powder (small octahedra), tasteless and odorless. <b>Arsenious acid,</b> $H_3AsO_3$ , and its salts, the arsenites. <b>Schweinfurt green:</b> A compound of acetate and arsenite of copper (aceto-arsenite of copper). Soluble arsenites used in chemical works for reduction. <b>Scheele's green:</b> Arsenite of copper. Brilliant green rhombohedra. Soluble arsenites used in chemical works for reduction. <b>Arsenic acid,</b> acidum arsenicum, $H_3AsO_4$ : Rhombic crystals when evaporated from solution. <b>Cochineal or Vienna red:</b> A complete mixture of arsenic acid ( $H_3AsO_4$ ) and brazilwood extract. <b>Realgar or Ruby sulphur,</b> $As_2S_4$ . <b>Orpiment,</b> $As_2S_3$ : Contained in new and royal yellow.	Mines, foundries, chemical works, making of shot, manipulation of metal, glass industry, manufacture of aniline and other dyes, printing, dyeing, making of wall and colored paper, of oilcloth, artificial flowers, colored chalks, stuffing of animals, tannery, filling of airships, soldering with impure hydrogen; arsenic chloride in etching brass.	In form of gas and dust, through respiratory organs, skin, and mucous membranes.	<b>ACUTE INTOXICATION.</b> —First symptoms mostly only after one-half to one hour. Sensation as of throat constricted, pain in stomach and intestines, vomiting, diarrhea, loss of strength, skin cold and bluish, cramp in calf of leg, lowering of heart's action, dizziness, headache, fainting, delirium, unconsciousness, spasms; death under symptoms like cholera. In lighter cases: Burning sensation in neck, vomiting, salivation, difficulty in swallowing, indigestion. <b>CHRONIC INTOXICATION.</b> —Disturbed nutrition; complexion ashy, yellowish, or bronze; arsenical melanosis, i. e., deposit of brownish pigment, not containing As. in neck, body, and arms and legs; bleeding gums, feeling of pressure at stomach, vomiting, diarrhea, emaciation, loss of strength; falling off of hair and nails, dryness and chapping of skin, various skin eruptions; sometimes symptoms of catarrh in mucous membranes, inflammation of conjunctiva of eye and eyelids, of throat and bronchial ducts. <b>LOCOMOTION AND SENSATION DISTURBED.</b> —Violent, sudden, cutting pains; formication, skin feeling like fur, sensibility lowered; feeling of coldness, muscles weakened, simple or double paralysis, loss of reflex in tendons; paralysis temporary or lasting for years, often leaving chronic disturbances; cerebral disturbance; headache, disinclination for work; sleeplessness, excitability, melancholia, epilepsy, loss of memory in different degrees.
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*Preventive measures:* Exhaustion of poisonous gases and dust; personal cleanliness; ablutions.

*For acute poisoning:* Magnesium hydroxide, mixed with burnt magnesia in 20 parts of water, 4 to 6 tablespoonfuls every fifteen minutes, or hydrated peroxide of iron as an antidote, best freshly prepared, 2 to 4 tablespoonfuls; sudorifics, warm baths.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>ARSENIURETTED HYDROGEN GAS,</b> $\text{AsH}_3$ : Colorless, with a fetid odor of garlic.	$\text{AsH}_3$ is formed whenever H or carburetted hydrogen are developed for technical purposes in the presence of a soluble arsenic compound; all kinds of raw hydrochloric and sulphuric acid, iron filings and zinc contain arsenic; soldering, air balloons.	In gaseous form, through respiratory organs, mostly mixed with H.	At first slight uneasiness; after some hours, shivering, vomiting (food, bile, blood), pains in the back, dizziness, fainting, small pulse, bluish discoloration of mucous membranes, difficult breathing; urine sometimes dark, even black. After 24 hours skin turns yellow through bile; unpleasant smell from mouth, swelling and sensitiveness of liver and spleen, headache, delirium; death, or slow recovery.

*Preventive measures:* Exhaustion of poisonous gases; powerful ventilation of workrooms; use of hydrogen free from arsenic.

<b>BENZOL, <math>\text{C}_6\text{H}_6</math>:</b> Light, oily liquid; colorless, burning with bright but sooty flame.	Preparation of benzol and a long series of aromatic compounds; a body dissolving and purifying various substances, as india rubber, resin, fats, iodine, phosphorus, sulphur, removing grease, india-rubber industry, washing and dyeing.	In form of vapor, through respiratory organs.	Giddiness, tingling in the ear, sleepiness, feeling as if intoxicated, inclination to cough and vomit, pulse at first accelerated then retarded; face reddened, then bluish discoloration; trembling of hands and arms; formation and dryness of skin. The stage of excitement is followed by a stage of sinking of the sensitiveness below the normal. In severe cases, perspiration with disagreeable odor, itching of the skin, loss of sensation, formation, hallucination, delirium, long-continued unconsciousness, epileptiform fits. No discoloration of skin as in aniline and nitrobenzol intoxication.
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*Preventive measures:* Exhaustion of vapors; ventilation of rooms.

<b>CARBON DIOXIDE,</b> carbonic acid, $\text{CO}_2$ .	Contained in the decomposition gases of vaults and tombs, in sewer gas and the gas in wells (water wells), sometimes also in bark or tan pits, breweries and distilleries, compressed-yeast factories, wine cellars. In mines $\text{CO}_2$ is produced by the breathing of the miners, burning of their lamps, blasting, etc.	In the form of gas, through the respiratory organs.	Large quantities produce sudden death by suffocation. Continuous inhalation of moderate quantities, through a longer or shorter period, produces headache, dizziness, roaring in the ears, increasingly difficult breathing, sometimes pain in the chest. Sometimes mental excitability is produced, or exhaustion, from the outset, and drowsiness, loss of consciousness and power of motion. Recovery occurs after a period varying from several hours to two days, unless removal from the gas-laden atmosphere has been too long delayed, when a fatal termination occurs.
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*Preventive measures:* Testing the air before entering a room likely to contain  $\text{CO}_2$ ; quick removal from the dangerous atmosphere at the first sign of danger, as difficulty of breathing, pain in the head, or roaring in the ears; good ventilation of fermenting houses (in breweries).



## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>CARBON DISULPHIDE</b> , carboneum sulfuratum, CS <sub>2</sub> : Colorless when pure, smelling like chloroform, strongly refracting light. An extremely volatile fluid; if impure, pale yellow, smelling disagreeably. Its vapors mixed with air are explosive.	Making of CS <sub>2</sub> , extraction of fats and oils, extraction of S from gas-washing substances, vulcanization of india rubber, purification of tallow, stearin, paraffin, wax, filling of hollow prisms, preparation of compounds of Cl and C, dissolving off fat in treating rags, bones, raw wool, fruit containing oil, etc.	In form of vapor, through breathing; in a fluid form, dipping hands into the poison, or spurt- ing of the fluid from bursting of the glass container.	<p>Injury to red blood corpuscles and central nervous system. 1.5 to 3 milligrams CS<sub>2</sub> to 1 liter air cause inconvenience after a few hours; 6 mg., in 20 minutes. 10 mg. produce symptoms of paralysis and after effects for 12 days.</p> <p><b>ACUTE INTOXICATION.</b>—Paralysis of central nervous system, decomposition of red blood corpuscles; drowsiness, unconsciousness; after breathing considerable quantities, death ensues within a few hours.</p> <p><b>CHRONIC INTOXICATION.</b>—First, symptoms of headache passing from root of nose to temples, feeling of dizziness, especially at night; later, aching in limbs, itching and formication, more or less coughing, quickened heart action, great mental excitability, violent and excitable temper, rise of sexual instincts. This stage is followed after some weeks or months by one of depression; relaxation, sadness, dreamy condition, lowered sensibility, weakness of memory, indistinct speech.</p> <p><b>DISTURBANCE OF SENSIBILITY.</b>—Shivering, itching, prickling, wanting or lowering of reflex actions; insensibility within certain limits or spread over large area and analgesia.</p> <p><b>DISTURBANCES OF LOCOMOTION.</b>—Weakness of muscles, tremor, cramp with fibrillary quivering, also stiffness of limbs (contraction), fleeting or lasting paralysis, sometimes with atrophy of muscle.</p> <p>Also, local influences of a paralyzing nature of CS<sub>2</sub> have been observed in the fingers when dipping the india rubber into the CS<sub>2</sub>; derangements of sight, taste, smell, hearing; mental disorders, as acute mania, dementia with hope of recovery. Hereditary disease aggravates the conditions.</p> <p><b>DERANGED NUTRITION.</b>—Disturbed digestion, vomiting, colic, diarrhea alternately with constipation, the latter predominant in the later courses of the disease; emaciation.</p> <p>Frequently mental symptoms or cachectic conditions persist after work has been given up.</p>

*Preventive measures:* Where possible use closed vessels and pipes (extraction of fat), leading away the vapors from where they arise; good ventilation; avoid touching CS<sub>2</sub> with naked hands; removal of sick persons from poisonous atmosphere; medical treatment to disappearance of all symptoms; treatment in hospital advisable.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>CARBON MONOXIDE.</b> CO: Colorless, tasteless gas, odorless in small quantity, burning with blue flame with admission of air. <b>Coal damp:</b> 0.5 to 5 per cent CO. <b>Illuminating or coal gas:</b> 6 to 10 per cent CO, 35 to 40 per cent marsh gas. <b>Water gas:</b> A mixture of 41 per cent CO, 50 per cent H, 4 per cent CO <sub>2</sub> , 5 per cent N. <b>Generator gas:</b> 34 per cent CO, 60 per cent H.	Manufacture of coal gas, water gas, suction gas, coke, smelting furnaces, metal foundries, limekilns, brick works, coal mines, ironing with gas irons, heating with open coal pan, chemical laboratories.	In gaseous form, through respiratory organs.	<p><b>ACUTE POISONING.</b>—At first, rise of blood pressure with slackening of pulse, hammering palpitation; later, sinking of pressure, with frequent but small pulse, and not rarely with discolored vascular regions of the skin.</p> <p><b>DERANGEMENT OF GENERAL HEALTH.</b>—In slight cases headache, dizziness, tingling of ears, nausea, pressure in pit of stomach; in severe cases bluish decoloration of skin, spasmodic, noisy breathing, sometimes tonic and clonic spasms, more frequently symptoms of paralysis, either with weakness of the legs and arms or legs alone, or only of certain muscles, also those of the face. This convulsive stage, which may also be wanting, is followed by the asphyxia stage with derangement of sensibility or locomotion, involuntary urination, loss of semen, and of stools; low temperature, weak and slow pulse, also becoming intermittent; unconsciousness, death through blood poisoning, or through inflammation of lungs in consequence of sucking up of vomit during unconsciousness (swallowing pneumonia).</p> <p><b>CHRONIC INFLAMMATION.</b>—(With people engaged in stoking, cooking, ironing, etc.) frequent headache, nausea, inclination to vomit, coated tongue, weak memory, anæmia but not chlorotic, heat flushes, formation, palpitation, sleeplessness, general debility, also derangement of psychical functions.</p>

*Preventive measures:* Removal from poisonous atmosphere, admission of fresh air; artificial breathing and use of oxygen, for hours, if required; head of patient slightly raised; cold water, friction, mustard, electric treatment, ammonia, black coffee; poisonous gases should be led off and not permitted to enter the workrooms; staying in rooms which are heated with open coke pans should be forbidden.

<b>CHLORIDE OF LIME:</b> Produced by passing chlorine through slaked lime. It is a white, crumbling powder, hardening somewhat, and smelling of hypochlorous acid; contains 35-40 per cent of chlorine.	Manufacture of chloride of lime. Employed in bleaching establishments, disinfection, manufacture of chloroform, chlorine, and oxygen; as an oxidizing medium in the manufacture of dyes and other preparations, and in calico printing.	Breathing of chloric gas and dust of chloride of lime.	More or less severe attacks of coughing, more or less inflamed appearance of the upper air passages, difficulty of breathing, bronchitis, asthma, sometimes spitting of blood, inflammation of the conjunctiva, lacrymation; burning of the skin through penetration of the chlorine; violently itching and burning eruption upon the skin, eczema, burns from the lime dust, and dust of chloride of lime.
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*Preventive measures:* Only healthy, strong persons, without tendency to catarrh, should be employed; the shortest possible working time, especially in rooms containing chlorine. In those cases free chlorine should be led off before the room is entered, and respirators with damp filters should be used. Work should be carried on with good protection of hands, arms, and feet. The face should be rubbed with tallow or oil. A smoke mask is more suitable and better than a respirator. Technical arrangements, by which the preparation and emptying of the material can be done from the outside of the room, which in part is possible only through alteration in the methods of manufacture.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>CHLORINE, Cl:</b> Yellowish green gas, penetrating odor, suffocating; dissolves in water, with greenish yellow color.	Chlorine often formed in bleaching, washing, and ironing linen, manufacture of paper, in chemical laboratories, manufacture of chloride of lime, tinning works, disinfection.	In gaseous form, through organs of breathing.	<p>Even in very small quantities causes feeling of burning in mucous membrane of eye and nose. A concentration of 0.6 per cent in atmospheric air is deadly, by paralysis of the heart. Much smaller quantities cause oppression and make it necessary to leave the room.</p> <p><b>UPON SKIN.</b>—Burning, stinging sensation; formation of pimples, blisters.</p> <p><b>UPON MUCOUS MEMBRANES.</b>—Lacrymation, running of nose, coughing, oppression of chest, dyspnoea, bronchial catarrh with bleeding, spasm of glottis; cold perspiration, small pulse; breathing of large quantities of the undiluted gas causes sudden collapse and death in from one to two minutes.</p> <p><b>IN CHRONIC ACTION.</b>—Uneasiness in gastric region, heartburn, pale complexion, bluish discoloration of skin, catarrh of air passages, slow emaciation, and growing prematurely old.</p> <p><b>CHLORACNE.</b>—A marked irritation of follicular glands of the skin, inflammation and suppuration of the same, producing pustules and boils, in the electrolytic preparation of chlorine from compounds of chlorine and carburetted hydrogen.</p>

*Preventive measures:* Breathing of  $\text{NH}_3$  to form  $\text{NH}_4\text{HCl}$ ; use of restoratives (camphor, benzoin, etc.); if irritable cough, inhalation of water vapor and use of codala or morphia; use of respirator of several layers of moist flannel. Against chloracne, exclusion of persons inclined thereto. Utmost cleanliness, shower baths; cooling of rooms about to be cleaned, and careful removal of waste.

<p><b>CHROMIUM, Cr:</b> Bright gray, crystalline powder.</p> <p>Chromic acid and its salts are one hundred times as poisonous as the chrome-oxide compounds. Many of these latter are much used in arts, as chromium alums, chromic chloride, chrome green (Guignet's green, without lead).</p> <p><b>Chromic acid</b> (<math>\text{H}_2\text{CrO}_4</math>) and its salts, as potassium chromate, bichromate of potash or anhydrochromate of potash.</p> <p><b>Lead chromate,</b> Chrome yellow, chrome red, chrome orange, chrome cinabar, chrome carmine.</p>	<p>Preparation of chrome compounds, chrome steel, for corrosion of metals, mineral tanning, bleaching of wax, palm oil, match industry, purification of pyroligneous acid, denaturation of spirits, aniline and anthracene colors; photography, photolithography, and manufacture of hektographs; hardening and preserving of anatomical preparations; mordants and dyes in the dyeing and printing industry; the manufacture of Swedish matches and of materials for oxidation in arts.</p>	<p>In a solid form, acts through skin and mucous membranes; as dust upon respiratory tracts.</p>	<p>The chromates act similarly to chromic acid. The acute chromic poisoning from industrial causes has not been studied up to the present time.</p> <p><b>Eczematous skin eruption;</b> deep ulcers, healing with difficulty, on skin and mucous membranes (glands, hard and soft palate); inflammation and perforation of septum narium, mostly only in cartilaginous portion; irritation of finer bronchial ducts, chronic bronchial catarrh and patches of inflammation in lungs; in ear, perforation of the membrani tympani and chronic inflammation of middle ear; long-lasting catarrh of conjunctiva; digestion deranged; anæmia; irritation of kidneys.</p> <p>In handling lead chromate, the same symptoms as in chronic lead poisoning.</p>
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*Preventive measures:* Prevention of dust, by pulverization and mixing of materials containing chromium in closed vessels; exhaustion of same, if not to be avoided; painstaking cleanliness, washing, frequent baths, masks for mouth and nose, in case of dust; greasing of skin; oversight of health of employees by a physician.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>DINITROBENZOL or BINITROBENZOL.</b> $C_6H_4(NO_2)_2$ : When pure, thin, colorless, rhombic needles; otherwise yellow, crystalline mass.	In roburite and secorite manufacture. [Explosives.]	In form of vapor, through respiratory organs.	Feeling of heaviness in head, lassitude, dizziness, sleeplessness, nausea, vomiting, yellowish coating on tongue, pain in stomach, lessening of heart's action, gray-blue discoloration of skin and mucous membrane; nervous disturbances; piercing pains, sensibility affected, reflexes diminished, paralysis. Dinitrobenzol can be proved in dark-brown urine. Before a severe attack, which is often precipitated by indulgence in alcohol, milder symptoms often appear, as occasional dizziness, headache, light-blue coloring of the lips, and light-yellow color of the skin (icterus).

*Preventive measures:* Removal of vapors; ventilation of rooms; if advisable, use of respirators.

*In cases of poisoning:* Removal from the dangerous atmosphere; removal of impregnated clothing; warm baths, friction, perhaps with vinegar; artificial respiration, admission of fresh air, inhalation of compressed oxygen; medical assistance (camphor injections, etc.).

<b>FORMALDEHYDE.</b> $CH_2O$ : Gaseous, giving off intensively smelling vapors. 40 per cent formaldehyde is formalin or formaldehydum solutum (formaldehyde solution).	Disinfection, preparation of many organic compounds, especially in the manufacture of tar dyes, preserving and hardening of human and animal anatomical preparations.	In form of vapors, through respiratory organs and mucous membranes.	Intense prickly feeling in nose, burning of eyes; lacrymation, irritation of mucous membranes of upper air tubes; through inhalation of concentrated vapors necrosis of mucous membranes, decay of nails, inflammation of skin.
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*Preventive measures:* Careful handling; entering disinfected rooms only after introduction of ammonia, whereby the odorless and hardly poisonous hexamethylenetetramin is formed, afterwards airing of rooms; careful washing of hands and arms.

<b>HYDROCHLORIC ACID, HCl:</b> Colorless gas, when dry; in air it forms dense, sour, white clouds; aqueous HCl is colorless, smoking in atmospheric air.	Chemical works (sodium chloride, common salt), protochloride of tin, glass manufacture, artificial manure, potteries (glazing), enameling, soldering, rubber shoe industry; in shoddy industry the carbonizing of materials, calico printing, bleaching.	In gaseous form, through respiratory organs.	0.05 per cent hydrochloric acid in air is easily borne; a higher percentage causes violent coughing, stupidity, destruction of the teeth, feeling of contraction in the throat, even unconsciousness, and death. For the most part the dilution of HCl is so necessary in those industrial pursuits in which it is used that serious results follow only in accidental cases.
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*Preventive measures:* In the sulphate and Leblanc soda process, the calcined masses drawn from the oven are to be cooled beneath a ventilation hood; exhaustion of vapors before entering room; use of closed vessels, wherever possible.

<b>HYDROFLUORIC ACID, HF:</b> Forms dense clouds in atmospheric air.	Manufacture of glass, etching of glass, bleaching cane and freeing it from silicates, for wicker chairs; making of manure, and the fluxing of phosphorite through transfusion with HF in the superphosphate industry.	In gaseous form, through respiratory organs; as a liquid, through skin and mucous membranes.	Violent irritation of eyelids and conjunctiva, cold in the head, bronchial catarrh with spasmodic coughing; sores at entrance of nose, of gums and mucous membrane of mouth, also painful ulcers on epidermis, corrosion, blisters.
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*Preventive measures:* Prevent poisonous vapors from entering workroom; special care when handling them; cleanliness, ablution.

*In case of acute poisoning:* Removal from poisonous atmosphere, use of chloride of calcium.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<p><b>LEAD, Pb:</b> Bluish-white, bright lustre, growing dull in atmospheric air.</p> <p><b>Lead alloys (As Sn),</b> lead colors.</p> <p>Lead is dangerous, whether in solid, liquid, or gaseous form. The compounds containing O are the worst; before all litharge, and white lead, then red lead, sugar of lead. Metallic lead is also very dangerous, as it possesses the property of leaving on the surfaces of contact very fine particles.</p> <p>The <b>Chrome</b> compounds rank in danger equal to those of metallic lead.</p> <p><b>Lead sulphide, PbS,</b> is considered as non-poisonous by some authorities, but it is not denied that it is oxydized through the fatty acids contained in the perspiration.</p> <p><b>Lead sulphate</b> was for some time considered, especially by the English, as a nonpoisonous substitute for white lead, but it has a poisonous action, though considerably slower than that of white lead.</p> <p><b>Lead subacetate,</b> <math>Pb(C_2H_3O_2)_2 + 3H_2O</math>, white four-sided crystals, easily disintegrated in atmospheric air.</p> <p><b>Lead subacetate,</b> <math>Pb(C_2H_3O_2)_2 + 2Pb(OH)_2</math>, colorless liquid, at first turbid in contact with atmospheric air.</p> <p><b>Lead borate</b> or <b>lead siccativæ</b> (dryer), <math>PbB_2O_6</math>.</p> <p><b>Lead chloride,</b> <math>PbCl_2</math>, white, silky, rhombic crystals.</p> <p><b>Lead manganate, lead nitrate, lead oxalate,</b> etc.</p>	<p>Pb is obtained in lead, zinc, and copper works.</p> <p>Manufacture and use of objects made of metallic lead sheets, sheet metal, pipes, wire, pots, pails, bottles, taps, pumps, retorts.</p> <p>Making and use of alloys: Type metal, shot, calin (lead tin), type foundries, printing houses, making metal caps for bottles, file cutting and diamond polishing establishments.</p> <p>Preparation and use of lead colors as litharge, PbO; white lead, <math>2PbCO_3 + Pb(OH)_2</math>; red lead, <math>Pb_2O_3</math>; Naples yellow, basic antimoniate of lead oxide; Casel's yellow, <math>PbCl_2 + 7PbO</math>; patent yellow, <math>PbCl_2 + 5PbO</math>; lead chromate in the chemical industry, pottery (glazing), in painting and varnishing, etc.</p> <p>Preparation and use of lead compounds: Sugar of lead, <math>Pb(C_2H_3O_2)_2 + 3H_2O</math>, white four-sided crystals, easily disintegrated in atmospheric air.</p> <p><b>Lead subacetate,</b> <math>Pb(C_2H_3O_2)_2 + 2Pb(OH)_2</math>, colorless liquid, at first turbid in contact with atmospheric air.</p> <p><b>Lead borate</b> or <b>lead siccativæ</b> (dryer), <math>PbB_2O_6</math>.</p> <p><b>Lead chloride,</b> <math>PbCl_2</math>, white, silky, rhombic crystals.</p> <p><b>Lead manganate, lead nitrate, lead oxalate,</b> etc.</p>	<p>Lead and its compounds enter the organism mostly by way of the digestive organs; the poisonous substances, or objects soiled with them are brought to the mouth, or food and drink are taken that have become soiled with them. Less often, but frequent enough, the chronic lead intoxication takes place through the respiratory organs. There are inhaled lead gases and vapors, lead compounds in form of dust, metallic Pb perhaps only through dust covered with lead. This may occur in painting, varnishing, and textile industries, etc.</p> <p>In a small measure Pb is received through the skin, not only through wounds but also through healthy skin, especially when perspiring.</p>	<p>It is to be remembered that chronic lead intoxication may affect any part of the organism, and it is exceptional that the symptoms are restricted to one system, e. g., to the digestive organs alone or to the nervous system. The several systems are usually affected, though in different degrees. The general health almost always suffers. There are no special symptoms absolutely characteristic of lead intoxication to the exclusion of every other cause. This holds good for the blue line on the gums which is frequently wanting, for the alteration in the blood, as described by Grawitz among others, and also for the increase of the number of leucocytes in the cerebro-spinal liquid, as pointed out by the French savants, Mosny and Mallozet. The diagnosis is rendered possible by the further development of the disease, and consideration of the symptoms with respect to the occupation.</p> <p><b>SYMPTOMS.</b>—Commencement slow; general health affected, feeling of weakness, decrease of strength, ashy complexion, prejudicial effect upon virility; disturbed digestion; pressure in pit of stomach, belching, poor appetite, metallic taste and unpleasant odor from mouth, loosening of teeth and swelling of gums, blue line on gums; deranged sensibility; lead colic, pain in joints (lead arthralgia); pulling or boring, mostly spasmodically, especially in the flexors of legs, but also in the arms, in joints and bones; derangement of the perceptive faculty (anæsthesia) frequently preceding paralysis, with reference to skin and parts just below.</p> <p><b>LEAD BLINDNESS.</b>—Quickly passing, sometimes lasting 4 to 5 days; temporary loss of hearing, smell, and taste.</p> <p><b>LEAD PARALYSIS.</b>—Chiefly of radial nerve, mostly right; impossible to stretch the hand; atrophy of paralyzed muscles; sometimes paralysis in other parts.</p> <p><b>DISEASE OF BRAIN</b> (encephalopathia saturnina).—Precursors: Continuous headache, dizziness, tinkling in ears, sleeplessness, weakening of will and intellect.</p> <p><b>KIDNEY DISEASE.</b>—Shriveling of kidney.</p> <p><b>DERANGEMENT IN SEXUAL FUNCTIONS.</b>—Diminution and cessation of mammary secretion; abortion and premature birth; debility of children, even when the father alone has been exposed to the influence of Pb.</p>

**Preventive measures:** Gases and dust to be removed by suction before entering the workroom; to avoid development of gas and dust through special methods, as moistening of material, working it whilst damp; where possible to replace lead compounds through nonpoisonous ones (as tin, white tin, lithopone, etc., for white lead); ventilation and cleanliness of workroom, also of walls and ceilings; daily removal of waste containing lead.

**Attention to health of workman:** No eating, drinking, or smoking in workroom; washing of hands, face, hair, rinsing of mouth before taking food, and before leaving workshop; warm baths, daily or weekly, according to nature of work; avoid alcohol; pay attention to digestion and regularity of bowels.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance..	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>MANGANESE, Mn:</b> Grayish white, brittle. <b>Braunite, <math>Mn_2O_3</math>:</b> <b>Manganese colors:</b> Manganese white, manganese violet. <b>Manganese alloys:</b> With Fe, Cu, Ni. <b>Manganese compounds.</b> As manganese, acetate, borate, chloride, oxide, carbonate, oleate, sulphate, monoxide.	Chiefly in chlorine industry, preparation of oxygen, bleaching powder (chloride of lime), permanganate of potassium, manganese colors, decoloration of glass flux, coloring of glass, manufacture of enamels, glazing, dyeing and marbling of soap, lacquer, varnish, oil paints, the charging of galvanic cells.	By inhalation of manganese dust in crushing braunite and reducing it to powder.	Besides disturbance of digestion, especial disturbances of the central nervous system occur; prickling in arms and legs, formication in legs, dizziness, tremor; derangement of voice and articulation; depression, fear, forced laughing, crying; lowering of intelligence; paralysis of arms and legs; emaciation and dropsy in the legs. The clinical picture is known as manganismus.
<b>MERCURY HYDRARGYRUM, Hg:</b> Silvery white, brilliant, not changing in atmospheric air, evaporating at ordinary temperature. <b>Cinnabar, HgS:</b> Red. <b>Mercury alloys:</b> Amalgams with gold, silver, zinc, tin, cadmium, lead, copper, etc. <b>Mercury compounds:</b> Corrosive sublimate, $HgCl_2$ ; mercuric oxide, nitrate, sulphate; ammonium chloride; fulminate of mercury.	Mining, attacks 1 to 2 per cent of the workmen; smelting process, attacks 8 per cent of those engaged in it. Chemical factories, extraction of gold and silver, gilding, silvering and bronzing processes, making of mirrors, filling of thermometers, barometers, manometers, etc.; glow-lamp (aphlogistic) industry; quick-silver air pump (Sprengel pump); caps and explosives, manufacture of felt hats, dyeing of hair, calico printing, photography, preserving of anatomical preparations and wood, etching on steel.	As vapor, through respiratory organs; through the digestive organs, by soiled fingers.	Inflammation of gums and mucous membrane of mouth, ulcers in mouth and throat, inflammation of jawbone; necrosis of part of the same; loss of calcium salts in bone, and thereby deficiency in bone; stomacal and intestinal derangements, weakness, emaciation, anæmia. Inflammation of and pustules on skin; disturbed sensibility; excitability, irritability, depression, hallucinations; skin partly below normal sensibility, partly supersensitive; difficulty of speech, exaltation of reflex action, palpitation; sexual function deranged in male and female; tremor of hands and groups of muscles. Mercury cachexia showing itself in anæmia, emaciation, atrophy of fat and muscles, relaxed skin, want of appetite.

*Preventive measures:* Leading off of vapors, strong ventilation of workrooms; prevent spilling Hg; daily cleaning of workrooms; personal cleanliness of workmen.

*In case of poisoning:* Hot baths, and stimulants for glands; good nutrition; arsenite of iodide of potassium internally.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>NITROBENZENE.</b> $C_6H_5NO_2$ , mirbane essence, imitation oil of bitter almonds: Colorless or light yellow, refracting light strongly, smelling like oil of bitter almonds. Generated through nitric acid of benzol with concentrated nitric or sulphuric acid.	In manufacture of dyes from tar, starting point of manufacture of aniline, chinoline, etc., perfumes.	Through respiratory organs and absorption through the skin.	Serious alteration in composition of blood and disturbance of central nervous system. The first symptoms of poisoning often do not appear until from 8 to 24 hours after the poison has entered the system. In SLIGHT CASES.—Discomfort, burning sensation in mouth, pricking of tongue, nausea, dizziness, slight bluish discoloration of lips and face. In SEVERE CASES.—Fear, drowsiness, unconsciousness, disturbed sensibility, as formication in legs, soles of feet, feeling like fur on the soles of the feet, roaring in ears, headache; derangement of coordination (staggering, stammering), deranged eyesight, spasms, at first pupil smaller, then enlarged; irregular breathing, tossing about, delirium, convulsions, sinking of temperature, bluish gray discoloration of skin; smell of breath, of urine, and of vomit like bitter almonds.

*Preventive measures:* Leading off of poisonous vapors; ventilation of room; perhaps use respirators.

A person who has breathed nitrobenzol should be removed from the poisonous atmosphere. The stomach should be emptied by an emetic or by a stomach pump; artificial respiration, breathing of compressed oxygen; infusion of alkaline salt solution.

<b>NITROUS GASES.</b> Lower stages of oxidation of N, as $NO$ , $NO_2$ . Red fuming nitric acid is a saturated solution of $N_2O_4$ in raw $HNO_3$ . $NO$ is colorless, but forms red-brown fumes in contact with $O$ of atmosphere, forming $NO_2$ . The same is formed when $HNO_3$ acts on metals. The anhydride of nitrous acid $N_2O_3$ is below $-20^\circ C$ . a blue liquid, splitting up in ordinary temperature into $NO$ and $NO_2$ . Nitrous acid, $HNO_2$ . The red fumes of $NO_2$ make the air unfit for breathing if occurring in less than 1 per cent.	Nitrification in chemical works, celluloid works, preparation of sulphuric acid, picric acid, aniline dyes, nitroglycerine and gun cotton, etching of metals, electro-metallurgy.	In gaseous form, through respiratory organs.	Susceptibility to nitrous gases varies greatly. It is not unusual for an individual for many years to inhale small quantities with no serious resulting disturbances. A pale, sallow complexion, however, and a chronic bronchial catarrh usually are present. Often the poisonous gases are borne for hours without any inconvenience, then a longing for fresh air and strong thirst set in. Vomiting rarely occurs. After some time (6 to 8 hours) irritation of windpipe, a feeling as if the throat were compressed, spasmodic cough, pressure on chest, difficult breathing, feeling of anxiety, cold perspiration on face, eyes standing out, snapping speech, attacks of spasmodic coughing, bluish discoloration of face, and coldness of limbs ensue. Consciousness, at first clear, but grows dim by degrees as the breathing grows more and more difficult and the amount of $CO_2$ in the blood increases; urine brown and scanty, containing colored matter from blood and albumen. Death through cedema of lungs.
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*Preventive measures:* Airy and well-ventilated workrooms; exhaustion of nitrous gases at the point of origin. In the cleaning of those receptacles in which nitrous gases are present, or may develop, they should be carefully washed and aired, perhaps with the use of a respiratory apparatus, with an air supply.

Great care must be exercised in the handling of nitric acid, when flowing; it should be much diluted with water from a hose or syringe. Persons with diseases of the heart or lungs should be excluded from all occupations involving the presence of the nitrous gases.

Removal from injurious atmosphere; admission of oxygen, in advanced cyanosis (bluish discoloration of mucous membranes and skin), bleeding, and infusion of alkaline sodium chloride. Every ten minutes 3 to 5 drops of chloroform as a drink in a glass of water (Weisskopf). Medical assistance.

## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>PHOSPHORUS, P:</b> Colorless, transparent; after action of light upon it, yellowish and shining like wax, luminous in atmosphere; heated to 250-300° C. in closed iron vessels, it changes into red or amorphous phosphorus, not acted on by atmospheric air; mostly said to be non-poisonous. Compounds of phosphorus (calcium, chlorine, copper, tin, phosphoric acid, phosphorus sesquisulphide, sulphophosphite).	Extraction of phosphorus from bone ash and mineral calcium phosphate, making of phosphorus bronze, and chemical compounds of phosphorus, manufacture of igniting substances, of matches, of tar dyes.	In form of vapor, through respiratory organs; through soiled fingers into digestive organs; acts always through blood.	<b>CHRONIC INTOXICATION.</b> —Chiefly necrosis of lower and upper jaw, but also of other bones of face and turbinated bones. According to some authors, to contract necrosis an infection is required, which (according to v. Stubenrauch) starts from the cavities of carious teeth or from collum dentis. Swelling and ulcers in gums and mucous membrane of cheeks; pain also in healthy teeth, loosening and dropping out of the same. The inflammation spreads to the periosteum and bone substance of the jaw; suppuration and destruction of the same (necrosis) with numerous fistulous canals, which sometimes break through to the outside; change of structure of the entire body of bones, which accounts for the brittleness; poor appetite, diarrhea, ashy complexion, emaciation; here and there amyloid degeneration of intestines. Decay of teeth is not a necessary condition under which phosphorus necrosis sets in.

*Preventive measures:* Exhaustion of vapors; removal of matter containing phosphorus; cleanliness of workrooms and of workmen; replacing of P in manufacture of matches through substances free from phosphorus. Workmen ought to be under medical observation; persons attacked ought to be removed permanently; early operation in case of necrosis.

<b>PICRIC ACID, C<sub>6</sub>H<sub>3</sub>(OH)(NO<sub>2</sub>)<sub>3</sub></b> , (acidum picnitrinum), or trinitrophenol: Pale yellow, when pure; bitter-tasting metal sheets.	Chemical works, dye works, explosives, manufacture of gunpowder.	In form of dust on skin of fingers and by the nostrils.	Itching and inflammation of skin, yellow coloration of skin and conjunctiva of eye; inflammation of mucous membrane of mouth, bitter taste, indigestion with pain in pit of stomach, vomiting (or inclination to vomiting), dizziness, diarrhea; entrance as dust by nasal cavity causes sneezing and discharge from nose. Picric acid decomposes the chemical constituents of the blood and produces convulsions through irritation of central nervous system.
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*Preventive measures:* Avoid raising dust; cleanliness, ablutions.



## LIST OF INDUSTRIAL POISONS—Continued.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>PRUSSIC ACID, HCN,</b> $\text{acidum hydrocyanicum}$ : Colorless, aqueous liquid of penetrating and acid odor. <b>POTASSIUM CYANIDE, KCN:</b> Colorless crystals; after melting crystalline; easily decomposed in atmospheric air, forming HCN. <b>RODAN COMPOUNDS, SCN:</b> Poisonous dose of HCN, 0.06 g.	Preparation of cyanogen compounds and many organic compounds, electrotyping, extraction of gold, photography, dyeing, printing, coal gas manufacture (gas lime). KCN in laboratory and photographic technology is much used. Cyanogen with silver and gold in electroplating. HCN or its salt is obtained in the preparation of oxalic acid from wood and $\text{HNO}_3$ ; Berlin blue from prussiate of potash and iron vitriol, and in dyeing with this substance; in preparing phosphoric acid from bones.	In gaseous form, through respiratory organs; in liquid or solid form, through skin.	<b>ACUTE INTOXICATION.</b> —Produced by moderate quantities of cyanogen compounds: Giddiness, headache, pressure of blood in head, pressure in chest, palpitation, feeling of being choked, nausea and vomiting, gasping breathing with consciousness maintained. To stage of dyspnea follows that of spasm, with cold, moist skin, convulsions, involuntary urination, loss of consciousness. In stage of suffocation temporary stoppage of breathing, lowering of heart action, bluish discoloration of skin and mucous membranes, fall of temperature of body. In breathing larger doses the stage of asphyxia is immediately entered upon; enlargement of pupils, unconsciousness, some gasping breaths, bluish discoloration of skin and mucous membranes; falling, death. <b>CHRONIC INTOXICATION.</b> —Headache, dizziness, hesitating gait, nausea, want of appetite; disturbance of gastric and intestinal activity.

*Preventive measures:* Exhaustion of Cy gases before entering workrooms; powerful ventilation; cleanliness of workmen, ablutions; an injunction never to touch Cy substances with open sores on hands.

<b>PYRIDINE, <math>\text{C}_5\text{H}_5\text{N}</math>:</b> Colorless liquid, intense and characteristic odor.	Preparation of tar from coal and bones; used in denaturation of spirits.	In form of vapor, through respiratory system; as a liquid, through skin of arms and hands.	Catarrh of mucous membranes, hoarseness, itching and choking in throat, headache, dizziness, lassitude and tremor of arms and legs, difficult breathing and convulsions; eczema of hands.
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*Preventive measures:* Ventilation of workrooms, conducting away of the vapors; cleanliness of hands and arms.

<b>SULPHUR CHLORIDE, <math>\text{S}_2\text{Cl}_2</math>:</b> Amber yellow, thickish, brownish liquid, turning in atmospheric air, giving off a vapor with a suffocating smell.	Dissolvent of sulphur, india rubber industry.	In form of vapor, through respiratory organs.	The vapor of chloride of sulphur is suffocating. If it enters the stomach it produces vomiting. In the presence of water or of the moisture of the air $\text{S}_2\text{Cl}_2$ breaks down into hydrochloric acid, sulphur, and sulphurous acid, forming the vapor of hydrochloric acid.
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*Preventive measures:* Wherever possible, use closed vessels and pipes (extraction of fats); lead off vapors from where they arise; good ventilation of rooms; avoid coming in contact with sulphur chloride with unprotected hands; removal of affected persons from poisonous atmosphere; medical treatment until disappearance of all traces of disease; best treated in hospitals.

## LIST OF INDUSTRIAL POISONS--Concluded.

Name of substance.	Industry where prepared or used.	Mode of entrance into body.	Symptoms of intoxication.
<b>SULPHURETTED HYDROGEN, <math>H_2S</math>:</b> Colorless gas with smell of rotten eggs, dissolving readily in water (aqua hydrosulphurata).	Occupation in sewers of towns, water-closets, muck pits; tanning, roasting of flax, coal gas manufacture, ultramarine works, Leblanc process, waters from various industries working with organic substances, making of matches use of compounds containing phosphorous and sulphur.	In gaseous form, through organs of respiration, as pure $H_2S$ ; frequently in mixed gases, as with $CO_2$ , $N$ , $NH_4$ , and carburetted hydrogen.	<b>GENERAL EFFECTS.</b> —Local irritation, disturbance of central nervous system; decomposition of blood (Instead of oxyhæmoglobin we obtain sulphur methæmoglobin). Most men only bear 0.01 per cent of $H_2S$ ; with 0.02 per cent, violent burning in eyes, nose, throat; with 0.05 per cent after 30 minutes, sore eyes, nasal catarrh, coughing, breathlessness, palpitation, lassitude, pressure in head, paleness, cold perspiration, numbness; with 0.07 to 0.08 per cent, after a few hours, sickness unto death; with 0.1 to 0.15 per cent, death. In serious cases pupils narrowed, pulse slackened, Cheyne-Stokes's breathing, nystagmus, trismus, tetanus. If air is charged with $H_2S$ , a person breathing it collapses, falls unconscious, and dies without convulsion (apoplectic form). In less violent cases indigestion, nausea, foul-smelling gases from stomach, reddening and inflammation of the conjunctiva, formation of blisters on the lips, cough-producing irritation, headache, and dizziness; with continued inhalation, spasms and paralysis. <b>CHRONIC INTOXICATION.</b> —Catarrh of conjunctiva, headache, exhaustion, deranged digestion, weakness, ashy complexion, bad-smelling breath, retardation of the pulse, inclination to boils.

*Preventive measures:* Exhaustion of gases; powerful ventilation; throw iron sulphate into cesspools (5 kg. per cubic meter) before cleaning; emptying with steam pumps. Speedy removal of unconscious workmen, removal of soiled clothing; artificial breathing, use of oxygen. Holding before nose and mouth a cloth saturated with a solution of hydrochloric acid or solution of bleaching powder (chloride of lime).

<b>SULPHUROUS ACID, <math>H_2SO_3</math></b> (acidum sulfurosum): Its anhydride is $SO_2$ ; gaseous, liquid under pressure; pungent, suffocating smell.	Roasting of sulphur ores, manufacture of sulphuric acid, of ultramarine, bleaching (straw hats, silk, wool, bristles, catgut), sulphite cellulose manufacture, sulphuring of hops and casks, making of candles, brickworks, potteries, for disinfecting purposes, manufacture of glue from bones.	In gaseous form, through respiratory organs.	In moderate concentration sulphurous acid may be borne without discomfort or harm. Some authors agree, indeed, that inhalation of $H_2SO_3$ in limited quantities even affords a certain measure of protection against tuberculosis. Susceptible persons show in the beginning of their employment in an atmosphere laden with sulphurous acid, a temporary irritation of the mucous membrane of the air passages. In severer cases spasmodic coughing, expectoration of tough, often bloody, mucus; under longer exposure, bluish discoloration of mucous membranes, bronchial catarrh, affection of windpipe similar to croup, also of its branches; in lungs patches of inflammation; digestion disturbed.
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*Preventive measures:* Powerful ventilation; exhaustion of gases; if possible transform them into acid; if necessary, masks should be provided with continuous supply of pure oxygen.

## INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION AND ITS PUBLICATIONS.

The work of the International Association for Labor Legislation may be described as international cooperation in the collection and publication of the labor laws of all countries, in the investigation of industrial conditions and the study of industrial problems, and in the formulation of legislation based on such investigation and study. The association works not only through its international conferences, which are held biennially, but continuously through its central organization, the International Labor Office at Basel, Switzerland, and its 14 affiliated national sections.

Its most important activity is the publication of a bulletin four times a year in German, French, and English, which contains the text of new labor laws, together with a record of legislative proceedings and the changes in administrative methods.

The lines of its work are determined primarily by its biennial meetings, where representatives of all the national sections take part. The plans of its investigations are worked out by the International Labor Office. It is the function of the international office, working through the various sections, to amass and classify information. This it does by calling upon the sections to draw up reports. These reports furnish the basis of discussion and action at the biennial meetings.

The result of such methods of work is that reports along similar lines from the various national sections furnish a most valuable body of information in regard to industrial conditions in the important industrial countries.

The range of subjects to which the association has already given attention has been deliberately limited because of the belief that effective results could much more readily be secured. Three subjects that have been before the association have already resulted in international treaties. These are:

Prohibition of the night work of women;

Prohibition of the use of white phosphorus in the manufacture of matches; and

Insurance of workmen against accidents.

The other leading subjects of study and action on the part of the association have been:

Regulation of the employment of children.

Prohibition of night work of young persons.

Regulation of the use of industrial poisons, especially lead.

Regulation of household industries or home work.

Administration of labor laws and factory inspection.

Legal limitation of the working day.

A description in detail of the organization and workings of the association and the International Labor Office was presented in Bulletin 54 of this Bureau and need not be repeated here. Following is a list of the publications of the International Association and the affiliated national sections. The list includes also a number of reports which, while not issued in the name of either the International Association or any of the national sections, are directly results of their activities and are, therefore, presented here as forming a part of the body of material which represents the work of the association.

#### **PUBLICATIONS OF THE INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION AND OF THE AFFILIATED NATIONAL ASSOCIATIONS.**

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##### **PUBLICATIONS OF THE INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.**

- Publication No. 1. International Association for Labor Legislation. Constitutional Assembly held at Basel, September 27 and 28, 1901. Reports and Proceedings. (*L'Association internationale pour la protection légale des travailleurs. Assemblée constitutive, tenue à Bâle les 27 et 28 septembre 1901. Rapports et compte-rendu des séances.*) Issued in German and French. Berne, Schmidt & Francke; Paris, Le Soudier; Jena, G. Fischer. 1901. XIV, 269 pp.
- Publication No. 2. Report of the second general meeting of the committee of the International Association for Labor Legislation, held at Cologne, September 26 and 27, 1902, together with the annual reports of the International Association and the International Labor Office. (*Compte-rendu de la deuxième Assemblée générale du Comité de l'Association internationale pour la protection légale des travailleurs, tenue à Cologne les 26 et 27 septembre 1902, suivi de rapports annuels de l'Association internationale et de l'Office international du travail.*) Issued in German and French. Berne, A. Francke; Paris, Le Soudier; Jena, G. Fischer. 1903. 82 pp.
- Publication No. 3. Report of the third general meeting of the committee of the International Association for Labor Legislation, held at Basel, September 26, 27, and 28, 1904, together with the annual reports of the International Association and the International Labor Office. (*Compte-rendu de la troisième Assemblée générale du Comité de l'Association internationale pour la protection légale des travailleurs, tenue à Bâle les 26, 27 et 28 septembre 1904, suivi de rapports annuels de l'Association internationale et de l'Office international du travail.*) Issued in German and French. Paris and Nancy, Berger-Levrault & Co.; Jena, G. Fischer. 1905. 176 pp.
- Publication No. 4. Two memorials presented to the governments of the chief industrial nations with a view to the convocation of an international conference for the protection of labor. (*Deux mémoires présentées aux gouvernements des états industriels en vue de la convocation d'une conférence internationale de protection ouvrière.*) Issued in German and French. Paris and Nancy, Berger-Levrault & Co.; Jena, G. Fischer. 1905. IV, 49 pp.

Publication No. 5. Report of the fourth general meeting of the International Association for Labor Legislation, held at Geneva, September 26 to 29, 1906, together with annual reports of the International Association and of the International Labor Office, and summaries. (*Compte-rendu de la quatrième assemblée générale du comité de l'Association internationale pour la protection légale des travailleurs, tenue à Genève les 26, 27, 28 et 29 septembre 1906, suivi de rapports de l'Association internationale et de l'Office international et du travail et de tableaux synoptiques.*) Issued in English, French, and German. London, The Labor Representation Printing and Publishing Co. (Limited); Paris and Nancy, Berger-Levrault & Co.; Jena, G. Fischer. 1907. XVI, 163 pp.

Publication No. 6. Report of the fifth general meeting of the committee of the International Association for Labor Legislation, held at Lucerne, September 28 to 30, 1908, together with the annual reports of the International Association and of the International Labor Office, 1909. (*Compte-rendu de la cinquième assemblée générale du comité de l'Association internationale pour la protection légale des travailleurs, tenue à Lucerne les 28, 29 et 30 septembre 1908, suivi de rapports annuels de l'Association internationale et de l'Office international du travail.*) 1909.

Bulletin of the International Labor Office:

Vol. I. Jan. to Dec., 1902. lxii, 730 pp.

Vol. II. Jan. to Dec., 1903. cvi, 790 pp.

Vol. III. Jan. to Dec., 1904. lxiv, 590 pp.

Vol. IV. Jan. to Dec., 1905. xx, 556 pp.

Vol. V. Jan. to Dec., 1906. xv, 774 pp.

Vol. VI. Jan. to Dec., 1907. xlv, 780 pp.

Vol. VII. Jan. to Dec., 1908. 579 pp., 88 pp.

Vol. VIII. Jan. to Dec., 1909. (Not yet complete.)

From the beginning the Bulletin of the International Labor Office has been printed in French and German, and beginning with Volume V it has also appeared in English. The English edition is merely a translation of the German and French editions, and in this edition the volume numbering of the original has not been followed. What is known as Volume I of the English edition closely corresponds to Volume V of the German and French editions.

A bibliography has been issued as a part of the Bulletin each year since the beginning in three to five numbers. However, beginning with the French and German edition, Volume VII, 1908, and the English edition, Volume II, this bibliography has been issued as a supplement and paged separately.

#### REPORTS AND MISCELLANEOUS PUBLICATIONS.

These reports and publications are not parts of the regular series of the International Association for Labor Legislation, or the national sections, but were prepared by or for the association or its sections.

Unhealthful trades: Reports upon the dangers and the means of preventing them, particularly in the match industry and in those industries which make or employ lead colors. (*Les industries insalubres. Rapports sur leurs dangers et les moyens de les prévenir, particulièrement dans l'industrie des allumettes et celles qui fabriquent ou emploient des couleurs de plomb.*) Published in the name of the International Association for Labor Legislation and preceded by a preface by Dr. Stephen Bauer, professor at the University of Basel and Director of the International Labor Office. Jena, G. Fischer; Berne, A. Francke; Paris, Le Soudier. 1903. LX, 460 pp.

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**Night work of women in industry.** Report upon its importance and its legal regulation. (Le travail de nuit des femmes dans l'industrie. Rapports sur son importance et sa réglementation légale.) Published in the name of the International Association for Labor Legislation and preceded by a preface by Dr. Stephen Bauer, professor at the University of Basel and Director of the International Labor Office. Jena, G. Fischer; Berne, A. Francke; Paris, Le Soudier. 1903. XLII, 382 pp.

**Comparative table of the legislative measures of the different States concerning the employment of women at night in industry.** Presented to the International Conference for the Protection of Labor at Berne. (Tableau comparatif des mesures législatives des états représentés à la Conférence Internationale de protection ouvrière de Berne, concernant l'interdiction du travail de nuit des ouvrières dans l'industrie.) 1905. 6 pp., 1 table. (Out of print.)

**Summary of the most recent reports of the inspectors of labor.** Presented to the International Conference for the Protection of Labor at Berne. (Exposé sommaire du contenu les plus récents rapports des inspecteurs du travail. Présenté à la Conférence internationale de protection ouvrière de Berne. 1905. 9 pp. (Out of print.)

**Lead smelting. A study in industrial hygiene.** (Les fonderies de plomb.) By M. Boulin. 1907. Submitted in the international prize competition for essays on the prevention of lead poisoning held under the direction of the International Labor Office. Reprinted from the Bulletin de l'Inspection du Travail, Paris, 1906, Nos. 5 and 6.

**Lead poisoning in printing offices and type foundries.** (Le saturnisme dans la typographie. Imprimeries et fonderies de caractères.) By M. Ducrot. Submitted in the international prize competition for essays on the prevention of lead poisoning held under the direction of the International Labor Office. Printed in the Bulletin de l'Inspection du Travail, Paris, 1906, Nos. 5 and 6.

**Combating lead poisoning in industry.** (Die Bekämpfung der Bleigefahr in der Industrie.) Prepared at the request of the International Labor Office, based on essays submitted in the international prize competition for the prevention of lead poisoning, by Dr. Leymann. Jena, G. Fischer, 1908.

**Combating lead poisoning in lead smelters.** (Die Bekämpfung der Bleigefahr in Bleihütten.) By Richard Müller. Submitted in the international prize competition for essays on the prevention of lead poisoning held under the direction of the International Labor Office. Jena, G. Fischer, 1908. 207 pp.

**Draft of a list of industrial poisons.** (Entwurf einer Liste der gewerblichen Gifte.) Prepared at the request of the International Association for Labor Legislation, by Dr. Theodore Sommerfeld with the cooperation of Dr. Thomas Oliver and Dr. Felix Putzeys. Jena, G. Fischer, 1908. 26 pp.

**International Association for Labor Legislation.** Draft of a memorial on the international regulation of conditions of labor in the machine-embroidery industry in Eastern Switzerland and Vorarlberg. (Association Internationale pour la protection légale des travailleurs, 1908. Projet de Mémoire sur la réglementation internationale des conditions du travail dans l'industrie de la broderie mécanique à fil continu de la Suisse orientale et du Vorarlberg.) 1908.

**Report on the library of the International Labor Office from August 1, 1906, to August 1, 1908.** (Bericht über die Bibliothek des Internationalen Arbeitsamtes vom 1. August 1906 bis zum 1. August 1908.)

**Reply of the French Association for Labor Legislation to the questionnaire of the International Labor Office concerning the hours of labor of adult women in the textile industry.** (Réponse de l'Association nationale française pour la protection légale des travailleurs au questionnaire de l'Office international du travail concernant la durée du travail des femmes adultes—Industrie textile.) Paris, 1907. 7 pp.

Tables from reply of British Association for Labor Legislation to certain questions drawn up by the International Labor Office respecting conditions of work in the textile industry. 1908.

Reply for the eighth inspection district of Holland (province of Overijssel) to the questionnaire of the International Labor Office concerning the hours of labor of adult women in the textile industry. (Aus der Beantwortung des Fragebogens des Internationalen Arbeitsamts betreffend die Arbeitszeit der erwachsenen Frauen in der Textilindustrie für den Bezirk der Sten Arbeitsinspektion (Provinz Overijssel).) By Js. P. de Vooy. 1908.

Preliminary report on the administration of labor laws. (Provisorische Beantwortung der Fragebogen betreffend Durchführung der Arbeiterschutz-Gesetzgebung.) Presented at the fifth general meeting of the International Association for Labor Legislation, Lucerne, 1908—in typewritten form only.

International Conference for the Protection of Labor. (Conférence Internationale pour la protection ouvrière.) Berne, 1906. Issued in French and German.

International Diplomatic Conference for the Protection of Labor. Berne, 1906. Issued in French and German.

The first of these two conferences met to consider the terms to be used as the bases of international agreements for the prohibition of the use of white phosphorus in the manufacture of matches and of the night work of women. The second conference was a meeting of accredited diplomatic representatives to whom the draft treaties prepared by the first conference were submitted for final action and signature.

#### AMERICAN ASSOCIATION FOR LABOR LEGISLATION.

Proceedings of the second annual meeting of the American Association for Labor Legislation, held at Atlantic City, N. J., December 29 to 30, 1908. 1909.

Some fundamental distinctions in labor legislation, by Henry W. Farnham, president of the American Association for Labor Legislation. 1909.

The American way of distributing industrial accident losses, by Crystal Eastman, secretary New York State branch, American Association for Labor Legislation. 1909.

What form of workingmen's accident insurance should our States adopt? By Max. O. Lorenz, member of the local executive council, American Association for Labor Legislation. 1909.

Canadian industrial disputes, by Adam Shortt and Victor S. Clark. 1909.

Industrial hygiene, Leaflet No. 1, American Association for Labor Legislation. Proposed investigation of occupational diseases. 1909.

The bulletin of the I. L. O., Leaflet No. 2, American Association for Labor Legislation. A critical announcement. 1909.

Report of general administrative council meeting, American Association for Labor Legislation, Chicago, April, 1909. 1909.

Employers' liability, publication New York State branch, American Association for Labor Legislation. No. 1. By Crystal Eastman.

Review of labor legislation of 1909, Legislative Review No. 1, American Association for Labor Legislation. By Irene Osgood, assistant secretary American Association for Labor Legislation. 1909.

Summary of labor laws in force 1909, Legislative Summary No. 1, American Association for Labor Legislation. John R. Commons, editor. 1909.

Industrial education, by Edward C. Elliott. 1909.

Administration of labor laws, by Charles B. Austin.

Woman's work, by Maud Swett.

Child labor, by Laura Scott.

## AUSTRIAN ASSOCIATION FOR LABOR LEGISLATION.

[Österreichischen Gesellschaft für Arbeiterschutz.]

- Publication No. 1. Night work of women in industrial establishments in Austria. (Die gewerbliche Nachtarbeit der Frauen in Oesterreich.) By Ilse v. Arlt. 1902.
- Publication No. 2. Report on uniform international accident statistics for the purpose of prevention of accidents to laborers. (Bericht über eine einheitliche internationale Unfallstatistik zu Zwecken der Verhütung von Unfällen bei der Arbeit.) By Karl Kögler and Gustav Packer von Theinburg. 1902.
- Publication No. 3. Lead and phosphorus poisoning in Austrian industrial establishments. (Blei- und Phosphorvergiftungen in den gewerblichen Betrieben Oesterreichs.) By Dr. Ignaz Kaup. 1902.
- Publication No. 4. Building on leased ground. (Bauten auf fremden Grund.) By Dr. Karl Grünberg. Vienna, 1903. 95 pp.
- Publication No. 5. City building regulations with special regard to the housing problem. (Städtische Bauordnungen mit besonderer Berücksichtigung der Wohnungsfrage.) By Karl Meyreder. 1903.
- Publication No. 6. Dwelling exchanges and inspection. (Wohnungsämter und Wohnungsinspektion.) By Dr. Emil Ritter von Furth. Vienna, 1905. 67 pp.
- Publication No. 7. The standard working day in industry and mining in Austria. (Die Normalarbeitstag in den gewerblichen Betrieben und im Bergbaue Oesterreichs.) By Dr. Karl Pribam. 1906.
- Publication No. 8. Night work of young persons and children in industrial establishments in Austria. (Die gewerbliche Nachtarbeit der jugendlichen Arbeiter und Kinder in Oesterreich.) By Dr. N. Herbst.
- Publication No. 9. The Austrian workmen's insurance and its relation to foreign laborers. (Die österreichische Arbeiterversicherung und die Ausländer.) By K. Kögler. 1906.
- Publication No. 10. Household industry in Austria. (Die Heimarbeit in Oesterreich.) By Dr. Michael Hainisch. 1906.
- Publication No. 11. Night work of young persons in Austrian industry. (Die Nachtarbeit der Jugendlichen in der österreichischen Industrie.) By Karl Hauck, factory inspector. 1907.
- Publication No. 12. (a) Phosphorus necrosis: Its extent in Austria, and its causes. (Die Phosphornekrose, ihre Verbreitung in Oesterreich und deren Ursachen.) By Dr. Ludwig Teleky. 1907.
- (b) Combating lead poisoning in metallurgic and industrial establishments. (Die Bekämpfung von Bleierkrankungen in hüttenmannischen und gewerblichen Betrieben.)
- (c) Report of the Austrian Association for Labor Legislation. (Bericht der österreichischen Gesellschaft für Arbeiterschutz.)
- Publication No. 13. The ten-hour day in the textile and clothing industries in Austria. Report made to the International Association for Labor Legislation by Hedwig Lemberger. (Der Zehnstundentag in der Fabrikmässigen Betrieben der Textil- und Bekleidungsindustrie Österreichs. Bericht erstattet der Internationalen Vereinigung für Gesetzlichen Arbeiterschutz von Hedwig Lemberger.) 1909.

## BELGIAN SECTION OF THE INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.

[Section belge de l'Association internationale pour la protection légale des travailleurs.]

- No. I. Night work of women in Belgium. (Le travail de nuit des femmes en Belgique.) By Louis Varlez, advocate of the court of appeals of Ghent. 1902.
- No. II. Report upon night work of women in industry. (Rapport sur le travail de nuit des femmes dans l'industrie.) By M. E. Dubois, professor at the University of Ghent. 1902.



- No. III. Unhealthful industries in Belgium. (*Les industries insalubres en Belgique.*) By H. Vanderrijdt, engineer. 1902.
- No. IV. Replies to the questionnaires [in regard to lead, phosphorus, and match manufacture] of the International Labor Office. (*Réponses aux questionnaires de l'Office international du travail.*) By Laurent Dechesne. 1902.

The first four publications of the Belgian section are reported to be out of print. Nos. I and II appear in the publication of the International Association entitled "*Le travail de nuit des femmes dans l'industrie,*" and Nos. III and IV appear in the publication of the International Association entitled "*Les industries insalubres.*"

- No. V. Night work of young persons in Belgium. (*Le travail de nuit des jeunes ouvriers en Belgique.*) By Victor Brants, professor at the University of Louvain. 1906.
- No. VI. Note on household industries in Belgium. (*Note sur le travail à domicile en Belgique.*) By Ch. Genart. 1906.
- No. VII. Plan of an international agreement relative to accidents to laborers. (*Projet de convention internationale relative aux accidents du travail.*) By M. L. Woden, professor at the free University of Brussels. Liège, Bénard, 1907. 11 pp.
- No. VIII. Household industries in Belgium considered in relation to foreign competition. (*Les industries à domicile en Belgique vis-à-vis de la concurrence étrangère.*) By Armand Julin, Director of the Office of Labor. Liège, Bénard, 1908. 150 pp.
- No. IX. Note on the inspection of labor in Belgium. (*Note sur l'inspection du travail en Belgique.*) By Ernest Mahaim, professor at the University of Liège. Liège, Bénard, 1908. 22 pp.
- No. X. Plans for the limitation of the hours of labor of adults in Belgium. (*Les projets de limitation de la durée du travail des adultes en Belgique.*) By Hector Denis, member of the Chamber of Representatives and professor at the free University of Brussels. Liège, Bénard, 1908. 34 pp.

#### BRITISH ASSOCIATION FOR LABOR LEGISLATION.

- Legal limitation of hours of work in industry and commerce in the United Kingdom. Report by Miss Sophy Sanger. 1906.
- Conditions of home work in the United Kingdom. Report by Mrs. J. Ramsay MacDonald. 1906.
- Night work of young persons in the United Kingdom. Report by Mrs. H. J. Tennant. 1906.
- Report for the two years 1905-1907.
- Report for the two years 1907-1908.
- Report on the administration of labor laws in the United Kingdom. By Miss Sophy Sanger. London, 1908. 48 pp.
- Report on the employment of children in the United Kingdom. By Miss Constance Smith. London, 1908. 32 pp.

#### DANISH ASSOCIATION FOR LABOR LEGISLATION.

[Dansk Forening for Arbejderbeskyttelse.]

- No. 1. Night work of young persons in Denmark. (*Die Nachtarbeit der Jugendlichen in Dänemarck.*) By V. L. Faber. 1907. 7 pp.
- No. 2. Combating the dangers of industrial poisons in industry. (*Om Bekæmpelsen af Faren ved Anvendelsen af Giftstoffer i industrielle Virksomheder.*) By Dr. N. P. Schierbeck. 1908.
- No. 3. Report of the work of the Danish section from April 10, 1906, to December 31, 1907. (*Beretning om Virksomheden. Omfattende Tiden fra 10. April 1906 til 31. December 1907.*)

- No. 4. Dust in industry and how to combat it. (Stov i industrien og dets Bekæmpelse.) By J. T. Lundbye. 1908.
- No. 5. Report on a journey in England. (Beretning fra en Rejse i England.) By Dr. N. P. Schierbeck. 1908.
- No. 6. Report of the work of the Danish section from January 1, 1908, to December, 1908. (Beretning om Virksomheden fra 1. Januar 1908 til 31. December 1908.)

#### DUTCH ASSOCIATION FOR LABOR LEGISLATION.

[Nederlandsche Vereeniging voor Wettelijke Bescherming van Arbeiders.]

- Insurance for industrial accidents. Review of the law on accidents in industry, in reference to workshops. (De schadeloostelling bij Bedrijfsongevallen. Overzicht van de Ongevallen- en de Beroepswet, in het Bijzonder voor Werktieden.) By A. Slotemaker.
- Regulations of the Netherlands Parliament concerning compulsory accident insurance of those persons who work outside the country in which they and their relatives (family) dwell. (Die Bestimmungen der niederländischen Gesetzgebung über die obligatorische Unfallversicherung betr. Personen, die ausserhalb des Landes arbeiten, in dem sie selbst und ihre Angehörigen wohnen.) By Dr. E. Fokker.
- Industrial poisons other than lead and phosphorus in Netherlands. (Die gewerblichen Gifte mit Ausnahme von Blei und Phosphor in den Niederlanden.) By Js. P. de Vooyo.
- Labor laws, including laws relating to factory regulation and inspection with decisions thereon, preceded by a review of their provisions. (De Arbeidswet en de Veiligheidswet, alsmede de daarbij behorende Koninklijke Besluiten, voorafgegaan door een overzicht van hun voorschriften.) 's Gravenhage, 1902. 111 pp.
- Hours of labor in the Dutch textile industry. (Die Arbeitsdauer in der niederländischen Textilindustrie.) By Dr. Alph. Ariens zu Steenderen. 1906.
- Regulations of the Dutch Parliament concerning excessive and unhealthful labor of young persons and women, relative to home work and household trades. (Die Bestimmungen der niederländischen Gesetzgebung gegen Übermässige und gefährliche Arbeit junger Personen und Frauen bezüglich die Heimarbeit und Hausindustrie.) By H. W. E. Struve, labor inspector. 1906.
- Hours of labor in the Dutch mining industry. (Die Arbeitszeit in den niederländischen Bergwerken.) By C. B. Blankevoort. 1908. 14 pp.
- Night work of young persons in the Netherlands. (Die Nachtarbeit jugendlicher Personen in den Niederlanden.) By G. J. van Thienen. Amsterdam, 1908. 14 pp. Supplementary report to the above. By J. van Thienen.
- Report on lead poisoning in the polygraphic industry in the Netherlands. (Bericht über die Bleivergiftungen in den polygraphischen Gewerben in den Niederlanden.) By Js. P. de Vooyo. 1908.
- Report on the prohibition of the use of lead colors, and on experiments with leadless colors in the Netherlands. (Bericht über das Verbot des Gebrauches von Bleifarben und über die Versuche mit bleifreien Farben in den Niederlanden.) By P. Bakker-Schut. Amsterdam, 1908. 21 pp.
- Lead poisoning in the Dutch ceramic industry. (Bleivergiftungen in der niederländischen keramischen Industrie.) By Js. P. de Vooyo. Amsterdam, 1908. 83 pp.
- No. 2. Opinions concerning the legal limitation of the hours of labor of adult laborers. (Praeadviezen over wettelijke regeling van den arbeids duur voor volwassen arbeiders.) By F. M. Wibant, H. Smislaert and Ch. Stulemeyer. 1908. 185 pp.

- No. 3. Stenographic report of the meeting of the Dutch Association for Labor Legislation on Thursday, November 19, 1908. Conference on the legal limitation of the hours of labor of adult laborers. (*Stenographisch verslag der vergadering der Nederlandsche Vereeniging voor Wettelijke Bescherming der Arbeiders op Donderdag 19 November 1908. Bespreking van wettelijke regeling van den arbeidsduur voor volwassen arbeiders.*) 1909. 136 pp.
- No. 4. Legislation concerning household industry in foreign countries. Association for the Netherlands exposition of household industry. (*Wetgeving betreffende de huisindustrie in het buitenland. Vereeniging voor de Nederlandsche Tentoonstelling van Huisindustrie.*) Compiled by J. F. G. van Buttingha Wichers with the cooperation of Mr. J. Hingst. Amsterdam, 1909. 204 pp.

## FRENCH SECTION OF THE INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.

[L'Association nationale française pour la protection légale des travailleurs.]

## FIRST SERIES.

The first series, consisting in all of ten monographs, has been printed in a single volume. These monographs have also appeared separately, as follows:

- No. I. Legal protection of women before and after childbirth. (*La protection légale des femmes avant et après l'accouchement.*) Report by Dr. Fauquet. 1904.
- No. II. Weekly regulation of the duration of labor: The Saturday holiday. (*La réglementation hebdomadaire de la durée du travail: Le repos du samedi.*) Reports by Ivan Strohl, manufacturer, and François Fagnot of the Office of Labor. 1904.
- No. III. Age of admission of children to industrial employment: The half-time system. (*L'âge d'admission des enfants au travail industriel: Le travail de demi-temps.*) Report by Étienne Martin-Saint-Léon.
- No. IV. The Consumers' League. (*La ligue sociale d'acheteurs.*) Report by Mme. Henriette Jean Brunhes.
- No. V. Legal protection of the employee and the regulation of labor in stores. (*La protection légale de l'employé et la réglementation du travail des magasins.*) Report by A. Artaud.
- No. VI. Regulation of the duration of labor in mines. (*La réglementation de la durée du travail dans les mines.*) Report by Abbé Lemire, deputy. 1904.
- No. VII. Regulation of household industries. (*La réglementation du travail en chambre.*) Report by François Fagnot of the Office of Labor. 1904.
- No. VIII. Protection of native labor in the colonies. (*La protection des travailleurs indigènes aux colonies.*) Report by René Pinon. 1904.
- No. IX. Employment of children in theaters and concert-cafés. (*L'emploi des enfants dans les théâtres et cafés-concerts.*) Report by Raoul Jay. 1904.
- No. X. Right of direct citation by associations. (*Le droit de citation directe pour les associations.*) Report by Henri Hayem. 1904.

## SECOND SERIES.

Legal duration of labor. Proposed modification of the law of 1900. (*La durée légale du travail. Des modifications à apporter à la loi de 1900.*) Reports by MM. Fagnot, Millerand and Strohl. 1905. 300 pp.

## THIRD SERIES.

The eight pamphlets following were printed as one volume in 1907. The separate pamphlets appeared during the years 1905, 1906, and are entitled as follows:

- No. I. Prohibition of the use of white lead in the painting trade. (*L'interdiction de la céruse dans l'industrie de la peinture.*) Report by J. L. Breton, deputy.

- No. II. The official conference at Berne. (*La conférence officielle de Berne.*) Report by A. Millerand, president of the French Association for Labor Legislation.
- No. III. Regulation of the hours of labor. (*Le contrôle de la durée du travail.*) Report by Georges Alfassa.
- No. IV. Legal protection of children employed outside of industry.—I. The English law. (*La protection légale des enfants occupés hors de l'industrie.—I. La loi anglaise.*) Report by Édouard Dolléans.
- No. V. Legal protection of children employed outside of industry.—II. The German law. (*La protection légale des enfants occupés hors de l'industrie.—II. La loi allemande.*) Report by Henri Moysset.
- No. VI. Legal protection of children employed outside of industry in France.—III.—The situation in France. (*La protection légale des enfants occupés hors de l'industrie en France.—III. La situation en France.*) Communications by Abbé Meny, Gemahling, Mlle. Blondelu, MM. Georges Piot, Raoul Jay, Léon Vignols.
- No. VII. Extension of the law of December 29, 1900, to women employed in industry. (*De l'extension de la loi du 29 décembre 1900 aux femmes employées dans l'industrie.*) Report by Madame de la Ruelle, inspector of labor.
- No. VIII. The strike and the organization of labor. (*La grève et l'organisation ouvrière.*) Communication by M. A. Millerand, president of the Association.

## FOURTH SERIES.

The labor contract. (*Le contrat de travail.*) Reports by M. Perreau, professor of law at the University of Paris, and by François Fagnot, investigator for the Ministry of Labor. 1907. 218 pp.

## FIFTH SERIES.

- No. I. Conciliation in strikes and the work of the Northern Section of the French Association for Labor Legislation. (*La conciliation dans les conflits collectifs et les travaux de la Section du Nord de l'Association.*) Report of M. Aftalion, 1907. 84 pp.
- No. II. The law of the 7th of March, 1850, and the measurement of piecework. (*La loi du 7 mars 1850 et le mesurage du travail à la tâche.*) Report by Adeodat Boissard. 1907. 88 pp.
- No. III. The labor contract and the civil code. (*Le contrat du travail et le code civil.*) Reports by C. Perreau and Arthur Groussier. 1908. 261 pp.
- No. IV. The reform of labor inspection in France. (*La réforme de l'inspection du travail en France.*) Report of Eugène Petit.
- No. V. Collaboration of organized labor in the work of factory inspection. (*Collaboration des ouvriers organisés à l'œuvre de l'inspection du travail.*) Report by Henri Lorin. 1909.
- No. VI. Industrial accidents in agriculture. (*Les accidents du travail dans l'agriculture.*) Report by Henri Capitant. 1909.

REPORTS PRESENTED BY THE FRENCH ASSOCIATION FOR LABOR LEGISLATION TO THE FOURTH GENERAL MEETING OF THE INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION, HELD AT GENEVA SEPTEMBER 26-29, 1906.

- Night work of young persons in French industries. (*La travail de nuit des adolescents dans l'industrie française.*) Report by Étienne Martin-Saint-Léon. 1906. 55 pp.
- Industrial poisons. (*Les poisons industriels.*) Report by Georges Alfassa. 1906.
- Workmen's insurance and foreign laborers. (*L'assurance ouvrière et les ouvriers étrangers.*) Report by Henri Barrault. 1906. 10 pp.
- Legal limitation of the working day in France. (*La limitation légale de la journée de travail en France.*) Report by Raoul Jay. 1906. 92 pp.
- Household industries in France, especially in the region of Lyons. (*Le travail à domicile en France et spécialement dans la région Lyonnaise.*) Reports by Paul Pic and A. Amieux. 1906. 12 pp.

**PUBLICATIONS OF THE FRENCH ASSOCIATION FOR LABOR LEGISLATION, NOT APPEARING IN THE REGULAR SERIES.**

- Note on the industrial employment of children. (Note sur le travail industriel des enfants.) Report by Georges Alfassa. 1908. 37 pp.
- Report on night work of children in factories with continuous fire. (Rapport sur le travail de nuit des enfants dans les usines à feu continu.) Report by François Fagnot. 1908. 56 pp.
- The securing of equality between native and foreign laborers from the point of view of indemnity for industrial accidents by means of an international agreement. (La réalisation de l'égalité entre nationaux et étrangers au point de vue de l'indemnisation des accidents du travail par voie de convention internationale.) Report by A. Boissard. Paris, 1908. 10 pp.
- Hours of labor of adult women in the clothing industry in France. (La durée du travail des femmes adultes dans l'industrie du vêtement en France.) By Mme. Henriette Jean Brunhes. Paris, 1909. 34 pp.

**PUBLICATIONS OF THE NORTHERN SECTION OF THE FRENCH ASSOCIATION FOR LABOR LEGISLATION.**

- Night work of children in factories with continuous fire. (Le travail de nuit des enfants dans les usines à feu continu.) By M. Lévêque. Lille, 1909. 48 pp.
- Prevention of accidents on railway sidings connected with factories. (La prévention des accidents sur les voies ferrées des usines.) Report by M. Lévêque. 1909. 33 pp.

**GERMAN SECTION, INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.**

[Gesellschaft für Soziale Reform.]

- Publication No. 1. The organization of the Office of Labor Statistics of Germany. (Die Errichtung eines Reichsarbeitsamtes.) By Dr. Pachnicke, member of the Reichstag, and Dr. Freiherr von Berlepsch, Minister of State. Jena, G. Fischer, 1901.
- Publication No. 2. Organization of workmen for trade purposes. (Die Arbeiterberufsvereine.) By Von Bassermann, member of the Reichstag, and J. Giessberts, labor secretary. 1901.
- Publication Nos. 3 and 4. Protection of labor in hotels and public houses. (Arbeiterschutz in Gast- und Schankwirtschaften.) By Prof. Dr. K. Oldenberg. 1902.
- Publication No. 5. Right of union and meeting as opposed to the right of coalition. (Vereins- und Versammlungsrecht wider die Koalitionsfreiheit.) By Ferdinand Tönnies. 1902.
- Publication No. 6. Legal status of the gardening industry. (Die Rechtsverhältnisse im Gärtnergewerbe.) By M. von Schulz and Franz Behrens. 1902.
- Publication Nos. 7 and 8. Reduction of the hours of labor for women, and raising of the age at which young persons in factories shall be subject to protection. (Die Herabsetzung der Arbeitszeit für Frauen und die Erhöhung des Schutzesalters für jugendliche Arbeiter in Fabriken.) By Dr. August Pieper and Helene Simon, together with a report of the first meeting of the German Association for Labor Legislation, held at Cologne. 1903.
- Publication No. 9. Laborers' cooperative societies. (Arbeiterkonsumvereine.) By Dr. Reinhold Riehn and J. Giesberts. 1903.
- Publication No. 10. Law concerning the employment of children in industry, of March 30, 1903. (Gesetz betreffend Kinderarbeit in gewerblichen Betrieben. Vom 30. März 1903.) By Konrad Agahd and M. von Schulz. 1905.
- Publication No. 11. Why do we urge social reform? (Warum betreiben wir die soziale Reform?) By Dr. Freiherr von Berlepsch, Minister of State. Together with a report of the activity of the German Association for Labor Legislation in 1903.

Publication No. 12. The Dutch chambers of labor. (Die holländischen Arbeitskammern.) By Dr. Bernhard Harms.

The labor councils of France. (Die Arbeitsräte in Frankreich.) By Prof. Raoul Jay. 1903.

Publication No. 13. The organization of industry and labor councils in Belgium. (Die Organisation der Industrie- und Arbeitsräte in Belgien.) By Louis Varlez. 1904.

Publication No. 14. The Italian chambers of labor. (Die italienischen Arbeitskammern.) By Dr. Pinardi and Dr. Schiavi. With a supplement concerning the chambers of labor of Switzerland and the labor councils of France. 1904.

Publication No. 15. The municipal tax problem. (Kommunale Steuerfragen.) By Dr. A. Wagner and Dr. Preuss. 1904.

Publication No. 16. The second general meeting of the German Association for Labor Legislation, held at Mainz, Oct. 14-15, 1904. Reports and transactions concerning chambers of labor and cooperative societies. 1904. (Die zweite Generalversammlung der Gesellschaft für Soziale Reform. Mainz, 14. und 15. Oktober 1904. Referate und Verhandlungen über Arbeitskammern und Konsumvereine.)

Publication No. 17. A collection of papers upon the mine workers' strike in the Ruhr district. (Aufsätze über den Streik der Bergarbeiter im Ruhrgebiet.) 1905.

Publication No. 18. Eight opinions concerning the Sunday holiday in commercial occupations, rendered by organizations of commercial assistants at the instance of the executive committee of the German Association for Labor Legislation. (Acht Gutachten über die Sonntagsruhe im Handelsgewerbe, erstattet von kaufmännischen Gehilfenvereinen auf Ansuchen des Vorstandes der Gesellschaft für soziale Reform.) 1905.

Publication No. 19. The representation of salaried officials in chambers of labor. (Die Vertretung der Angestellten in Arbeitskammern.) By Dr. Heinz Pothoff. 1905.

Publication No. 20. Investigation into the household industries of Germany. (Untersuchungen über die Hausindustrie in Deutschland.) By Dr. Rudolf Meerwarth. 1906.

Publication No. 21. Proposals for the organization of chambers of labor in Germany. Ten opinions. (Vorschläge zur Gestaltung der Arbeitskammern in Deutschland.) 1906.

Publication No. 22. Industrial conciliation and arbitration in England and Scotland. (Gewerbliches Einigungswesen in England und Schottland.) By Dr. Waldemar Zimmermann. 1906.

Publication Nos. 23 and 24. Methods of industrial conciliation and arbitration. (Methode des gewerblichen Einigungswesens.) 1907.

Publication No. 25. Salaried officials and the insurance law. (Die Privatbeamten und die Versicherungsgesetzgebung.) By Dr. Silbermann, Alfons Ennesch, and C. Eichler. 1908.

Publication No. 26. The service contract of salaried officials. I. (Der Dienstvertrag der Privat-Angestellten.) 1908.

Publication No. 27. The service contract of salaried officials. II. (Der Dienstvertrag der Privat-Angestellten.) 1908.

#### MISCELLANEOUS PUBLICATIONS OF THE GERMAN ASSOCIATION FOR LABOR LEGISLATION.

Administration of labor laws and factory inspection in Germany. (Die Ausführung der Arbeiterschutzgesetze und die Gewerbeinspection in Deutschland.) By Prof. W. Kähler. 1908. 48 pp.

Legal protection of children and child labor in Germany. (Kinderschutz und Kinderarbeit in Deutschland.) By Fr. Lösser. 1908. 16 pp.

- Hours of labor of miners, men employed in foundries, and rolling mills, and of women employed in factories. (*Die Arbeitszeit der Bergleute, Hütten- und Walzwerker und der Fabrikarbeiterinnen.*) By Rosenberg-Lepinsky, Giesberts, and Dr. E. van den Boom. 1908. 66 pp.
- The chief household industries of Germany which export their products. (*Die hauptsächlich am Export beteiligten Hausindustrien Deutschlands.*) By Dr. Rudolf Meerwarth. 1908. 70 pp.
- Lead poisoning in the ceramic industry. (*Bleivergiftungen in der keramischen Industrie.*) By Dr. Kaup. 1908. 54 pp.
- Hygienic conditions in the polygraphic industry of Germany, with special reference to lead poisoning. (*Die Gesundheitsverhältnisse im polygraphischen Gewerbe Deutschlands mit besonderer Berücksichtigung der Bleivergiftung.*) By Dr. Martin Hahn. 1908. 59 pp.
- International agreements concerning workingmen's insurance, together with a draft of an international agreement concerning accident insurance. (*Die Staatsverträge über Arbeitversicherung, nebst Entwurf zu einem internationalen Abkommen über Unfallversicherung.*) By Prof. Dr. Ludwig Lass. 1908. 49 pp.
- Report of the German Section of the International Association for Labor Legislation for the years 1907 and 1908. (*Die Tätigkeit der Gesellschaft für soziale Reform in den Jahren 1907 und 1908.*)
- Draft of a list of industrial poisons. (*Der Entwurf einer Liste der gewerblichen Gifte.*) Prepared by the International Association for Labor Legislation, by Dr. Fischer, Director of the Institute of Industrial Hygiene, Frankfort-on-the-Main. Frankfort, 1910. 48 pp.

#### HUNGARIAN ASSOCIATION FOR LABOR LEGISLATION.

[Ungarische Vereinigung für gesetzlichen Arbeiterschutz.]

- Publication No. 1. The occurrence of lead poisoning in the pottery industry of Hungary. (*Über die im ungarischen Tonwarengewerbe vorkommenden Bleivergiftungen.*) By Dr. B. Chyzer, inspector. (Also printed in French.) Jena, 1908. 32 pp.
- Publication No. 2. Administration of labor laws in Hungary. (*Die Durchführung der Arbeiterschutzgesetze in Ungarn.*) By Dr. Stephen Varró.
- Publication No. 3. Household industry in Hungary and home work in Budapest. (*Die Hausindustrie in Ungarn und die Budapester Heimarbeit.*) By Emerich Ferenczi. Jena, 1908.
- The standard working day and rest periods. (*Der Normalarbeitstag und die Arbeitspausen.*) By Dr. Josef v. Fenyvessy.

#### ITALIAN SECTION, INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.

- A brief report of the Italian Section. August, 1901–August, 1902. (*Rapporto riassuntivo della Sezione italiana. Agosto 1901–agosto 1902.*)
- Night work of women in Italy. (*Il lavoro notturno delle donne in Italia.*) Report by Prof. G. Toniolo.
- Draft of an international agreement relative to the application to foreign laborers, of national laws, in case of industrial accidents. (*Projet de convention internationale pour l'application des lois nationales aux ouvriers étrangers en cas d'accidents sur le travail.*) Reports by Professor M. A. Corsi and M. F. Invrea, advocate.
- Condition of the foreigner with reference to industrial accident laws and employers' liability. By Vittorio Manfredi. (*La condizione dello straniero nelle leggi sulle assicurazioni contro gl' infortuni e nella responsabilità professionale. Par Vittorio Manfredi.*)
- Labor in the rice fields. (*Il lavoro nelle risaie.*) C. Cerruti.

**SPANISH SECTION, INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.**

[Sección Española, Asociación Internacional para la Protección Legal de los Trabajadores.]

- No. 1. Legal protection of labor. (La protección legal de los trabajadores.) By Ivan Strohl. 1907.
  - No. 2. The International Association for Labor Legislation. Its history; its publications; its work. The fourth general assembly of the association. Geneva, Sept. 26-29, 1906. (La Asociación Internacional para la Protección Legal de los Trabajadores. Su historia; sus órganos; su obra. La IV<sup>a</sup> Asamblea General de la Asociación. Ginebra, septiembre 26 al 29, 1906.) By José Manuel de Bayo y González-Elipe and Pedro Sangro y Ros de Olano. 1908.
  - No. 3. Workmen's insurance. (Seguros obreros.) By José Maluquer y Salvador. Madrid, 1908. 8 pp.
  - No. 4. Report of the first year's work (1907) of the Spanish Section and the work of the Executive Council. (Memoria de los trabajos de la Sección en su primer año social (1907) y de la gestión del Consejo directivo.) By Pedro Sangro y Ros de Olano. 1908.
  - No. 5. Means of preventing lead poisoning in color factories, accumulators, etc. (Medios de prevenir los peligros del manejo del plomo en las fábricas de colores, de acumuladores, etc.) By José Ubeda y Correal. 1908.
  - No. 6. Prohibition of night work of young persons in Spanish industries with continuous fire. (La prohibición del trabajo nocturno de los menores de 18 años en las industrias españolas á fuego continuo.) By José Manuel de Bayo. Madrid, 1908. 24 pp.
  - No. 7. Administration of labor laws in Spain. (La aplicación de las leyes protectoras del obrero en España.) By Don Miguel Figueras y Lopez. Madrid, 1908. 60 pp.
  - No. 8. Industrial work of young persons in Spain. (El trabajo industrial de los menores de 18 años en España.) By Isidro de Villota and Antonio Revenga y Alzamoro. Madrid, 1908. 50 pp.
  - No. 9. Note on the maximum working day in Spain. (Notas sobre la jornada máxima de trabajo en España.) By Salvador Crespo y Lopez de Arce and Adolfo Buylla y G. Alegre. Madrid, 1908. 70 pp.
  - No. 10. Household industries in Spain. (El trabajo á domicilio en España.) By Amando Castroviejo and Pedro Sangro y Ros de Olano. Madrid, 1908. 128 pp.
  - No. 11. The report of the second year's work of the Spanish Section, 1908. (Memoria de los trabajos de la Sección en su segundo año social (1908).) By the Secretary, Pedro Sangro y Ros de Olano.
  - No. 12. The labor contract. Address delivered at the Royal Academy of Jurisprudence and Legislation on March 27, 1909, by Adolfo Buylla y G. Alegre. (El contrato del trabajo. Conferencia pronunciada en la Real Academia de Jurisprudencia y Legislación el 27 de marzo de 1909.)
- Legal protection of labor. A monthly publication (begun in January, 1909) of the Spanish Section of the International Association founded for that purpose. (La protección legal de los trabajadores. Publicación mensual de la Sección española de la Asociación Internacional fundada para este objeto.)

**SWISS SECTION, INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.**

[Schweiz. Vereinigung zur Förderung des internationalen Arbeiterschutzes.]

- Publication No. 1. History of the idea of the international protection of labor. (Zur Geschichte der Idee des internationalen Arbeiterschutzes.) By E. Frey. 1900.
- Publication No. 2. The International Congress for the Protection of Labor in Paris. (Der internationale Arbeiterschutzkongress in Paris.) By Prof. N. Reichesberg. 1900.



- Publication No. 3. Report of the executive committee of the Swiss Association for Labor Legislation for 1900-1901. (Bericht des Vorstandes über die Tätigkeit des Vereins im Jahre 1900-1901.)
- Publication No. 4. Register of members on June 30, 1901. (Mitgliederverzeichnis, abgeschlossen auf 30. Juni 1901.)
- Publication No. 5. The purposes of the International Labor Office. (Die Aufgaben des Internationalen Arbeitsamtes.) By Dr. Stephan Bauer. 1901.
- Publication No. 6. Report of the executive committee of the Swiss Association for Labor Legislation for 1901-1902. (Bericht des Vorstandes über die Tätigkeit des Vereins im Jahre 1901-1902.)
- Publication No. 7. I. Report of the executive committee of the Swiss Association for Labor Legislation for 1902-1903. (Bericht des Vorstandes über die Tätigkeit des Vereins im Jahre 1902-1903.)
- II. Statutes of the International Association for Labor Legislation. (Statuten der internationalen Vereinigung für gesetzlichen Arbeiterschutz.)
- III. Outline of the Statutes of the Swiss Association for Labor Legislation. (Entwurf-Statuten der Schweiz. Vereinigung.)
- IV. Register of members on June 30, 1903. (Mitgliederverzeichnis, abgeschlossen auf 30. Juni 1903.)
- Publication No. 8. Transactions of the Berne section of the Swiss Association for Labor Legislation, concerning the revision of the Swiss federal factory inspection law of June 11, 1903. (Verhandlungen der Sektion Bern über die Revision des eidgen. Fabrikgesetzes vom 11. Juni 1903.)
- Publication No. 9. I. Statutes of the Swiss Association for Labor Legislation, Dec. 17, 1903. (I. Statuten der Schweiz. Vereinigung vom 17. Dez. 1903.)
- II. Report of the executive committee of the Swiss Association for Labor Legislation for the first half of 1903. (Bericht des Vorstandes über die Tätigkeit des Vereins im zweiten Halbjahr 1903.)
- Publication No. 10. Memorial of the municipalities to the cantonal governments and local administrations on March 10, 1905, concerning the replacement of white lead in the painting industry by leadless colors. (Eingabe des Vorortes an die Kantonsregierungen und Gemeindeverwaltungen vom 10. März 1905, betreff. Ersetzung des Bleiweisses im Malergewerbe durch bleifreie Farben.) 1905.
- Publication No. 11. Purposes and accomplishment of the International Association for Labor Legislation and of the International Labor Office. (Bestrebungen und Erfolge der internationalen Vereinigung für den gesetzlichen Arbeiterschutz und des Internationalen Arbeitsamtes.) By Dr. N. Reichesberg. 1905.
- Publication No. 12. Report of the executive committee of the Swiss Association for Labor Legislation for 1904. (Bericht des Vorstandes über die Tätigkeit der Vereinigung im Jahre 1904.)
- Publication No. 13. Report of the International Conference for the Legal Protection of Labor, held at Berne in May, 1905. (Die Verhandlungen der internationalen Arbeiterschutzkonferenz in Bern im Mai 1905.) By Emil Frey.
- Publication No. 14. Report of the executive committee of the Swiss Association for Labor Legislation for 1905. (Bericht des Vorstandes über die Tätigkeit des Vereins im Jahre 1905.)
- Publication No. 15. The question of the establishment of boards of conciliation and arbitration. (Zur Frage der Errichtung von Einigungsämtern.) By Dr. E. Zürcher and S. Scherz. 1906.
- Publication No. 16. I. Legal limitation of the working day of laborers and salaried officials employed in commerce and industry in Switzerland. (Die gesetzliche Beschränkung der Arbeitsdauer der in Handel und Industrie der Schweiz beschäftigten Arbeiter und Angestellten.)
- II. Night work of young persons in Switzerland. (Die Nachtarbeit der Jugendlichen in der Schweiz.) By Dr. Julius Landmann. 1906.

- Publication No. 17. Catalogue of the Library of the Swiss Association for Labor Legislation, on December 1, 1906. (Katalog der Bibliothek der Schweiz. Vereinigung. Abgeschlossen auf 1. Dezember 1906.)
- Publication No. 18. I. The Diplomatic Conference for Legal Protection of Labor, held at Berne, 1906. (Die Diplomatenvkonferenz für Arbeiterschutz, abgehalten in Bern 1906.) By Emil Frey.
- II. Report of the fourth general meeting of the committee of the International Association for Labor Legislation, held at Geneva, 1906. (Die IV. Delegiertenversammlung der internationalen Vereinigung für gesetzlichen Arbeiterschutz, abgehalten in Genf 1906.) By Dr. N. Reichesberg. 1907.
- Publication No. 19. Report of the executive committee of the Swiss Association for Labor Legislation for 1906. (Bericht des Vorstandes über die Tätigkeit der Vereinigung im Jahre 1906.)
- Publication No. 20. Report of the eighth general meeting of the Swiss Association for Labor Legislation, held at Basel, June 29, 1907. (Die Verhandlungen der VIII. Generalversammlung der Schweiz. Vereinigung zur Förderung des internationalen Arbeiterschutzes, abgehalten zu Basel den 29. Juni 1907.)
- Publication No. 21. Report on those Swiss home industries of which the product competes in the world market with that from other countries. (Bericht über die schweizerischen Hausindustrien, deren Produkte auf dem Weltmarkt mit den Erzeugnissen anderer Länder konkurrieren.) By A. Pflughart. Berne, 1908. 17 pp.
- Publication No. 22. Administration of labor laws in Switzerland. (Die Durchführung der Arbeiterschutzgesetze in der Schweiz.) By Dr. H. Wegmann, factory inspector. Berne, 1907. 32 pp.
- Publication No. 23. Child labor and child protection in Switzerland. (Kinderarbeit und Kinderschutz in der Schweiz.) By Ph. Zinsli. Berne, 1908. 128 pp.
- Publication No. 24. Social legislation and social statistics. A contribution upon the question of establishing a federal bureau of social statistics. (Soziale Gesetzgebung und Statistik. Ein Beitrag zur Frage der Errichtung eines eidgenössischen sozialstatistischen Amtes.) By Dr. N. Reichesberg. 1908.
- Publication No. 25. Report on the industrial employment of children in Switzerland. (Bericht über die gewerbliche Kinderarbeit in der Schweiz.) By A. Wild. Basel, 1908. 135 pp.
- Publication No. 26. Report of the executive committee of the Swiss Association for Labor Legislation for 1907. (Bericht des Vorstandes über die Tätigkeit der Vereinigung im Jahre 1907.)
- Publication No. 27. What demands does social legislation make upon statistics? By Werner Krebs. (Welche Anforderungen stellt die soziale Gesetzgebung an die Statistik?) Berne, 1908. 91 pp.
- Publication No. 28. Report of the executive committee of the Swiss Association for Labor Legislation for 1908. (Bericht des Vorstandes über die Tätigkeit der Vereinigung im Jahre 1908.)

## BRITISH TRADE BOARDS ACT, 1909.

The following is the text of the British Trade Boards Act, which provides a method of establishing and enforcing minimum rates of wages in certain industries. The act was passed October 20, 1909, and became effective January 1, 1910. It was the result of long-continued agitation and was enacted only after extensive investigation. Two reports which assisted materially in formulating this legislation were summarized in Bulletin No. 80 of this bureau. <sup>(a)</sup>

AN ACT to provide for the establishment of Trade Boards for certain trades. [20th October, 1909.]

### ESTABLISHMENT OF TRADE BOARDS FOR TRADES TO WHICH THE ACT APPLIES.

1.—(1) This act shall apply to the trades specified in the schedule to this act and to any other trades to which it has been applied by provisional order of the Board of Trade made under this section.

(2) The Board of Trade may make a provisional order applying this act to any specified trade to which it does not at the time apply if they are satisfied that the rate of wages prevailing in any branch of the trade is exceptionally low, as compared with that in other employments, and that the other circumstances of the trade are such as to render the application of this act to the trade expedient.

(3) If at any time the Board of Trade consider that the conditions of employment in any trade to which this act applies have been so altered as to render the application of this act to the trade unnecessary, they may make a provisional order that this act shall cease to apply to that trade.

(4) The Board of Trade may submit to Parliament for confirmation any provisional order made by them in pursuance of this section, but no such order shall have effect unless and until it is confirmed by Parliament.

(5) If, while a bill confirming any such order is pending in either House of Parliament, a petition is presented against any order comprised therein, the bill, so far as it relates to that order, may be referred to a select committee, or, if the two Houses of Parliament think fit so to order, to a joint committee of those Houses, and the petitioner shall be allowed to appear and oppose as in the case of private bills.

(6) Any act confirming a provisional order made in pursuance of this section may be repealed, altered, or amended by any subsequent provisional order made by the Board of Trade and confirmed by Parliament.

2.—(1) The Board of Trade shall, if practicable, establish one or more trade boards constituted in accordance with regulations made under this act for any trade to which this act applies or for any branch of work in the trade.

Where a trade board is established under this act for any trade or branch of work in a trade which is carried on to any substantial extent in Ireland, a separate trade board shall be established for that trade or branch of work in a trade in Ireland.

(2) Where a trade board has been established for any branch of work in a trade, any reference in this act to the trade for which the board is established shall be construed as a reference to the branch of work in the trade for which the board has been established.

3. A trade board for any trade shall consider, as occasion requires, any matter referred to them by a secretary of state, the Board of Trade, or any other government department, with reference to the industrial conditions of the trade, and shall make a report upon the matter to the department by whom the question has been referred.

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<sup>a</sup> "Reports from the Select Committees on Home Work, 1907 and 1908," and the "Wages Boards and Industrial Conciliation and Arbitration Acts of Australia and New Zealand. Report to the Secretary of State for the Home Department."

## MINIMUM RATES OF WAGES.

4.—(1) Trade boards shall, subject to the provisions of this section, fix minimum rates of wages for time work for their trades (in this act referred to as minimum time-rates), and may also fix general minimum rates of wages for piecework for their trades (in this act referred to as general minimum piece-rates), and those rates of wages (whether time or piece-rates) may be fixed so as to apply universally to the trade, or so as to apply to any special process in the work of the trade or to any special class of workers in the trade, or to any special area.

If a trade board report to the Board of Trade that it is impracticable in any case to fix a minimum time-rate in accordance with this section, the Board of Trade may so far as respects that case relieve the trade board of their duty.

(2) Before fixing any minimum time-rate or general minimum piece-rate, the trade board shall give notice of the rate which they propose to fix and consider any objections to the rate which may be lodged with them within three months.

(3) The trade board shall give notice of any minimum time-rate or general minimum piece-rate fixed by them.

(4) A trade board may, if they think it expedient, cancel or vary any minimum time-rate or general minimum piece-rate fixed under this act, and shall reconsider any such minimum rate if the Board of Trade direct them to do so, whether an application is made for the purpose or not:

Provided that the provisions of this section as to notice shall apply where it is proposed to cancel or vary the minimum rate fixed under the foregoing provisions in the same manner as they apply where it is proposed to fix a minimum rate.

(5) A trade board shall on the application of any employer fix a special minimum piece-rate to apply as respects the persons employed by him in cases to which a minimum time-rate but no general minimum piece-rate is applicable, and may as they think fit cancel or vary any such rate either on the application of the employer or after notice to the employer, such notice to be given not less than one month before cancellation or variation of any such rate.

5.—(1) Until a minimum time-rate or general minimum piece-rate fixed by a trade board has been made obligatory by order of the Board of Trade under this section, the operation of the rate shall be limited as in this act provided.

(2) Upon the expiration of six months from the date on which a trade board have given notice of any minimum time-rate or general minimum piece-rate fixed by them, the Board of Trade shall make an order (in this act referred to as an obligatory order) making that minimum rate obligatory in cases in which it is applicable on all persons employing labor and on all persons employed, unless they are of opinion that the circumstances are such as to make it premature or otherwise undesirable to make an obligatory order, and in that case they shall make an order suspending the obligatory operation of the rate (in this act referred to as an order of suspension).

(3) Where an order of suspension has been made as respects any rate, the trade board may, at any time after the expiration of six months from the date of the order, apply to the Board of Trade for an obligatory order as respects that rate; and on any such application the Board of Trade shall make an obligatory order as respects that rate, unless they are of opinion that a further order of suspension is desirable, and in that case they shall make such a further order, and the provisions of this section which are applicable to the first order of suspension shall apply to any such further order.

An order of suspension as respects any rate shall have effect until an obligatory order is made by the Board of Trade under this section.

(4) The Board of Trade may, if they think fit, make an order to apply generally as respects any rates which may be fixed by any trade board constituted or about to be constituted for any trade to which this act applies, and while the order is in force any minimum time-rate or general minimum piece-rate shall, after the lapse of six months from the date on which the trade board have given notice of the fixing of the rate, be obligatory in the same manner as if the Board of Trade had made an order making the rate obligatory under this section, unless in any particular case the Board of Trade on the application of any person interested direct to the contrary.

The Board of Trade may revoke any such general order at any time after giving three months' notice to the trade board of their intention to revoke it.

6.—(1) Where any minimum rate of wages fixed by a trade board has been made obligatory by order of the Board of Trade under this act, an employer shall, in cases to which the minimum rate is applicable, pay wages to the person employed at not less than the minimum rate clear of all deductions, and if he fails to do so shall be liable on summary conviction in respect of each offence to a fine not exceeding twenty pounds [\$97.33] and to a fine not exceeding five pounds [\$24.33] for each day on which the offence is continued after conviction therefor.

(2) On the conviction of an employer under this section for failing to pay wages at not less than the minimum rate to a person employed, the court may by the conviction adjudge the employer convicted to pay, in addition to any fine, such sum as appears to the court to be due to the person employed on account of wages, the wages being calculated on the basis of the minimum rate, but the power to order the payment of wages under this provision shall not be in derogation of any right of the person employed to recover wages by any other proceedings.

(3) If a trade board are satisfied that any worker employed, or desiring to be employed, on time work in any branch of a trade to which a minimum time-rate fixed by the trade board is applicable is affected by any infirmity or physical injury which renders him incapable of earning that minimum time-rate, and are of opinion that the case can not suitably be met by employing the worker on piecework, the trade board may, if they think fit, grant to the worker, subject to such conditions, if any, as they prescribe, a permit exempting the employment of the worker from the provisions of this act rendering the minimum time-rate obligatory, and, while the permit is in force, an employer shall not be liable to any penalty for paying wages to the worker at a rate less than the minimum time-rate so long as any conditions prescribed by the trade board on the grant of the permit are complied with.

(4) On any prosecution of an employer under this section, it shall lie on the employer to prove by the production of proper wages sheets or other records of wages or otherwise that he has not paid, or agreed to pay, wages at less than the minimum rate.

(5) Any agreement for the payment of wages in contravention of this provision shall be void.

7.—(1) Where any minimum rate of wages has been fixed by a trade board, but is not for the time being obligatory under an order of the Board of Trade made in pursuance of this act, the minimum rate shall, unless the Board of Trade direct to the contrary in any case in which they have directed the trade board to reconsider the rate, have a limited operation as follows:

(a) In all cases to which the minimum rate is applicable an employer shall, in the absence of a written agreement to the contrary, pay to the person employed wages at not less than the minimum rate, and, in the absence of any such agreement, the person employed may recover wages at such a rate from the employer;

(b) Any employer may give written notice to the trade board by whom the minimum rate has been fixed that he is willing that that rate should be obligatory on him, and in that case he shall be under the same obligation to pay wages to the person employed at not less than the minimum rate, and be liable to the same fine for not doing so, as he would be if an order of the Board of Trade were in force making the rate obligatory; and

(c) No contract involving employment to which the minimum rate is applicable shall be given by a government department or local authority to any employer unless he has given notice to the trade board in accordance with the foregoing provision:

Provided that in case of any public emergency the Board of Trade may by order, to the extent and during the period named in the order, suspend the operation of this provision as respects contracts for any such work being done or to be done on behalf of the Crown as is specified in the order.

(2) A trade board shall keep a register of any notices given under this section:

The register shall be open to public inspection without payment of any fee, and shall be evidence of the matters stated therein:

Any copy purporting to be certified by the secretary of the trade board or any officer of the trade board authorized for the purpose to be a true copy of any entry in the register shall be admissible in evidence without further proof.

8. An employer shall, in cases where persons are employed on piecework and a minimum time-rate but no general minimum piece-rate has been fixed, be deemed to pay wages at less than the minimum rate—

(a) In cases where a special minimum piece-rate has been fixed under the provisions of this act for persons employed by the employer, if the rate of wages paid is less than that special minimum piece-rate; and

(b) In cases where a special minimum piece-rate has not been so fixed, unless he shows that the piece-rate of wages paid would yield, in the circumstances of the case, to an ordinary worker at least the same amount of money as the minimum time-rate.

9. Any shopkeeper, dealer, or trader, who by way of trade makes any arrangement express or implied with any worker in pursuance of which the worker performs any work for which a minimum rate of wages has been fixed under this act, shall be deemed for the purposes of this act to be the employer of the worker, and the net remuneration obtainable by the worker in respect of the work after allowing for his necessary expenditure in connection with the work shall be deemed to be wages.

10.—(1) Any worker or any person authorized by a worker may complain to the trade board that the wages paid to the worker by any employer in any case to which any minimum rate fixed by the trade board is applicable are at a rate less than the minimum rate, and the trade board shall consider the matter and may, if they think fit, take any proceedings under this act on behalf of the worker.

(2) Before taking any proceedings under this act on behalf of the worker, a trade board may, and on the first occasion on which proceedings are contemplated by the trade board against an employer they shall, take reasonable steps to bring the case to the notice of the employer, with a view to the settlement of the case without recourse to proceedings.

#### CONSTITUTION, PROCEEDINGS, ETC., OF TRADE BOARDS.

11.—(1) The Board of Trade may make regulations with respect to the constitution of trade boards which shall consist of members representing employers and members representing workers (in this act referred to as representative members) in equal proportions and of the appointed members. Any such regulations may be made so as to apply generally to the constitution of all trade boards, or specially to the constitution of any particular trade board or any particular class of trade boards.

(2) Women shall be eligible as members of trade boards as well as men.

(3) The representative members shall be elected or nominated, or partly elected and partly nominated as may be provided by the regulations, and in framing the regulations the representation of home workers on trade boards shall be provided for in all trades in which a considerable proportion of home workers are engaged.

(4) The chairman of a trade board shall be such one of the members as the Board of Trade may appoint, and the secretary of the trade board shall be appointed by the Board of Trade.

(5) The proceedings of a trade board shall not be invalidated by any vacancy in their number, or by any defect in the appointment, election, or nomination of any member.

(6) In order to constitute a meeting of a trade board, at least one-third of the whole number of the representative members and at least one appointed member must be present.

(7) The Board of Trade may make regulations with respect to the proceedings and meetings of trade boards, including the method of voting; but subject to the provisions of this act and to any regulations so made trade boards may regulate their proceedings in such manner as they think fit.

12.—(1) A trade board may establish district trade committees consisting partly of members of the trade board and partly of persons not being members of the trade board but representing employers or workers engaged in the trade and constituted in accordance with regulations made for the purpose by the Board of Trade and acting for such area as the trade board may determine.

(2) Provisions shall be made by the regulations for at least one appointed member acting as a member of each district trade committee, and for the equal representation of local employers and local workers on the committee, and for the representation of home workers thereon in the case of any trade in which a considerable proportion of home workers are engaged in the district, and also for the appointment of a standing subcommittee to consider applications for special minimum piece-rates and complaints made to the trade board under this act, and for the reference of any applications or complaints to that subcommittee.

(3) A trade board may refer to a district trade committee for their report and recommendations any matter which they think it expedient so to refer, and may also, if they think fit, delegate to a district trade committee any of their powers and duties under this act, other than their power and duty to fix a minimum time-rate or general minimum piece-rate.

(4) Where a district trade committee has been established for any area, it shall be the duty of the committee to recommend to the trade board minimum time-rates and, so far as they think fit, general minimum piece-rates, applicable to the trade in that area, and no such minimum rate of wages fixed under this act and no variation or cancellation of such a rate shall have effect within that area unless either the rate or the variation or cancellation thereof, as the case may be, has been recommended by the district trade committee, or an opportunity has been given to the committee to report thereon to the trade board, and the trade board have considered the report (if any) made by the committee.

13.—(1) The Board of Trade may appoint such number of persons (including women) as they think fit to be appointed members of trade boards.

(2) Such of the appointed members of trade boards shall act on each trade board or district trade committee as may be directed by the Board of Trade, and, in the case of a trade board for a trade in which women are largely employed, at least one of the appointed members acting shall be a woman:

Provided that the number of appointed members acting on the same trade board, or the same district trade committee, at the same time, shall be less than half the total number of members representing employers and members representing workers.

#### APPOINTMENT OF OFFICERS AND OTHER PROVISIONS FOR ENFORCING ACT.

14.—(1) The Board of Trade may appoint such officers as they think necessary for the purpose of investigating any complaints and otherwise securing the proper observance of this act, and any officers so appointed shall act under the directions of the Board of Trade, or, if the Board of Trade so determine, under the directions of any trade board.

(2) The Board of Trade may also, in lieu of or in addition to appointing any officers under the provisions of this section, if they think fit, arrange with any other government department for assistance being given in carrying this act into effect, either generally or in any special cases, by officers of that department whose duties bring them into relation with any trade to which this act applies.

15.—(1) Any officer appointed by the Board of Trade under this act, and any officer of any government department for the time being assisting in carrying this act into effect, shall have power for the performance of his duties—

(a) to require the production of wages sheets or other record of wages by an employer, and records of payments made to outworkers by persons giving out work, and to inspect and examine the same and copy any material part thereof;

(b) to require any person giving out work and any outworker to give any information which it is in his power to give with respect to the names and addresses of the persons to whom the work is given out or from whom the work is received, as the case may be, and with respect to the payments to be made for the work;

(c) at all reasonable times to enter any factory or workshop and any place used for giving out work to outworkers; and

(d) to inspect and copy any material part of any list of outworkers kept by an employer or person giving out work to outworkers.

(2) If any person fails to furnish the means required by an officer as necessary for any entry or inspection or the exercise of his powers under this section, or if any person hinders or molests any officer in the exercise of the powers given by this section, or refuses to produce any document or give any information which any officer requires him to produce or give under the powers given by this section, that person shall be liable on summary conviction in respect of each offense to a fine not exceeding five pounds [\$24.33]; and, if any person produces any wages sheet, or record of wages, or record of payments, or any list of outworkers to any officer acting in the exercise of the powers given by this section, knowing the same to be false, or furnishes any information to any such officer knowing the same to be false, he shall be liable, on summary conviction, to a fine not exceeding twenty pounds [\$97.33], or to imprisonment for a term not exceeding three months, with or without hard labor.

16. Every officer appointed by the Board of Trade under this act, and every officer of any government department for the time being assisting in carrying this act into effect, shall be furnished by the board or department with a certificate of his appointment, and when acting under any or exercising any power conferred upon him by this act shall, if so required, produce the said certificate to any person or persons affected.

17.—(1) Any officer appointed by the Board of Trade under this act, and any officer of any government department for the time being assisting in carrying this act into effect, shall have power in pursuance of any special or general directions of the Board of Trade to take proceedings under this act, and a trade board may also take any such proceedings in the name of any officer appointed by the Board of Trade for the time being acting under the directions of the trade board in pursuance of this act, or in the name of their secretary or any of their officers authorized by them.

(2) Any officer appointed by the Board of Trade under this act, or any officer of any government department for the time being assisting in carrying this act into effect, and the secretary of a trade board, or any officer of a trade board authorized for the purpose, may, although not a counsel or solicitor or law agent, prosecute or conduct before a court of summary jurisdiction any proceedings arising under this act.

## SUPPLEMENTAL.

18.—(1) The Board of Trade shall make regulations as to the notice to be given of any matter under this act, with a view to bringing the matter of which notice is to be given so far as practicable to the knowledge of persons affected.

(2) Every occupier of a factory or workshop, or of any place used for giving out work to outworkers, shall, in manner directed by regulations under this section, fix any notices in his factory or workshop or the place used for giving out work to outworkers which he may be required to fix by the regulations, and shall give notice in any other manner, if required by the regulations, to the persons employed by him of any matter of which he is required to give notice under the regulations:

If the occupier of a factory or workshop, or of any place used for giving out work to outworkers, fails to comply with this provision, he shall be liable on summary conviction in respect of each offense to a fine not exceeding forty shillings [\$9.73].

19. Regulations made under this act shall be laid as soon as possible before both Houses of Parliament, and, if either House within the next forty days after the regulations have been laid before that House resolve that all or any of the regulations ought to be annulled, the regulations shall, after the date of the resolution, be of no effect, without prejudice to the validity of anything done in the meantime thereunder or to the making of any new regulations. If one or more of a set of regulations are annulled, the Board of Trade may, if they think fit, withdraw the whole set.

20.—(1) His Majesty may, by order in council, direct that any powers to be exercised or duties to be performed by the Board of Trade under this act shall be exercised or performed generally, or in any special cases or class of cases, by a secretary of state, and, while any such order is in force, this act shall apply as if, so far as is necessary to give effect to the order, a secretary of state were substituted for the Board of Trade.

(2) Any order in council under this section may be varied or revoked by any subsequent order in council.

21. There shall be paid out of moneys provided by Parliament—

(1) Any expenses, up to an amount sanctioned by the treasury, which may be incurred with the authority or sanction of the Board of Trade by trade boards or their committees in carrying into effect this act; and

(2) To appointed members and secretaries of trade boards and to officers appointed by the Board of Trade under this act such remuneration and expenses as may be sanctioned by the treasury; and

(3) To representative members of trade boards and members (other than appointed members) of district trade committees any expenses (including compensation for loss of time), up to an amount sanctioned by the treasury, which may be incurred by them in the performance of their duties as such members; and

(4) Any expenses, up to an amount sanctioned by the treasury, which may be incurred by the Board of Trade in making inquiries, or procuring information, or taking any preliminary steps with respect to the application of this act to any trade to which the act does not apply, including the expenses of obtaining a provisional order, or promoting any bill to confirm any provisional order made under, or in pursuance of, the provisions of this act.

22.—(1) This act may be cited as the Trade Boards Act, 1909.

(2) This act shall come into operation on the first day of January, nineteen hundred and ten.

## SCHEDULE.

## TRADES TO WHICH THE ACT APPLIES WITHOUT PROVISIONAL ORDER.

1. Ready-made and wholesale bespoke tailoring and any other branch of tailoring in which the Board of Trade consider that the system of manufacture is generally similar to that prevailing in the wholesale trade.

2. The making of boxes or parts thereof made wholly or partially of paper, cardboard, chip, or similar material.

3. Machine-made lace and net finishing and mending or darning operations of lace curtain finishing.

4. Hammered and dollied or tommied chain-making.

The first of the trade boards to be organized under the foregoing act was the board for the hammered and dollied or tommied chain-making trade. Under date of November 25, 1909, regulations were issued by the Board of Trade governing the work of this board.



The regulations provide for a board to consist of either 15 or 17 members, of whom 3 will be appointed by the Board of Trade, the rest being chosen, half by the employers and half by the workers in the trade. The first board as organized has 15 members. Of those to represent the workers, 2 are women and 4 are men. The industry, it should be said, is one which largely employs women. It is provided that the voting power as between employers and workers shall be always equal and that the accidental absence of a member on one side shall not at any time be an advantage to the other party. The next industry for which a board will be appointed under the act is the paper box industry. The regulations relating to the chain trade follow:

#### REGULATIONS.

1. A trade board shall be established for the hammered and dollied or tommied section of the chain trade.

2. The board shall consist of not less than 15 and not more than 17 persons, viz, 3 appointed members, and either 6 or 7 members representing employers, and 6 or 7 members representing workers.

3. The chairman shall be such one of the appointed members as may be nominated by the Board of Trade.

4. Six members representing employers shall be chosen at meetings of employers in the above trade, conducted under the supervision of the Board of Trade. The votes shall be either by show of hands or by ballot, as the chairman may decide. Separate meetings shall be held of factory occupiers, not being outworkers, and of other employers, and 5 of the 6 members shall be elected by the factory occupiers, not being outworkers, and one by the other employers.

5. Six members representing workers shall be chosen at meetings of workers in the above trade, conducted under the supervision of the Board of Trade. Of these, 2 members shall be chosen at a meeting of women and 4 at a meeting of men. The votes shall be either by show of hands or by ballot, as the chairman may decide.

6. The Board of Trade may, if they think it necessary in order to secure the due representation of the various classes of employers or workers, nominate 2 additional representative members on the trade board, 1 on each side.

7. At least seven days' notice shall be given of meetings held under these regulations by posters, placards, and advertisements in newspapers, or in such other manner as may appear to the Board of Trade to be best adapted in the circumstances to bring the matter of which notice is to be given to the knowledge of all persons affected so far as may be practicable.

8. The term of office of the first trade board shall be three years, and each succeeding trade board shall have a similar term unless otherwise provided.

9. Any representative of employers who ceases to be an employer and becomes a worker at the trade shall vacate his seat, but shall be eligible for reelection.

Any representative of workers who becomes an employer in the trade shall also vacate his seat, but shall be eligible for reelection.

10. A casual vacancy among representative members shall be filled in the same manner as in the original election or nomination.

11. Voting on trade boards shall be so conducted that the members representing employers and workers shall always have equal voting power notwithstanding the absence of any member, and it is left to the trade board to regulate the proceedings for carrying this into effect.

12. Any question arising on these regulations shall be determined by the chairman.

## EARNINGS AND HOURS OF LABOR IN BRITISH CLOTHING INDUSTRIES.

The second of the series of reports in which the results of a general inquiry into earnings and hours of labor in all trades in the United Kingdom are to be dealt with, has recently been published under the title, "Report of an inquiry by the Board of Trade into the Earnings and Hours of Labor of Work People of the United Kingdom: II.—Clothing Trades in 1906."<sup>a</sup> The object of this inquiry is to ascertain the amount actually earned by all classes of workpeople in a selected week, industry by industry, occupation by occupation, and district by district, and to obtain means of estimating their annual earnings.

### GENERAL SUMMARY.

The term "clothing trades" is used in a broad sense, including, in addition to the making of clothing, the manufacture of boots and shoes, hats, gloves, corsets, and furs, and dyeing, cleaning, and laundering. As shown by the census of 1901 these industries provide employment for over 1,500,000 work people. Of this number 81 per cent are employed in England and Wales, 9 per cent in Scotland, and 10 per cent in Ireland. A larger number of women and girls is included in these industries than in any other group except domestic service.

It is estimated that in the tailoring and boot and shoe industries about 200,000 males and 50,000 females, and in the dressmaking and other clothing trades, about 300,000 women and girls are employed outside of factories and workshops. The statements of earnings in the present report, however, relate only to the earnings of workpeople employed on the employer's premises.

In the following table is shown the number of persons employed in each of the clothing industries, as shown by the factory and workshop returns for 1904, the number of workpeople covered by the returns received in the present inquiry, and the percentage of the number employed in 1904 represented by the returns:

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<sup>a</sup> An abstract of the first report in this series, entitled "Report of an Inquiry by the Board of Trade into the Earnings and Hours of Labor of Work People of the United Kingdom: I.—Textile Trades in 1906," appeared in Bulletin No. 83 of this Bureau, pp. 88-103.

## NUMBER OF EMPLOYEES IN CLOTHING INDUSTRIES IN 1904 AND PER CENT OF TOTAL IN EACH INDUSTRY FOR WHOM RETURNS WERE RECEIVED IN 1906.

Industry.	Number of employees in 1904.	Employees covered by returns received in present inquiry (1903).	
		Number.	Per cent of number employed in 1904.
Clothing:			
Dress, millinery, mantle, and corset making.....	245,389	57,845	23.6
Tailoring.....	149,821	42,810	28.6
Boot and shoe making.....	124,192	41,503	33.4
Other.....	155,093	49,384	31.8
Total, clothing industries.....	674,495	191,547	28.4
Dyeing and cleaning.....	9,609	6,200	64.5
Laundrying.....	104,477	33,626	32.2
Grand total.....	788,581	231,373	29.3

Of the total number of employees for whom information was secured, 4,703 were unpaid apprentices and 2,503 were workpeople receiving board and lodging or partial board in addition to wages. Excluding these, 21.8 per cent were males 20 years of age and over, classified in the report as "men." The average earnings of men who worked full time in the various clothing industries in the last week of September, 1906, and the per cent of men whose earnings fell within each specified wage group, are shown in the following table:

## AVERAGE FULL-TIME EARNINGS OF MEN IN THE LAST WEEK OF SEPTEMBER, 1903, IN EACH CLOTHING INDUSTRY, AND PER CENT OF MEN WHOSE EARNINGS WERE WITHIN EACH SPECIFIED WAGE GROUP.

Industry.	Average earnings.	Per cent of men working full time whose earnings were—					
		Under \$4.87.	\$4.87 and under \$7.30.	\$7.30 and under \$9.73.	\$9.73 and under \$12.17.	\$12.17 and under \$14.60.	\$14.60 and over.
Clothing:							
Dress, millinery, etc. (workshop).....	\$12.39	5.1	16.3	9.2	15.3	27.6	26.5
Dress, millinery, etc. (factory).....	7.71	9.2	33.5	39.2	11.5	4.8	1.8
Shirts, blouses, underclothing, etc.....	7.26	14.1	38.2	30.8	11.1	3.3	2.5
Tailoring (custom clothing).....	8.15	5.1	41.0	31.8	11.6	4.1	6.4
Tailoring (ready-made clothing).....	7.77	6.5	37.8	36.6	13.1	2.8	3.2
Boots and shoes (ready-made).....	6.98	6.5	52.4	34.4	5.2	1.2	.3
Boot, shoe, and clog making (custom work) and repairing.....	6.63	10.0	54.7	30.8	4.1	.3	.1
Silk and felt hats.....	8.33	5.7	22.8	44.6	21.0	4.3	1.6
Leather gloves.....	7.20	7.6	45.3	35.3	9.6	1.7	.5
Corsets (factory made).....	7.04	13.3	40.4	35.5	8.8	1.0	1.0
Furs.....	8.66	5.7	36.8	29.5	8.2	7.9	11.9
Straw hats and bonnets.....	8.90	8.3	25.9	28.9	17.5	12.2	7.2
Other clothing.....	7.36	10.9	46.7	23.2	11.2	4.4	3.6
Dyeing and cleaning.....	7.18	3.9	57.4	28.1	6.4	2.3	1.9
Laundry (power).....	6.37	9.8	63.5	22.7	3.6	.3	.1
Laundry (hand).....	5.47	25.0	65.2	9.3	.5	.....	.....
Total.....	7.34	7.2	47.2	32.7	8.3	2.3	2.3

Of the total number of wage-earners for whom information was obtained, 54.9 per cent were females 18 years of age and over, classi-

fied as "women." The average earnings of women who worked full time in the various clothing industries in the last week of September, 1906, and the per cent of women whose earnings fell within each specified wage group are shown in the following table:

AVERAGE FULL-TIME EARNINGS OF WOMEN IN THE LAST WEEK OF SEPTEMBER, 1906, IN EACH CLOTHING INDUSTRY, AND PER CENT OF WOMEN WHOSE EARNINGS WERE WITHIN EACH SPECIFIED WAGE GROUP.

Industry.	Average earnings.	Per cent of women working full time whose earnings were—					
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and under \$7.30.	\$7.30 and over.
<b>Clothing:</b>							
Dress, millinery, etc. (workshop).....	\$3.37	28.0	36.2	21.1	8.4	2.6	3.7
Dress, millinery, etc. (factory).....	3.75	12.6	39.5	30.5	11.4	3.5	2.5
Shirt, blouse, underclothing, etc.....	3.24	22.2	46.0	23.5	6.1	1.4	.8
Tailoring (custom clothing).....	3.45	15.4	42.4	29.3	10.3	1.6	1.0
Tailoring (ready-made clothing).....	3.14	24.0	46.6	22.5	5.5	1.1	.3
Boots and shoes (ready-made).....	3.18	12.4	58.9	25.2	2.8	.6	.1
Boot, shoe, and clog making (custom work), and repairing.....	3.04	21.4	51.8	17.9	5.3	1.8	1.8
Silk and felt hats.....	3.97	8.1	35.0	32.3	20.5	2.4	1.7
Leather gloves.....	2.94	25.5	51.1	21.5	1.7	.1	.1
Corsets (factory made).....	2.90	28.8	48.3	19.9	2.7	.3	.....
Furs.....	4.04	9.4	29.0	34.4	20.1	4.2	2.9
Straw hats and bonnets.....	4.83	10.4	17.5	21.6	27.5	12.4	10.6
Other clothing.....	3.14	26.3	41.4	24.5	6.0	1.0	.8
Dyeing and cleaning.....	3.37	9.3	55.3	27.7	5.5	1.1	1.1
Laundry (power).....	3.12	20.5	52.0	21.1	4.7	1.0	.7
Laundry (hand).....	3.10	12.2	63.8	20.5	2.9	.3	.3
<b>Total.....</b>	<b>3.28</b>	<b>21.6</b>	<b>45.1</b>	<b>23.2</b>	<b>6.8</b>	<b>1.7</b>	<b>1.6</b>

The average earnings of males under the age of 20 years, classified in the report as "lads and boys," and of females under 18 years of age, classified as "girls," in the last week of September, 1906, are shown in the following table:

AVERAGE FULL-TIME EARNINGS OF LADS AND BOYS AND OF GIRLS IN EACH CLOTHING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906.

Industry.	Average earnings of—			
	Lads and boys.		Girls.	
	Full timers.	Half timers.	Full timers.	Half timers.
<b>Clothing:</b>				
Dress, millinery, etc. (workshop).....	\$1.97	\$0.59	\$0.91	\$0.67
Dress, millinery, etc. (factory).....	2.41	.....	1.54	.....
Shirt, blouse, underclothing, etc.....	2.17	.53	1.64	.61
Tailoring (custom clothing).....	1.68	.....	1.32	.....
Tailoring (ready-made clothing).....	2.37	.....	1.58	.....
Boots and shoes (ready-made).....	2.56	.87	1.66	.81
Boot, shoe, and clog making (custom work), and repairing.....	2.01	.....	1.68	.....
Silk and felt hats.....	3.06	.....	1.91	.61
Leather gloves.....	1.85	.....	1.44	.....
Corsets (factory made).....	2.51	.....	1.52	.....
Furs.....	2.56	.....	1.74	.....
Straw hats and bonnets.....	2.45	.....	2.72	.....
Other clothing.....	2.76	.....	1.50	.....
Dyeing and cleaning.....	2.58	.....	1.74	.....
Laundry (power).....	2.13	.....	1.58	.....
Laundry (hand).....	2.31	.77	1.62	.71
<b>Total.....</b>	<b>2.35</b>	<b>.69</b>	<b>1.40</b>	<b>.67</b>

The number of lads and boys formed 6 per cent and the number of girls 17.3 per cent of the total number of wage-earners for whom information was received.

Particulars were obtained for each industry as to the total amount paid in wages in 1906 by the firms making returns, and the total amount paid in wages and the total number of persons receiving wages in one week in each month. From these data the following table was computed, showing the average annual earnings per head in the clothing industries for the year 1906:

AVERAGE ANNUAL EARNINGS PER HEAD IN EACH CLOTHING INDUSTRY, 1906.

Industry.	Average annual earnings per head in 1906.	Industry.	Average annual earnings per head in 1906.
<b>Clothing:</b>		<b>Clothing—Concluded.</b>	
Dress, millinery, etc. (workshop).....	\$146.00	Corsets (factory made).....	\$143.56
Dress, millinery, etc. (factory).....	167.89	Furs.....	234.69
Shirt, blouse, underclothing, etc.....	148.43	Straw hats and bonnets.....	211.69
Tailoring (custom clothing).....	262.79	Other clothing.....	155.73
Tailoring (ready-made clothing).....	172.76	Dyeing and cleaning.....	206.83
Boots and shoes (ready made).....	221.43	Laundry (power).....	155.73
Boot, shoe, and clog making (custom work), and repairing.....	279.82	Laundry (hand).....	141.13
Silk and felt hats.....	257.92		
Leather gloves.....	206.83	Total.....	180.06

The number of workpeople reported in each industry whose hours of labor for a full week were in each specified group and the average number of hours constituting a full week in each industry are shown in the following table:

NUMBER OF WORKPEOPLE REPORTED AS WORKING EACH SPECIFIED NUMBER OF HOURS PER WEEK, AND AVERAGE HOURS IN A FULL WEEK, BY INDUSTRIES, 1906.

Industry.	Number of workpeople whose hours of labor for a full week were—									Average hours in a full week.
	Under 46.	46 and under 48.	48 and under 50.	50 and under 52.	52 and under 54.	54 and under 56.	56 and under 58.	58 and under 60.	60 and over.	
<b>Clothing:</b>										
Dress, millinery, etc. (workshop)....	309	1,075	2,121	6,978	7,755	7,536	5,795	2,539	503	53.4
Dress, millinery, etc. (factory).....	789	712	1,924	1,295	1,845	1,633	17	292	.....	50.8
Shirt, blouse, underclothing, etc.....	2,451	5,411	6,223	8,682	2,556	5,978	963	217	144	50.2
Tailoring (custom clothing).....	426	408	740	1,649	1,411	2,389	3,064	650	897	53.8
Tailoring (ready-made clothing).....	575	1,354	6,496	4,881	5,643	1,301	1,440	746	298	51.2
Boots and shoes (ready-made).....	15	153	454	2,551	9,959	21,592	2,199	62	21	53.5
Boot, shoe, and clog making (custom work), and repairing.....	48	23	179	293	356	1,063	460	105	182	54.0
Silk and felt hats.....	126	.....	21	100	240	210	2,231	1,080	1,077	56.8
Leather gloves.....	209	.....	18	1,161	530	115	191	.....	.....	51.2
Corsets (factory made).....	.....	340	829	489	12	1,849	.....	.....	.....	51.6
Furs.....	.....	233	71	191	248	224	569	53	17	53.4
Straw hats and bonnets.....	.....	.....	7	183	53	314	194	37	255	55.2
Other clothing.....	93	57	210	428	1,132	776	11	390	94	52.9
Dyeing and cleaning.....	131	2	636	3,815	354	740	241	44	21	51.2
Laundry (power).....	1,467	728	1,469	2,696	1,672	3,338	3,558	1,980	6,278	54.7
Laundry (hand).....	415	230	127	712	353	397	351	98	612	52.7

**DRESSMAKING, MILLINERY, AND MANTLE-MAKING INDUSTRIES.**

The establishments included in these industries are divided into two groups—those in which the work is carried on in workshops and those in which the work is carried on in factories with the aid of mechanical power. In the returns furnished by the first group are included 44,978 workpeople. Excluding those who received board and lodging in addition to wages and the apprentices and learners who received no wages, there remained 37,772 for whom statistics were given. Of this number, 73.2 per cent were women, 26.3 per cent were girls, and 0.5 per cent were men and boys.

In the following table is given an analysis of the returns for each district and important city showing the hours constituting a full week and the average earnings for women, girls, and all employees working full time in the last week of September, 1906:

**AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN WORKSHOPS IN THE DRESS-MAKING, MILLINERY, AND MANTLE-MAKING INDUSTRIES IN THE LAST WEEK OF SEPTEMBER, 1906, AND AVERAGE HOURS IN A FULL WEEK, BY DISTRICTS.**

District.	Average full-time earnings of—			Average hours in a full week.
	Women.	Girls.	All employees.	
Northern counties and Cleveland .....	\$3.31	\$0.87	\$2.62	52.8
Yorkshire (excluding Cleveland) .....	3.35	1.10	2.74	54.2
Lancashire and Cheshire .....	3.37	.95	2.76	55.6
Manchester and Liverpool .....	3.31	.97	2.78	55.5
North and West Midland counties .....	2.92	.77	2.25	53.8
South Midland and Eastern counties .....	2.62	.69	1.93	53.9
London .....	4.08	1.10	3.49	52.8
Westminster .....	4.38	1.18	3.93	52.0
Chelsea and Kensington .....	4.10	1.30	3.41	53.5
Marylebone and Paddington .....	4.14	1.18	3.69	52.0
Rest of London .....	3.63	.95	2.86	53.1
Southeastern counties .....	3.00	.75	2.29	54.6
Southwestern counties .....	2.45	.59	1.76	54.5
Wales and Monmouth .....	2.53	.83	2.05	54.1
Scotland .....	3.41	.99	2.80	51.8
Edinburgh and Glasgow .....	3.65	1.05	3.02	51.5
Ireland .....	2.72	.81	2.41	52.3
Dublin .....	3.04	.79	2.66	51.8
Belfast .....	2.82	.91	2.49	52.0
United Kingdom .....	3.37	.91	2.72	53.4

The highest paid women in the workshops where dresses and mantles are made are the fitters and cutters. These constitute 8.7 per cent of the women employed.

The following table shows the average full-time earnings of women fitters and cutters in each district in the last week of September, 1906, and the per cent of women whose earnings fell in each specified class:

AVERAGE FULL-TIME EARNINGS OF WOMEN FITTERS AND CUTTERS IN DRESS-MAKING AND MANTLE-MAKING WORKSHOPS, IN THE LAST WEEK OF SEPTEMBER, 1906, AND PER CENT OF WOMEN FITTERS AND CUTTERS WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY DISTRICTS.

District.	Average full-time earnings.	Percent of women fitters and cutters working full time whose earnings were—				
		Under \$4.87	\$4.87 and under \$7.30.	\$7.30 and under \$9.73.	\$9.73 and under \$12.17.	\$12.17 and over.
Northern counties and Cleveland.....	\$9.19	1.7	33.3	25.0	13.3	26.7
Yorkshire, Lancashire, and Cheshire.....	7.62	10.0	39.0	29.3	13.1	8.6
North and West Midland counties.....	6.25	20.8	45.5	23.8	8.9	1.0
London.....	10.50	2.7	30.4	22.4	17.7	26.8
Rest of England and Wales.....	7.02	17.0	40.3	26.9	9.4	6.4
Scotland.....	7.40	6.3	49.8	27.7	9.9	6.3
Ireland.....	9.21	12.1	29.3	24.1	19.0	15.5
United Kingdom.....	8.13	8.7	40.4	26.3	12.7	11.9

Of the women for whom statistics are given in the dressmaking, millinery, and mantle-making workshops, 71.2 per cent are classified as dressmakers. The average full-time earnings of dressmakers in the last week of September, 1906, and the per cent of those in each district whose earnings were within certain specified groups are shown in the following table:

AVERAGE FULL-TIME EARNINGS OF DRESSMAKERS (NOT INCLUDING FITTERS AND CUTTERS) IN THE LAST WEEK OF SEPTEMBER, 1906, AND PER CENT OF DRESSMAKERS WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY DISTRICTS.

District.	Average full-time earnings.	Percent of dressmakers working full time whose earnings were—				
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Northern counties and Cleveland.....	\$2.66	42.9	38.4	14.2	3.3	1.2
Yorkshire, Lancashire, and Cheshire.....	2.92	29.4	42.4	23.4	3.8	1.0
North and West Midland counties.....	2.62	41.0	43.0	14.3	1.7	.....
London.....	3.71	11.7	36.2	29.4	19.6	3.1
Rest of England and Wales.....	2.53	45.2	38.6	13.7	2.2	.3
Scotland.....	2.90	29.1	44.9	22.9	3.0	.1
Ireland.....	2.25	52.6	41.3	5.4	.7	.....
United Kingdom.....	2.96	30.8	40.3	20.8	7.0	1.1

The returns for milliners include statistics for head milliners as well as for those less skilled. In the following table is shown the average full-time earnings of milliners in each district in the last week of September, 1906, and the per cent of milliners whose earnings were within each specified wage group:

**AVERAGE FULL-TIME EARNINGS OF MILLINERS IN THE LAST WEEK OF SEPTEMBER, 1906, AND PER CENT OF MILLINERS WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY DISTRICTS.**

District.	Average full-time earnings.	Per cent of milliners working full time whose earnings were—				
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Northern counties and Cleveland.....	\$3.59	33.3	23.2	12.6	17.1	13.8
Yorkshire, Lancashire, and Cheshire.....	3.47	28.9	30.6	19.6	10.8	10.1
North and West Midland counties.....	3.22	37.8	26.3	16.8	10.2	8.9
London.....	3.81	18.7	36.8	25.4	6.4	12.7
Rest of England and Wales.....	2.82	47.9	26.5	13.6	7.3	4.7
Scotland.....	3.65	24.3	26.0	21.2	19.1	9.4
Ireland.....	3.20	34.0	33.0	11.9	13.8	7.3
United Kingdom.....	3.47	29.9	29.8	19.4	11.2	9.7

Nearly three-fourths of the workpeople employed in factories in these industries were women, and of the women 41.2 per cent were operators of power-sewing machines, and 31.6 per cent were hand sewers. The following table shows the average full-time earnings of women in dressmaking and mantle-making factories in the last week of September, 1906, and the per cent whose earnings were within each specified wage group:

**AVERAGE FULL-TIME EARNINGS OF WOMEN IN DRESS AND MANTLE-MAKING FACTORIES IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF WOMEN IN SUCH FACTORIES WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY OCCUPATIONS.**

Occupation.	Average full-time earnings.	Per cent of women working full time whose earnings were—				
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Power-machine operators:						
Costume makers.....	\$3.37	19.4	43.9	27.0	8.5	1.2
Mantle makers.....	3.75	11.5	40.1	29.3	15.2	3.9
Hand workers:						
Costume makers.....	3.16	17.1	56.5	23.4	2.6	.4
Mantle makers.....	3.77	11.4	39.8	28.2	15.5	5.1
All women.....	3.75	12.6	39.5	30.5	11.4	6.0

**SHIRT, BLOUSE, UNDERCLOTHING, ETC., INDUSTRY.**

Of the 35,624 workpeople for whom information was furnished in this industry, 31 per cent were employed in Ireland and 23 per cent in London. Lancashire and Yorkshire employed 19 per cent, the North and West Midlands, 12 per cent; Scotland, 9 per cent; and the rest of England and Wales, 6 per cent. The average earnings of these employees in the last week of September, 1906, was \$2.98, while for the 31,921 who worked full time the average was \$3.08.



The following table shows the average earnings of the men, lads and boys, women, and girls, and of all employees who worked full time in each district:

AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN THE SHIRT, BLOUSE, UNDERCLOTHING, ETC., INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, BY DISTRICTS.

District.	Average full-time earnings of—				
	Men.	Lads and boys.	Wom-en.	Girls.	All employ-ees.
Yorkshire (excluding Cleveland), Lancashire, and Cheshire.....	\$7.66	\$2.29	\$3.31	\$1.74	\$3.04
North and West Midland counties.....	7.00	2.15	3.26	1.56	2.88
London.....	8.27	2.62	3.85	1.74	3.77
Rest of England and Wales.....	7.48	2.11	3.18	1.66	2.88
Scotland.....	7.36	2.29	3.24	1.60	2.98
Belfast.....	6.37	1.62	2.92	1.50	2.86
Londonderry (city).....	5.31	1.95	2.37	1.14	2.47
Rest of Ireland.....	5.29	1.50	2.49	1.64	2.43
United Kingdom.....	7.26	2.17	3.24	1.64	3.08

Of those who worked full time, 5 per cent were men, 2 per cent were lads and boys, 71 per cent were women, and 22 per cent were girls.

In the following table is shown the average earnings of the women in the more important branches of the industry and the per cent of women in each occupation whose earnings in the last week of September, 1906, fell within each specified class:

AVERAGE FULL-TIME EARNINGS OF WOMEN IN THE SHIRT, BLOUSE, UNDERCLOTHING, ETC., INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF WOMEN IN THAT INDUSTRY WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY OCCUPATIONS.

Occupation.	Average full-time earnings.	Per cent of women working full time whose earnings were—				
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Machine operators, piecework:						
Power.....	\$3.18	22.1	47.1	24.4	5.4	1.0
Hand or foot.....	3.55	14.7	42.0	28.7	11.4	3.2
Hand sewers, piecework:						
London.....	3.41	20.5	39.6	30.0	7.1	2.8
All districts.....	2.96	32.9	42.1	20.2	3.6	1.2
Starchers and ironers, piecework:						
Ireland.....	2.86	35.2	43.2	19.3	2.0	.3
All districts.....	3.02	28.8	44.8	22.9	2.9	.6
All workers, time and piece.....	3.24	22.2	46.0	23.5	6.1	2.2

### TAILORING INDUSTRIES.

Information was secured for 18,446 workpeople who were engaged in workshops in the making of clothing to the individual order of the customer. Of the 9,692 time workers, 33.8 per cent were men, 15.1 per cent were lads and boys, 36.2 per cent were women, and 14.9

per cent were girls. Of the 8,754 pieceworkers, 76.8 per cent were men, 0.4 per cent were lads or boys, 21.3 per cent were women, and 1.5 per cent were girls.

The following table shows the average earnings in the last week of September, 1906, of those employees who worked full time:

AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN THE CUSTOM CLOTHING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, BY DISTRICTS.

District.	Average full-time earnings of—				
	Men.	Lads and boys.	Women.	Girls.	All employees.
Northern counties and Cleveland.....	\$7.87	\$1.72	\$3.14	\$1.30	\$5.62
Yorkshire, Lancashire, and Cheshire.....	8.42	1.95	3.63	1.32	5.52
North and West Midland counties.....	8.29	1.85	3.47	1.34	4.99
London.....	10.40	2.43	3.93	1.74	6.59
Rest of England and Wales.....	7.44	1.24	2.88	.97	4.77
Scotland.....	7.62	1.60	3.45	1.44	5.15
Ireland.....	7.93	1.36	2.92	1.20	5.52
United Kingdom.....	8.15	1.68	3.45	1.32	5.37

Of the total number of workpeople, 54 per cent were men, and of the men nearly two-thirds were journeymen tailors engaged on piecework and nearly 12 per cent were journeymen tailors engaged on time work.

In the following table is shown the average earnings in the last week of September, 1906, of journeymen tailors on both time and piecework and of all men, and the distribution of these workers in wage groups in accordance with their earnings:

AVERAGE FULL-TIME EARNINGS OF MEN IN THE CUSTOM CLOTHING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF MEN IN THAT INDUSTRY WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY OCCUPATIONS.

Occupation.	Average full-time earnings.	Per cent of men working full time whose earnings were—			
		Under \$4.37.	\$4.37 and under \$7.30.	\$7.30 and under \$9.73.	\$9.73 and over.
Journeymen tailors:					
Time work.....	\$7.26	3.2	45.9	39.4	11.5
Piecework.....	7.14	5.9	53.9	29.4	10.8
All men.....	8.15	5.1	41.0	31.8	22.1

Information was secured for 24,364 workpeople engaged in factories in the manufacture of ready-made clothing. Of these, 34.7 per cent were time workers and 65.3 per cent were pieceworkers.

The respective average earnings in the various districts of the 20,121 workpeople who worked full time in the last week of September, 1906, are shown in the following table:

## AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN THE READY-MADE CLOTHING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, BY DISTRICTS.

District.	Average full-time earnings of—				
	Men.	Lads and boys.	Women.	Girls.	All employees.
Leeds.....	\$7.77	\$2.27	\$3.33	\$1.85	\$3.69
Manchester.....	8.25	2.21	3.31	1.48	3.79
Yorkshire, Lancashire, and Cheshire (excluding Leeds and Manchester).....	7.06	2.41	3.28	1.91	3.51
Bristol.....	8.46	2.17	2.88	1.24	3.31
North and West Midland counties (excluding Bristol).....	7.93	2.43	3.12	1.30	3.43
Norwich.....	6.89	2.09	2.62	1.34	2.96
South Midland and eastern counties (excluding Norwich).....	6.81	2.47	3.08	1.48	3.49
London.....	8.80	2.90	2.90	1.46	4.46
Rest of England and Wales.....	7.85	2.29	3.41	1.32	3.79
Scotland.....	8.76	2.31	3.39	1.48	3.65
Ireland.....	7.18	2.39	2.45	1.26	2.56
United Kingdom.....	7.77	2.37	3.14	1.58	3.57

Women constituted nearly three-fifths of the number of persons included in the returns from ready-made clothing factories, of whom more than one-half were operators of power sewing machines, while nearly one-fourth were hand sewers.

The average earnings of the women operators of power sewing machines who worked full time at piecework in the last week of September, 1906, and the per cent of such operators whose earnings fell within each specified wage group, are shown in the following table:

## AVERAGE FULL-TIME EARNINGS OF WOMEN OPERATORS OF POWER SEWING MACHINES IN THE READY-MADE CLOTHING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF SUCH SEWING MACHINE OPERATORS WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY DISTRICTS.

District.	Average full time earnings.	Per cent of women operators of power sewing machines working full time whose earnings were—				
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Leeds.....	\$3.49	10.5	48.1	32.6	7.7	1.1
Manchester.....	3.28	21.3	45.2	24.3	8.6	.6
Yorkshire Lancashire, and Cheshire (excluding Leeds and Manchester).....	3.31	19.9	47.4	22.4	8.2	2.1
Bristol.....	2.96	24.7	54.1	16.6	3.9	.7
North and West Midland counties (excluding Bristol).....	3.22	25.8	41.4	24.7	7.3	.8
Norwich.....	2.70	35.1	51.4	13.5	.....	.....
South Midland and Eastern counties (excluding Norwich).....	3.14	23.7	51.3	18.9	4.4	1.7
London.....	3.06	27.6	46.5	22.4	3.5	.....
Rest of England and Wales.....	3.31	24.4	48.2	14.7	7.1	5.6
Scotland.....	4.16	2.7	31.9	37.4	20.9	7.1
Ireland.....	2.39	58.7	30.0	9.7	1.6	.....
United Kingdom.....	3.26	21.5	46.0	24.3	6.8	1.4

In the following table is shown the average earnings of hand sewers who worked full time at piecework in the last week of September,

1906, and the per cent of women hand sewers whose wages were within certain specified wage groups:

**AVERAGE FULL-TIME EARNINGS OF WOMEN HAND SEWERS IN THE READY-MADE CLOTHING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF SUCH HAND SEWERS WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED GROUPS, BY DISTRICTS.**

District.	Average full time earnings.	Per cent of women hand sewers working full time whose earnings were—				
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Leeds.....	\$2.84	31.1	51.2	16.4	1.1	0.2
Manchester.....	2.86	25.0	52.8	22.2	.....	.....
Yorkshire, Lancashire, and Cheshire (excluding Leeds and Manchester).....	3.28	27.4	38.7	19.6	10.5	3.8
Bristol.....	2.29	53.5	43.1	3.4	.....	.....
North and West Midland counties (excluding Bristol).....	2.78	36.7	48.5	13.4	1.4	.....
Norwich.....	2.51	45.5	48.0	5.2	1.3	.....
South Midland and Eastern counties (excluding Norwich).....	2.53	50.7	43.8	5.5	.....	.....
London.....	2.31	60.3	36.4	3.3	.....	.....
Rest of England and Wales.....	2.60	48.7	41.0	7.7	2.6	.....
Scotland.....	3.10	22.7	50.4	24.4	2.5	.....
Ireland.....	2.07	74.3	22.9	2.8	.....	.....
United Kingdom.....	2.76	37.9	45.9	13.6	2.1	.5

### BOOT AND SHOE INDUSTRY.

Of the 124,200 operatives employed in boot, shoe, and clog making factories in the United Kingdom in 1904, about 86,600 were males and 37,600 were females. The number covered by the returns in the present investigation was 41,508, of which number 38,582 were employed in the wholesale manufacture of boots and shoes and the remainder in the custom work and repair branches of the industry and in clog making.

Of those employed in boot and shoe factories, 73.2 per cent worked full time in the last week of September, 1906. Their average earnings are shown in the table which follows:

**AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN BOOT AND SHOE FACTORIES IN THE LAST WEEK OF SEPTEMBER, 1906, BY DISTRICTS.**

District.	Average full-time earnings of—				
	Men.	Lads and boys.	Women.	Girls.	All employees.
Leicester.....	\$7.58	\$2.62	\$3.63	\$1.93	\$5.23
Leicestershire (excluding Leicester).....	6.75	2.76	3.39	2.01	4.60
Northampton.....	7.26	2.80	3.02	1.52	4.79
Kettering.....	7.13	2.98	3.22	1.63	5.07
Northamptonshire (excluding Northampton and Kettering).....	6.59	2.51	3.00	1.64	4.60
Stafford.....	7.16	2.25	2.62	1.16	4.66
Norwich.....	6.31	2.27	2.56	1.10	4.16
Bristol.....	6.45	2.37	2.82	1.48	4.40
Kingswood.....	6.77	2.41	2.72	1.34	4.36
London.....	7.42	2.66	3.04	1.56	4.85
Leeds.....	6.89	2.31	3.37	1.58	4.62
Manchester.....	6.73	3.04	4.26	2.53	4.74
Scotland.....	7.64	2.13	3.08	1.64	5.05
Rest of United Kingdom.....	6.45	2.31	3.00	1.56	4.26
United Kingdom.....	6.98	2.56	3.18	1.66	4.72

Men form 52 per cent of all the workpeople included in the returns. Of the total number of men, a little more than one-fourth were lasters or riveters and nearly one-fourth were finishers. Clickers or upper cutters made up nearly one-sixth of the number, and pressmen or rough-stuff cutters nearly one-twelfth.

The average earnings of men in these occupations and of all men in the last week of September, 1906, and the per cent of men whose earnings were within certain specified wage groups are shown in the following table:

AVERAGE FULL-TIME EARNINGS OF MEN IN BOOT AND SHOE FACTORIES IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF MEN WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY OCCUPATIONS.

Occupation.	Kind of work.	Average full-time earnings.	Per cent of men working full time whose earnings were—			
			Under \$4.87.	\$4.87 and under \$7.30.	\$7.30 and under \$9.73.	\$9.73 and over.
Clickers.....	Time....	\$6.98	0.3	61.7	37.5	0.5
Pressmen or rough stock cutters.....	Time....	6.47	2.0	76.6	21.2	.2
Lasters or riveters.....	Time....	7.40	.2	42.4	51.7	5.7
	Piece....	6.61	11.0	59.1	23.8	6.1
Finishers.....	Time....	7.10	.1	53.8	45.6	.5
	Piece....	7.42	5.1	47.2	36.1	11.6
All men.....		6.98	6.5	52.4	34.4	6.7

Women form 22 per cent of the employees included in the returns. More than one-half were machine operators or closers and nearly one-third were fitters. In the following table is shown the range of the earnings of women who worked full time in the last week of September, 1906, and their average earnings.

AVERAGE FULL-TIME EARNINGS OF WOMEN IN BOOT AND SHOE FACTORIES IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF WOMEN WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY OCCUPATIONS.

Occupation.	Kind of work.	Average full-time earnings.	Per cent of women working full time whose earnings were—				
			Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Fitters.....	Time....	\$3.08	12.0	64.3	23.2	0.5	.....
Machine operators or closers.....	Time....	3.06	11.8	64.3	23.5	.4	.....
	Piece....	3.79	6.0	40.0	40.0	11.9	2.1
All women.....		3.18	12.4	58.9	25.2	2.8	.7

### SILK AND FELT HAT INDUSTRY.

Over 80 per cent of the 5,112 workpeople in this industry regarding whom returns were received were employed in works in Lancashire and Cheshire. Men were nearly one-half and women nearly one-third of the total number. Nearly three-fourths of the women were trim-

mers, while of the men the largest groups were plunkers and twisters, and finishers.

In the following table is given the average earnings of the employees in this industry who worked full time in the last week of September, 1906, and the per cent of employees whose earnings fell within the specified wage groups:

AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN THE SILK AND FELT HAT INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF EMPLOYEES WHOSE EARNINGS WERE WITHIN CERTAIN SPECIFIED WAGE GROUPS, BY OCCUPATIONS.

Occupation.	Average full time earnings.	Per cent working full time whose earnings were—						
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and under \$7.30.	\$7.30 and under \$9.73.	\$9.73 and over.
Men:								
Plunkers and twisters, piecework.	\$3.46	.....	.....	.....	6.6	21.6	49.3	22.5
Finishers, piecework.....	9.79	.....	.....	.....	.4	6.5	46.1	47.0
All men.....	8.33	.....	0.5	5.2	10.2	12.6	44.6	26.9
Women:								
Trimmers, piecework.....	3.93	6.5	36.3	33.6	22.6	.9	.1	.....
All women.....	3.97	8.1	35.0	32.3	20.5	2.4	1.7	.....
Lads and boys.....	3.06	33.1	38.7	15.3	8.0	4.3	.6	.....
Girls.....	1.91	80.4	18.1	1.5	.....	.....	.....	.....

### MISCELLANEOUS CLOTHING INDUSTRIES.

Of the 12,918 workpeople included in the returns received for these industries, 2,705 were men, 653 were lads and boys, 7,581 were women, and 1,979 were girls.

The average earnings of those employees in these industries who worked full time in the last week of September, 1906, are shown in the following table:

AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN EACH OF THE MISCELLANEOUS CLOTHING INDUSTRIES IN THE LAST WEEK OF SEPTEMBER, 1906, BY INDUSTRIES.

Industry.	Average full-time earnings of—				
	Men.	Lads and boys.	Women.	Girls.	All employees.
Leather glove.....	\$7.20	\$1.85	\$2.94	\$1.44	\$4.06
Corset (factory).....	7.04	2.51	2.96	1.52	3.02
Fur.....	8.66	2.56	4.04	1.74	5.07
Straw hat and bonnet.....	8.92	2.45	4.87	2.72	5.52
Other clothing.....	7.36	2.76	3.14	1.50	3.28

Under the classification "other clothing" trades are included returns from manufacturers of caps and tweed hats, artificial flowers, and from hatters' furriers.

### DYEING AND CLEANING.

The returns received from establishments in this industry include 6,200 workpeople, of whom 1,762 were men, 487 lads and boys, 2,940 women, and 1,011 girls.

The average earnings of those employees in the dyeing and cleaning industry who worked full time in the last week of September, 1906, and the percentage distribution of such employees in the various wage groups is shown in the following table:

AVERAGE FULL-TIME EARNINGS OF EMPLOYEES IN THE DYEING AND CLEANING INDUSTRY IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF EMPLOYEES IN THAT INDUSTRY WHOSE EARNINGS WERE WITHIN EACH SPECIFIED WAGE GROUP, BY SEX.

Sex.	Average full time earnings.	Per cent of employees working full time whose earnings were—						
		Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and under \$7.30.	\$7.30 and under \$9.73.	\$9.73 and over.
Men.....	\$7.18	.....	0.5	3.4	22.5	34.9	28.1	10.6
Women.....	3.37	9.3	55.3	27.7	5.5	1.1	1.1	.....
Lads and boys.....	2.58	45.9	34.8	17.3	2.0	.....	.....	.....
Girls.....	1.74	91.9	7.9	.1	.1	.....	.....	.....

### LAUNDRIES.

Returns were received from laundries which covered 33,626 employees, of whom 28,437 were employed in power laundries and 5,189 in hand laundries. Of those employed in power laundries 69 per cent were women, and of these nearly one half were hand ironers.

The average earnings of those women who worked full time in the last week of September, 1906, and the percentage distribution of such women workers in wage groups is shown in the following table:

AVERAGE FULL-TIME EARNINGS OF WOMEN IN POWER LAUNDRIES IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF SUCH WOMEN WHOSE EARNINGS WERE WITHIN EACH SPECIFIED WAGE GROUP, BY OCCUPATIONS.

Occupation.	Kind of work.	Average full time earnings.	Per cent of women working full time whose earnings were—					
			Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and under \$7.30.	\$7.30 and over.
Washers.....	Time....	\$2.92	14.3	69.9	15.0	0.8	.....	.....
Calenderers.....	Time....	2.47	42.6	53.1	4.1	.1	0.1	.....
Hand ironers:								
Shirt.....	{Time....	3.37	9.7	50.2	30.8	8.3	1.0	.....
	{Piece....	3.53	5.1	53.2	34.7	5.8	1.1	0.1
Finery.....	{Time....	3.28	9.5	56.5	31.1	2.9	.....	.....
	{Piece....	3.37	13.6	51.9	27.3	6.4	.6	.2
Body linen.....	{Time....	2.80	26.6	58.1	14.9	.4	.....	.....
	{Piece....	2.92	25.9	56.4	15.6	2.1	.....	.....
Other.....	{Time....	2.80	27.7	57.8	14.0	.5	.....	.....
	{Piece....	3.10	21.1	52.7	22.8	3.4	.....	.....
Machine ironers.....	{Time....	2.94	22.4	55.2	19.9	2.4	.1	.....
	{Piece....	3.35	20.1	41.1	31.2	5.8	1.3	.5
Receivers, markers, sorters, and packers.	Time....	3.20	17.3	48.2	27.6	6.2	.6	.1
All women.....		3.12	20.5	52.0	21.1	4.7	1.0	.7

Of those employed in hand laundries, 85 per cent were women over 18 years of age, and of these, one-half were ironers and nearly one-third were washerwomen.

The following table shows the average earnings of women in hand laundries who worked full time in the last week of September, 1906, and the per cent of such operatives whose earnings were within each wage group:

AVERAGE FULL-TIME EARNINGS OF WOMEN IN HAND LAUNDRIES IN THE LAST WEEK OF SEPTEMBER, 1906, AND THE PER CENT OF SUCH WOMEN WORKERS WHOSE EARNINGS WERE WITHIN EACH SPECIFIED WAGE GROUP, BY OCCUPATIONS.

Occupation.	Kind of work.	Average full-time earnings.	Per cent of women working full time whose earnings were—				
			Under \$2.43.	\$2.43 and under \$3.65.	\$3.65 and under \$4.87.	\$4.87 and under \$6.08.	\$6.08 and over.
Washers.....	Time....	\$2.92	9.2	78.0	12.8	.....	.....
Ironers.....	Time....	3.06	10.9	65.9	22.9	0.3	.....
Receivers, markers, sorters, and packers.	Piece....	3.33	5.9	62.9	27.2	4.0	.....
	Time....	3.31	12.8	51.3	26.2	9.7	.....
All women.....	.....	3.10	12.2	63.8	20.5	2.9	0.6



## RECENT REPORTS OF STATE BUREAUS OF LABOR STATISTICS.

### LOUISIANA.

*Report of the Bureau of Statistics of Labor for the State of Louisiana, 1906-1907.* Robert E. Lee, Commissioner. 55 pp.

This is the fourth biennial report of labor statistics for the State. The subject-matter is treated in 7 chapters, as follows: Labor laws of 1906, 9 pages; child labor, 11 pages; report of the female factory inspector of New Orleans, 7 pages; statistics of manufactures, 6 pages; strikes and lockouts, 5 pages; extracts from the constitution of Oklahoma, 6 pages, and immigration statistics, 1 page.

**LABOR LAWS.**—Under this caption the laws enacted by the Louisiana general assembly during the session of 1906, affecting labor, are reproduced.

**CHILD LABOR.**—Abstracts of the child-labor laws of the various States are given under this title.

**STRIKES AND LOCKOUTS, 1906 and 1907.**—This is a detailed record of industrial disputes occurring in the State during the period covered by this report.

### MASSACHUSETTS.

*Thirty-ninth Annual Report on the Statistics of Labor for the Year 1908.* Charles F. Gettemy, Director. xii, 319 pp.

This report is made up of three parts, as follows: Part I, Strikes and lockouts for the year 1908, 140 pages; Part II, Labor organizations, 76 pages; Part III, Changes in rates of wages and hours of labor, 103 pages.

**STRIKES AND LOCKOUTS FOR THE YEAR 1908.**—Of the 102 labor disputes during the year 1908, 98 were strikes and 4 were lockouts. The number of strikes shows a decrease of 138 over that of the previous year. The industries in which labor disputes occurred, with the number of disputes in each, follow: Building and stone working, 31; clothing, 21; food, liquors, and tobacco, 7; leather and rubber

goods, 4; metals, machinery, and shipbuilding, 4; printing and allied trades, 1; public employment, 1; restaurants and retail trade, 2; textiles, 17; transportation, 6; and miscellaneous, 8. The following table shows the number of strikes by causes, the number of strikers and establishments involved, and the working days lost:

STRIKES, BY CAUSES, STRIKERS AND ESTABLISHMENTS INVOLVED, AND WORKING DAYS LOST, 1908.

[Strikes due to two or more causes are tabulated under each cause.]

Cause.	Strikes.	Strikers involved.	Estab-lishments involved.	Working days lost.
For increase of wages.....	34	1,758	168	34,014
For increase of wages combined with other causes.....	6	489	8	4,430
Against decrease of wages.....	13	585	17	17,432
Against decrease of wages combined with other causes.....	1	115	2	1,265
Concerning system of payment of wages.....	3	28	3	259
Other causes connected with wages.....	3	32	4	217
For decrease of hours.....	3	226	48	1,734
For decrease of hours combined with other causes.....	4	463	4	4,130
Other causes connected with hours.....	2	42	5	11
Against employment of women instead of men.....	1	18	1	36
For reinstatement of discharged employee.....	2	23	2	1,093
For reinstatement of discharged employee combined with other causes.....	1	8	1	120
Against employment of certain officials.....	2	540	2	4,920
Other causes connected with employment of particular classes of persons.....	1	299	1	299
For change in working conditions.....	4	186	4	876
For change combined with other causes.....	1	115	2	1,265
Against change in working conditions.....	7	431	7	18,603
Other causes connected with working conditions.....	1	6	1	36
For union shop.....	7	401	7	809
For union shop combined with other causes.....	2	1,297	117	16,105
For recognition of union.....	2	63	5	389
For apprentice rules.....	1	3	1	30
For apprentice rules combined with other causes.....	2	1,129	119	15,739
For other union rules.....	1	9	1	9
For other union rules combined with other causes.....	1	1,111	116	15,559
In sympathy.....	3	1,487	68	17,954

The employees of 11 establishments, 108 in number, were involved in the 4 lockouts of the year and lost an aggregate of 2,430 working days. In the following table is shown the duration, the number of strikers participating, and the establishments affected in the strikes which succeeded, partly succeeded, and failed:

## NUMBER OF STRIKERS AND OF ESTABLISHMENTS INVOLVED, BY DURATION AND RESULT OF STRIKES, 1908.

Duration.	Strikers in strikes which—			Establishments in which strikes—			Duration.	Strikers in strikes which—			Establishments in which strikes—		
	Suc- ceed- ed.	Part- ly suc- ceed- ed.	Fail- ed.	Suc- ceed- ed.	Part- ly suc- ceed- ed.	Fail- ed.		Suc- ceed- ed.	Part- ly suc- ceed- ed.	Fail- ed.	Suc- ceed- ed.	Part- ly suc- ceed- ed.	Fail- ed.
1 day.....	363	16	798	5	1	32	23 days.....	126	37	.....	12	27	27
2 days.....	43	42	40	4	3	7	24 days.....	.....	6	.....	.....	2	2
3 days.....	130	123	153	11	1	16	25 days.....	.....	14	.....	.....	1	1
3 1/2 days.....	104	.....	.....	1	.....	.....	27 days.....	92	.....	1	.....	.....	.....
4 days.....	61	9	263	2	2	23	29 days.....	.....	45	.....	.....	1	1
5 days.....	.....	24	35	.....	1	5	30 days.....	.....	7	.....	.....	2	2
6 days.....	9	.....	252	3	.....	10	32 days.....	12	.....	.....	1	.....	.....
7 days.....	.....	.....	5	.....	.....	2	34 days.....	12	.....	.....	1	.....	.....
8 days.....	.....	5	48	.....	1	1	36 days.....	54	.....	.....	1	.....	.....
9 days.....	38	.....	5	5	.....	2	38 days.....	58	155	.....	3	.....	1
10 days.....	96	100	67	5	1	6	40 days.....	50	.....	.....	1	.....	.....
11 days.....	34	115	5	3	2	1	42 days.....	217	.....	.....	4	.....	.....
12 days.....	984	41	44	43	1	3	44 days.....	67	.....	.....	2	.....	.....
13 days.....	173	.....	34	33	.....	3	46 days.....	9	.....	.....	.....	.....	.....
14 days.....	209	1,106	26	10	114	10	48 days.....	.....	5	.....	.....	2	2
15 days.....	.....	13	102	.....	3	1	50 days.....	78	.....	.....	4	.....	.....
16 days.....	.....	61	5	.....	1	1	52 days.....	3	1	1	.....	1	1
17 days.....	.....	.....	6	.....	.....	1	54 days.....	.....	5	.....	1	.....	.....
18 days.....	5	13	502	2	1	2	56 days.....	.....	20	.....	.....	1	1
19 days.....	12	.....	13	1	.....	2	58 days.....	.....	35	.....	.....	1	1
20 days.....	64	.....	4	1	.....	3	60 days.....	.....	123	.....	.....	1	1
21 days.....	.....	.....	2	.....	.....	2	62 days.....	.....	217	.....	.....	1	1
22 days.....	.....	.....	2	.....	.....	1	64 days.....	.....	.....	.....	.....	.....	.....
Total.....								2,420	2,356	3,076	131	165	175

LABOR ORGANIZATIONS.—Of the 1,256 local unions in the State, 1,172 reported a combined membership in 1908 of 162,373. This membership was distributed among the various industries as follows: Building and stone working, 33,172; clothing trades, 32,537; food, liquor, and tobacco trades, 6,970; leather and rubber goods, 1,068; metals, machinery, and shipbuilding, 10,351; printing and allied trades, 4,550; public employment, 5,509; restaurant and retail trade, 6,050; textiles, 14,275; transportation, 35,291; woodworking and furniture, 2,017; and miscellaneous, 10,583.

Of the 937 unions which reported the classes of benefits paid, sick benefits were paid by 278, accident benefits by 201, death benefits by 503, out-of-work benefits by 76, and strike benefits by 463.

The following table shows the percentage of unionists idle in each industry at the end of each quarter of the year 1908:

PER CENT OF MEMBERS OF LABOR UNIONS IDLE AT THE END OF MARCH, JUNE, SEPTEMBER, AND DECEMBER, 1908, BY INDUSTRIES.

Industry.	Per cent idle at the end of—			
	March, 1908.	June, 1908.	September, 1908.	December, 1908.
Building and stone working.....	24.86	17.76	9.16	22.99
Clothing.....	8.91	20.81	17.68	7.73
Food, liquors, and tobacco.....	11.00	7.04	9.21	23.75
Leather and rubber goods.....	21.29	3.94	1.48	8.62
Metals, machinery, and shipbuilding.....	16.38	19.04	15.09	17.43
Paper and paper goods.....			87.77	1.37
Printing and allied trades.....	8.98	10.48	12.57	9.37
Public employment.....	77.58	5.70	6.82	12.71
Restaurants and retail trade.....	4.29	13.43	5.87	7.59
Textiles.....	43.92	13.56	15.52	20.86
Transportation.....	13.28	8.90	4.75	5.69
Woodworking and furniture.....	23.31	27.27	9.38	15.23
Miscellaneous.....	11.18	13.35	4.42	6.51
Total.....	17.90	14.41	10.62	13.94

CHANGES IN RATES OF WAGES AND HOURS OF LABOR.—During the year 1908 increase in wages was given to 5,947 employees, averaging \$1.57 per week. Decrease in wages was reported for 95,420 employees at an average of \$1.04. During the same period hours of labor were shortened for 4,428 employees, resulting in an average reduction of 5.4 hours a week for each employee affected.

*Twenty-third Annual Report on the Statistics of Manufactures for the year 1908.* xxxvi, 127 pp.

The statistics presented are computed from the returns of 6,044 establishments, or 373 more than reported for the previous year. The aggregate value of the goods produced, however, was less than that of 1907 by \$191,622,473, or a decline of 14 per cent.

The following table presents statistics separately for 10 principal industries, in aggregate for all other industries, and totals for the State for the year 1908.

STATISTICS OF MANUFACTURES, 1908.

Industry.	Number of establishments.	Capital devoted to production.	Value of stock used.	Value of goods made.	Total wages paid.
Boots and shoes.....	727	\$41,978,153	\$137,811,270	\$213,506,562	\$42,460,108
Cotton goods.....	177	156,305,974	92,951,308	156,048,533	40,228,037
Dyeing and finishing textiles.....	39	17,280,320	4,813,146	11,117,585	3,302,508
Electrical machinery, apparatus, and supplies.....	62	13,199,504	8,569,255	18,065,968	5,884,393
Foundry and machine shop products.....	519	60,525,711	20,731,813	56,208,811	18,699,125
Leather, tanned, curried, and finished.....	121	26,799,414	29,850,511	41,613,182	4,950,120
Liquors, malt.....	38	18,547,442	4,575,328	13,065,418	1,532,466
Paper and wood pulp.....	92	28,966,844	18,093,119	32,087,321	5,569,968
Woolen goods.....	108	22,783,447	18,505,888	31,650,102	6,873,855
Worsted goods.....	55	53,859,049	44,074,064	71,783,701	11,943,342
Other industries.....	4,106	271,486,597	289,724,037	528,231,599	103,754,258
Total.....	6,044	717,987,955	669,259,739	1,172,808,782	245,207,180

Data relative to employees, earnings, days in operation, and proportion of business done are presented in the table following:

AVERAGE NUMBER OF EMPLOYEES, AVERAGE YEARLY EARNINGS, AVERAGE DAYS IN OPERATION, AND PROPORTION OF BUSINESS DONE IN 10 PRINCIPAL INDUSTRIES AND IN ALL INDUSTRIES, 1908.

Industry.	Average number of employees.			Average yearly earnings.	Average days in operation.	Proportion of business done.
	Males.	Females.	Total.			
Boots and shoes.....	51,444	25,481	76,925	\$551.97	285.16	63.74
Cotton goods.....	48,066	42,979	91,045	438.96	271.48	75.29
Dyeing and finishing textiles.....	5,752	1,317	7,069	467.18	270.04	61.08
Electrical machinery, apparatus, and supplies.....	8,631	1,907	10,538	558.40	256.15	53.11
Foundry and machine shop products.....	30,061	451	31,112	601.03	233.62	56.91
Leather, tanned, curried, and finished.....	9,106	121	9,227	537.46	285.17	56.93
Liquors, malt.....	1,740	.....	1,740	880.73	300.21	57.13
Paper and wood pulp.....	7,530	3,800	11,390	489.02	253.56	71.76
Woolen goods.....	9,965	5,126	15,091	455.49	253.92	53.68
Worsted goods.....	13,825	13,053	26,878	444.35	293.36	69.36
Other industries.....	135,988	62,531	198,519	522.64	275.44	61.12
Total.....	323,308	153,826	480,134	510.71	275.04	61.40

The table following shows the number of employees (wage-earners) of each sex earning the indicated weekly wages. The number of employees given is the number reported in each industry for the week in which the largest number was employed, and does not, therefore, agree with the number shown in the table preceding.

NUMBER OF MALE AND FEMALE ADULTS AND OF YOUNG PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, BY CLASSIFIED WEEKLY WAGES, 1908.

Classified weekly wages.	Persons 21 years of age and over.		Young persons (under 21).	Total.
	Males.	Females.		
Under \$3.....	1,237	1,883	1,707	4,827
\$3 and under \$5.....	3,812	9,062	17,645	30,519
\$5 and under \$6.....	6,216	14,610	17,919	38,745
\$6 and under \$7.....	13,584	23,309	18,057	54,950
\$7 and under \$8.....	22,469	24,414	10,854	57,737
\$8 and under \$9.....	31,472	21,780	6,399	59,651
\$9 and under \$10.....	41,399	18,609	4,196	64,204
\$10 and under \$12.....	61,632	18,426	2,810	82,868
\$12 and under \$15.....	70,293	8,769	1,032	80,094
\$15 and under \$20.....	69,996	3,863	281	73,640
\$20 and under \$25.....	19,638	550	21	20,209
\$25 and over.....	8,370	160	23	8,553
Total.....	350,118	144,935	80,944	575,997

### MINNESOTA.

*Eleventh Biennial Report of the Bureau of Labor, Industries and Commerce of the State of Minnesota, 1907-1908.* W. H. Williams, Commissioner, 257 pp.

The subjects presented in this report are: Factory inspection, 75 pages; child labor, 3 pages; state free employment bureaus, 19 pages; labor organizations, 72 pages; railroad switch yards, 15 pages; mining, 48 pages; labor laws, 4 pages.

**CHILD LABOR.**—During the year 1907 there were 1,083 permits issued by school superintendents to children under 16 years of age, and in the spring period of 1908, 744 such permits were issued. In 1907 the factory inspectors found 649 and in 1908 but 581 children employed in the manufacturing plants of the State.

**FREE EMPLOYMENT OFFICES.**—A summary of the operations of the free employment office located at Minneapolis for the two years ending July 31, 1908, of the office at St. Paul from May 15, 1907, to July 31, 1908, and of the office at Duluth from June 1, 1907, to July 31, 1908, is shown in the following table:

OPERATIONS OF FREE PUBLIC EMPLOYMENT OFFICES.

City.	Situations wanted.		Help wanted.		Positions secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
Minneapolis.....	12,631	11,441	12,493	12,971	11,840	11,259
St. Paul.....	3,145	1,785	3,172	2,723	3,115	1,564
Duluth.....	7,355	1,404	7,347	1,843	7,339	1,397
Total.....	23,131	14,630	23,012	17,537	22,294	14,220

The total of 36,524 positions were secured, at an average cost to the State of \$0.40 each.

**LABOR ORGANIZATIONS.**—Statistics of labor organizations in the State for the years 1907 and 1908 are presented in this section. Tables show by localities names of organizations, with date of organization, membership, number of members employed, and monthly dues; character and amount of benefit features; actual amount of benefits paid in 1907; and hours of labor per day and per week, union scale of wages of male and female members, increase in wages and decrease in hours of labor since 1906. The State as a whole showed an increase in number of organizations and in membership, there being, in 1908, 354 unions reporting a membership of 34,757, as compared with 339 unions in 1906 with a membership of 27,978.

**RAILROAD SWITCH YARDS.**—Reports of the inspection of the 81,357 foot blocks inspected by representatives of the bureau of labor in the fall of 1907 show that 77.7 per cent were in good condition, 19.6 were in bad condition, and 2.7 per cent were missing. Of the 117,265 foot blocks inspected in the spring of 1908, 65.3 per cent were found to be in good condition, 30.3 per cent in bad condition, and 4.4 per cent to be missing.

**MINING.**—In this section are presented statistics of the iron-ore mining industry of the State. A condensed summary of the operations of the mines for the two years ending June 30, 1908, is presented in the following table.

## IRON MINE STATISTICS, 1907 AND 1908.

Items.	Year.	
	1907.	1908.
Number of mines in operation.....	91	93
Average number of employees.....	15,535	13,313
Average daily wages, underground.....	\$2.46	\$2.48
Average daily wages, surface and skilled laborer.....	\$2.73	\$2.67
Tons of ore shipped.....	26,543,675	21,413,247
Fatal accidents.....	81	54
Nonfatal accidents.....	66	54

**LABOR LAWS.**—The text of the laws of several States relating to the hours of labor and the ventilation and cleanliness of workshops is here given.

**NEW YORK.**

*Seventh Annual Report of the Department of Labor, for the twelve months ended September 30, 1907.* Transmitted to the legislature January 1, 1908. John Williams, Commissioner. Part I, 272 pp.; Part II, 282 pp.; Part III, 603 pp.; Part IV, xcvi, 934 pp.

Part I consists of the annual report of the commissioner of labor relative to the operation of the department of labor, preliminary reports of the bureau of factory inspection and the bureau of mediation and arbitration, and the labor laws in force in the State October 1, 1907; Part II, Twenty-second annual report of the bureau of factory inspection; Part III, Twenty-first annual report of the bureau of mediation and arbitration; Part IV, Twenty-fifth annual report of the bureau of labor statistics.

*Twenty-fifth Annual Report of the Bureau of Labor Statistics, for the year ended September 30, 1907.*

This part embraces the following subjects: Economic condition of labor, 42 pages; trade unions in 1907, 14 pages; trade union initiation fees and dues, 32 pages; appendixes containing statistical tables, 918 pages; copies of forms used, 8 pages.

**THE STATE OF EMPLOYMENT.**—This chapter presents a continuous record, showing the number and percentage of members of labor unions unemployed in 1907, causes of and duration of idleness as reported by the officers of unions representing approximately one-fourth the membership of trade unions in the State, and comparative statistics for the preceding year. The smallest number of unions reporting for any month in 1907 was 191 and the largest number was 194, while the workpeople embraced by these monthly reports varied from 92,797 to 100,965. From the returns it appears that the state of employment was less favorable in 1907 than in either 1905 or 1906, the percentage of unemployment for those reporting for the three years being as follows: 1905, 11.2; 1906, 9.3, and 1907. 16.2.

The following table shows the number and percentage of unionists idle at the end of March and September, 1906 and 1907, by causes:

NUMBER AND PER CENT OF MEMBERS OF LABOR UNIONS IDLE AT THE END OF MARCH AND SEPTEMBER, 1906 AND 1907, BY CAUSES.

Cause.	End of March, 1906.		End of September, 1906.		End of March, 1907.		End of September, 1907.	
	Number idle.	Per cent.	Number idle.	Per cent.	Number idle.	Per cent.	Number idle.	Per cent.
Lack of work.....	16,719	44.9	11,645	54.0	52,031	67.3	29,301	68.9
Lack of material.....	1,897	3.7	753	3.5	1,819	2.4	1,752	4.1
The weather.....	10,682	28.7	666	3.1	15,472	20.0	569	1.3
Labor disputes.....	4,787	12.9	3,919	18.2	3,970	5.2	6,916	16.3
Disability.....	3,005	8.1	3,127	14.5	3,563	4.6	3,442	8.1
Other causes.....	552	1.5	1,216	5.6	815	.4	343	.8
Reason not stated.....	95	.2	247	1.1	100	.1	233	.5
Total.....	37,237	100.0	21,573	100.0	77,270	100.0	42,556	100.0

**WAGES AND EARNINGS.**—Returns received from trade unions for the year 1907 show that an average weekly increase of \$2.49 in wages was obtained by 72,125 males, and that 1,435 females obtained an average weekly increase of \$12.11, while 2,685 males suffered an average weekly decrease of \$1.26 in wages. The large increase in average wages was due to the advance of \$17 per week obtained by one large actors' union. Omitting this change the average weekly increase in 1907 would be \$1.48.

The following table shows the average earnings for the first and third quarters and for six months, as reported by trade unions in 1907:

NUMBER AND AVERAGE EARNINGS OF ORGANIZED WORKING PEOPLE REPORTING FOR THE FIRST AND THIRD QUARTERS OF 1907, BY SEX AND GROUPS OF INDUSTRIES.

Industry group.	Males.					Females.				
	Number reporting.		Average earnings.			Number reporting.		Average earnings.		
	First quarter.	Third quarter.	First quarter.	Third quarter.	Six months.	First quarter.	Third quarter.	First quarter.	Third quarter.	Six months.
Building, stone working, etc.....	143,680	146,262	\$197.57	\$245.02	\$442.59					
Transportation.....	65,199	69,625	224.12	221.87	445.99	178	497	\$149.40	\$99.45	\$248.85
Clothing and textiles..	32,250	38,076	154.21	168.54	392.75	6,311	6,842	89.65	99.22	188.87
Metals, machinery, and shipbuilding....	38,637	37,715	221.93	223.70	445.63	404	249	39.97	118.39	158.36
Printing, binding, etc.	24,443	24,523	239.94	241.13	481.07	1,353	1,470	108.04	110.63	218.67
Woodworking and furniture.....	12,133	11,371	187.35	200.91	388.26	56	45	95.54	93.74	189.28
Food and liquors.....	13,771	14,346	187.91	198.08	385.99					
Theaters and music....	8,994	11,718	310.63	464.40	775.03	680	1,222	420.29	592.09	1,012.38
Tobacco.....	9,032	9,262	151.67	158.14	309.81	2,552	2,604	150.52	149.92	300.44
Restaurants and retail trade.....	7,685	8,229	186.21	191.06	377.27	226	200	70.62	79.08	149.70
Public employment....	9,250	10,554	205.50	233.29	438.79	65	62	138.79	146.60	285.39
Stationary enginemn....	13,886	13,904	257.46	260.31	517.77					
Miscellaneous.....	13,037	13,128	194.21	168.07	362.28	384	210	94.71	78.23	172.94
Total.....	391,997	408,713	204.92	223.57	431.49	12,209	13,401	124.99	156.27	281.26



**COURSE OF WAGES AND EARNINGS.**—Under this title tables are presented in which, by means of index numbers based upon the earnings in the years 1899 to 1901, the course of per diem and half-yearly earnings are shown for the 10-year period, 1897 to 1907, for 46 trades. A comparison of the simple averages of these index numbers for the various years indicates an increase of 22.9 per cent in per diem and of 31.2 per cent in half-yearly earnings in the 10-year period. The excess of the latter figure was due to the increased volume of employment during the period.

**THE COST OF LIVING.**—As the result of investigations conducted in the five principal cities of the State it was found that in the 10-year period, 1897 to 1907, the cost of rents had increased 24 per cent; fuel, 15 per cent; clothing, 20 per cent; and furniture and utensils, 19 per cent, while the cost of lighting had decreased 16 per cent. These figures, when combined with those of the United States Bureau of Labor representing the retail price of food (<sup>a</sup>), show an increased cost of living for the 10-year period of 22 per cent.

**HOURS OF LABOR.**—Of over 1,000,000 operatives employed in factories visited during the year, 56.2 per cent were working less than 58 hours per week. In 1901 the percentage of such employees working less than 58 hours per week was 38. Returns from workingmen's associations show that during the year 1907 11,886 working people had their hours of labor reduced. The number of persons so benefited in 1907 was less than in 1906, but greater than in either 1904 or 1905. The hours of 702 working people were increased in 1907.

The following table shows, by industries, the reductions in hours of labor per week and the number of organized workers affected:

REDUCTIONS IN WEEKLY HOURS OF LABOR OF MEMBERS OF LABOR ORGANIZATIONS AND MEMBERS AFFECTED, AS REPORTED BY LABOR UNIONS FOR THE YEAR ENDING SEPTEMBER 30, 1907.

Industry.	Members affected.	Total hours.	Average hours per week.	Members obtaining the eight-hour day.
Building, stone working, etc.....	4, 101	20, 082	4. 9	1, 855
Transportation.....	2, 556	30, 546	12. 0	35
Clothing and textiles.....	1, 258	3, 547	2. 8	.....
Metals, machinery, and shipbuilding.....	956	4, 309	4. 5	100
Printing, binding, etc.....	356	456	1. 3	.....
Woodworking and furniture.....	449	543	1. 2	18
Food and liquors.....	368	1, 645	4. 5	126
Restaurants and retail trade.....	66	258	3. 9	.....
Stationary enginemn.....	104	2, 709	26. 0	101
Miscellaneous.....	1, 672	17, 614	10. 5	899
Total.....	11, 886	81, 709	6. 9	3, 134

**TRADE UNIONS.**—On September 30, 1907, there were in the State 2,497 organizations, having a membership of 436,792. This is an increase for the year of 77 unions and 38,298 members.

<sup>a</sup> Bulletin No. 77, p. 185.

The following table shows the number of unions and the number of members, by sex, in each year from 1898 to 1907:

NUMBER OF TRADE UNIONS AND MEMBERSHIP, BY SEX, 1898 TO 1907.

Date.	Number of unions.	Membership.		
		Males.	Females.	Total.
September 30, 1898.....	1,087	163,562	7,505	171,067
September 30, 1899.....	1,320	200,932	8,088	209,020
September 30, 1900.....	1,635	233,553	11,828	245,381
September 30, 1901.....	1,871	261,523	14,618	276,141
September 30, 1902.....	2,229	313,592	15,509	329,101
September 30, 1903.....	2,583	380,845	14,753	395,598
September 30, 1904.....	2,504	378,859	12,817	391,676
September 30, 1905.....	2,402	370,971	12,265	383,236
September 30, 1906.....	2,420	386,869	11,625	398,494
September 30, 1907.....	2,497	422,561	14,231	436,792

Of the 2,497 unions, with a total membership of 436,792 on September 30, 1907, 712 unions, having a membership of 286,180, were located in New York City. There were 17 unions with a membership of 3,519 composed entirely of women, and in the unions composed of both males and females there were 10,712 female unionists, making a total of 14,231 female members of trade unions, of whom 7,495 were in the clothing and textile industries, 2,608 were in the tobacco industries, and 1,475 in the printing and binding industries.

The following table gives the membership of trade unions, by industries, on September 30, for the years 1898 to 1907:

MEMBERSHIP OF TRADE UNIONS, BY INDUSTRIES, 1898 TO 1907.

Industry.	1898.	1899.	1900.	1901.	1902.
Building, stone working, etc.....	59,676	70,031	79,705	84,732	90,817
Clothing and textiles.....	26,444	29,644	28,783	41,843	46,964
Metals, machinery, and shipbuilding.....	11,621	17,779	24,153	25,616	38,201
Transportation.....	19,065	25,981	32,979	37,923	42,624
Printing, binding, etc.....	15,090	16,051	17,145	18,061	21,170
Tobacco.....	8,889	8,886	12,349	10,210	11,049
Food and liquors.....	6,469	7,935	8,987	8,729	12,528
Theaters and music.....	9,346	9,518	9,698	11,688	11,588
Woodworking and furniture.....	4,468	6,571	8,037	8,113	12,247
Restaurants and retail trade.....	2,419	3,551	5,156	6,394	8,810
Public employment.....	1,880	3,797	7,148	8,142	9,160
Stationary enginemn.....	3,738	5,204	5,666	7,566	8,111
Miscellaneous.....	1,962	4,072	5,575	7,124	15,642
Total.....	171,067	209,020	245,381	276,141	329,101

  

Industry.	1903.	1904.	1905.	1906.	1907.
Building, stone working, etc.....	110,173	119,597	123,698	147,393	150,062
Clothing and textiles.....	40,981	36,090	34,406	35,259	47,438
Metals, machinery, and shipbuilding.....	48,230	36,971	34,163	35,936	38,074
Transportation.....	63,791	72,257	62,871	61,540	72,771
Printing, binding, etc.....	23,915	25,348	26,192	26,740	26,148
Tobacco.....	12,435	12,354	12,115	11,888	11,838
Food and liquors.....	15,757	15,394	13,603	13,513	14,357
Theaters and music.....	11,674	13,614	13,224	13,439	16,236
Woodworking and furniture.....	16,916	12,771	11,179	12,577	12,160
Restaurants and retail trade.....	12,389	12,764	10,307	7,903	8,536
Public employment.....	9,753	9,538	9,846	9,419	10,711
Stationary enginemn.....	11,106	12,702	12,037	12,650	14,574
Miscellaneous.....	18,418	12,276	10,095	10,237	13,817
Total.....	395,598	391,676	383,236	398,494	436,792

The number and membership of trade unions in New York City and for the State, exclusive of New York City, for each year ending September 30, 1898 to 1907, are shown in the following table:

NUMBER AND MEMBERSHIP OF TRADE UNIONS IN NEW YORK CITY AND OTHER LOCALITIES IN THE STATE, YEARS ENDING SEPTEMBER 30, 1898 TO 1907.

Year ending September 30—	Number of unions in—			Membership of unions in—		
	New York City.	Other localities.	The State.	New York City.	Other localities.	The State.
1898.....	440	647	1,087	125,429	45,638	171,067
1899.....	477	843	1,320	141,687	67,333	209,020
1900.....	502	1,133	1,635	154,504	90,877	245,381
1901.....	515	1,356	1,871	174,022	102,119	276,141
1902.....	579	1,650	2,229	198,055	131,046	329,101
1903.....	653	1,930	2,583	244,212	151,386	395,598
1904.....	670	1,834	2,504	254,719	136,957	391,676
1905.....	667	1,735	2,402	251,277	131,959	383,236
1906.....	678	1,742	2,420	260,008	138,486	398,494
1907.....	712	1,785	2,497	286,180	150,612	436,792

UNION FEES AND DUES.—During 1906 there were 74,778 new members initiated by 2,223 unions. The fees paid for admission amounted to \$675,106, or an average of \$9.03. The following table shows the number and per cent of unions charging initiation fees which fell within the specified classes:

NUMBER AND PER CENT OF LABOR UNIONS CHARGING INITIATION FEES OF EACH CLASSIFIED AMOUNT.

Classified initiation fees.	Unions.	
	Number.	Per cent.
Less than \$1.....	81	3.4
\$1 and under \$2.....	247	10.5
\$2 and under \$5.....	456	19.4
\$5 and under \$10.....	631	26.8
\$10 and under \$15.....	389	16.5
\$15 and under \$20.....	115	4.9
\$20 and under \$25.....	107	4.6
\$25 and under \$30.....	240	10.2
\$30 and under \$40.....	22	.9
\$40 and under \$50.....	12	.5
\$50 and under \$200.....	53	2.3
Total.....	2,353	100.0

The average monthly dues paid by the 403,032 members of the 2,329 unions reporting, was 65 cents. The number and per cent of members whose monthly dues were within each of the specified classes is shown in the following table:

NUMBER AND PER CENT OF UNION MEMBERS PAYING DUES OF EACH CLASSIFIED AMOUNT.

Classified average monthly dues.	Unions.	
	Number.	Per cent.
Less than \$0.20.....	14, 100	3.5
\$0.20 and under \$0.40.....	50, 347	12.5
\$0.40 and under \$0.65.....	173, 657	43.1
\$0.65 and under \$0.90.....	84, 865	21.1
\$0.90 and under \$1.15.....	41, 750	10.4
\$1.15 and under \$1.40.....	26, 386	6.5
\$1.40 and under \$1.65.....	2, 472	.6
\$1.65 and over.....	9, 455	2.3
Total.....	403, 032	100.0

#### NORTH CAROLINA.

*Twenty-second Annual Report of the Bureau of Labor and Printing of the State of North Carolina for the year 1908.* H. B. Varner, Commissioner. 302 pp.

This report consists of seven chapters, as follows: Condition of farmers, 64 pages; Condition of the trades, 18 pages; Miscellaneous factories, 75 pages; Cotton, woolen, and knitting mills, 62 pages; Furniture factories, 17 pages; Newspapers of the State, 41 pages; Railroad employees, 6 pages.

**CONDITION OF FARMERS.**—The report on this subject is compiled from returns made by representative farmers residing in different sections of the State. The data is presented, by counties, in five tables, which show condition of land and labor, wages, etc., cost of production of principal crops, market price of crops, and profit on production. In 75 counties labor was reported scarce, and in 23 it was reported plentiful; 94 counties reported that Negro labor was unreliable, 3 that it was reliable, and 1 that there was no Negro labor; 39 counties favored immigration, 59 opposed it; cost of living was reported as having increased in 90 counties, and in 8 as not having increased. The highest and lowest monthly wages paid for farm laborers in each county were reported, and for men the average of the highest wages so reported was \$22.61, and of the lowest \$13.40; for women like averages were \$13.72 and \$8.77, and the average wages of children were \$8.53. For all classes of farm labor an increase of wages was reported from 20 counties, a decrease from 39, and 41 reported no change.

**CONDITION OF THE TRADES.**—The data from which the tables presented under this title were compiled were secured from representative men engaged in the various trades considered. These reports from the wage-earners of the State show daily wages and wage

changes, working conditions and hours of labor, conditions of apprenticeship, etc. Of the wage-earners making returns, 51 per cent reported an increase in wages, 12 per cent a decrease, and 37 per cent no change; 38 per cent made full time, 51 per cent part time, and 11 per cent did not report on this subject; 64 per cent reported cost of living increased, 2 per cent decreased, 12 per cent no change, and 2 per cent made no report on this question; 40 per cent favored a 10-hour day, 32 per cent an 8-hour day, 26 per cent a 9-hour day, and 2 per cent a 12-hour day. The average wages paid per day in the different trades were: Blacksmiths \$1.87, brick masons \$3.50, carpenters \$1.80, machinists \$2.75, painters \$2.06, printers \$2.25, textile workers \$1.25, and wheelwrights \$2.13.

**MISCELLANEOUS FACTORIES.**—Under this classification the number of factories reporting was 555, of which 500 reported an invested capital of \$42,410,430; 549 reported the number of employees as 30,053, and 551 reported the number of persons dependent on them for a livelihood as 92,220. An 8-hour day was reported by 4 factories, a 9-hour day by 15, a 9½-hour day by 3, a 10-hour day by 408, a 10½-hour day by 6, a 11-hour day by 42, a 12-hour day by 72, and a day ranging from 10 to 12 hours in length by 4. An increase in wages was reported by 22 per cent of the factories, no change by 76 per cent, while 2 per cent made no report. Of the adult employees, 85 per cent were able to read and write, and of the children 89 per cent. The highest daily wages paid was \$2.40 and the lowest \$0.96. In 69 per cent of the factories wages are paid weekly, in 10 per cent monthly, in 19 per cent semimonthly, in 1 per cent daily, and in 1 per cent by the piece. The tables presented show for each establishment the product manufactured, capital stock, horsepower, days in operation, hours of labor, number of employees, and number of persons dependent on factory, highest and lowest wages, etc.

**COTTON, WOOLEN, AND KNITTING MILLS.**—The number of mills covered by this presentation is 352, with an aggregate invested capital of \$49,192,300. The number of spindles in operation was 3,110,099, of looms 54,812, of knitting machines 6,232, together requiring 133,851 horsepower.

The number of employees reported by 300 mills (297 cotton and woolen and 3 silk) was 28,082 adult males, 20,644 adult females, and 5,536 children—a total of 54,262. The number of persons dependent upon the mills was 146,400. Of the adult employees 85 per cent, and of the children 80 per cent, were able to read and write. The average of the highest daily wages (based on the highest wages paid to any employee by each establishment) was \$2.50, lowest \$0.79, for men; for women the average highest wages were \$1.30, lowest \$0.66, and for children the average wages were about \$0.57. An increase of wages was reported by 21 per cent of the establishments, 78 per cent reported no change, and 1 per cent made no report.

The number of employees reported by the 52 knitting mills were 1,497 adult males, 2,903 adult females, and 752 children—a total of 5,152. The number of persons dependent upon the mills was 13,466. Of the adult employees 96 per cent, and of the children 93 per cent, were able to read and write. The average hours constituting a day's work was 10. For men the average of the highest daily wages was \$2.11, the lowest \$0.74; for women the average of the highest daily wages was \$1.42, the lowest \$0.56, while for children the average daily wages was \$0.55. An increase of wages was reported by 25 per cent of the establishments, 73 per cent reported no change, and 2 per cent made no report.

Relative to the employment of children under 12 years of age in the factories, 90 per cent of the employers were opposed to it, while 4 per cent favored it and 6 per cent expressed no opinion; 83 per cent of the knitting-mill employers were opposed to it, while 6 per cent favored it and 11 per cent expressed no opinion.

**FURNITURE FACTORIES.**—There were 94 furniture factories which reported capital stock, power, class of goods manufactured, wages, hours of labor, days in operation, number of employees, persons dependent on factory, etc. The 94 factories had an aggregate capital of \$3,236,357, used 10,100 horsepower, and employed 5,701 wage-earners. The average of the highest daily wages paid adults was \$2.32, the lowest \$0.90; the average daily wages paid children was \$0.54. Of both the adult employees and of the children 88 per cent could read and write. An increase of wages was reported by 7 per cent of the factories, a decrease by 33 per cent, and 60 per cent reported no change.

Relative to the employment of children under 14 years of age, 85 per cent of the employers were opposed to it, while 8 per cent favored it and 7 per cent expressed no opinion.

**RAILROAD EMPLOYEES.**—In this chapter statistics are presented showing by occupations, for each railroad reporting, the number of employees and average wages paid. The following table shows the number and average daily wages of persons employed on the steam railroads of the State:

NUMBER AND AVERAGE DAILY WAGES OF RAILROAD EMPLOYEES, BY OCCUPATIONS, 1908.

Occupation.	Number of employees.	Average daily wages.	Occupation.	Number of employees.	Average daily wages.
Station agents.....	710	\$1. 57	Other shopmen.....	1, 503	\$1. 47
Other station men.....	1, 650	1. 04	Section foremen.....	606	1. 57
Engineers.....	727	3. 43	Other trackmen.....	3, 843	1. 02
Firemen.....	829	1. 68	Switchmen, flagmen, and		
Conductors.....	509	2. 76	watchmen.....	526	1. 18
Other trainmen.....	1, 455	1. 41	Telegraph operators.....	461	2. 07
Machinists.....	402	2. 81	Other employees.....	2, 264	1. 31
Carpenters.....	774	1. 95			

## VIRGINIA.

*Eleventh Annual Report of the Bureau of Labor and Industrial Statistics for the State of Virginia.* 1908. James B. Doherty, Commissioner. 276 pp.

The subjects presented in this report are industrial statistics, 224 pages; labor laws, 4 pages; factory inspection, 7 pages; decisions of courts, 40 pages.

**INDUSTRIAL STATISTICS.**—A series of tables is given for 41 industries, showing for each industry for 1907 the number of establishments reporting for the year, the value of product, capital invested, amount paid for wages, rent, taxes, and insurance, number of wage-earners by sex and occupation with average daily pay, number and average monthly pay of persons employed on salary, number of hours of work per day and days in operation for each establishment, wage changes, and also totals and averages for each industry. For each industry comparisons with 1906 are presented. Statistics are also given of the operations of 8 gas works and 19 waterworks plants, of average daily wages of employees of 43 steam and 25 electric railways, and of accidents on steam and electric roads.

The following table shows for 1906 and 1907, for each of the industries in the State which reported an output in 1907 exceeding \$1,000,000, the number of establishments reporting, capital invested, value of product, and aggregate wages paid:

CAPITAL INVESTED, VALUE OF PRODUCT, AND WAGES PAID IN 22 INDUSTRIES, 1906 AND 1907.

Industry.	Estab- lishments.		Capital invested.		Value of product.		Wages paid.	
	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.
Boots and shoes.....	6	5	\$417,000	\$1,212,000	\$1,899,574	\$2,904,700	\$302,976	\$553,810
Breweries.....	7	7	2,667,344	2,905,845	1,522,183	1,749,848	196,072	206,814
Brick and tile.....	53	50	(a)	1,170,347	1,402,414	1,164,732	(a)	516,574
Carriages, wagons, and buggies.....	35	33	992,339	1,044,989	1,565,260	1,417,290	310,652	293,651
Cigars, cigarettes, and che- roots.....	46	46	1,206,935	1,459,729	7,445,337	8,641,417	1,265,645	1,392,530
Cotton mills.....	9	10	8,211,329	7,227,929	5,852,039	6,443,061	1,091,587	1,331,625
Flour and grist mills.....	197	176	3,043,826	3,042,483	9,201,414	11,648,764	304,829	273,359
Iron and machine works.....	53	55	12,129,844	16,636,757	16,869,086	18,634,068	5,492,905	5,998,962
Knitting mills.....	11	10	296,233	315,623	2,050,275	2,403,808	432,024	478,965
Lime and cement.....	15	15	1,249,223	1,316,000	1,380,500	1,117,010	386,581	378,928
Overalls and shirts.....	15	16	347,341	442,709	1,322,517	1,522,488	221,407	279,373
Paper and pulp mills.....	9	9	3,174,256	3,545,000	3,356,595	3,078,195	448,040	436,054
Paper and tin boxes.....	6	6	178,500	178,500	837,716	1,050,093	248,856	293,364
Printing, engraving, and bookbinding.....	80	74	1,294,347	1,206,441	2,102,821	2,467,346	595,288	674,775
Sash, doors, and blinds.....	24	20	880,970	1,009,005	1,923,568	1,787,480	326,578	354,043
Sawmills.....	357	293	(a)	(a)	10,815,839	7,805,095	3,202,763	2,638,331
Silk mills.....	4	3	750,923	706,599	1,913,000	2,049,186	182,919	185,513
Staves, heads, and cooper- age.....	52	51	850,374	557,967	1,088,419	1,084,568	276,611	331,015
Tanneries.....	22	22	2,415,160	2,415,180	6,398,064	6,392,000	443,450	447,246
Tobacco factories.....	32	26	2,561,011	2,277,753	10,133,237	10,125,327	1,059,368	1,010,562
Trunks and bags.....	7	6	1,089,220	889,854	2,179,226	2,644,420	475,150	542,348
Woodenware, baskets, boxes, and shooks.....	24	31	1,845,476	2,187,476	4,200,108	5,028,144	807,844	1,111,297

(a) Not reported.

In 1907 there were 214 general contracting firms in the building trades which reported the value of work constructed during the year as amounting to \$7,092,815, and 104 firms of plumbers, gas fitters, and tanners which reported the value of work done during the year as amounting to \$1,542,094.

The statistics for the 8 gas works show ownership (private or municipal), capacity, private and municipal consumption, price of gas to consumers, etc., and number and daily wages of employees. The statistics for the 19 waterworks plants show ownership (private or municipal), cost of plant, daily capacity of pumps, number and capacity of reservoirs, consumption, pressure, price to consumers, source of supply, and number and wages of employees.

The reports on steam and electric railways operating in the State show for 1907 the average daily wages paid by each road in each occupation and the average daily wages paid by all roads. The following is a summary of the data presented:

AVERAGE DAILY WAGES OF STEAM AND OF ELECTRIC RAILWAY EMPLOYEES, 1907, AND INCREASE IN WAGES OVER 1906.

Steam railroad employees.	Average daily wages.	Increase over 1906.	Electric railway employees.	Average daily wages.	Increase over 1906.
General office clerks.....	\$2.21	\$0.21	General office clerks.....	\$1.73	\$0.19
Station agents.....	1.79	.07	Conductors.....	1.80	.14
Other station men.....	1.42	.06	Drivers.....	1.35	.10
Engineers.....	4.61	.22	Motormen.....	1.81	.18
Firemen.....	2.43	.13	Starters.....	2.19	.24
Conductors.....	3.47	.31	Watchmen.....	1.54	.20
Other trainmen.....	1.94	.16	Switchmen.....	1.42	.20
Machinists.....	2.83	.11	Road men.....	1.44	.09
Carpenters.....	2.17	.05	Hostlers.....	1.57	.31
Other shopmen.....	1.79	.05	Linemen.....	1.81	a. 19
Section foremen.....	1.76	.04	Engineers.....	2.22	.07
Other trackmen.....	1.28	.10	Firemen.....	1.44	(b)
Switchmen, flagmen, and watchmen.....	1.58	.04	Electricians.....	2.32	.19
Telegraph operators and dispatchers.....	2.10	.10	Machinists and mechanics.....	1.99	.05
Employees, floating equipment.....	1.45	a. 01	Other employees.....	1.42	.13
Other employees.....	1.63	.17			

a Decrease.

b No change.

On the steam railroads in Virginia during 1907 there resulted from the movement of trains the accidental killing of 75 employees, 7 passengers, and 174 others, and the injury of 930 employees, 106 passengers, and 234 others; from causes other than the movement of trains there resulted the accidental killing of 3 employees, and the injury of 882 employees, 3 passengers, and 1 other person. On the electric railways during 1907 there were accidentally injured 160 passengers, 25 employees, and 79 other persons; and 8 passengers, 5 employees, and 8 others were killed.



## WASHINGTON.

*Sixth Biennial Report of the Bureau of Labor Statistics and Factory Inspection, 1907-8.* Charles F. Hubbard, Commissioner. 339 pp.

Following a general review of labor conditions in the State and the operations of the bureau, the subjects presented in detail are: Recommendations to the legislature, 14 pages; violations of labor law, 40 pages; accidents to labor, 10 pages; strikes and lockouts, 6 pages; steamboat inspection, 18 pages; cost of living, 10 pages; organized labor, 36 pages; arbitration of labor disputes, 14 pages; statistics of wage-earners, 38 pages; free employment offices, 10 pages; statistics of manufactures, 68 pages; supreme court decision, etc., 14 pages; labor laws, 54 pages.

**VIOLATIONS OF LABOR LAWS.**—Accounts are given of the infractions of the eight-hour law for labor on public works, the ten-hour law relating to the employment of females, the child labor law, the bake-shop inspection law, the law prohibiting the payment of wages by time checks, etc., together with the action taken by the state labor commissioner on the same.

**ACCIDENTS TO LABOR.**—Reports pertaining to accidents to labor were received from 47 large manufacturing establishments covering the two years ending August 1, 1908. During the first year reported, in which the 47 establishments employed a total of 13,268 men, there occurred 4 fatal, 29 serious, and 659 slight accidents; during the second year reported, in which the 47 establishments employed a total of 11,477 men, there occurred 2 fatal, 41 serious, and 628 slight accidents.

**STRIKES AND LOCKOUTS.**—Accounts are given of 14 strikes, 1 lock-out, and 1 boycott that occurred in the State during the years 1907 and 1908.

**COST OF LIVING.**—Under this caption tables are presented showing the variation in wholesale prices of 67 articles through a period beginning with the year 1900 and ending with the year 1908. The per cent of increase or decrease in the price of each article is shown for each succeeding year and the net variations for the entire period.

An examination of the tables reveals a marked tendency toward increase in price of a number of staple articles, although considering the list of commodities as a whole the advance during the period has not been extraordinarily large. Of the 67 articles dealt with, 38 showed an increase averaging 26 per cent in 1908 over 1900, while in the same period 13 articles showed a decrease averaging 9 per cent. The remaining articles did not vary to any appreciable extent.

**ORGANIZED LABOR.**—Returns from 91 unions gives statistics relative to date of organization, membership; initiation fees and monthly dues; strike, sick, accident, and funeral benefits; wages and hours of labor; rules governing apprenticeship; members idle, etc.

**WAGE-EARNERS.**—This chapter is devoted to detailed statistics of wage-earners in the employ of mercantile houses, 8 steam railroads, 9 electric railways, and 2 telegraphic companies. The data give number of employees in each occupation, wages per day or per month, hours of labor per day, and days of labor per month.

**FREE EMPLOYMENT OFFICES.**—During the year 1907 there were 31,074 positions (28,769 for males and 2,305 for females) furnished by the public employment office of Seattle; for the twenty months ending August 31, 1908, there were 11,297 positions (10,355 for males and 942 for females) furnished by the public employment office of Tacoma, and 6,223 positions (5,766 for males and 457 for females) by the public employment office of Spokane, and for the months of July and August, 1908, 156 positions (137 for males and 19 for females) were furnished by the public employment office of Everett.

**STATISTICS OF MANUFACTURES.**—Statistics are presented by counties, showing for each of 1,466 establishments, city or town in which located, kind of commodity manufactured, daily capacity and output, number of employees by sex, hours of labor per day, days per month, and months per year plant was operated, average wages paid males and females, and kind of power used. A summary of the data shows that the establishments employed 43,202 working people (40,506 males and 2,696 females), that the daily hours of labor averaged 10 for males and 9 for females, and that the daily wages of males averaged \$3.24 for skilled and \$2.31 for unskilled labor, and of females \$1.42. Further, a list of 198 new industrial plants established since January 1, 1907, is given, showing location by county and city or town, kind of commodity manufactured, amount of capital invested, and number of employees required. These plants required the employment of 3,430 working people.

#### WEST VIRGINIA.

*Tenth Biennial Report of the Bureau of Labor. 1907-1908. I. V. Barton, Commissioner. 257 pp.*

The six chapters of this report contain information on the following subjects: Statistics of manufactures, 51 pages; new industries established, 34 pages; report of free public employment bureau, 2 pages; report of the department of inspection, 22 pages; report of municipal inspection of fire escapes, 8 pages; labor laws, court decisions, directory of officials of bureau of labor, etc., 117 pages.

**STATISTICS OF MANUFACTURES.**—Under this title statistics for 76 industries, for the year ending December 31, 1907, are presented, showing by establishments the capital invested in plant, value of product, number of employees, number of days in operation, hours of daily work, and amounts paid in wages. The following table is a summary of the reports of 632 establishments:

INDUSTRIAL STATISTICS OF 632 ESTABLISHMENTS REPORTING FOR THE YEAR  
ENDING DECEMBER 31, 1907.

Industry.	Number of establishments.	Capital invested in plants.	Total value of product.	Average number of employees.			Days worked during year.	Hours worked per day.	Amount paid in wages.
				Males.	Females.	Total.			
Brass.....	3	\$77,300	\$106,917	56	3	59	218	9.6	\$24,435
Bread, cakes, etc.....	17	247,650	550,212	152	49	201	316	10.4	95,195
Brewing and distilling.....	15	3,070,294	2,650,895	571	1	572	285	8.6	394,586
Brick and tile.....	22	1,241,869	1,064,710	1,367	3	1,370	163	9.0	182,285
Canned goods.....	3	126,000	414,000	80	152	232	212	10.0	50,800
Carbonated beverages.....	10	66,100	86,912	38	.....	38	301	9.8	23,966
Carbon black.....	7	485,150	198,681	50	.....	50	356	11.4	40,196
Car building and repairing	8	661,549	5,341,307	3,580	7	3,587	304	9.8	2,102,055
Cement and cement building blocks.....	4	820,050	132,809	194	1	195	204	11.0	88,442
Cigars and stogies.....	19	227,850	1,514,395	766	217	983	287	9.1	584,076
Clothing.....	10	152,332	1,011,370	271	307	578	290	9.6	115,703
Coke.....	41	5,509,698	5,074,403	3,494	.....	3,494	267	9.9	2,029,162
Confectionery.....	5	19,500	131,150	23	24	47	290	9.2	18,797
Cooperage.....	7	37,917	253,807	203	.....	203	172	9.7	73,518
Drilling tools.....	7	96,308	457,652	103	.....	103	268	9.8	76,391
Drugs and extracts.....	5	259,000	498,000	73	90	163	220	10.4	32,380
Electric light and power.....	3	152,500	71,600	14	.....	14	365	10.6	5,580
Enameled iron ware.....	3	335,000	600,000	300	150	450	255	9.6	169,468
Explosives.....	2	12,000	23,104	8	.....	8	168	9.0	8,340
Flour and feed.....	48	1,110,070	2,664,012	228	61	289	262	10.0	114,810
Furniture.....	10	361,906	615,941	423	12	435	277	9.8	193,317
Glass.....	41	3,346,836	6,322,233	6,136	797	6,933	218	9.5	3,351,348
Harness, etc.....	21	1,114,653	6,623,567	1,175	23	1,198	303	9.6	506,593
Ice.....	12	473,655	143,276	91	2	93	282	10.7	47,421
Iron, steel, and tin plate.....	13	5,656,905	20,095,899	8,925	101	9,026	224	9.5	5,948,066
Lumber.....	123	5,123,360	10,359,615	6,431	24	6,455	224	10.6	3,591,087
Machinery and castings.....	19	1,284,758	6,521,374	1,115	6	1,121	297	9.0	688,838
Monuments.....	6	23,500	49,290	22	.....	22	235	9.0	12,804
Moldings, sash, doors, etc.....	9	365,100	625,711	362	11	373	226	9.7	89,853
Pottery.....	10	2,174,584	1,826,745	1,088	551	1,639	248	8.3	967,967
Printing and bookbinding.....	35	666,432	675,751	414	112	526	308	8.4	297,641
Salt.....	2	65,000	94,000	77	3	80	240	11.0	50,000
Stamped metal goods.....	12	380,292	5,109,346	865	321	1,186	267	8.6	531,322
Stoves and ranges.....	6	89,222	172,087	104	9	113	283	9.3	46,294
Textiles.....	14	414,995	1,769,974	420	237	657	234	9.0	215,082
Tobacco.....	2	190,500	2,476,406	129	414	543	238	<sup>a</sup> 4.5	188,090
Vehicles.....	9	94,650	414,920	160	.....	160	306	8.2	73,078
Wall plaster.....	3	42,000	166,800	24	.....	24	300	9.0	9,100
Wood pulp and paper.....	9	1,384,500	1,773,967	494	60	554	252	10.1	286,579
Miscellaneous.....	37	3,215,018	5,963,254	1,942	155	2,097	267	9.3	943,837
Total.....	632	41,175,913	94,584,091	41,908	3,903	45,871	260	9.5	24,268,502

<sup>a</sup> Hours worked per day in 1 establishment, 9; hours in 1 establishment not reported. These figures are given as printed in the report.

<sup>b</sup> Figures here should apparently be \$94,034,092; those given are, however, according to the original.

Of the establishments reporting, 276 note an increase and 27 a decrease in wages.

**NEW INDUSTRIES ESTABLISHED.**—Under this title a list of new industries established in 1906 and 1907 is given, with location, number of employees, and wages paid in each. A summary shows that 470 establishments, with an aggregate capital of \$24,144,090, commenced business during the period. These establishments gave employment to 13,205 persons, and paid in monthly wages \$573,704.

**FREE EMPLOYMENT BUREAU.**—This chapter consists of a report of the operation of the bureau since its organization, May 15, 1901, to May 15, 1908, as summarized in the following table:

**APPLICATIONS FOR POSITIONS AND FOR HELP AND POSITIONS SECURED THROUGH THE FREE PUBLIC EMPLOYMENT BUREAU, MAY 15, 1901, TO MAY 15, 1908.**

Year.	Applications filed for—						Positions secured.			Per cent of applications filled.	
	Positions.			Help.							
	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.	For positions.	For help.
1902.....	896	312	1,208	836	468	1,304	790	254	1,044	86.4	80.0
1903.....	1,952	188	2,140	3,468	501	3,969	1,875	165	2,040	95.3	51.4
1904.....	2,009	230	2,239	1,560	448	2,008	1,504	207	1,711	76.4	85.2
1905.....	1,960	380	2,340	1,275	420	1,695	1,001	274	1,275	54.5	75.2
1906.....	2,015	520	2,535	801	493	1,294	651	378	1,029	40.6	79.5
1907.....	1,450	540	1,990	1,025	785	1,810	885	478	1,363	68.4	75.3
1908.....	4,852	1,005	5,857	431	572	1,003	381	461	842	14.4	83.9
Total...	15,134	3,175	18,309	9,396	3,687	13,083	7,087	2,217	9,304	50.8	71.1

**LABOR LAWS, COURT DECISIONS, ETC.**—The remainder of the report embraces the following subjects: Laws of the State pertaining to labor; the decisions of various courts affecting labor; legislation recommended for the prevention of accidents; a directory of officials of bureaus of labor, etc.

## RECENT FOREIGN STATISTICAL PUBLICATIONS.

### AUSTRIA.

*Die Arbeitseinstellungen und Aussperrungen in Österreich während des Jahres 1907.* Herausgegeben vom k. k. Arbeitsstatistischen Amte im Handelsministerium. 740 pp.

This volume contains the fourteenth annual report of the Austrian Government on strikes and lockouts. The information, which is compiled by the Austrian bureau of labor statistics, is given in the form of an analysis and six tables showing: (1) Strikes according to geographical distribution; (2) strikes according to industries; (3) general summary of strikes; (4) comparative summary of strikes for the ten-year period 1898-1907; (5) details for each strike in 1907; (6) details for each lockout in 1907. An appendix gives a brief review of industrial and labor conditions in Austria, statistics of trade unions, and notes concerning the strikes and lockouts reported in the preceding pages of the report.

**STRIKES IN 1907.**—The number of strikes and the number of establishments affected by the strikes during the year 1907 show but little change from the year 1906, while there is a slight increase in the number of strikers and in the number of persons affected. The number of strikes during 1907 was 1,086; the number of establishments affected was 6,130; the number of persons employed in these establishments was 287,662, and of this number 176,789 went on strike. Of the 176,789 persons on strike 5,619 were dismissed and 4,995 found other work after the strike.

The average number of strikers to each strike in 1907 was 163, as compared with 142 in 1906, and the number of strikes as compared with the number of establishments affected was in the proportion of 1 to 5.6, as against 1 to 5.5 in the years 1906 and 1905. In other words, while the average number of persons to a strike shows a marked increase, the scope of a strike has not changed materially as compared with the preceding year.

The introduction to the report calls attention to the fact that estimates of the losses occasioned by the strikes must be accepted only with many reservations. On this basis the wage loss of the 176,789 strikers, who were out 2,087,523 days, is estimated at 6,300,000 crowns (\$1,278,900); of this amount 500,000 crowns (\$101,500) was caused by the strikes which were successful, 4,600,000 crowns

(\$933,800) by the partially successful strikes, and 1,200,000 crowns (\$243,600) by the strikes which failed. In addition, in 215 strikes 12,835 persons not on strike were thrown out of work, and their loss in wages is estimated to have been 284,000 crowns (\$57,652).

The number of lockouts in 1907 was 26, as compared with 50 in 1906.

The following table shows by industries the number of strikes, the number of establishments affected, the number of strikers, etc., for the year 1907:

STRIKES, ESTABLISHMENTS AFFECTED, STRIKERS, AND OTHER EMPLOYEES  
THROWN OUT OF WORK, BY INDUSTRIES, 1907.

Industry.	Strikes.	Estab- lish- ments af- fected.	Total em- ployees.	Strikers.		Other em- ployees thrown out of work.	Strik- ers reem- ployed.	New em- ployees after strikes.
				Num- ber.	Per cent of total em- ployees.			
Mining and metallurgical.....	144	181	86,175	44,501	51.6	1,358	43,121	90
Quarrying, products of stone, clay, glass, etc.....	96	259	11,486	7,204	62.7	689	6,389	243
Metal working.....	90	368	13,288	7,735	58.2	262	7,422	139
Machinery, instruments, apparatus, etc.....	54	140	18,712	7,904	42.2	594	7,259	469
Woodworking, caoutchouc, carved materials, etc.....	105	615	9,964	7,021	70.5	279	6,110	578
Leather, hides, hair, feathers, etc.....	20	42	1,306	1,127	86.3	8	906	219
Textiles.....	152	279	60,139	39,725	66.1	3,095	37,910	733
Upholstering and paper hanging.....	3	12	46	46	100.0		43	
Wearing apparel, cleaning, etc.....	66	1,177	20,755	18,419	88.7	251	17,994	320
Paper.....	10	13	793	577	72.8	21	542	32
Foods and drinks (including tobacco).....	79	1,302	16,082	11,160	69.4	363	9,932	1,021
Hotels, restaurants, etc.....	2	11	385	127	33.0		62	26
Chemical products.....	11	11	4,509	2,045	45.4	1,100	1,820	181
Building trades.....	198	526	27,361	16,638	60.8	4,710	14,386	1,169
Printing.....	13	76	2,551	739	29.0	15	634	74
Heat, light, and power plants.....	2	2	101	85	84.2		9	76
Commerce.....	16	890	5,737	4,058	70.7	72	4,016	40
Transportation.....	18	217	7,907	7,387	93.4	13	7,381	4
Other.....	7	9	365	291	79.7	5	239	22
Total.....	1,086	6,130	287,662	176,789	61.5	12,835	166,175	5,436

The industries in which the largest number of strikes occurred were the building trades with 198, the textile industries with 152, and the mining industries with 144 strikes; only one of the other groups of industries had over 100 strikes. In the following industries more than 10,000 workers were on strike: Mining, etc., industries with 44,501 strikers, the textile industries with 39,725 strikers, the wearing apparel, etc., industries with 18,419 strikers, the building trades with 16,638 strikers, and the food and drinks industries with 11,160 strikers. Out of the total number of 176,789 strikers, these five industries included 130,443 strikers, or 73.8 per cent of the total number of strikers.

The following table shows the causes of the strikes for 1907, by industries:

## STRIKES, BY INDUSTRIES AND CAUSES, 1907.

[Strikes due to two or more causes have been tabulated under each cause; hence the industry totals for this table, if computed, would not agree with those for the preceding table.]

Industry.	Against reduction of wages.	For increase of wages.	For reduction of hours.	For discharge of foremen, workmen, etc.	Against obnoxious treatment.	Against discharge of employees.	Against obnoxious rules.	Other causes.
Mining and metallurgical.....	5	100	2	10	3	12	8	8
Quarrying, products of wood, stone, clay, glass, etc.....	1	69	16	2	.....	10	4	10
Metal working.....	3	58	32	4	.....	13	2	9
Machinery, instruments, apparatus, etc.....	.....	26	13	9	.....	13	3	4
Woodworking, caoutchouc, carved materials, etc.....	.....	73	50	6	.....	14	5	4
Leather, hides, hair, feathers, etc.....	.....	13	9	.....	.....	4	2	1
Textiles.....	1	111	44	10	.....	15	4	9
Upholstering and paper hanging.....	.....	3	.....	.....	.....	.....	.....	.....
Wearing apparel, cleaning, etc.....	.....	49	18	5	.....	5	4	6
Paper.....	.....	7	4	1	1	1	.....	.....
Foods and drinks (including tobacco).....	.....	51	23	2	.....	14	1	8
Hotels, restaurants, etc.....	.....	1	.....	.....	.....	1	.....	.....
Chemical products.....	1	9	1	.....	.....	1	.....	.....
Building trades.....	5	152	66	6	.....	15	3	15
Printing.....	.....	3	1	3	.....	3	1	3
Heat, light, and power plants.....	.....	2	.....	.....	.....	.....	.....	.....
Commerce.....	.....	13	5	.....	.....	1	1	.....
Transportation.....	.....	12	4	1	.....	2	2	1
Other.....	.....	6	1	1	.....	.....	.....	.....
Total.....	16	758	289	60	4	124	40	78

As in previous years, the demands of the strikers were most frequently for increase of wages and for reduction of hours, the first demand occurring in 758 strikes and the second in 289 strikes.

The following table shows the number of strikes and of strikers in each group of industries in 1907 by results:

## STRIKES AND STRIKERS, BY INDUSTRIES AND RESULTS, 1907.

Industry.	Strikes.				Strikers.			
	Succeeded.	Succeeded partly.	Failed.	Total.	Succeeded.	Succeeded partly.	Failed.	Total.
Mining and metallurgical.....	20	73	51	144	3,691	27,724	13,086	44,501
Quarrying, products of stone, clay, glass, etc.....	11	53	32	96	684	4,058	2,462	7,204
Metal working.....	17	41	32	90	708	5,428	1,539	7,735
Machinery, instruments, apparatus, etc.....	5	28	21	54	316	3,204	4,384	7,904
Woodworking, caoutchouc, carved materials, etc.....	24	59	22	105	1,354	3,415	2,252	7,021
Leather, hides, hair, feathers, etc.....	4	12	4	20	215	689	223	1,127
Textiles.....	22	97	33	152	2,444	31,690	5,591	39,725
Upholstering and paper hanging.....	.....	2	1	3	.....	43	3	46
Wearing apparel, cleaning, etc.....	12	35	19	66	446	16,971	1,002	18,419
Paper.....	2	6	2	10	13	390	174	577
Foods and drinks (including tobacco).....	9	47	23	79	345	10,208	607	11,160
Hotels, restaurants, etc.....	.....	1	1	2	.....	111	16	127
Chemical products.....	.....	7	4	11	.....	790	1,255	2,045
Building trades.....	46	105	47	198	3,096	10,185	3,357	16,638
Printing.....	4	4	5	13	53	647	39	739
Heat, light, and power plants.....	.....	1	1	2	.....	9	76	85
Commerce.....	3	10	3	16	59	3,673	326	4,058
Transportation.....	5	10	3	18	4,558	2,630	199	7,387
Other.....	3	1	3	7	113	88	90	291
Total.....	187	592	307	1,086	18,155	121,953	36,681	176,789
Per cent.....	17.2	54.5	28.3	100.0	10.3	69.0	20.7	100.0

In 1907 of the total number of strikes 17.2 per cent were successful, 54.5 per cent were partially successful, and 28.3 were unsuccessful; of the total number of strikers, 10.3 per cent were engaged in successful strikes, 69 per cent in partially successful strikes, and 20.7 per cent in unsuccessful strikes. As compared with the year 1906 there is a slight decrease in the proportion of strikes which succeeded and which failed, and an increase in the proportion which were partially successful.

The following table shows the number of strikes and of strikers in 1907 according to duration and results:

STRIKES AND STRIKERS, BY DURATION AND RESULTS, 1907.

Days of duration.	Strikes.				Strikers.			
	Suc- ceeded.	Suc- ceeded partly.	Failed.	Total.	Suc- ceeded.	Suc- ceeded partly.	Failed.	Total.
1 to 5.....	101	251	156	508	12,923	44,662	20,033	77,618
6 to 10.....	29	122	51	202	1,877	24,982	6,533	33,392
11 to 15.....	23	54	26	103	1,196	16,186	2,391	19,773
16 to 20.....	4	28	13	45	249	3,899	740	4,888
21 to 25.....	6	28	8	40	279	1,959	80	2,318
26 to 30.....	6	23	9	37	155	1,685	1,192	3,032
31 to 35.....	7	14	2	30	406	6,720	877	8,003
36 to 40.....	.....	8	2	10	.....	7,049	65	7,114
41 to 50.....	4	24	13	41	698	4,452	2,078	7,228
51 to 100.....	6	35	15	56	334	8,601	2,351	11,286
101 and over.....	1	5	8	14	38	1,758	341	2,137
Total.....	187	592	307	1,086	18,155	121,953	36,681	176,789

**STRIKES DURING FOURTEEN YEARS.**—The summaries for the years 1894 to 1907 were compiled partly from the report for 1907 and partly from previous reports. The following table shows the number of strikes and strikers, establishments affected, and working days lost in Austria for the period during which the Ministry of Commerce has published reports on strikes:

STRIKES AND STRIKERS, ESTABLISHMENTS AFFECTED, AND WORKING DAYS LOST BY YEARS, 1894 TO 1907.

Year.	Strikes.	Estab- lish- ments affected.	Strikers.	Per cent of strik- ers of to- tal em- ployees.	Working days lost.
1894.....	172	2,542	67,061	69.5	795,416
1895.....	209	874	28,652	59.9	300,348
1896.....	305	1,499	66,234	65.7	899,939
1897.....	246	851	38,467	59.0	368,098
1898.....	255	885	39,658	59.9	323,619
1899.....	311	1,330	54,763	60.2	1,029,937
1900.....	303	1,003	105,128	67.3	3,483,963
1901.....	270	719	24,870	38.5	157,744
1902.....	264	1,184	37,471	44.0	284,046
1903.....	324	1,731	46,215	60.5	500,567
1904.....	414	2,704	64,227	64.3	606,629
1905.....	686	3,803	99,591	63.6	1,151,310
1906.....	1,063	6,049	153,688	55.6	2,191,815
1907.....	1,086	6,130	176,789	61.5	2,087,523



The number of strikes and the number of strikers for each year of the fourteen-year period are shown, by industries, in the following table:

STRIKES AND STRIKERS, BY INDUSTRIES AND YEARS, 1894 TO 1907.

## STRIKES.

Year.	Mining and metallurgical.	Quarrying, products of stone, clay, glass, etc.	Metal working.	Machinery, instruments, apparatus, etc.	Wood-working, caoutchouc, carved materials, etc.	Textiles.	Building trades.	Other.	Total.
1894.....	13	22	23	7	23	34	11	39	172
1895.....	4	29	37	6	38	29	24	42	209
1896.....	11	29	33	14	55	43	42	78	305
1897.....	25	27	26	20	28	28	34	58	246
1898.....	29	27	26	13	28	28	49	55	255
1899.....	26	21	32	24	35	84	33	56	311
1900.....	40	19	26	13	34	56	23	92	303
1901.....	40	29	22	15	27	28	24	85	270
1902.....	63	24	18	15	20	34	22	68	264
1903.....	40	18	34	13	48	44	37	90	324
1904.....	36	38	44	27	41	37	80	111	414
1905.....	43	76	65	45	53	54	188	162	686
1906.....	68	108	80	56	118	130	184	339	1,083
1907.....	144	96	90	54	105	152	198	247	1,086
Total....	582	563	556	322	653	781	949	1,522	5,928

## STRIKERS.

Year.	Mining and metallurgical.	Quarrying, products of stone, clay, glass, etc.	Metal working.	Machinery, instruments, apparatus, etc.	Wood-working, caoutchouc, carved materials, etc.	Textiles.	Building trades.	Other.	Total.
1894.....	22,986	6,415	2,752	194	9,793	6,317	14,975	3,629	67,061
1895.....	626	9,943	3,694	253	2,336	4,085	5,361	2,354	28,652
1896.....	30,120	3,217	2,973	2,058	5,972	9,791	5,434	6,669	66,234
1897.....	3,632	3,053	1,568	4,689	1,382	11,275	4,995	7,873	38,467
1898.....	7,046	4,491	991	2,471	1,318	3,171	13,961	6,209	39,658
1899.....	3,477	2,112	2,459	1,356	3,198	30,249	7,842	4,070	54,763
1900.....	78,791	574	1,977	519	1,391	12,010	4,849	5,017	105,128
1901.....	7,496	1,698	1,393	889	2,925	2,675	3,214	4,580	24,870
1902.....	13,573	1,819	741	1,013	1,312	2,599	10,476	5,938	37,471
1903.....	12,341	2,740	2,936	705	2,846	5,220	9,645	9,782	46,215
1904.....	19,614	4,788	4,211	1,400	1,756	3,483	15,947	13,028	64,227
1905.....	10,100	9,832	7,406	4,660	2,736	5,866	35,024	23,967	99,591
1906.....	38,705	10,776	16,373	5,641	5,598	28,970	15,416	32,209	153,688
1907.....	44,501	7,204	7,735	7,904	7,021	39,725	16,638	46,061	176,789
Total....	293,008	68,662	57,209	33,752	49,584	165,436	163,777	171,386	1,002,814

The causes of strikes for each year of the period are shown in the following table, the cause and not the strike being made the unit:

STRIKES, BY CAUSES AND YEARS, 1894 TO 1907.

[Strikes due to two or more causes have been tabulated under each cause; hence the yearly totals for this table, if computed, would not agree with those for the preceding tables.]

Year.	Against reduction of wages.	For increase of wages.	For change in method of payment.	For reduction of hours.	For discharge of foremen, workmen, etc.	Against obnoxious treatment.	Against discharge of employees.	Against obnoxious rules.	Other causes.
1894.....	23	53	5	19	12	5	35	16	31
1895.....	19	89	6	31	22	2	31	8	37
1896.....	28	140	8	67	32	5	40	12	34
1897.....	26	116	7	47	26	13	32	18	45
1898.....	33	124	8	54	29	9	36	20	39
1899.....	29	143	5	73	17	5	40	18	40
1900.....	26	152	6	69	13	10	36	14	53
1901.....	28	116	7	46	28	4	36	15	33
1902.....	28	127	7	52	9	2	37	25	36
1903.....	30	151	6	61	36	2	51	15	33
1904.....	22	213	5	91	20	6	70	30	43
1905.....	24	402	3	151	46	3	130	16	52
1906.....	13	694	4	298	73	4	193	31	59
1907.....	16	758	3	289	60	4	124	40	75
Total....	345	3,278	80	1,348	423	74	891	278	610

The following table shows, for both strikes and strikers, during each year of the period, the results expressed in percentages:

PER CENT OF STRIKES AND OF STRIKERS, BY RESULTS, FOR EACH YEAR, 1894 TO 1907.

Year.	Strikes.				Strikers.			
	Number.	Per cent succeeded.	Per cent succeeded partly.	Per cent failed.	Number.	Per cent succeeded.	Per cent succeeded partly.	Per cent failed.
1894.....	172	25.0	27.9	47.1	67,061	9.2	37.3	53.5
1895.....	209	26.8	24.9	48.3	28,652	12.8	60.7	26.5
1896.....	305	21.0	36.4	42.6	66,234	4.6	62.8	32.6
1897.....	246	17.5	37.0	45.5	38,467	15.7	47.8	36.5
1898.....	255	18.8	41.2	40.0	39,658	8.4	66.4	25.2
1899.....	311	15.4	45.0	39.6	54,763	10.2	72.0	17.8
1900.....	303	20.1	44.9	35.0	105,128	4.7	85.5	9.8
1901.....	270	20.7	36.3	43.0	24,870	20.1	47.8	32.1
1902.....	264	19.7	39.0	41.3	37,471	13.9	52.6	33.5
1903.....	324	17.3	43.5	39.2	46,215	10.0	68.0	22.0
1904.....	414	24.4	44.4	31.2	64,227	18.6	41.4	40.0
1905.....	686	21.9	51.2	26.9	99,591	14.0	71.6	14.4
1906.....	1,083	22.2	47.4	30.4	153,688	12.0	66.4	21.6
1907.....	1,086	17.2	54.5	28.3	176,789	10.3	69.0	20.7

**LOCKOUTS.**—There were reported 26 lockouts in 1907 as compared with 50 in 1906. The reported causes of the lockouts were: Twelve were due to strikes in other establishments; 1 to dispute concerning holiday on May 1; 1 to unionism; 2 to demands concerning wages; 3 to cessation of work by employees without consent of employer; 1 to refusal to work; 1 to reductions of hours by employees without consent of employer; 1 to resistance against the employment of new workmen; 2 to refusal to accept reduction of wages; 1 to "passive resistance" against the employer; and 1 to anticipate a threatened strike.

The following table shows the number of lockouts, establishments affected, and employees locked out for each year of the period, 1895 to 1907:

LOCKOUTS, ESTABLISHMENTS AFFECTED, AND EMPLOYEES LOCKED OUT, BY YEARS, 1895 TO 1907.

Year.	Lock-outs.	Estab-lishments affected.	Em-ployees locked out.	Per cent of em-ployees locked out of total em-ployees.	Em-ployees locked out and reem-ployed.
1895.....	8	17	2,317	51.2	2,183
1896.....	10	211	5,445	79.5	4,589
1897.....	11	12	1,712	54.4	1,647
1898.....					
1899.....	5	38	3,457	60.9	3,448
1900.....	10	58	4,036	75.8	3,703
1901.....	3	3	1,302	70.4	302
1902.....	8	9	1,050	49.9	1,003
1903.....	8	71	1,334	51.8	905
1904.....	6	605	23,742	99.2	23,717
1905.....	17	448	11,197	75.2	9,614
1906.....	50	1,832	67,872	84.3	64,549
1907.....	26	236	14,539	78.4	14,270

## FRANCE.

*Statistique des Grèves et des Recours à la Conciliation et à l'Arbitrage Survenus Pendant l'Année 1907.* Direction du Travail, Ministère du Travail et de la Prévoyance Sociale. xvii, 688 pp.

The present volume is the seventeenth of a series of annual reports on strikes and conciliation and arbitration issued by the French labor bureau. The information is presented in the same form as in previous reports.

**STRIKES.**—During the year 1907 there were 1,275 strikes, involving 8,365 establishments, 197,961 strikers, and 30,684 other persons thrown out of work on account of strikes. Of the strikers, 83.26 per cent were men, 11.71 per cent were women, and 5.03 per cent were children. The strikes caused a loss of 3,048,446 working days by strikers and 513,774 by other employees thrown out of work, a total of 3,562,220 working days. In 1906 there were 1,309 strikes, in which 438,466 strikers were involved and 29,305 other employees were thrown out of work, causing an aggregate loss of 9,438,594 working days. The average number of days lost per striker in 1907 was 15, as compared with 19 in 1906.

Of the 1,275 strikes in 1907, 911 involved but 1 establishment each, 142 involved from 2 to 5 establishments, 78 from 6 to 10 establishments, 80 from 11 to 25 establishments, 27 from 26 to 50 establishments, and 18 from 51 to 100 establishments. Of the remaining strikes, 13 involved over 100 establishments each, while for 6 strikes the number of establishments involved could not be ascertained. In 957 strikes all or a part of the striking employees were organized. The employers were organized in 569 strikes. Eight workingmen's unions and three employers' associations were organized during the progress of or immediately following strikes. In 54 strikes regular aid was given by labor organizations to their striking members and in some cases to strikers not members.

Of the 1,275 strikes 263, or 20.6 per cent, involving 24,369 strikers, succeeded; 490 strikes, or 38.4 per cent, involving 130,806 strikers, succeeded partly; and 522 strikes, or 41 per cent, involving 42,786 strikers, failed. The percentage of strikers involved in the three classes of strikes was 12.3, 66.1, and 21.6 per cent, respectively. In 653 strikes the striking employees were time workers, while in 331 they worked by the piece, and in the remaining 287 by both time and piece.

The table following shows, by groups of industries, the number of strikes, strikers, and establishments affected, according to the results of strikes; also the days of work lost by all employees and the number of strikers per 1,000 working people in each group of industries for the year 1907:

STRIKES, ESTABLISHMENTS AFFECTED, AND STRIKERS, BY RESULTS, AND WORKING DAYS LOST, FOR EACH GROUP OF INDUSTRIES, 1907.

Industry.	Succeeded.		Succeeded partly.		Failed.		Total.	
	Strikes.	Estab-lish-ments.	Strikes.	Estab-lish-ments.	Strikes.	Estab-lish-ments.	Strikes.	Estab-lish-ments.
Agriculture, forestry, and fisheries....	15	181	34	1,138	14	158	63	1,477
Mining.....	7	7	16	16	21	21	44	44
Quarrying.....	4	12	8	59	4	10	16	81
Food and drinks.....	1	1	17	310	23	425	41	736
Chemical products (including tobacco).....	4	4	20	53	15	15	39	72
Paper and printing.....	2	2	16	40	20	26	38	68
Leather and hides.....	7	10	24	74	21	32	52	116
Textiles.....	55	290	91	245	101	127	247	662
Wearing apparel, cleaning, etc.....	2	2	4	34	9	9	15	45
Woodworking, carved materials, etc.....	11	117	21	145	22	32	54	294
Building trades (woodwork).....	5	46	24	555	10	91	39	702
Metallurgical.....	2	2	3	3	9	9	14	14
Metal working, machinery, instruments, apparatus, etc.....	28	252	51	532	56	73	135	857
Jewelry, gold and silver working.....			3	234	1	1	4	235
Stone cutting, products of stone, clay, glass, etc.....	18	30	22	62	21	31	61	123
Building trades (stone and earth work).....	57	265	94	1,475	121	465	272	2,205
Transportation, commerce, etc.....	45	121	42	371	54	142	141	634
Total.....	263	1,342	490	5,356	522	1,667	1,275	8,365

Industry.	Strikers in strikes which—			Total strikers.	Strikers per 1,000 working people in each industry. <sup>(a)</sup>	Working days lost by all employees thrown out of work.
	Succeeded.	Succeeded partly.	Failed.			
Agriculture, forestry, and fisheries....	1,119	6,514	1,769	9,402	3.75	143,861
Mining.....	624	6,358	3,285	10,267	56.45	68,682
Quarrying.....	347	1,592	861	2,800	45.87	98,372
Food and drinks.....	25	4,428	3,045	7,498	11.82	78,614
Chemical products (including tobacco).....	354	4,976	2,605	7,935	69.42	82,552
Paper and printing.....	41	4,524	1,196	5,761	43.63	84,999
Leather and hides.....	327	2,521	1,893	4,741	30.23	61,351
Textiles.....	6,464	19,813	7,071	33,348	54.08	1,044,865
Wearing apparel, cleaning, etc.....	82	249	1,438	1,769	1.63	9,639
Woodworking, carved materials, etc.....	984	1,565	1,137	3,686	39.14	75,345
Building trades (woodwork).....	191	5,246	454	5,891	(b)	135,400
Metallurgical.....	38	750	388	1,176	16.67	10,213
Metal working, machinery, instruments, apparatus, etc.....	3,192	12,650	3,164	19,006	34.76	434,810
Jewelry, gold and silver working.....		1,665	4	1,669	78.66	43,766
Stone cutting, products of stone, clay, glass, etc.....	1,027	2,507	1,659	5,193	34.42	288,420
Building trades (stone and earth work).....	5,492	21,432	8,647	35,571	68.78	564,250
Transportation, commerce, etc.....	4,062	34,016	5,170	43,248	36.79	339,181
Total.....	24,369	130,806	42,786	197,961	37.00	3,562,220

<sup>a</sup> Based on the census of 1901.

<sup>b</sup> Included in building trades (stone and earth work).

<sup>c</sup> Including building trades (woodwork).

<sup>d</sup> Based on the total number of industrial working people in France in 1901.

Of the 17 groups of industries above shown, 2, namely, building trades (stone and earth work) and textiles, together, furnished 40.7 per cent of the total number of strikes during the year. With regard to the number of strikers, these 2 groups furnished 34.8 per cent. The principal data as to strikes are shown, by causes, in the table following:

STRIKES, ESTABLISHMENTS AFFECTED, AND STRIKERS, BY RESULTS, AND WORKING DAYS LOST, FOR EACH CAUSE, 1907.

[Strikes due to two or more causes have been tabulated under each cause; hence the totals for this table, if computed, would not agree with those for preceding tables.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.		Total.	
	Strikes.	Estab-lish-ments.	Strikes.	Estab-lish-ments.	Strikes.	Estab-lish-ments.	Strikes.	Estab-lish-ments.
For increase of wages.....	170	1,103	327	4,227	311	1,828	808	7,156
Against reduction of wages.....	17	31	8	22	9	9	34	62
For reduction of hours with present or increased wages.....	45	902	25	1,442	65	1,060	135	3,404
Relating to time, method, etc., of wage payments.....	63	475	29	312	64	317	156	1,104
For or against modification of conditions of work.....	23	58	19	184	39	399	81	641
Against piecework.....	10	38	7	88	22	509	39	633
For or against modification of shop rules.....	52	491	31	299	77	1,017	160	1,807
For abolition or reduction of fines....	5	5	5	9	9	15	19	29
Against discharge or for reinstatement of workmen, foremen, or superintendents.....	45	51	30	36	102	126	177	213
For discharge of workmen, foremen, or superintendents.....	24	45	18	92	85	132	127	269
For discharge of female employees....	1	1	1	1	5	8	7	10
For limitation of number of apprentices.....			2	2	5	25	7	27
Relating to deductions from wages for support of insurance and aid funds.....	5	288	1	6	4	25	10	319
Other causes.....	5	111	6	21	9	30	20	162

Cause or object.	Strikers in strikes which—			Total strikers.	Working days lost by all employees thrown out of work.
	Succeeded.	Succeeded partly.	Failed.		
For increase of wages.....	16,806	73,355	34,300	124,461	2,624,238
Against reduction of wages.....	1,461	1,910	402	3,773	38,893
For reduction of hours with present or increased wages.....	5,338	10,277	19,651	35,266	566,761
Relating to time, method, etc., of wage payments.....	9,201	10,159	12,664	32,024	865,839
For or against modification of conditions of work.....	1,691	4,873	7,859	14,423	415,008
Against piecework.....	584	815	7,959	9,358	346,112
For or against modification of shop rules.....	10,463	11,105	18,627	40,195	859,902
For abolition or reduction of fines.....	1,417	5,499	1,274	8,190	436,907
Against discharge or for reinstatement of workmen, foremen, or superintendents.....	5,406	7,622	8,011	21,039	393,167
For discharge of workmen, foremen, or superintendents.....	3,822	2,261	6,117	12,200	126,794
For discharge of female employees.....	48	27	183	258	6,467
For limitation of number of apprentices.....		42	431	473	6,407
Relating to deductions from wages for support of insurance and aid funds....	6,990	1,055	351	8,396	438,213
Other causes.....	2,627	25,523	1,652	29,802	233,112

The most frequent cause of strikes during the year was wage disputes, the demands for increased wages, alone or in conjunction with other demands, having figured in 808 strikes, or 63.4 per cent of the total number of strikes for the year, involving 124,461 strikers, or 62.9 per cent of the total number of strikers, and causing a loss of 2,624,238 working days, which include days lost by persons other than strikers, who were thrown out of employment on account of strikes. Of these demands 170 were successful for 16,806 strikers, 327 partly successful for 73,355 strikers, and 311, involving 34,300 strikers, failed. The next two tables show, for both strikes and strikers, the results of strikes by duration and the results and duration of strikes by number of strikers involved.

STRIKES AND STRIKERS, BY DURATION AND RESULTS, 1907.

Days of duration.	Strikes which—			Total strikes.	Strikers in strikes which—			Total strikers.
	Suc-ceeded.	Suc-ceeded partly.	Failed.		Suc-ceeded.	Suc-ceeded partly.	Failed.	
7 and under.....	196	247	346	789	15,527	30,788	18,383	64,698
8 to 15.....	34	107	80	223	5,426	47,428	8,282	61,136
16 to 30.....	16	66	51	133	1,685	19,413	8,068	29,166
31 to 100.....	9	55	42	106	1,032	22,530	7,824	31,386
101 and over.....	8	15	3	24	629	10,647	229	11,575
Total.....	263	490	522	1,275	24,369	130,806	42,786	197,961

\* This total does not equal the sum of the items shown; the figures are given as shown in the original report.

STRIKES, BY NUMBER OF STRIKERS INVOLVED, RESULTS, AND DURATION, 1907.

Strikers involved in each strike.	Strikes which—			Total strikes.	Strikes which lasted—				
	Suc-ceeded.	Suc-ceeded partly.	Failed.		7 days and under.	8 to 15 days.	16 to 30 days.	31 to 100 days.	101 days and over.
25 and under.....	77	99	225	401	295	65	24	17	.....
26 to 50.....	58	98	117	273	187	41	24	19	2
51 to 100.....	65	94	76	235	145	32	29	21	8
101 to 200.....	41	83	55	179	103	35	22	15	4
201 to 500.....	17	67	35	119	44	33	20	16	6
501 to 1,000.....	4	24	10	38	11	10	9	8	.....
1,001 and over.....	1	25	4	30	4	7	5	10	4
Total.....	263	490	522	1,275	789	223	133	106	24

Considered by their duration, the largest percentage of successful strikes was found in strikes which lasted 7 days or under. In strikes of this class 24.8 per cent were successful, while of those which continued for more than 7 days only 13.8 per cent terminated favorably to the strikers. In the classes 8 to 15 days and 16 to 30 days the percentages of successful strikes were 15.2 and 12, respectively. Of strikes lasting more than 30 days 13.1 per cent were successful

The following table gives a summary of the most important strike statistics for each of the years 1894 to 1907. The figures for the years 1894 to 1906 have been compiled from previous reports and those for 1907 from the present report:

STRIKES AND STRIKERS, BY RESULTS, ESTABLISHMENTS AFFECTED, AND WORKING DAYS LOST, FOR EACH YEAR, 1894 TO 1907.

Year.	Strikes.	Estab-lish-ments affected.	Strikers.	Working days lost by all employees thrown out of work.	Strikes which—			Strikers in strikes which—		
					Suc-ceeded.	Suc-ceeded partly.	Failed.	Suc-ceeded.	Suc-ceeded partly.	Failed.
1894...	391	1,731	54,576	1,062,480	84	129	178	12,897	24,784	16,896
1895...	405	1,298	45,801	617,469	100	117	188	8,565	20,672	16,564
1896...	476	2,178	49,851	644,168	117	122	237	11,579	17,087	21,215
1897...	356	2,568	68,875	780,944	68	122	166	19,838	28,767	20,270
1898...	368	1,967	82,065	1,216,306	75	123	170	10,594	32,546	38,925
1899...	739	4,288	176,772	3,550,734	180	282	277	21,131	124,767	30,874
1900...	902	10,263	222,714	3,760,577	205	360	337	24,216	140,358	58,140
1901...	523	6,970	111,414	1,862,050	114	195	214	9,364	44,366	57,664
1902...	512	1,820	212,704	4,675,081	111	184	217	28,533	100,820	28,351
1903...	567	3,246	123,151	2,441,944	122	222	223	12,526	69,736	20,889
1904...	1,026	17,250	271,097	8,934,884	297	394	335	58,555	168,094	49,508
1905...	880	5,302	177,696	2,746,684	184	361	285	22,872	125,016	29,778
1906...	a 1,309	b 19,637	c 438,466	9,438,594	278	539	490	31,148	253,264	154,010
1907...	1,275	8,365	197,961	3,562,220	263	490	522	24,369	130,806	42,786

a Including 2 strikes not terminated July 1, 1907.

b Including 2 establishments in 2 strikes not terminated July 1, 1907.

c Including 44 strikers in 2 strikes not terminated July 1, 1907.

The number of strikes, establishments affected, strikers, and aggregate working days lost during 1907 show a considerable decrease as compared with the figures for 1906.

CONCILIATION AND ARBITRATION.—During the year recourse to the law of December 27, 1892, relating to the conciliation and arbitration<sup>(a)</sup> of labor disputes, was had in 250 disputes. In 16 cases recourse was had to the law before entire cessation of work had occurred.

In 9 of these cases a compromise was effected, in 3 cases the employees receded from their demands, and in 1 case their demands were granted. In 2 cases, upon the refusal of the employers to present themselves, strikes were declared which resulted in compromise. In the remaining case a committee of conciliation was formed but, following a disagreement among the members of the committee, a strike was declared. This strike was ended by compromise after a second meeting of the committee had occurred.

The number of disputes in which the application of the law was requested in 1907 is equal to 19.6 per cent of the number of strikes that actually occurred during the year. During the preceding fourteen-year period such recourse was had in 2,200 disputes, or 24.4 per cent of the total strikes for the period. Requests for the application

<sup>a</sup> For the provisions of this law see Bulletin of the Department of Labor No. 25, pp. 854-856.

of the law during 1907 were made by employees in 95 disputes, by employers in 4 disputes, and by both employees and employers in 12 disputes. In the 139 other disputes in which recourse was had to the law the initiative was taken by justices of the peace.

As for results, it was found that 10 strikes had terminated by direct agreement between employers and employees before committees of conciliation were formed. The offer of conciliation was rejected in 80 of the 240 remaining disputes, the rejection coming from employers in 73 cases, from employees in 5 cases, and from both employers and employees in 2 cases. In 2 of the 80 cases in which conciliation was rejected the disputes were terminated by the employees withdrawing their demands or accepting concessions previously offered, while in the 78 other cases strikes were declared or continued.

Committees of conciliation were constituted for the settlement of the remaining 158 disputes. Ninety-one of these disputes were settled directly by such committees, and of the 67 disputes remaining 10 were settled by arbitration and 7 were settled by the parties themselves, after having appeared without success before committees of conciliation. Strikes were declared or continued after the failure of conciliation and arbitration in the 50 remaining disputes.

The following is a summary statement in regard to disputes in which recourse was had to the law concerning conciliation and arbitration, during 1907 and for the preceding fourteen years taken collectively:

**SUMMARY OF CASES IN WHICH RECOURSE WAS HAD TO THE LAW CONCERNING CONCILIATION AND ARBITRATION, 1893 TO 1906, AND 1907.**

Items.	1893 to 1906.	1907.
Total number of strikes.....	9,032	1,275
Disputes in which recourse was had to the law of 1892.....	2,200	250
Disputes settled:		
Before the creation of committees of conciliation.....	108	10
After creation but before assembling of committees of conciliation.....	2	2
After refusal of request for conciliation.....	102	2
Directly by committees of conciliation.....	652	91
By arbitration.....	77	10
Directly by the parties, after having had recourse to conciliation.....	60	7
Total cases settled through the application of the law.....	1,001	122
Strikes resulting or continuing:		
After refusal of request for conciliation.....	700	78
After failure of recourse to conciliation and arbitration.....	499	50
Total cases of failure after application of the law.....	1,199	128

The above summary shows that of 250 disputes considered in 1907, 122 were settled directly or indirectly through the application of the law of 1892, and in the case of 128 the recourse to the law proved fruitless. Of the 122 disputes settled, 20 were favorable to the



demands of the employees, 95 resulted in a compromise, and 7 were unfavorable to the employees. In the 128 disputes which continued after the failure of attempts at conciliation and arbitration the employees succeeded in 9, partly succeeded in 52, and failed in 67 cases.

### GERMANY.

*Streiks und Aussperrungen im Jahre 1907.* Bearbeitet im Kaiserlichen Statistischen Amt. 92 pp.

This is the ninth annual report on strikes and lockouts issued by the Imperial Statistical Office of Germany. The report contains analyses and summaries of the data relating to strikes and lockouts in 1907, a map and a series of diagrams presenting the principal features of the disputes in Germany and in foreign countries, tables showing the data by industries and by localities and a summary statement for the years 1899 to 1907.

**STRIKES IN 1907.**—The number of strikes which ended in 1907 was 2,266 and the number of establishments affected was 13,092. Of the establishments affected, 3,604 suspended operations entirely. The number of employees in the establishments affected was 445,165, and of these 192,430 participated in the strikes.<sup>(a)</sup> The number of non-strikers who were thrown out of employment was 10,594.

The following table shows the number of strikes, establishments affected, strikers, and other employees thrown out of work, by results of strikes, in 1907:

**STRIKES, ESTABLISHMENTS AFFECTED, STRIKERS, AND OTHER EMPLOYEES THROWN OUT OF WORK, BY RESULTS, 1907.**

[The column headed "Strikers" shows the maximum number of strikers at any time during the strike.]

Result.	Strikes.	Establishments affected.	Total employees in establishments affected.	Strikers.	Other employees thrown out of work.
Succeeded.....	373	1,465	38,514	19,326	1,149
Succeeded partly.....	930	8,757	194,549	101,798	3,765
Failed.....	963	2,870	212,102	71,306	5,680
Total.....	2,266	13,092	445,165	192,430	10,594

In 1907 the average number of establishments affected by each strike was 5.8, while the average number of strikers to a strike was 84.9; the persons on strike formed 43 per cent of the employees of the establishments affected. The proportion of strikes that succeeded was 16.5 per cent, those that failed were 42.5 per cent, and those that succeeded partly were 41.0 per cent of the total. The number of

<sup>a</sup> The number of strikers included in the strike statistics of Germany is the greatest number of persons on strike at any time during the progress of the strike.

strikers engaged in strikes which succeeded formed 10.0 per cent, those in strikes that failed formed 37.1 per cent, and those in strikes that succeeded partly formed 52.9 per cent of the total number of strikers.

The following table shows, by principal groups of industries, the number and results of strikes, the number of establishments and strikers involved, and the number of other employees thrown out of work on account of the strikes occurring in the year 1907:

**NUMBER AND RESULTS OF STRIKES, ESTABLISHMENTS AFFECTED, STRIKERS, AND OTHER EMPLOYEES THROWN OUT OF WORK, BY INDUSTRIES, 1907.**

[The column headed "Strikers" shows the maximum number of strikers at any time during the strike.]

Industry.	Total strikes.	Strikes which—			Establishments affected.	Strikers.	Other employees thrown out of work.
		Succeeded.	Succeeded partly.	Failed.			
Gardening, florist, and nursery trades.....	16	7	6	3	380	1,449	5
Fisheries.....	2	.....	2	.....	19	86	.....
Mining, metallurgical, salt, etc.....	95	10	25	60	162	23,847	499
Quarrying, products of stone, clay, glass, etc.....	189	20	89	80	417	11,777	692
Metal working.....	182	21	80	81	808	14,490	1,352
Machinery, instruments, apparatus, etc.....	149	23	66	71	270	12,825	599
Chemical products.....	22	3	10	9	22	1,674	94
Oil, fat, soap, gas, etc.....	18	2	4	12	20	736	21
Textiles.....	98	17	41	40	106	10,718	2,751
Paper.....	23	2	10	11	79	1,592	118
Leather.....	52	11	20	21	534	3,340	106
Woodworking, carved materials, etc.....	190	30	80	80	740	9,194	165
Food and drinks (including tobacco).....	175	23	75	77	1,478	10,411	220
Wearing apparel, cleaning, etc.....	121	22	60	39	1,185	12,491	211
Building trades.....	704	133	299	272	5,773	62,423	3,499
Printing.....	24	4	4	16	34	697	78
Art trades.....	7	.....	4	3	36	308	.....
Commerce.....	88	26	24	38	278	5,833	150
Transportation.....	102	19	40	43	742	8,416	214
Hotels, restaurants, etc.....	8	1	1	6	8	119	.....
Other.....	1	.....	.....	1	1	4	.....
Total.....	2,266	373	930	963	13,092	192,430	10,594

The building trades had by far the greatest number of strikes, the 704 disputes in this industry forming 31.1 per cent of all the strikes reported; the number of strikers also was in excess of those in any other industry, the 62,423 strikers being 32.4 per cent of all the persons on strike. The group, woodworking, carved materials, etc., came next in order as regards the number of strikes, this group having had 8.4 per cent of all the strikes. The mining, metallurgical, etc., group ranked second as far as the number of strikers was concerned, with 12.4 per cent of all the persons on strike.

The two tables following present the data according to the duration of the strikes and according to the number of strikers involved:

**NUMBER AND RESULTS OF STRIKES, ESTABLISHMENTS AFFECTED, STRIKERS, AND OTHER EMPLOYEES THROWN OUT OF WORK, BY DURATION, 1907.**

[The column headed "Strikers" shows the maximum number of strikers at any time during the strike.]

Days of duration.	Total strikes.	Strikes which—			Estab-lish-ments affect- ed.	Strikers.	Other employ- ees thrown out of work.
		Suc- ceeded.	Suc- ceeded partly.	Failed.			
Less than 1.....	131	33	30	68	181	4,929	292
1 to 5.....	806	194	278	334	1,796	47,281	3,228
6 to 10.....	335	49	162	124	1,384	26,108	1,449
11 to 20.....	289	39	134	116	2,081	19,886	2,341
21 to 30.....	156	19	63	74	1,183	14,221	1,137
31 to 50.....	218	22	106	90	3,172	41,605	983
51 to 100.....	224	14	114	96	2,254	25,843	643
101 and over.....	107	3	43	61	1,041	12,557	521
Total.....	2,266	373	930	963	13,092	192,430	10,594

**NUMBER AND RESULTS OF STRIKES, ESTABLISHMENTS AFFECTED, STRIKERS AND OTHER EMPLOYEES THROWN OUT OF WORK, BY NUMBER OF STRIKERS INVOLVED, 1907.**

[The column headed "Strikers" shows the maximum number of strikers at any time during the strike.]

Strikers involved in each strike.	Total strikes.	Strikes which—			Estab-lish-ments af- fected.	Strikers.	Other employ- ees thrown out of work.
		Suc- ceeded.	Suc- ceeded partly.	Failed.			
2 to 5.....	125	21	25	79	145	498	38
6 to 10.....	249	49	64	136	349	2,016	252
11 to 20.....	472	89	177	206	858	7,087	645
21 to 30.....	309	51	132	126	690	7,912	613
31 to 50.....	347	57	148	142	990	13,667	1,284
51 to 100.....	379	61	190	128	1,576	27,146	1,152
101 to 200.....	212	28	108	76	2,213	29,734	3,377
201 to 500.....	125	15	59	51	2,215	38,228	2,298
501 and over.....	48	2	27	19	4,056	66,142	935
Total.....	2,266	373	930	963	13,092	192,430	10,594

The following table shows the results of the strikes in 1907 by cause or object:

STRIKES, BY CAUSES AND RESULTS.

[Strikes due to two or more causes have been tabulated under each cause; the totals for the groups, therefore, are not the sums of the items for the individual causes. For example, a strike "for increase of wages and extra rate for overtime" is tabulated separately under each of these causes, while it is tabulated only once under total strikes relating to wages. For a similar reason the sums of the figures in this table exceed the totals in the preceding tables.]

Cause or object.	Total strikes.	Strikes which—		
		Suc-ceeded.	Suc-ceeded partly.	Failed.
<b>Strikes relating to wages:</b>				
Against reduction of wages.....	79	20	19	40
For increase of wages.....	1,608	303	742	561
For extra rate for overtime.....	270	86	79	105
For extra pay for secondary work.....	93	26	27	40
Other causes affecting wages.....	190	49	32	109
<b>Total (relating to wages).....</b>	<b>1,738</b>	<b>318</b>	<b>797</b>	<b>623</b>
<b>Strikes relating to hours of labor:</b>				
Against increase of hours.....	9	3	1	5
For reduction of hours.....	532	143	126	263
For abolition or limitation of overtime work.....	39	9	3	27
For reduction of hours on Saturday.....	71	30	7	34
Against introduction of overtime, Sunday work, etc.....	4	.....	1	3
For regular hours.....	22	10	5	7
Other causes affecting hours of labor.....	96	25	20	53
<b>Total (relating to hours of labor).....</b>	<b>633</b>	<b>167</b>	<b>157</b>	<b>309</b>
<b>Strikes relating to causes other than wages or hours of labor:</b>				
Abolition, etc., of piece work.....	51	14	8	29
For introduction, etc., of piece work.....	7	3	1	3
For reinstatement of discharged employees.....	317	56	30	231
For dismissal, etc., of employees.....	71	12	5	54
For dismissal, etc., of strike breakers.....	33	11	4	18
For dismissal of foremen.....	28	5	3	20
Against being compelled to work on May 1.....	25	3	.....	22
For recognition of workmen's committee, etc.....	39	13	3	23
For recognition of journeymen's employment office.....	18	4	3	11
For recognition of right to join union.....	5	.....	1	4
Maintenance of wage agreement.....	28	12	2	14
For introduction of wage agreement.....	133	41	21	71
For change in wage agreement.....	120	43	36	41
For abolition of notice on leaving or discharge.....	7	4	.....	3
For determination of notice on leaving or discharge.....	10	4	.....	6
Other causes not specified.....	383	74	57	252
<b>Total (relating to causes other than wages or hours of labor).....</b>	<b>1,084</b>	<b>237</b>	<b>177</b>	<b>670</b>

The results of strikes for each year from 1899 to 1907 are shown in the following table, together with number of strikers and establishments affected:

NUMBER AND RESULTS OF STRIKES, ESTABLISHMENTS AFFECTED, AND STRIKERS,  
BY YEARS, 1899 TO 1907.

[The column headed "Strikers" shows the maximum number of strikers at any time during strike.]

Year.	Total strikes.	Strikes which—						Estab-lish-ments affected.	Total em- ployees in estab-lish-ments affected.	Strikers.
		Succeeded.		Succeeded partly.		Failed.				
		Num-ber.	Per cent of total strikes.	Num-ber.	Per cent of total strikes.	Num-ber.	Per cent of total strikes.			
1899.....	1,288	331	25.7	429	33.3	528	41.0	7,121	256,858	99,338
1900.....	1,433	275	19.2	505	35.2	653	45.6	7,740	298,819	122,803
1901.....	1,056	200	18.9	285	27.0	571	54.1	4,561	141,220	55,262
1902.....	1,060	228	21.5	235	22.2	597	56.3	3,437	131,066	53,012
1903.....	1,374	300	21.8	444	32.3	630	45.9	7,000	198,636	85,603
1904.....	1,870	449	24.0	688	36.8	733	39.2	10,321	273,364	113,480
1905.....	2,403	528	22.0	971	40.4	904	37.6	14,481	776,984	408,145
1906.....	3,328	613	18.4	1,498	45.0	1,217	36.6	16,246	696,539	272,218
1907.....	2,266	373	16.5	930	41.0	963	42.5	13,092	445,165	192,430

**LOCKOUTS IN 1907.**—In the year 1907 there were 246 lockouts reported; the number of establishments affected by these disputes was 5,287, the number of persons employed in these establishments was 129,563, of whom 81,167 were locked out, while 1,825 persons were thrown out of work because of the disputes. The average number of persons locked out in each dispute was 330, and the average number of establishments affected in each dispute was 22. Of the 246 lockouts, 112, or 45.5 per cent, were successful from the standpoint of the employers, 119, or 48.4 per cent, were partly successful, and 15, or 6.1 per cent, were unsuccessful.

The following table shows, by principal groups of industries, the number and results of lockouts, the number of establishments and persons involved in lockouts, and the number of other employees thrown out of work on account of lockouts during the year 1907:

**NUMBER AND RESULTS OF LOCKOUTS, ESTABLISHMENTS AFFECTED, EMPLOYEES LOCKED OUT, AND OTHER EMPLOYEES THROWN OUT OF WORK, BY INDUSTRIES, 1907.**

[The column headed "Employees locked out" shows the maximum number of employees locked out at any time during lockout.]

Industry.	Total lock-outs.	Lockouts which—			Estab-lish-ments affected.	Em-ploy-ees locked out.	Other em-ploy-ees thrown out of work.
		Suc-ceeded.	Suc-ceeded partly.	Failed.			
Quarrying, products of stone, clay, glass, etc.	5		4	1	25	717	53
Metal working.....	13	8	5		159	9,018	
Machinery, instruments, apparatus, etc.	21	14	5	2	84	10,769	151
Oil, fat, soap, gas, etc.	3	3			3	55	
Textiles.....	5		3		57	3,501	
Paper.....	4	2	1	1	7	124	
Leather.....	4		2	2	163	953	
Woodworking, carved materials, etc	35	6	28	1	1,296	14,435	193
Foods and drinks (including tobacco)	11	5	6		39	971	26
Wearing apparel, cleaning, etc.	53	25	27	1	1,042	11,521	191
Building trades.....	84	42	35	7	2,351	23,847	1,211
Printing.....	2	1	1		2	14	
Commerce.....	6	4	2		59	5,242	
<b>Total .....</b>	<b>246</b>	<b>112</b>	<b>119</b>	<b>15</b>	<b>5,287</b>	<b>81,167</b>	<b>1,825</b>

The largest number of lockouts occurred in the building trades. In this group there were 84 disputes, or 34.1 per cent of the total number, and 23,847 persons, or 29.4 per cent of the total, were locked out; the group wearing apparel, etc., had 53 disputes, or 21.5 per cent of the total, and 11,521 persons, or 14.2 per cent of the total, were locked out; the group woodworking, etc., had 35 disputes, or 14.2 per cent of the total, and 14,435 persons, or 17.8 per cent of the total, were locked out. These three groups of industries included 69.9 per cent of all the lockouts and 61.4 per cent of all the persons locked out.

The results of lockouts for each year from 1899 to 1907, together with establishments affected and employees locked out, are shown in the table following:

**NUMBER AND RESULTS OF LOCKOUTS, ESTABLISHMENTS AFFECTED, AND EMPLOYEES LOCKED OUT, BY YEARS, 1899 TO 1907.**

[The column headed "Employees locked out" shows the maximum number of employees locked out at any time during lockout.]

Year.	Total lock-outs.	Lockouts which—						Estab-lish-ments affected.	Total employ-ees in estab-lish-ments affected.	Em-employees locked out.
		Succeeded.		Succeeded partly.		Failed.				
		Num-ber.	Per cent of total lockouts.	Num-ber.	Per cent of total lockouts.	Num-ber.	Per cent of total lockouts.			
1899.....	23	6	26.1	9	39.1	8	34.8	427	8,290	5,296
1900.....	35	13	37.1	17	48.6	5	14.3	607	22,462	9,085
1901.....	35	16	45.7	8	22.9	11	31.4	238	7,980	5,414
1902.....	46	30	65.2	7	15.2	9	19.6	948	18,705	10,305
1903.....	70	36	51.4	15	21.4	19	27.2	1,714	52,541	35,273
1904.....	120	44	36.7	33	27.5	43	35.8	1,115	36,312	23,760
1905.....	254	65	25.6	147	57.9	42	16.5	3,859	138,526	118,665
1906.....	298	88	29.5	174	58.4	36	12.1	2,780	152,449	77,109
1907.....	246	112	45.5	119	48.4	15	6.1	5,287	129,563	81,167

## GREAT BRITAIN.

*Report on Strikes and Lockouts and on Conciliation and Arbitration Boards in the United Kingdom in 1907.* 1908. 170 pp. (Published by the Labor Department of the British Board of Trade.)

This report is the twentieth of a series of annual reports, begun in 1888, on strikes and lockouts. It presents statistics for strikes and lockouts beginning in 1907 and of trade disputes settled by conciliation or arbitration boards. Summary tables are also given, making general comparison of results in 1907 with the results of each of the four previous years, 1903 to 1906.

Figures are given showing, by industries, causes, and results, the number of strikes and lockouts, persons directly and indirectly involved, and days lost. A list of trade disputes (involving cessation of work) settled in 1907 by conciliation or arbitration is given, and tables are presented summarizing, by industries, the work of the permanent and district conciliation and arbitration boards.

Strikes and lockouts in which the number of persons involved was fewer than 10 or which lasted less than one day, unless the aggregate days lost exceeded 100 days, are not included in the report.

Appendixes show the method used in classifying causes of trade disputes; trade dispute statistics for each year of the period 1893 to 1907; great labor disputes, 1888 to 1906; and specimen forms of inquiry used.

**STRIKES AND LOCKOUTS IN 1907.**—As in previous years, so in 1907, disputes relative to wages were the most numerous, forming 63.9 per cent of all disputes for the year and involving 55.7 per cent of all striking and locked-out employees. Of the 384 disputes of this class, 30.2 per cent resulted in favor of employees, 38.5 per cent in favor of employers, and 31.3 per cent were compromised. Of the total employees engaged in wage disputes, 26.6 per cent were in disputes settled in favor of the employees, 28.3 per cent in those settled in favor of the employers, and 45.1 per cent in those that were compromised. Of the 16 disputes relative to hours of labor, 25 per cent were settled in favor of the employees, 56.3 per cent in favor of the employers, and 18.7 per cent were compromised. Of the 138 disputes relative to trade unionism and employment of particular classes or persons, 42 per cent were settled in favor of employees, 39.9 per cent in favor of employers, and 18.1 per cent were compromised; while 51.2 per cent of the employees involved were in disputes settled in favor of the employees, 18.2 per cent in those settled in favor of the employers, and 30.6 per cent in those that were compromised. Considering all disputes, 32.1 per cent were settled in favor of the employees, 40.9 per cent in favor of the employers, 26.8 per cent were compromised, and 0.2 per cent were indefinite or unsettled.

During the year there were 601 strikes and lockouts recorded, affecting 147,498 persons and entailing an aggregate loss of 2,162,151 working days. The number of disputes is greater, while the number of persons involved and the number of working days lost are both less than the averages for the five-year period, 1902 to 1906.

The following tables show the number of strikes and lockouts, the number of strikers and persons locked out and of other persons thrown out of work by reason of strikes and lockouts in 1907, and the number of working days lost by all employees thrown out of work, classified according to principal causes and by results:

**STRIKERS AND EMPLOYEES LOCKED OUT, BY CAUSES AND RESULTS, AND OTHER EMPLOYEES THROWN OUT OF WORK, 1907.**

["Aggregate working days lost by all employees thrown out of work" includes the aggregate duration in 1907 of disputes which began in previous years, and excludes the duration in 1908 of disputes which began in 1907.]

Principal cause or object.	Strikes and lockouts, the results of which were—				Total strikes and lockouts.	Aggregate working days lost by all employees thrown out of work.
	In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.		
Wages.....	116	148	120	.....	384	1,462,632
Hours of labor.....	4	9	3	.....	16	30,104
Employment of particular classes or persons.....	27	46	15	.....	88	324,180
Working arrangements, rules, and discipline.....	14	29	13	1	57	192,885
Trade unionism.....	31	9	10	.....	50	131,123
Sympathetic disputes.....	1	2	.....	.....	3	5,721
Other causes.....	.....	3	.....	.....	3	15,506
<b>Total.....</b>	<b>193</b>	<b>246</b>	<b>161</b>	<b>1</b>	<b>601</b>	<b>2,162,151</b>

**STRIKERS AND EMPLOYEES LOCKED OUT, BY CAUSES AND RESULTS, AND OTHER EMPLOYEES THROWN OUT OF WORK, 1907.**

Principal cause or object.	Strikers and employees locked out in disputes, the results of which were—				Total strikers and employees locked out.	Other employees thrown out of work.
	In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.		
Wages.....	14,882	15,871	25,305	.....	56,058	31,592
Hours of labor.....	925	878	277	.....	2,080	2,636
Employment of particular classes or persons.....	2,349	4,933	6,417	.....	13,699	6,146
Working arrangements, rules, and discipline.....	1,634	4,369	5,549	250	11,802	2,497
Trade unionism.....	13,082	543	2,814	.....	16,439	1,554
Sympathetic disputes.....	11	357	.....	.....	368	.....
Other causes.....	.....	282	.....	.....	282	2,345
<b>Total.....</b>	<b>32,883</b>	<b>27,233</b>	<b>40,362</b>	<b>250</b>	<b>100,728</b>	<b>46,770</b>

Of all employees directly affected by labor disputes, 32.6 per cent were involved in disputes settled in favor of the employees, 27 per cent in those settled in favor of the employers, 40.1 per cent in those that were compromised, and 0.3 per cent in those the results of which were indefinite or unsettled.



The following table shows the number of strikes and lockouts, employees thrown out of work, and working days lost, according to classified number of employees thrown out of work:

**STRIKES AND LOCKOUTS, EMPLOYEES THROWN OUT OF WORK, AND WORKING DAYS LOST, BY CLASSIFIED NUMBER OF EMPLOYEES THROWN OUT OF WORK, 1907.**

["Aggregate working days lost by all employees thrown out of work" refers exclusively to disputes which began in 1907, and includes working days lost in 1908 due to disputes which extended beyond 1907.]

Classified number of employees thrown out of work.	Strikes and lockouts.	Employees thrown out of work.		Aggregate working days lost by all employees thrown out of work.	
		Number.	Per cent.	Number.	Per cent.
5,000 and over.....	1	9,700	6.6	36,570	1.8
2,500 and under 5,000.....	3	11,475	7.8	213,675	10.3
1,000 and under 2,500.....	24	36,782	24.9	474,964	22.9
500 and under 1,000.....	45	30,737	20.8	305,620	14.8
250 and under 500.....	68	22,635	15.3	532,719	25.7
100 and under 250.....	153	24,756	16.8	311,923	15.1
50 and under 100.....	88	5,983	4.1	79,725	3.8
25 and under 50.....	103	3,530	2.4	80,732	3.9
Under 25 (a).....	116	1,900	1.3	35,667	1.7
Total.....	601	147,498	100.0	2,071,595	100.0

(a) Disputes involving fewer than 10 workpeople and those which lasted less than one day have been omitted, except when the aggregate duration exceeded 100 working days.

In 1907 there was but 1 dispute in which the number of employees involved exceeded 5,000; in 1906 there were 9 disputes of this magnitude. The disputes affecting more than 500 persons in 1907 were but 12.1 per cent of the total number of disputes, while these disputes affected 60.1 per cent of all employees thrown out of work.

In the following table are given the number of strikes and lockouts, employees thrown out of work, and working days lost, classified according to duration of the disputes:

**STRIKES AND LOCKOUTS, EMPLOYEES THROWN OUT OF WORK, AND WORKING DAYS LOST, BY DURATION, 1907.**

["Aggregate working days lost by all employees thrown out of work" refers exclusively to disputes which began in 1907, and includes working days lost in 1908 due to disputes which extended beyond 1907.]

Duration of strikes or lockouts.	Number of disputes.	Employees thrown out of work.	Aggregate working days lost by all employees.
Under 1 week.....	243	69,637	179,986
1 week and under 2 weeks.....	108	32,791	199,439
2 weeks and under 4 weeks.....	95	14,841	222,152
4 weeks and under 6 weeks.....	47	5,996	158,186
6 weeks and under 8 weeks.....	28	11,042	433,760
8 weeks and under 10 weeks.....	14	4,338	185,850
10 weeks and under 15 weeks.....	31	3,278	181,752
15 weeks and under 20 weeks.....	17	3,490	285,310
20 weeks and under 25 weeks.....	9	1,051	98,806
25 weeks and over.....	9	1,034	126,354
Total.....	601	147,498	2,071,595

The number of strikes and lockouts which lasted under two weeks formed 58.4 per cent of all disputes, and the number of persons thrown out of work in these two groups formed 69.4 per cent of all persons thrown out of work by strikes and lockouts. There were but 9 disputes, or 1.5 per cent of all disputes, which had a duration of twenty-five weeks and over. While the number of employees involved in disputes in this group formed but 0.7 per cent of all employees affected by strikes and lockouts, yet the aggregate days lost by strikers and locked-out employees was 6.1 per cent of the aggregate working days lost by all employees engaged in the disputes of the year.

The following tables, in which the disputes are classified by results, show the number of disputes and of persons affected and the number of working days lost in each group of industries:

STRIKES AND LOCKOUTS, BY RESULTS, AND WORKING DAYS LOST, FOR EACH GROUP OF INDUSTRIES, 1907.

[“Aggregate working days lost by all employees thrown out of work” includes the aggregate duration in 1907 of disputes which began in previous years, and excludes the duration in 1908 of disputes which began in 1907.]

Industry.	Strikes and lockouts the results of which were—				Total strikes and lockouts.	Aggregate working days lost by all employees thrown out of work.
	In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.		
Building trades.....	9	6	7	.....	22	23, 128
Mining and quarrying.....	46	37	28	1	112	569, 061
Metal, engineering, and shipbuilding.....	37	65	32	.....	134	467, 633
Textile trades.....	56	57	40	.....	153	642, 460
Clothing trades.....	22	24	18	.....	64	277, 949
Transportation.....	6	17	6	.....	29	85, 471
Miscellaneous trades.....	17	38	27	.....	82	91, 128
Employees of public authorities.....	.....	2	3	.....	5	5, 321
Total.....	193	246	161	1	601	2, 162, 151

STRIKERS AND EMPLOYEES LOCKED OUT, BY RESULTS, AND OTHER EMPLOYEES THROWN OUT OF WORK, FOR EACH GROUP OF INDUSTRIES, 1907.

Industry.	Strikers and employees locked out in disputes, the results of which were—				Total strikers and employees locked out.	Other employees thrown out of work.
	In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.		
Building trades.....	411	168	579	.....	1, 158	72
Mining and quarrying.....	19, 511	7, 352	8, 516	250	35, 629	16, 938
Metal, engineering, and shipbuilding.....	2, 907	4, 645	4, 343	.....	11, 898	7, 078
Textile trades.....	6, 786	8, 659	12, 408	.....	27, 853	19, 576
Clothing trades.....	1, 819	877	7, 478	.....	10, 174	1, 469
Transportation.....	746	3, 442	4, 147	.....	8, 335	373
Miscellaneous trades.....	703	2, 036	2, 738	.....	5, 477	551
Employees of public authorities.....	.....	51	153	.....	204	113
Total.....	32, 883	27, 233	40, 362	250	100, 728	46, 770

The number of disputes, persons directly affected, persons indirectly affected, and aggregate working days lost in the mining and quarrying, metal, engineering, and shipbuilding, and textile groups of industries exceed similar items in every other industrial group. Of the total, there were 193 disputes, involving 32,833 workpeople, which resulted in favor of employees; 246 disputes, involving 27,233 workpeople, which resulted in favor of employers; and 161 disputes, involving 40,362 workpeople, which were compromised. The remaining dispute was indefinite or unsettled as to result.

**STRIKES AND LOCKOUTS DURING FIVE YEARS.**—During the five-year period 1903 to 1907 there was a yearly average of 437 disputes, affecting an average of 132,577 employees yearly and entailing an average yearly loss of 2,296,809 working days.

The following table shows the number of strikes and lockouts, employees thrown out of work, and working days lost in each year of the period named:

**STRIKES AND LOCKOUTS, EMPLOYEES THROWN OUT OF WORK, AND WORKING DAYS LOST, BY YEARS, 1903 TO 1907.**

[“Aggregate working days lost by all employees thrown out of work” includes the aggregate duration in each year of disputes which began in previous years and extended beyond the year in which they began, and excludes the duration in 1903 of disputes which began in 1907.]

Year.	Strikes and lockouts.	Strikers and employees locked out.	Other employees thrown out of work.	Total employees thrown out of work.	Aggregate working days lost by all employees thrown out of work.
1903.....	387	93,515	23,386	116,901	2,338,668
1904.....	355	56,380	30,828	87,208	1,484,220
1905.....	358	67,653	25,850	93,503	2,470,189
1906.....	486	157,872	59,901	217,773	3,028,816
1907.....	601	100,728	46,770	147,498	2,162,151

The number of strikes and lockouts, and employees thrown out of work in each year from 1903 to 1907, are shown in the following table, by industries:

**STRIKES AND LOCKOUTS AND EMPLOYEES THROWN OUT OF WORK, BY INDUSTRIES AND YEARS, 1903 TO 1907.**

Industry.	Strikes and lockouts.					Employees thrown out of work.				
	1903.	1904.	1905.	1906.	1907.	1903.	1904.	1905.	1906.	1907.
Building trades.....	44	37	31	19	22	3,663	8,697	6,637	1,441	1,230
Mining and quarrying.....	125	113	106	96	112	63,578	46,287	44,791	83,833	52,567
Metal, engineering, and shipbuilding.....	87	75	70	125	134	32,380	12,130	12,753	42,049	19,576
Textile trades.....	55	52	67	124	153	9,458	13,043	15,786	75,114	47,429
Clothing trades.....	25	26	29	42	64	2,476	1,443	3,540	8,912	11,643
Transportation.....	15	10	11	19	29	2,172	1,759	2,112	1,888	8,708
Miscellaneous trades.....	32	41	39	58	82	2,463	3,794	7,159	4,272	6,028
Employees of public authorities.....	4	1	5	3	5	711	45	725	264	317
Total.....	387	355	358	486	601	116,901	87,208	93,503	217,773	147,498

The following table shows, by groups of industries, the aggregate working days lost by all employees thrown out of work for each year of the period 1903 to 1907:

AGGREGATE DURATION IN WORKING DAYS OF STRIKES AND LOCKOUTS, BY INDUSTRIES AND YEARS, 1903 TO 1907.

["Aggregate working days lost by all employees thrown out of work" includes the aggregate duration in each year of disputes which began in previous years and extended beyond the year in which they began, and excludes the duration in 1908 of disputes which began in 1907.]

Industry.	Aggregate working days lost by all employees thrown out of work.				
	1903.	1904.	1905.	1906.	1907.
Building trades.....	114,371	345,513	412,633	56,201	23,128
Mining and quarrying.....	1,397,898	657,285	1,255,514	922,102	599,061
Metal, engineering, and shipbuilding.....	481,016	185,429	467,571	1,118,282	467,633
Textile trades.....	117,038	121,654	126,493	762,999	642,460
Clothing trades.....	136,182	13,202	71,435	92,139	277,949
Transportation.....	26,779	42,343	67,089	10,021	86,471
Miscellaneous trades.....	64,892	118,804	64,290	62,184	91,128
Employees of public authorities.....	492	90	5,174	4,888	5,321
Total.....	2,338,668	1,484,220	2,470,189	3,028,816	2,162,151

There were more strikes and lockouts during 1907 than during any other year of the five-year period, and, except during the previous year, 1906, more employees thrown out of work. During the three years 1903 to 1905 the greatest number of disputes arose in the mining and quarrying industry, but in 1906 and in 1907 this industry ranks third as to number of disputes, the greatest number (153) during 1907 being in the textile trades, followed by 134 in the metal, engineering, and shipbuilding trades. On the other hand, mining and quarrying shows during 1907 the largest number of employees thrown out of work, and ranks second as to aggregate working days lost by employees.

The number of strikes and lockouts and the number of strikers and employees locked out for each year of the period 1903 to 1907 are shown in the next table, by principal causes:

STRIKES AND LOCKOUTS AND STRIKERS AND EMPLOYEES LOCKED OUT, BY PRINCIPAL CAUSES AND YEARS, 1903 TO 1907.

Principal cause or object.	Strikes and lockouts.					Strikers and employees locked out.				
	1903.	1904.	1905.	1906.	1907.	1903.	1904.	1905.	1906.	1907.
Wages.....	232	233	235	332	384	49,557	32,783	38,737	87,933	56,088
Hours of labor.....	17	13	14	13	16	4,108	1,970	3,145	7,086	2,080
Employment of particular classes or persons.....	54	46	47	53	88	7,822	6,081	6,408	4,734	13,699
Working arrangements, rules, and discipline.....	56	47	37	52	57	13,609	7,601	5,546	6,536	11,802
Trade unionism.....	25	15	21	32	50	17,602	7,925	9,377	50,750	16,439
Sympathetic disputes.....	.....	1	2	2	3	.....	20	243	33	368
Other causes.....	3	.....	2	.....	.....	817	.....	4,197	800	282
Total.....	387	355	358	486	601	93,515	56,390	67,653	157,872	100,728

While the number of disputes relative to wages remained practically the same during the years 1903 to 1905, there was a material increase during both 1906 and 1907, as compared with the preceding years. Except during 1906, the number of strikers and employees locked out during 1907 was greater than that during any of the preceding years. The number of disputes in 1907 relative to hours of labor follows closely that for each of the preceding four years, while the number of employees involved is the smallest of any year of the period except 1904. Disputes in 1907 on account of the employment of particular classes or persons numbered 88, as compared with 54, the greatest number during any preceding year of the period, while the number of employees involved was 13,699, as compared with 7,822, the greatest number reported during any preceding year of the five-year period. Disputes arising from the remaining named causes show for 1907 a record not strikingly different from that of the four preceding years.

The following table shows by results, the number of strikes and lockouts and employees directly affected during each year, 1903 to 1907:

**STRIKES AND LOCKOUTS AND STRIKERS AND EMPLOYEES LOCKED OUT, BY RESULTS AND YEARS, 1903 TO 1907.**

[The figures for years previous to 1907 have been revised to include the results of disputes terminated after the reports of those years were published.]

Result.	Strikes and lockouts.					Strikers and employees locked out.				
	1903.	1904.	1905.	1906.	1907.	1903.	1904.	1905.	1906.	1907.
In favor of employees.....	90	62	70	153	193	29,167	15,413	16,702	67,159	32,883
In favor of employers.....	185	180	168	180	246	44,956	23,500	23,029	38,667	27,233
Compromised.....	111	112	119	151	161	19,370	17,441	27,894	52,018	40,362
Indefinite or unsettled.....	1	1	1	2	1	22	26	28	28	250
Total.....	387	355	358	486	601	93,515	56,380	67,653	157,872	100,728

This table shows that for each year during the five-year period the number of disputes resulting in favor of the employees was less than the number in which the employers were successful. The total number of disputes during the five-year period was 2,187, of which 568, or 26 per cent, were settled in favor of the employees; 959, or 43.8 per cent, in favor of the employers; 654, or 29.9 per cent, were compromised; and 6, or 0.3 per cent, were indefinite or unsettled. In 1907, of the 601 disputes, 32.1 per cent were favorable to the employees and 40.9 to the employers, 26.8 per cent were compromised, and 0.2 per cent were indefinite or unsettled at the end of the year.

During the five-year period there were in the aggregate 476,148 employees directly affected by strikes and lockouts. Of this number, 161,324 employees, or 33.9 per cent of all employees directly affected,

were involved in disputes in which employees were successful; 157,385, or 33 per cent, in disputes in which the employers were successful; 157,085, or 33 per cent, in disputes which were compromised; and 354, or 0.1 per cent, in those of which the settlement was indefinite or which were unsettled. The corresponding percentages for 1907 were 32.6, 27, 40.1, and 0.3, respectively.

In the following table the number of strikes and lockouts, and the number of strikers and employees locked out, are shown by methods of settlement for each year of the period 1903 to 1907:

**STRIKES AND LOCKOUTS AND STRIKERS AND EMPLOYEES LOCKED OUT, BY METHOD OF SETTLEMENT AND YEARS, 1903 TO 1907.**

[The figures for the years previous to 1907 have been revised to include the results of disputes terminated after the reports for these years were published.]

Method of settlement.	Strikes and lockouts.					Strikers and employees locked out.				
	1903.	1904.	1905.	1906.	1907.	1903.	1904.	1905.	1906.	1907.
Arbitration.....	18	15	9	17	14	18,047	1,832	2,224	4,611	2,115
Conciliation.....	8	12	22	23	31	1,401	3,179	8,752	3,674	11,337
Direct arrangement or negotiation between parties or their representatives.....	270	227	220	340	395	64,459	43,589	48,155	129,614	74,160
Submission of employees.....	36	27	47	39	70	6,989	4,495	5,550	17,293	8,980
Replacement of employees.....	50	67	53	60	84	2,378	2,587	2,126	2,497	3,325
Closing of works.....	5	6	3	3	5	241	672	714	128	211
Indefinite or unsettled.....	.....	1	4	4	2	.....	26	132	55	600
Total.....	387	355	358	486	601	93,515	56,380	67,653	157,872	100,728

In each year most of the disputes were settled by direct arrangement or negotiation, the percentage of disputes settled by this method being 69.8, 63.9, 61.5, 70, and 65.7 per cent of all disputes for the respective years 1903 to 1907. Disputes settled by submission of employees, replacement of employees, and closing of works together formed 23.5, 28.2, 28.8, 21, and 26.5 per cent of all disputes for the respective years. Only 45 disputes, involving 13.4 per cent of all persons directly affected, were settled by arbitration and conciliation during 1907. The number of disputes so settled, however, is greater than the average for the preceding four years, which is but 31.

### ITALY.

*Statistica degli scioperi avvenuti in Italia nell' anno 1905* (statistics of strikes in Italy in 1905). Ufficio del Lavoro, Ministero di Agricoltura, Industria e Commercio, 1908, xcv, 183 pp.

This is the second of the new series of reports on strikes published by the Bureau of Labor of the Italian Department of Agriculture, Industry, and Commerce, 11 strike reports having been previously published by the General Statistical Office of the same department. As the statistical data in regard to agricultural strikes are elaborated

on a somewhat different plan from that used for the other industries, the general summary does not include the agricultural strikes, these being studied at some detail in the last chapter of the report. In the following digest only the summary and the chapter on agricultural strikes have received consideration. The report is of exceptional interest as to method, because it analyzes the statistical data concerning strikes in many novel and complex ways.

**NUMBER OF STRIKES AND STRIKERS.**—The total number of strikes in Italy for 1905 was 715, and the number of strikers (except 4 strikes, for which no data were available) 154,527. The distribution of strikes and strikers by industrial groups is shown in the following table. The 46 industries stated in the original reports were consolidated here into 18 large groups to conform with preceding Italian strike reports.

STRIKES AND STRIKERS, BY INDUSTRIES, 1905.

Industry.	Strikes.	Strikers.
Agriculture.....	<sup>a</sup> 87	43,695
Mining and quarrying.....	63	12,888
Foundry products, machinery, apparatus, and ship building.....	<sup>b</sup> 74	5,290
Precious metal working.....	2	271
Stone, clay, and glass.....	<sup>b</sup> 47	2,426
Building and engineering work.....	121	21,611
Chemical products.....	10	1,860
Woodwork, furniture, baskets, etc.....	23	8,051
Paper.....	7	453
Printing.....	29	758
Textiles.....	106	15,687
Clothing, hats, and straw goods.....	25	4,638
Hides and shoes.....	<sup>b</sup> 24	2,629
Food products.....	38	2,768
Fishing.....	4	359
Railroads.....	2	24,128
All other forms of transportation.....	24	4,874
Public utilities and monopolies, etc.....	19	2,151
Total.....	<sup>c</sup> 715	154,527

<sup>a</sup> Including 4 strikes, number of strikers not reported.

<sup>b</sup> Including 1 strike, number of strikers not reported.

<sup>c</sup> Including 7 strikes, number of strikers not reported.

In most of the tables used in the following analysis the agricultural strikes are not included, leaving for manufacturing and extractive industry, transportation, etc., 628 strikes and 110,832 strikers. The total membership of the industrial unions is given in the report as 219,772 and the total number of strikers (exclusive of the strikers in the railroad strike) as 86,980.

**STRIKES BY SIZE OF ESTABLISHMENTS.**—The number of employees in establishments is reported for 453 strikes and 56,061 strikers, a large proportion of the striking establishments as shown by the following table employing 150 persons and under. This is probably due to the general prevalence of the smaller establishments in Italian industry.

## STRIKES, BY SIZE OF ESTABLISHMENTS, 1905.

Size of establishment.	Strikes.	Per cent.	Strikers.	Per cent.
1 to 5 persons.....	5	1.1	21	(a)
6 to 10 persons.....	12	2.7	99	0.2
11 to 25 persons.....	54	11.9	798	1.4
26 to 50 persons.....	73	16.1	1,996	3.6
51 to 100 persons.....	85	18.8	4,363	7.8
101 to 150 persons.....	50	11.0	4,242	7.6
151 to 200 persons.....	34	7.5	3,694	6.6
201 to 300 persons.....	43	9.5	7,030	12.5
301 to 400 persons.....	22	4.9	3,737	6.7
401 to 500 persons.....	19	4.2	4,974	8.9
501 to 600 persons.....	10	2.2	2,264	4.0
601 to 700 persons.....	7	1.5	3,477	6.2
701 to 800 persons.....	7	1.5	1,779	3.2
801 to 900 persons.....	5	1.1	813	1.4
901 to 1,000 persons.....	5	1.1	1,087	1.9
1,001 to 1,500 persons.....	14	3.1	5,996	10.7
1,501 to 2,000 persons.....	4	.9	5,928	10.6
2,001 to 3,000 persons.....	3	.7	3,720	6.7
4,000 to 5,000 persons.....	1	.2	43	(a)
Total.....	453	100.0	56,061	100.0

(a) Less than one-tenth of 1 per cent.

**CAUSES OF STRIKES.**—In the following table the number of causes is given and not the number of strikes, such strikes as had more than one cause appearing more than once, so that the total number of causes considerably exceeds the number of strikes. Questions concerning the amount of wages constituted the most frequent cause (45.4 per cent) and disputes concerning the methods of payment came second (17.5 per cent), so that altogether wages represented nearly two-thirds (63 per cent) of the causes of labor disputes. While the percentages of successful strikes according to the cause of the strike do not vary greatly (the average proportion of successes being 42.6 per cent), the demand for closed shops and for changes of shop discipline seem to meet greater resistance than questions either of wages or hours.

## STRIKES, BY CAUSES AND RESULTS, 1905.

Cause.	Completely successful.	Largely successful.	Fairly successful.	Only slightly successful.	Complete failures.	Results uncertain.	Total.
<b>Wages:</b>							
For increase of wages.....	63	36	53	44	117	5	318
Against reduction of wages.....	21	7	6	6	37	4	81
For equalization of wages.....	3				3	6	12
For change of method of payment.....	23	2			31		56
For guarantee of minimum earnings.....	2	2	2	12	7		25
Total.....	112	47	61	62	195	15	492
<b>Conditions of payment:</b>							
For extra pay for overtime.....	23	3	6	5	19		56
For extra pay for lost time.....	10	2	4	7	15	1	39
For old-age pension, sick and nonemployment benefits.....	3			1	6		10
For change of time of payments.....	17		2	2	8	1	30
Against deduction for material.....	3	2		13	14	1	33
All other questions of payment of wages....	7	2	2	3	7		22
Total.....	63	9	14	31	69	4	190



## STRIKES, BY CAUSES AND RESULTS, 1905—Concluded.

Cause.	Com- pletely success- ful.	Largely suc- cessful.	Fairly success- ful.	Only slightly success- ful.	Com- plete fail- ures.	Re- sults uncer- tain.	Total.
<b>Hours of labor:</b>							
For reduction of hours.....	22	5	1	4	40	2	74
Against increase of hours.....	2	1	1	6	1	.....	11
Better distribution of hours, etc.....	9	.....	1	1	6	1	18
Total.....	33	6	3	11	47	3	103
<b>Conditions of work, hygienic measures, etc....</b>	12	3	4	10	18	.....	47
<b>Discipline:</b>							
Against dismissal of workmen.....	12	6	3	7	33	1	62
For dismissal of personnel.....	3	2	.....	1	11	.....	17
Other disciplinary questions.....	3	1	1	6	13	1	25
Total.....	18	9	4	14	57	2	104
<b>Shop regulations:</b>							
For shop arbitration committee.....	6	.....	.....	1	10	2	19
For giving notice and reasons in case of discharge.....	13	2	1	.....	10	.....	26
All other regulations.....	7	.....	2	1	6	.....	16
Total.....	26	2	3	2	26	2	61
<b>Monopoly of labor:</b>							
Against nonunion men.....	8	1	.....	1	9	.....	19
For recognition of union by employment bureau.....	8	.....	1	1	19	1	30
All other questions.....	10	4	1	4	18	.....	37
Total.....	26	5	2	6	46	1	86
<b>Grand total.....</b>	290	81	91	136	458	27	1,083

**DURATION OF STRIKES.**—The duration of strikes is studied in the following two tables in connection with the proportion of strikes to employees. In 35.5 per cent of all the strikes, claiming 39.9 per cent of all strikers, all the employees of the establishment participated in the strike; in 24.5 per cent of strikes (21.6 per cent of strikers) a very large proportion of the employees (71 to 99 per cent) struck. In 21 per cent of strikes (11.6 per cent of strikers) a fairly large proportion of the employees (31 to 70 per cent) participated, and only a small proportion (not over 30 per cent) in 19 per cent of strikes, with 26.9 per cent of the strikers.

In most strikes the duration was not over 20 days, and in 57.5 per cent it was not over 5 days. Analysis of the data, classified as to these two factors together, seems to show that the larger the proportion of striking employees the longer the strike tends to last. Thus, of all strikes in which the proportion of strikers was not over 30 per cent, 68.2 per cent did not last over 5 days; of those in which the proportion was from 31 to 70 per cent, 63.4 per cent; of those with over 70 per cent striking, 45.8 per cent. On the other hand, where all the employees struck, 56.3 per cent of the strikes lasted 5 days or less, which may indicate a speedy settlement when all the employees form the strike. The same tendencies may be observed in the table giving the same classification for strikers, except that the two large railroad strikes, which lasted 6 days, somewhat obscure this tendency.

**STRIKES, BY PROPORTION OF STRIKERS TO EMPLOYEES AND BY DURATION OF STRIKES, 1905.**

Duration of strike.	Proportion of strikers to employees.									
	1 to 30 per cent.		31 to 70 per cent.		71 to 99 per cent.		100 per cent.		Total.	
	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.
Under 1 day.....	32	27.0	30	22.9	20	13.1	48	21.6	130	20.8
1 to 5 days.....	49	41.2	53	40.5	50	32.7	77	34.7	229	36.7
6 to 10 days.....	18	15.1	23	17.6	35	22.9	46	20.7	122	19.5
11 to 20 days.....	14	11.7	13	9.9	24	15.7	23	10.4	74	11.8
21 to 30 days.....	4	3.3	4	3.0	4	2.6	8	3.6	20	3.2
31 to 50 days.....	.....	.....	5	3.8	19	12.4	7	3.2	31	5.0
51 days and over.....	.....	.....	1	.8	1	.6	5	2.2	7	1.1
Unknown.....	2	1.7	2	1.5	.....	.....	8	3.6	12	1.9
Total.....	119	100.0	131	100.0	153	100.0	222	100.0	625	100.0

**STRIKERS, BY PROPORTION OF STRIKERS TO EMPLOYEES AND BY DURATION OF STRIKES, 1905.**

Duration of strike.	Proportion of strikers to employees.									
	1 to 30 per cent.		31 to 70 per cent.		71 to 99 per cent.		100 per cent.		Total.	
	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.
Under 1 day.....	1,362	4.6	2,849	22.2	2,351	9.8	9,331	21.1	15,893	14.3
1 to 5 days.....	2,766	9.3	4,185	32.6	6,628	27.7	12,705	28.7	26,284	23.7
6 to 10 days.....	24,857	83.4	2,832	22.1	6,147	25.7	7,949	18.0	41,785	37.7
11 to 20 days.....	643	2.1	1,776	13.8	4,359	18.2	8,742	19.8	15,520	14.0
21 to 30 days.....	168	.6	451	3.5	247	1.0	3,349	7.6	4,215	3.8
31 to 50 days.....	.....	.....	606	4.7	4,160	17.3	849	1.9	5,615	5.1
51 days and over.....	.....	.....	36	.3	77	.3	772	1.7	885	.8
Unknown.....	16	(a)	100	.8	.....	.....	519	1.2	635	.6
Total.....	29,812	100.0	12,835	100.0	23,969	100.0	44,216	100.0	110,832	100.0

a Less than one-tenth of 1 per cent.

**RESULTS OF STRIKES.**—The proportion of striking employees and results of strikes are compared in the following two tables both for the strikes and the strikers. With the increase of the proportion of striking employees, the percentage of successful strikes increases and that of completely unsuccessful strikes declines, showing that the success of the strike depends upon the proportion of employees forming it. The same tendency is brought out much more emphatically in the second table, showing data for strikers.

## STRIKES, BY PROPORTION OF STRIKERS TO EMPLOYEES AND BY RESULTS OF STRIKES, 1905.

Result of strike.	Proportion of strikers to employees.									
	1 to 30 per cent.		31 to 70 per cent.		71 to 99 per cent.		100 per cent.		Total.	
	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.
Completely successful.....	18	15.1	16	12.2	24	15.7	41	18.5	99	15.8
Largely successful.....	8	6.7	18	13.7	19	12.4	31	14.0	76	12.2
Fairly successful.....	11	9.3	15	11.5	28	18.3	43	19.3	97	15.5
Only slightly successful.....	15	12.6	18	13.7	28	18.3	31	14.0	92	14.7
Complete failures.....	65	54.6	61	46.6	54	35.3	66	29.7	246	39.4
Unknown.....	2	1.7	3	2.3	.....	.....	10	4.5	15	2.4
Total.....	119	100.0	131	100.0	153	100.0	222	100.0	625	100.0

## STRIKERS, BY PROPORTION OF STRIKERS TO EMPLOYEES AND BY RESULTS OF STRIKES, 1905.

Result of strike.	Proportion of strikers to employees.									
	1 to 30 per cent.		31 to 70 per cent.		71 to 99 per cent.		100 per cent.		Total.	
	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.	Number of strikers.	Per cent.
Completely successful.....	1,055	3.6	1,023	8.0	2,148	9.3	14,611	33.0	18,837	17.0
Largely successful.....	361	1.3	1,698	13.2	2,649	11.0	4,900	11.1	9,608	8.7
Fairly successful.....	308	1.1	1,242	9.7	5,100	21.1	9,638	21.8	16,388	14.8
Only slightly successful.....	1,199	4.1	2,240	17.5	6,716	28.0	6,881	15.6	17,036	15.4
Completely failed.....	26,773	89.8	6,061	47.2	7,356	30.6	7,413	16.8	47,603	42.9
Unknown.....	16	.1	571	4.4	.....	.....	773	1.7	1,360	1.2
Total.....	29,812	100.0	12,835	100.0	23,969	100.0	44,216	100.0	110,832	100.0

**DURATION AND RESULT.**—No definite result can be drawn concerning the effect of the duration of a strike upon its results from the tables showing the distribution of strikes and strikers according to these two factors, except that the exceptionally protracted strikes all seem to result in complete failure or nearly so.

## NUMBER OF STRIKES, BY DURATION AND RESULT, 1905.

Days of duration.	Strikes the results of which were—										Total.	
	Completely successful.		Largely successful.		Fairly successful.		Only slightly successful.		Complete failures.		Uncertain.	
	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.
1 and under...	30	30.3	12	15.7	13	13.4	14	15.2	60	24.4	1	6.6
Over 1 to 5....	33	33.3	33	43.4	37	38.2	42	45.6	79	32.1	5	33.4
6 to 10.....	19	19.3	17	22.4	22	22.7	15	16.3	48	19.5	1	6.6
11 to 20.....	11	11.1	9	11.9	17	17.5	11	12.0	26	10.6	8	53.4
21 to 30.....	3	3.0	4	5.3	4	4.1	2	2.2	7	2.9	.....	.....
31 to 50.....	2	2.0	.....	.....	3	3.1	7	7.6	19	7.7	.....	.....
51 to 75.....	.....	.....	1	1.3	1	1.0	1	1.1	2	.8	.....	.....
76 to 100.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.4	.....	.....
101 to 150.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.4	.....	.....
Unknown.....	1	1.0	.....	.....	.....	.....	.....	.....	3	1.2	.....	.....
Total...	99	100.0	76	100.0	97	100.0	92	100.0	246	100.0	15	100.0

## NUMBER OF STRIKERS, BY DURATION OF STRIKE AND RESULT, 1905.

Days of duration.	Strikers in strikes the results of which were—										Total.	
	Completely successful.		Largely successful.		Fairly successful.		Only slightly successful.		Complete failures.			
	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.
1 and under...	6,314	33.58	910	9.52	1,488	9.12	1,815	10.59	5,345	11.22	a 15,893	14.34
Over 1 to 5....	6,268	33.34	2,901	30.24	4,969	30.72	6,415	37.42	5,004	10.50	b 26,284	23.72
6 to 10.....	1,767	9.40	3,525	36.74	4,618	27.62	3,644	21.88	28,191	59.18	c 41,785	37.70
11 to 20.....	3,371	17.74	1,300	13.45	4,374	26.79	1,717	10.01	4,758	10.05	15,520	14.00
21 to 30.....	345	1.83	672	6.92	209	1.28	1,718	10.02	1,271	2.68	4,215	3.80
31 to 50.....	765	4.07	.....	.....	653	4.00	1,611	9.40	2,586	5.43	5,615	5.06
51 to 75.....	.....	.....	300	3.14	77	.47	116	.68	84	.18	577	.52
76 to 100.....	.....	.....	.....	.....	.....	.....	.....	.....	272	.57	272	.25
101 to 150.....	.....	.....	.....	.....	.....	.....	.....	.....	36	.07	36	.03
Unknown.....	7	.04	.....	.....	.....	.....	.....	.....	36	.12	d 635	.58
Total...	18,837	100.00	9,608	100.00	16,388	100.00	17,036	100.00	47,603	100.00	e 110,832	100.00

a Including 21 strikers in strikes the results of which were unknown.

b Including 727 strikers in strikes the results of which were unknown.

c Including 40 strikers in strikes the results of which were unknown.

d Including 572 strikers in strikes the results of which were unknown.

e Including 1,360 strikers in strikes the results of which were unknown.

**METHODS OF SETTLEMENT.**—In less than three-tenths of the strikes negotiations preceded the beginning of the strike, and two-fifths of all the strikes were settled through mediation. Negotiations before the strike and mediation after seem to go together. Thus, of all the strikes with negotiations nearly one-half (46 per cent) were settled through mediation, while of the other strikes only 38 per cent were so settled. The same table shows an interesting comparison between the strikes ordered by labor organizations and strikes not so directed. Of all the strikes 58 per cent were directed by labor organizations as against 42 per cent not so directed. Negotiations were much more frequent when the management of the strike was in the hands of a labor organization, 41.4 per cent as against

13.1 per cent, or more than three times as frequent. On the other hand no such difference is noticed in regard to mediation. In fact, the percentage of strikes settled through mediation is so nearly the same in case of both groups of strikes as to suggest the inference that mediation is entirely independent of the influence of labor organizations.

STRIKES ORDERED BY LABOR ORGANIZATIONS AND STRIKES NOT SO ORDERED,  
BY METHODS OF SETTLEMENT, 1905.

Method of settle- ment.	Strikes and strikers in strikes—								Total.			
	Ordered by labor organi- zations.				Not ordered by labor organizations.							
	Strikes.	Per cent.	Strik- ers.	Per cent.	Strikes.	Per cent.	Strik- ers.	Per cent.	Strikes.	Per cent.	Strik- ers.	Per cent.
Settled through mediation:												
Preceded by negotiations.	66	18.1	18,632	21.9	20	7.7	1,480	5.7	86	13.8	20,112	18.1
Not preceded by negotia- tions.....	83	22.7	17,643	20.8	84	32.3	9,624	37.2	167	26.7	27,267	24.6
Total.....	149	40.8	36,275	42.7	104	40.0	11,104	42.9	253	40.5	47,379	42.7
Settled without mediation:												
Preceded by negotiations.	85	23.3	12,697	14.9	14	5.4	1,636	6.3	99	15.8	14,333	13.0
Not preceded by negotia- tions.....	131	35.9	35,972	42.4	142	54.6	13,148	50.8	273	43.7	49,120	44.3
Total.....	216	59.2	48,669	57.3	156	60.0	14,784	57.1	372	59.5	63,453	57.3
All strikes:												
Preceded by negotiations.	151	41.4	31,329	36.8	34	13.1	3,116	12.0	185	29.6	34,445	31.1
Not preceded by negotia- tions.....	214	58.6	53,615	63.2	226	86.9	22,772	88.0	440	70.4	76,387	68.9
Total.....	365	100.0	84,944	100.0	260	100.0	25,888	100.0	625	100.0	110,832	100.0

The following table is intended to show the effect of several factors—namely, the negotiations preceding the strike and the efforts of mediation following it, upon the result of the strike. The effects of these factors separately upon strikes directed by labor organizations and strikes not so directed are also shown. Strikes preceded by negotiations seem to result more favorably than those declared without such negotiations, which probably includes precipitated strikes, begun without due considerations of chances for success. As to the effect of mediation, the evidence furnished by the data is not so decisive. In the completely successful or completely unsuccessful strikes mediation seems to be less frequently made use of, while the proportion is largest in the fairly successful strikes, indicating the tendency of mediation to a compromise of the respective demands.

**STRIKES ORDERED BY LABOR ORGANIZATIONS AND STRIKES NOT SO ORDERED,  
BY METHODS OF SETTLEMENT AND BY RESULTS, 1905.**

Method of settlement and results.	Strikes and strikers in strikes--								Total.			
	Ordered by labor organizations.				Not ordered by labor organizations.							
	Strikes.		Strikers.		Strikes.		Strikers.		Strikes.		Strikers.	
	Num- ber.	Per- cent.	Num- ber.	Per- cent.	Num- ber.	Per- cent.	Num- ber.	Per- cent.	Num- ber.	Per- cent.	Num- ber.	Per- cent.
All strikes:												
Completely suc- cessful.....	61	16.7	15,115	17.8	38	14.6	3,669	14.2	99	15.8	18,784	16.9
Largely successful..	46	12.6	44,925	5.8	31	11.9	4,683	18.1	77	12.3	9,608	8.7
Fairly successful...	68	18.6	11,695	13.7	28	10.8	3,393	13.1	96	15.4	15,088	13.6
Slightly successful..	58	15.9	12,545	14.8	33	12.7	4,517	17.4	91	14.6	17,082	15.4
Complete failures...	124	34.0	40,066	47.2	123	47.3	8,923	34.5	247	39.5	48,989	44.2
Unknown.....	8	2.2	598	.7	67	2.7	702	2.7	15	2.4	1,300	1.2
Total.....	365	100.0	84,944	100.0	260	100.0	25,887	100.0	625	100.0	110,831	100.0
Strikes preceded by negotiations:												
Completely suc- cessful.....	24	15.9	8,139	26.0	4	11.8	313	10.0	28	15.1	8,452	24.5
Largely successful..	17	11.3	2,091	6.7	5	14.7	403	12.9	22	11.9	2,494	7.3
Fairly successful...	37	24.5	8,028	25.6	5	14.7	940	30.2	42	22.7	8,968	26.0
Slightly successful..	28	18.5	4,078	13.0	6	17.6	472	15.2	34	18.4	4,550	13.2
Complete failures...	40	26.5	8,863	28.3	14	41.2	987	31.7	54	29.2	9,850	28.6
Unknown.....	5	3.3	130	.4	.....	.....	.....	.....	5	2.7	130	.4
Total.....	151	100.0	31,329	100.0	34	100.0	3,115	100.0	185	100.0	34,444	100.0
Strikes preceded by negotiations and set- tled through media- tion:												
Completely suc- cessful.....	6	9.1	3,584	19.3	3	15.0	113	7.6	9	10.5	3,697	18.4
Largely successful..	8	12.1	1,036	5.6	5	25.0	403	27.2	13	15.1	1,439	7.2
Fairly successful...	22	33.3	6,201	33.3	4	20.0	518	35.0	26	30.2	6,719	33.4
Slightly successful..	11	16.7	2,258	12.0	2	10.0	158	10.7	13	15.1	2,416	12.0
Complete failures...	19	28.8	5,553	29.8	6	30.0	288	19.5	25	29.1	5,841	29.0
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	66	100.0	18,632	100.0	20	100.0	1,480	100.0	86	100.0	20,112	100.0
Strikes preceded by negotiations and set- tled without media- tion:												
Completely suc- cessful.....	18	21.2	4,555	35.9	1	7.1	200	12.2	19	19.2	4,755	33.2
Largely successful..	9	10.6	1,055	8.3	.....	.....	.....	.....	9	9.1	1,055	7.3
Fairly successful...	15	17.6	1,827	14.4	1	7.1	422	25.8	16	16.2	2,249	15.7
Slightly successful..	17	20.0	1,820	14.3	4	28.6	314	19.2	21	21.2	2,134	15.0
Complete failures...	21	24.7	3,310	26.1	8	57.2	699	42.8	29	29.3	4,009	27.9
Unknown.....	5	5.9	130	1.0	.....	.....	.....	.....	5	5.0	130	.9
Total.....	85	100.0	12,697	100.0	14	100.0	1,636	100.0	99	100.0	14,332	100.0
Strikes not preceded by negotiations:												
Completely suc- cessful.....	37	17.3	6,976	13.0	34	15.1	3,356	14.7	71	16.1	10,332	13.5
Largely successful..	29	13.6	2,834	5.3	26	11.5	4,280	18.8	55	12.5	7,114	9.4
Fairly successful...	31	14.5	3,667	6.8	23	10.2	2,453	10.8	54	12.3	6,120	8.0
Slightly successful..	30	14.0	8,467	15.8	27	11.9	4,045	17.8	57	12.9	12,512	16.4
Complete failures...	84	39.2	31,203	58.2	109	48.2	7,936	34.5	193	43.9	39,139	51.2
Unknown.....	3	1.4	468	.9	7	3.1	702	3.1	10	2.3	1,170	1.5
Total.....	214	100.0	53,615	100.0	226	100.0	22,772	100.0	440	100.0	76,387	100.0

\*This total is not the correct sum of the items; the figures are given as shown in the original report.

**STRIKES ORDERED BY LABOR ORGANIZATIONS AND STRIKES NOT SO ORDERED,  
BY METHODS OF SETTLEMENT AND BY RESULTS, 1905—Concluded.**

Method of settlement and results.	Strikes and strikers in strikes—								Total.			
	Ordered by labor organizations.				Not ordered by labor organizations.							
	Strikes.		Strikers.		Strikes.		Strikers.		Strikes.		Strikers.	
	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.
Strikes not preceded by negotiations settled through mediation:												
Completely successful.....	5	6.0	2,551	14.5	15	17.9	1,738	18.1	20	12.0	4,289	15.8
Largely successful..	13	15.7	1,972	11.1	13	15.5	2,208	22.9	26	15.6	4,180	15.3
Fairly successful..	16	19.3	2,695	15.3	11	13.1	968	10.1	27	16.2	3,663	13.4
Slightly successful..	17	20.5	5,657	32.1	18	21.4	3,204	33.3	35	20.9	8,861	32.5
Complete failures..	31	37.3	4,319	24.5	27	32.1	1,506	15.6	58	34.7	5,825	21.4
Unknown.....	1	1.2	449	2.5	.....	.....	.....	.....	1	.6	449	1.6
Total.....	83	100.0	17,643	100.0	84	100.0	9,624	100.0	167	100.0	27,267	100.0
Strikes not preceded by negotiations and settled without mediation:												
Completely successful.....	32	24.4	4,425	12.3	19	13.4	1,618	12.3	51	18.7	6,043	12.3
Largely successful..	16	12.2	862	2.4	13	9.2	2,072	15.8	29	10.6	2,934	6.0
Fairly successful..	15	11.5	972	2.7	12	8.5	1,485	11.3	27	10.0	2,457	5.0
Slightly successful..	13	9.9	2,810	7.8	9	6.3	841	6.4	22	8.0	3,651	7.4
Complete failures..	53	40.5	26,884	74.7	82	57.7	6,430	48.9	135	49.4	33,314	67.8
Unknown.....	2	1.5	19	.1	7	4.9	702	5.3	9	3.3	721	1.5
Total.....	131	100.0	35,972	100.0	142	100.0	13,148	100.0	273	100.0	49,120	100.0

**LOSS FROM STRIKES.**—An effort is made in the report to estimate the total loss caused by the strikes to the workmen, but on account of absence of data the estimate is only approximately correct. Altogether 628 strikes have been recorded, but the number of strikers is known only for 625 strikes and the aggregate number of days lost only for 581. The total number of days lost for these 581 strikes is 827,058. In addition, involuntary unemployment resulted in consequence of strikes in 116 cases, and the amount of such unemployment equaled (in 115 cases, the amount being unknown in 1 case) 85,767 days, so that the total loss of time as far as ascertained was 912,825 days.

Of the 581 strikes for which the time lost is reported, the salary loss is known only in 548 cases, and in these it amounted to 1,931,969 lire (\$372,870). Of the 115 strikes for which involuntary unemployment was reported, the loss of wages was reported in 102 strikes, amounting to 176,076 lire (\$33,982), so that the total loss from voluntary and involuntary unemployment as far as ascertained was 2,108,045 lire (\$406,853).

In addition a certain loss was sustained in payment of strike benefits. Such benefits are known to have been paid in 113 strikes,

but only in 91 cases has the amount been reported, being equal to 129,531 lire (\$24,999). Other expenses were suffered in 90 strikes, the amount of which, reported for only 69 strikes, equaled 10,408 lire (\$2,009). The total for strike benefits and expenses as far as ascertained is 139,940 lire (\$27,008), and the grand total for wages lost and strike benefits and other expenses 2,247,984 lire (\$433,861).

**AGRICULTURAL STRIKES.**—The main data concerning these strikes were given above. The total number of persons engaged in agriculture and holding membership in organizations is stated as 221,913, while the number of strikers was 43,695, or 19.7 per cent of that number. These agricultural organizations consist mainly of day laborers, but include small proprietors and small tenants to some extent. In the agricultural strikes the day laborers (braccianti) mainly participated, but, also, though less frequently, the permanent contract employees (obbligati) and even share tenants (coloni).

**MEMBERS OF ORGANIZATIONS AND STRIKERS IN ITALIAN AGRICULTURE, 1905.**

Class of agricultural occupations.	Number of members of organizations.	Strikers.	
		Number.	Per cent.
Small proprietors.....	22,654	.....	.....
Small tenants.....	13,463	.....	.....
Share tenants.....	23,387	8,378	35.8
Contract laborers.....	17,004	2,292	13.5
Day laborers.....	145,405	33,025	22.7
Total.....	221,913	43,695	19.7

The classification of the strikes and strikers according to the character of work or branch of industry is shown in the following table. The greatest strikes occur among employees engaged in preparation of the soil, followed by those among employees engaged in harvesting grain. But strikes occur in all other branches of agriculture in Italy.

**AGRICULTURAL STRIKES AND STRIKERS CLASSIFIED BY CHARACTER OF WORK, 1905.**

Character of work.	Strikes.	Strikers.
Preparation of the soil.....	7	11,798
Haying.....	10	4,594
Harvesting grain.....	<sup>a</sup> 13	8,316
Grazing.....	1	140
Viticulture.....	10	3,419
Pine trees.....	2	105
Hemp.....	5	1,888
Rice.....	<sup>b</sup> 24	5,475
Cranberrying.....	1	400
Citrous fruits.....	2	550
Olives.....	7	2,810
Unknown.....	5	4,200
Total.....	<sup>c</sup> 87	43,695

<sup>a</sup> Includes 3 strikes for which the number of strikers is unknown.

<sup>b</sup> Includes 1 strike for which the number of strikers is unknown.

<sup>c</sup> Includes 4 strikes for which the number of strikers is unknown.



In the next table the causes of agricultural strikes are shown according to the same method which was described above, so that 252 causes appear for the 87 strikes. Wages and questions connected with the method of pay claim more than half of the causes, and hours of labor are next in importance. Comparatively, demands for better pay are most successful, only 35 per cent of them ending in complete failure, while of the demands for changed hours of labor nearly 60 per cent were complete failures.

STRIKES IN AGRICULTURAL OCCUPATIONS, BY CAUSES AND RESULTS, 1905.

Cause or object.	Com- pletely success- ful.	Largely success- ful.	Fairly success- ful.	Slightly success- ful.	Com- plete failures.	Un- known.	Total.
Wages.....	22	12	18	16	37	2	107
Other conditions of pay.....	16	.....	4	.....	8	3	31
Conditions of tenantry.....	3	3	5	2	6	6	25
Hours of labor.....	10	.....	6	2	31	4	53
Monopoly of labor.....	6	.....	1	2	18	5	32
Other causes.....	3	.....	.....	.....	1	.....	4
Total.....	60	15	34	22	101	20	252

Altogether the agricultural strikes show a higher rate of success than the industrial strikes, only 30.1 per cent of them resulting in complete failures, while over one-half of them, including nearly two-thirds of the strikes were either fairly, largely, or completely successful. The following table shows the results of strikes in agricultural occupations:

STRIKES AND STRIKERS IN AGRICULTURAL OCCUPATIONS, BY RESULTS, 1905.

Result.	Strikes.		Strikers.	
	Number.	Per cent.	Number.	Per cent.
Completely successful.....	10	12.3	5,181	11.9
Largely successful.....	11	13.3	5,878	13.3
Fairly successful.....	21	25.3	15,761	36.2
Only slightly successful.....	11	13.3	2,723	6.2
Complete failures.....	25	30.1	13,314	30.4
Unknown.....	5	6.0	849	2.0
Total.....	a 83	100.0	43,695	100.0

a Exclusive of 4 strikes for which the number of strikers is unknown.

The agricultural strikes are usually of very short duration; over two-thirds (68.7 per cent) of them lasted 10 days or less, and nearly one-half (48.2 per cent) 5 days or less, as will be seen by the following table:

STRIKES AND STRIKERS IN AGRICULTURAL OCCUPATIONS, BY DURATION, 1905.

Duration.	Strikes.		Strikers.	
	Number.	Per cent.	Number.	Per cent.
Under 1 day .....	13	15.7	5,834	13.5
1 to 5 days .....	27	32.5	13,178	30.0
6 to 10 days .....	17	20.5	8,301	19.1
11 to 20 days .....	7	8.4	4,608	10.6
21 to 30 days .....	2	2.4	426	0.9
31 to 50 days .....	4	4.8	1,350	3.0
51 days and over .....	5	6.0	5,693	13.0
Unknown .....	8	9.7	4,305	9.9
Total .....	83	100.0	43,695	100.0

## NETHERLANDS.

*Werkstakingen en Uitsluitingen in Nederland gedurende 1906.* Uitgegeven door het Centraal Bureau voor de Statistiek. 1907. lxxv, 110 pp.

This volume is the sixth annual report of the Central Bureau of Statistics of the Netherlands on strikes and lockouts. As in previous reports, the information is given in the form of an analysis, with summary tables and a tabular statement, showing in detail the important facts concerning each strike and lockout.

**STRIKES.**—There were 164 strikes reported in 1906. The number of establishments involved and the number of strikers were not reported in every case. In 163 strikes there were 874 establishments involved, while the number of strikers reported for 160 strikes was 11,069.

The following table shows the number of strikes, establishments involved, strikers, and aggregate days lost by strikers and by other employees in each group of industries:

STRIKES, STRIKERS, AND AGGREGATE DAYS LOST BY STRIKERS AND BY OTHER EMPLOYEES, BY INDUSTRIES, 1906.

Industry.	Total strikes.	Strikes for which—							
		Number of establishments involved was reported.		Number of strikers was reported.		Aggregate days lost by strikers was reported.		Aggregate days lost by employees other than strikers was reported.	
		Strikes.	Estab-lish-ments.	Strikes.	Strik-ers.	Strikes.	Days lost.	Strikes.	Days lost.
Products of stone, clay, glass, etc.....	8	8	8	8	206	8	2,919½	8	.....
Cutting of diamonds and other precious stones.....	2	2	2	2	214	2	420	2	.....
Printing.....	5	5	5	5	81	5	318½	5	.....
Building trades.....	50	50	169	50	2,049	50	43,317	48	482½
Woodworking, cork, straw, etc..	4	4	4	4	61	4	141	4	2
Clothing.....	3	3	16	2	33	2	486	2	6,660
Leather, oilcloth, rubber, etc...	4	4	4	4	29	4	140	4	9
Mining.....	5	5	78	5	1,802	5	18,798	5	2,172
Metal working.....	4	4	4	4	113	3	3,195	4	.....
Car and ship building.....	1	1	1	1	33	1	33	1	.....
Paper.....	1	1	1	1	9	1	9	1	.....
Textiles.....	9	9	9	9	1,316	9	106,512	8	8,810
Foods and drinks (including tobacco).....	28	28	30	28	583	28	7,061½	28	1,306½
Agriculture.....	13	12	495	12	2,810	12	17,240	11	182
Commerce.....	3	3	3	3	275	3	518	3	8
Transportation.....	24	24	45	22	1,455	21	6,930	21	-79
Total.....	164	163	874	160	11,069	158	208,038½	155	19,711

From the foregoing table it will be observed that the greatest number of strikes in 1906 occurred in the building trades, while agriculture furnished the largest number of establishments and persons affected. The greatest loss in working days, both to strikers and to other employees, occurred in the textile industry.

The table which follows shows the results of strikes in 1906, arranged by industries:

STRIKES, BY INDUSTRIES AND BY RESULTS, 1906.

Industry.	Result.								Total.	
	Succeeded.		Succeeded partly.		Failed.		Indefinite or not reported.			
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Products of stone, clay, glass, etc.....	1	12.5	2	25.0	4	50.0	1	12.5	8	100.0
Cutting of diamonds and other precious stones.....	1	100.0	2	100.0	2	100.0	1	100.0	2	100.0
Printing.....	3	60.0	2	40.0	2	40.0	1	20.0	5	100.0
Building trades.....	11	23.4	15	31.9	20	42.6	1	2.1	a 47	100.0
Woodworking, cork, straw, etc.....	2	50.0	1	25.0	1	25.0	1	25.0	4	100.0
Clothing.....	1	33.3	1	33.3	1	33.3	1	33.4	3	100.0
Leather, oilcloth, rubber, etc.....	1	25.0	3	75.0	1	20.0	1	25.0	4	100.0
Mining.....	2	40.0	2	40.0	2	50.0	1	25.0	4	100.0
Metal working.....	2	50.0	2	50.0	2	50.0	1	25.0	4	100.0
Car and ship building.....	1	100.0	1	100.0	1	100.0	1	100.0	1	100.0
Paper.....	1	100.0	1	100.0	1	100.0	1	100.0	1	100.0
Textiles.....	1	11.1	6	66.7	2	22.2	1	11.1	9	100.0
Foods and drinks (including tobacco).....	5	18.5	12	44.5	9	33.3	1	3.7	b 27	100.0
Agriculture.....	3	23.1	6	46.1	4	30.8	1	7.7	13	100.0
Commerce.....	1	33.3	2	66.7	1	33.3	1	33.3	3	100.0
Transportation.....	5	21.7	11	47.8	6	26.1	1	4.4	b 23	100.0
Total.....	31	19.5	64	40.2	58	36.5	6	3.8	c 159	100.0

<sup>a</sup> Not including 3 sympathetic strikes, of which 1 was compromised and 2 failed.

<sup>b</sup> Not including 1 sympathetic strike which was compromised.

<sup>c</sup> Not including 5 sympathetic strikes, of which 3 were compromised and 2 failed.

In the following table are shown the number of strikes, establishments involved, strikers, and aggregate days of duration of strikes, classified by causes. The apparent discrepancy in the totals for this table as compared with those previously shown is explained in the note which precedes the table:

STRIKES, STRIKERS, AND DAYS OF DURATION OF STRIKES, BY CAUSES, 1906.

[Strikes due to two or more causes have been tabulated under each cause; hence the totals for this table do not agree with those for other tables.]

Cause or object.	Total strikes.		Strikes for which—					
			Number of establishments involved was reported.		Number of strikers was reported.		Aggregate days of duration was reported.	
	Num-ber.	Per-cent.	Strikes.	Estab-lish-ments.	Strikes.	Strik-ers.	Strikes.	Aggre-gate days of dura-tion.
For increase of wages.....	85	34.69	84	682	84	7,698	84	1,431½
Against reduction of wages.....	16	6.53	16	89	16	1,213	16	259
Other disputes concerning wages.....	29	11.84	29	85	28	1,083	28	376
Hours of labor.....	13	5.31	13	109	13	962	13	354½
For recognition of trade union.....	6	2.45	6	106	6	1,573	6	433
Against employment of nonunion workmen.....	1	.41	1	1	1	37	1	30
For reinstatement of discharged employees.....	27	11.02	27	27	27	828	27	486½
Regulations governing work.....	16	6.53	16	46	16	546	16	320½
Other causes.....	48	19.59	48	49	48	2,146	46	732½
Not reported.....	4	1.63	4	4	2	29	2	72
Total.....	245	100.00	244	1,198	241	16,115	239	4,495½

The most frequent cause of strikes in 1906 was disagreement concerning wages, more than 53 per cent of the strikes occurring during the year, involving 62 per cent of the total number of strikers, being due wholly or in part to wage disputes.

The results of strikes are shown in the following table:

STRIKES, BY RESULTS, 1906.

Result.	Total strikes.		Strikes for which—							
			Number of establishments involved was reported.		Number of strikers was reported.		Aggregate days lost by strikers was reported.		Aggregate days lost by employees other than strikers was reported.	
	Num-ber.	Per cent.	Strikes.	Estab-lish-ments.	Strikes.	Strik-ers.	Strikes.	Days lost.	Strikes.	Days lost.
Succeeded.....	31	19.50	31	173	30	1,931	29	11,052	29	1,738
Succeeded partly.....	a 64	40.25	63	477	63	4,451	63	61,241½	61	17,197½
Failed.....	b 58	36.48	58	176	58	4,267	57	128,090½	56	334
Indefinite.....	1	.63	1	1	1	8	1	340	1	425
Not reported.....	5	3.14	5	5	3	59	3	219	3	.....
Total.....	c 159	100.00	158	832	155	10,716	153	200,943	150	19,694½

<sup>a</sup> Not including 3 sympathetic strikes which were compromised.

<sup>b</sup> Not including 2 sympathetic strikes which failed.

<sup>c</sup> Not including 5 sympathetic strikes, of which 3 were compromised and 2 failed.

Of the 10,657 strikers who took part in the 152 strikes for which the facts were reported, 18.12 per cent were in strikes which succeeded, 41.77 per cent were in strikes which succeeded partly, and 40.04 per cent were in strikes which failed. In the case of 1 strike, involving 8 strikers, or 0.07 per cent of the total, the result was indefinite.

Strikes by causes and by results are shown in the following table, the cause being taken as the basis for the tabulation:

STRIKES, BY CAUSES AND BY RESULTS, 1906.

[Strikes due to two or more causes have been tabulated under each cause; hence the totals for this table do not agree with those for other tables.]

Cause or object.	Suc-ceeded.	Suc-ceeded partly.	Failed.	Indefi-nite or not re-ported.	Total.
For increase of wages.....	12	37	34	2	85
Against reduction of wages.....	4	7	5	.....	16
Other disputes concerning wages.....	7	16	6	.....	29
Hours of labor.....	2	8	3	.....	13
For recognition of trade union.....	.....	3	3	.....	6
Against employment of nonunion workmen.....	.....	1	.....	.....	1
For reinstatement of discharged employees.....	5	10	11	.....	27
Regulations governing work.....	2	9	4	1	16
Other causes.....	9	29	10	.....	48
Not reported.....	.....	1	1	2	4
Total.....	41	121	77	6	245

The next table shows the strikes in 1906 by duration and by results:

STRIKES, BY DURATION AND BY RESULTS, 1906.

Result.	Days of duration.								Total.
	Under 1.	1 to 2.	3 to 7.	8 to 14.	15 to 28.	29 to 42.	43 to 91.	Over 91.	
Succeeded.....	8	10	5	3	4	—	—	—	31
Succeeded partly.....	4	16	15	12	5	3	6	3	a 64
Failed.....	3	15	17	9	5	1	4	1	b 58
Indefinite.....	—	—	—	—	—	—	1	—	1
Not reported.....	1	1	—	1	—	—	—	—	5
Total.....	16	42	37	25	14	4	11	4	c 159

a Not including 3 sympathetic strikes, duration not reported, which were compromised.

b Not including 2 sympathetic strikes, duration not reported, which failed.

c Not including 5 sympathetic strikes, duration not reported, of which 3 were compromised and 2 failed.

From the above table it will be seen that, of strikes which succeeded, 74.19 per cent lasted seven days and under; of strikes which succeeded partly, 54.69 per cent lasted seven days and under; while of those which failed, 60.34 per cent lasted seven days and under.

The following table shows the number of strikes and their results, also the number of strikers, classified according to method of settlement:

STRIKES, BY METHOD OF SETTLEMENT, 1906.

[Where two or more methods of settlement have been employed the data were reported in each case; hence the totals for this table do not agree with those for other tables.]

Method of settlement.	Strikes.		Strikes which—				Strikes for which number of strikers was reported.		
	Number.	Per cent.	Succeeded.	Succeeded partly.	Failed.	Ended with result indefinite or not reported.	Number.	Strikers.	
								Number.	Per cent.
Direct negotiation between employer and employees.....	45	26.63	10	23	12	—	44	2,923	23.21
Negotiation in which one or both parties were represented by their organizations.....	58	34.32	16	34	6	2	57	3,603	28.61
Mediation of third parties.....	12	7.10	3	5	4	—	12	1,025	8.14
Arbitration.....	2	1.19	—	2	—	—	2	255	2.02
Employment of other workmen.....	20	11.83	—	—	19	1	20	1,259	10.00
Disintegration of strike.....	1	.59	—	—	1	—	1	9	.07
Defeat of one of the parties without negotiation.....	20	11.83	2	—	18	—	20	3,159	25.08
Other means.....	7	4.14	—	3	4	—	7	301	2.39
Not reported.....	4	2.37	—	—	1	3	2	60	.48
Total.....	169	100.00	31	67	65	6	165	12,594	100.00

Negotiations in which one or both parties were represented by their trade organizations resulted in the greatest number of strike settlements, direct negotiation between employer and employees being next in frequency

**LOCKOUTS.**—The number of lockouts reported in 1906 was 17, in 16 of which the number of persons involved was 7,789. With regard to the number of persons affected, the most important lockout of the year occurred in the textile industry. This lockout involved 7,000 persons, employed in 16 establishments, and lasted 8 days. Two other lockouts in the textile industry involved 500 persons and caused a loss of 1,515 working days.

### NORWAY.

*Arbeidskonflikter i Norge, 1903-1906.* Særtryk af "Arbeidsmarkedet," udgivet af det Statistiske Centralbureau, 1906, Nr. 10-12. 1907. 20 pp.

This report on labor disputes in Norway is abstracted from a larger report on labor conditions, published by the statistical office of the Kingdom, and presents brief separate reports for each of the four years covered. The presentation does not pretend to either exactness or completeness, but gives only approximate data for the more important strikes and lockouts for the different years. These are summarized as follows:

NUMBER OF EMPLOYEES AFFECTED BY STRIKES AND LOCKOUTS, AND DAYS OF WORKING TIME LOST, IN NORWAY, 1903 TO 1906.

Year.	Number of employees.	Number of days lost.	Strike benefits paid.
1903.....	3,000	130,000	\$37,594
1904.....	1,200	45,000	14,165
1905.....	2,000	30,000	9,291
1906.....	3,000	95,000	a 37,520

a Estimated.

The magnitude of the figures for 1903 is due chiefly to an important strike in the iron and metal industries at Bergen; while depressed trade conditions, and, in 1905, a political crisis, tended to reduce the number of trade disputes during the years 1904 and 1905. In 1906 came an increase of prosperity, accompanied by numerous demands for concessions to the workmen, though the strike that caused the greatest loss of time was due to the enactment of an unpopular law affecting bakeries.

As indicated, the statistical reports are incomplete. The number of organized workmen striking in 1903 is estimated at not less than 1,884, and the number of days' work lost by them at 102,600. The disputes of the year involved the expenditure by labor organizations of 140,276 crowns (\$37,594). The strike of iron and metal workers of this year was characterized as the greatest labor conflict experienced in Norway up to the time of its occurrence. It involved, however, but

1,052 workmen, a loss of approximately 60,000 working days, and an outlay of funds by organized labor amounting to 80,116 crowns (\$21,471). The dispute began as a strike, but afterwards partook of the nature of a lockout. A demand for increase of wages was the cause of the strike, the result being a partial success for the workmen. This industry had the strongest organization in Norway, embracing 4,641 local unions with a membership of approximately 16,000 workmen.

The close relation of Norwegian workingmen with those of neighboring countries is evidenced by the fact that of the relief paid in the strike of 1903, 23,934 crowns (\$6,414) were contributed by foreign workmen; while in the year 1905, Norwegian labor unions contributed 135,200 crowns (\$36,234) in aid of Swedish strikers. This amount is much in excess of that paid out in aid of strikers in Norway during that year, the latter amount being but 34,667 crowns (\$9,291).

While the report is not complete, it indicates a comparatively small number of strikes, the attitude of associations of both employers and employees being to have recourse to negotiations rather than to strikes and lockouts as a method of adjusting differences. Even where work is stopped during a dispute it is said to be usually for an agreed period.

#### RUSSIA.

*Statistika Stachek Rabochikh na Fabrikakh i Zavodakh za 1905 god.*

(Statistics of strikes of workingmen in factories and mills for 1905.)

Published by Ministerstvo Torgovli i Promyshlennosti, Otdiel Promyshlennosti (Ministry of Commerce and Industry, Bureau of Industry). 1908. 65 pp. + 111 pp.

This is the second of a series of reports of strikes in Russian manufacturing industries, the first, covering the data for the decade of 1895 to 1904, having been published in 1905. This volume covers a period of exceptional strike activity, but the causes were primarily political rather than economic.

The report is similar in plan to the first report, and includes only those factories and mills which are subject to factory inspection and to the supervision of the Ministry of Commerce and Industry. The smaller industrial establishments, having fewer than 10, and in some cases 15, employees, are excluded, as are mines and metallurgical establishments, which are subject to the Ministry of Agriculture and State Domains, all state factories and mills, and all industrial establishments under the jurisdiction of the Ministries of War, of the Navy, and of Ways of Communication.

The report covers only the 60 provinces of European Russia and 6 provinces of the Caucasus, thus excluding Siberia, Middle Asia, and 4 provinces of Caucasus, which in 1905 were not subject to factory



inspection. As in some of the industries omitted, particularly in the railroad industry and in the railroad shops, the strike movement of 1905 was very strong, the data do not comprehend the entire strike movement in European Russia in 1905.

The report consists of 65 pages of text, with numerous summary and detail tables.

Throughout the report (except in one supplementary table) by "number of strikes" is meant the number of establishments in which strikes have taken place. As in the first report, all the labor disputes included are termed "strikes." In 1905 the total number of strikes registered in the manufacturing industry of European Russia and Caucasus subject to factory inspection was 13,110, and the total number of strikers 2,709,695. The importance of these figures will be better appreciated in comparison with the total number of strikes and strikers for the entire ten years preceding (1895 to 1904), namely, 1,765 strikes and 431,254 strikers. The year 1905 therefore saw more than seven times as many strikes and nearly seven times as many strikers as in the preceding ten years taken together.

This comparison is brought out still more emphatically in the following table:

STRIKES, STRIKERS, AND WORKING DAYS LOST, BY YEARS, 1895 TO 1905.

Year.	Strikes.	Strikers.	Employees in establishments affected.		Working days lost.		
			Total.	Per cent of strikers.	Total.	Average number per—	
						Strike.	Striker.
1895.....	68	31,195	60,587	51.49	156,843	2,307	5.0
1896.....	118	29,527	47,979	61.54	189,213	1,604	6.4
1897.....	145	59,870	111,725	53.59	321,349	2,216	5.4
1898.....	215	43,150	93,596	46.10	158,898	739	3.7
1899.....	189	57,498	112,296	51.20	204,856	1,401	4.6
1900.....	125	29,389	77,382	37.98	119,525	956	4.1
1901.....	164	32,218	62,735	51.36	110,193	672	3.4
1902.....	123	36,671	64,196	57.12	128,200	1,042	3.5
1903.....	550	86,832	138,877	62.52	444,919	809	5.1
1904.....	68	24,904	51,042	48.22	185,412	2,727	7.4
1905.....	13,110	2,709,695	996,860	271.82	23,609,387	1,801	8.7

In addition, there have been recorded in the mining and metallurgical industry 103 large disputes (number of establishments affected not being stated), with 154,968 strikers; these are not included elsewhere in the report.

In 1905 the entire factory-inspection system of Russia covered 14,615 establishments with 1,660,693 employees. While the total number of strikes (establishments) is stated as 13,110, this large number is due to repeated strikes in the same establishments. The total number of individual establishments affected by strikes numbered 4,766, or 32.6 per cent of all establishments, while the number

of employees in these striking establishments equaled 996,860, or 60 per cent of the total number covered by the inspection system. On an average, then, there were nearly 2.8 strikes for each striking establishment, and 2.7 strikers for each employee of the striking establishment. The nearness of these two proportions indicates that in the strikes of 1905 almost all employees participated, while in the previous years only from one-half to two-thirds as a rule took part. Of the total number of strikes 8,918, or 68 per cent, are classified in the report as political, and only 4,192, or 32 per cent, as economic. As far as the number of strikers is concerned the proportion of the economic strikers is somewhat larger, being 1,018,620, or 37.6 per cent.

The distribution of strikes throughout the months of the year, measured either by the number of establishments or strikers, was very uneven. It shows distinct fluctuations, with three crests to the wave. The strikes were numerous in January (due largely to the demonstration of Sunday, January 29, 1905), less so in February, and fell comparatively low in March and in April. The number rose again in May, as is usual in Russia, in connection with the celebration of the 1st of May, and gradually declined until September. The greatest strike activity was shown during the last three months of 1905, under the influence of disturbed political conditions. The general distribution may be said to be the same for the economic and political strikes; nevertheless the predominance of political strikes during some months is quite noticeable in January and from October to December.

The recurrence of strikes in the same establishments was the most characteristic feature of the entire strike movement of 1905. In those parts of the country which were most affected by both the political and economic movement each rise of the strike wave closed the same establishments. Thus in the province of St. Petersburg there were altogether 839 establishments with 154,152 wage-workers; but there were registered in this province 1,861 strikes with 627,756 strikers, or more than four times as many strikers as there were wage-workers.

The following table shows the number of establishments having specified numbers of strikes during the year 1905:

ESTABLISHMENTS HAVING ONE STRIKE AND OVER, BY NUMBER OF STRIKES IN EACH ESTABLISHMENT, 1905.

Strikes in each establishment.	Establishments having one strike and over.		Total strikes.	
	Number.	Per cent.	Number.	Per cent.
One.....	1,874	39.32	1,874	14.29
Two.....	876	18.38	1,752	13.36
Three.....	582	12.21	1,746	13.32
Four.....	563	11.81	2,252	17.18
Five.....	339	7.11	1,695	12.93
Six.....	198	4.16	1,188	9.06
Seven.....	185	3.88	1,295	9.88
Eight.....	92	1.93	736	5.61
Nine.....	32	.67	288	2.20
Ten.....	11	.23	110	.84
Eleven.....	8	.17	88	.67
Twelve.....	5	.11	60	.46
Twenty-six.....	1	.02	26	.20
Total.....	4,766	100.00	13,110	100.00

SIZE OF ESTABLISHMENT.—While the strike movement of 1905 was much more extensive than for any previous year, the report shows that strikes occur more frequently in the larger establishments than in the smaller ones. This is demonstrated by the following table:

NUMBER OF STRIKES AND OF ESTABLISHMENTS, 1905, AND PER CENT OF ESTABLISHMENTS HAVING STRIKES, 1895-1904 AND 1905, BY CLASSIFIED NUMBER OF EMPLOYEES.

Groups of employees.	Number of—		Per cent of establishments having strikes in—	
	Establishments.	Strikes.	1905.	1895-1904.
20 and under.....	2,480	5,278	47.0	2.7
21 to 50.....	3,917	4,382	89.4	7.5
51 to 100.....	2,232	2,050	108.9	9.4
101 to 500.....	3,173	1,981	160.2	21.5
501 to 1,000.....	675	412	163.8	49.9
Over 1,000.....	653	273	231.9	89.7
Total.....	13,110	14,376	91.2	.....

STRIKES, BY GROUPS OF INDUSTRIES.—An analysis of the strike data by 12 main groups of industries shows a very interesting feature—the very unequal distribution of strikes among such industrial groups.

## NUMBER OF ESTABLISHMENTS, EMPLOYEES, STRIKES, AND STRIKERS, BY INDUSTRIES, 1905.

Industry.	Number of—		Strikes.			Strikers.		
	Estab-lish-ments. (a)	Em- ployees. (a)	Num-ber.	Per cent.	Per 100 estab-lish-ments.	Number.	Per cent.	Per 100 em- ployees.
Cotton.....	726	415,333	995	7.6	137	779,452	28.8	188
Wool.....	1,039	144,674	2,332	17.8	224	279,415	10.3	193
Silk.....	215	29,503	135	1.0	63	18,173	.7	62
Flax, hemp, and jute.....	285	76,925	183	1.4	64	128,280	4.7	167
Other textiles.....	330	27,757	422	3.2	128	64,077	2.4	231
Paper and printing.....	1,147	78,231	1,657	12.6	144	131,695	4.8	168
Woodworking.....	1,547	78,535	1,142	8.7	74	94,928	3.5	121
Metal working.....	1,865	269,452	2,657	20.3	142	738,126	27.2	273
Stone, glass, and china.....	1,563	140,543	507	3.9	32	76,041	2.8	54
Animal products.....	824	46,508	886	6.8	108	89,315	3.3	193
Food products.....	3,997	284,252	1,383	10.5	35	187,230	6.9	66
Chemical products.....	528	60,244	811	6.2	154	124,463	4.6	207
Total.....	14,066	1,651,957	13,110	100.0	93	2,709,695	100.0	164

\* The figures in this column are for 1904, the data for 1905 not being available.

Over two-thirds of all strikers belong to three industrial groups—cotton, metal working, and wool, as these three industries are most highly developed in Russia; but since they claim only one-half of all factory employees, it is evident that they show also a higher strike frequency. As a matter of fact the variations in such frequency, as shown by the number of strikers for each 100 employees are very great, fluctuating from 273 in the metal industry down to 54 in stone, glass, and china manufactures. These variations are partly explained by difference of size of establishment in each industry, by the geographical distribution of the industries, and also by the intelligence of the workmen in the different industries.

Regarding the distribution of strikes and strikers by months of the year the report shows that while the variations between the industrial groups are many, the increase of the strike movement in January, May, October, and December is noticeable in practically all industries.

**DURATION OF STRIKES.**—As was shown in the first table, the average duration of the strikes was greater in 1905 than for any other year of the entire period for which strike statistics exist in Russia. For the period 1895 to 1904 the average duration fluctuated between 3.4 and 7.4 days, gradually increasing since 1901. In 1905 it was 8.7 days per striker. Though the highest for Russia, this average duration is much shorter than in other industrial countries. The strikes in Russia are usually brief, but they are gradually becoming longer.

As shown in the following table of all the 13,110 strikes more than one-half lasted from over two to ten days, while about one-fourth lasted from over half a day to two days, so that three-fourths of all the strikes lasted only from over one-half day to ten days. But in the total loss of working days the comparatively protracted strikes

were a much more important factor, as 64 per cent of the loss of working time is due to the less than 20 per cent of strikes lasting longer than ten days.

NUMBER AND PER CENT OF STRIKES AND OF WORKING DAYS LOST, BY DURATION, 1905.

Days of duration.	Strikes.		Working days lost.	
	Number.	Per cent.	Number.	Per cent.
½ day and under.....	334	2.55	37,857	0.16
Over ½ day to 2 days.....	3,392	25.87	725,607	3.07
Over 2 days to 3 days.....	1,577	12.03	919,920	3.90
Over 3 days to 5 days.....	2,174	16.58	1,776,774	7.53
Over 5 days to 10 days.....	3,056	23.31	5,047,746	21.38
Over 10 days to 15 days.....	991	7.56	2,775,355	11.75
Over 15 days to 20 days.....	770	5.87	2,732,557	11.57
Over 20 days to 30 days.....	607	4.63	4,879,815	20.67
Over 30 days.....	194	1.48	4,713,756	19.97
Unknown.....	15	.12		
Total.....	13,110	100.00	23,609,387	100.00

A study of the duration of strikes by separate industrial groups shows that the most prolonged strikes (as measured by the average number of days lost per striker) occurred in the cotton, woolen, flax and hemp, and metal working industries, i. e., almost in the same industries in which strikes were most frequent. Thus, in the cotton industry there were 333 strikes, or 33.5 per cent, which lasted over ten days, and in the woolen industry, 771 strikes, or 33.1 per cent, while in paper and printing, for instance, there were 193 strikes, or 11.6 per cent, and in woodworking, 168 strikes, or 14.6 per cent, which lasted over ten days.

The following table shows by industries the number of strikes and strikers and working days lost in 1905, and the average days lost per strike and per striker in 1905 and during the period 1895 to 1904:

STRIKES, STRIKERS, AND WORKING DAYS LOST, 1905, AND AVERAGE WORKING DAYS LOST PER STRIKE AND STRIKER, 1895 TO 1904 AND 1905, BY INDUSTRIES.

Industry.	Number of—			Average number of working days lost—			
	Strikes.	Strikers.	Working days lost.	Per strike.		Per striker.	
				1905.	1895-1904.	1905.	1895-1904.
Cotton.....	995	779,452	8,295,759	8,337	3,738	10.6	5.1
Wool.....	2,332	279,415	2,661,016	1,141	693	9.5	7.7
Silk.....	135	18,173	133,321	988	1,212	7.3	4.4
Flax, hemp, and jute.....	183	128,280	1,390,588	7,544	977	10.8	3.3
Other textiles.....	422	64,077	538,205	1,275	1,175	8.4	4.8
Paper and printing.....	1,657	131,695	755,967	456	249	5.7	3.7
Woodworking.....	1,142	94,928	663,381	580	279	7.0	3.5
Metal working.....	2,657	736,126	6,378,195	2,401	1,613	8.7	4.6
Stone, glass, etc.....	507	76,041	551,021	1,087	470	7.2	3.8
Animal products.....	886	89,815	604,387	682	429	6.7	7.4
Food products.....	1,383	187,230	985,191	712	405	5.3	3.1
Chemical products.....	811	124,463	652,356	804	363	5.2	3.9
Total.....	13,110	2,709,695	23,609,387	1,801	1,178	8.7	4.8

The following table shows the duration of strikes in 1905, by industries:

NUMBER AND DURATION OF STRIKES, BY INDUSTRIES, 1905.

Industry.	Duration of strikes.										Total strikes.
	½ day and under.	Over ½ day to 2 days.	Over 2 to 3 days.	Over 3 to 5 days.	Over 5 to 10 days.	Over 10 to 15 days.	Over 15 to 20 days.	Over 20 to 30 days.	Over 30 days.	Un-known.	
Cotton.....	30	196	87	130	218	99	94	111	29	1	995
Wool.....	38	792	152	267	310	267	263	217	25	1	2,332
Silk.....	1	28	10	12	52	12	11	7	2	.....	135
Flax, hemp, and jute.	5	51	30	28	38	11	9	8	3	.....	183
Other textiles.....	19	76	53	49	101	49	38	26	11	.....	422
Paper and printing..	33	371	255	406	398	103	58	23	9	1	1,657
Woodworking.....	40	280	138	205	309	75	62	25	6	2	1,142
Metal working.....	63	588	397	453	723	168	105	88	67	5	2,657
Stone, glass, etc.....	9	132	76	92	114	23	27	18	14	2	507
Animal products.....	29	274	87	124	223	68	30	36	13	2	886
Food products.....	58	348	215	246	352	81	53	23	6	1	1,383
Chemical products.....	9	256	77	162	218	35	20	25	9	.....	811
Total.....	334	3,392	1,577	2,174	3,056	991	770	607	194	15	13,110

**CAUSES OF STRIKES.**—The study of the causes of strikes in this exceptional year presents unusual difficulties because of the interaction of economic and of political factors. Over two-thirds of all strikes were due to political causes; nevertheless, in a great many of such strikes definite economic demands were made in conjunction with the political demands, and the reverse was also true.

It was difficult to decide in a great many cases what was the real cause or motive of the strike. Roughly the strikes are divided in the text of the report into 4,189 economic strikes and 8,915 political strikes, giving a total of 13,104, and for 6 strikes the nature is not well defined (though in the tables the entire 13,110 are accounted for).

A better classification is given as follows:

NUMBER AND PER CENT OF STRIKES, BY NATURE OF STRIKE, 1905.

Nature of strike.	Number.	Per cent.
Exclusively economic.....	4,189	31.95
Primarily political but with economic demands.....	1,395	10.64
Passively political.....	2,184	16.66
Purely in the nature of political demonstrations.....	5,336	40.70
Not definitely known.....	6	.05
Total.....	13,110	100.00

It is not easy to differentiate between the third and fourth groups. In the third group the report classified sympathetic strikes, or strikes without well-defined causes but often occurring in sympathy with political demonstrations or due to party or national conflicts, etc., while as purely political were classed such strikes as occurred after the 22d (9th) of January, 1905, or during riots and armed revolts, or during the general strike of 30th (17th) of October, or because of

a demand for a constitutional assembly, for general franchise, for socialistic measures, etc. The interdependence of these factors is shown in the following table:

STRIKES, BY CAUSES, 1905.

Cause.	Number of strikes in which the cause mentioned was—				Total.
	The only cause.	The main cause.	Secondary cause in conjunction with—		
			Economic demands.	Political and other demands.	
<b>Wages:</b>					
Demand for higher wages.....	1, 184	1, 326	1, 154	944	4, 608
Resistance to lower wages.....	1	18	10	2	31
Method of pay.....	28	60	436	120	644
Demand of payment for time of strike.....	42	20	282	288	632
Total.....	1, 255	1, 424	1, 882	1, 354	5, 915
<b>Hours of labor:</b>					
Demand for shorter hours.....	209	1, 081	901	1, 002	3, 193
Resistance to longer or shorter hours.....	1	8	115	55	179
Arrangement of hours of labor.....	7	11	148	114	280
Total.....	217	1, 100	1, 164	1, 171	3, 652
<b>Conditions of work, rules, etc.:</b>					
Fines and deductions.....		3	161	168	232
Administrative personnel.....	45	81	211	89	426
Housing conditions.....	3	4	176	53	236
Condition of food, etc.....	17	23	884	410	1, 334
Rules, etc.....	2	15	200	95	312
Total.....	67	126	1, 632	815	2, 640
<b>Political:</b>					
Accidental.....	4	8	8		20
Passively political, sympathetic, etc.....	2, 184	926	240		3, 350
Political demonstrations.....	5, 336	457	32		5, 825
Total.....	7, 524	1, 391	280		9, 195

It appears from this table that political demands, whether as the only, the principal, or the contributory cause, figured in 9,195 strikes, or 70 per cent, and that economic demands figured much more frequently as secondary to political demands than political demands figured as secondary to economic demands.

Among the economic demands advanced, increases of wages were by far the most frequent, appearing in 4,608 strikes, or over 35 per cent, while shorter hours were asked in 3,193, or nearly 25 per cent. In the language of the report quoted, a large majority of the strikes during the year must be classed as offensive, while defensive strikes are quite insignificant.

The classification of the strikes and strikers according to the main cause of the strike is shown in the following table:

NUMBER AND PER CENT OF STRIKES, STRIKERS, AND WORKING DAYS LOST, BY CAUSES, 1905.

Cause.	Strikes.		Strikers.		Working days lost.		
	Num-ber.	Per cent.	Number.	Per cent.	Total.	Per strike.	Per striker.
<b>Wages:</b>							
Demand for higher wages.....	2,510	19.15	565,562	20.87	5,557,264	2,214	9.8
Resistance to lower wages.....	19	.14	12,662	.47	81,283	4,278	6.4
Methods of pay and demand for payment for strike.....	150	1.14	41,921	1.55	222,387	1,483	5.3
Total.....	2,679	20.43	620,145	22.89	5,860,934	2,188	9.5
<b>Hours of labor:</b>							
Demand for shorter hours.....	1,290	9.84	289,161	10.67	2,893,315	2,243	10.0
Resistance to longer hours.....	9	.07	5,883	.22	34,741	3,800	5.9
Arrangement of hours of labor....	18	.14	11,225	.41	46,604	2,589	4.2
Total.....	1,317	10.05	306,269	11.30	2,974,660	2,259	9.7
<b>Condition of work, rules, etc.:</b>							
Fines and deductions.....	3	.02	766	.03	2,815	938	3.7
Administrative personnel.....	126	.96	55,613	2.05	449,272	3,566	8.1
Housing conditions.....	7	.05	2,241	.08	11,683	1,669	5.2
All other conditions and rules....	57	.44	33,465	1.24	291,401	5,112	8.7
Total.....	193	1.47	92,085	3.40	756,171	3,913	8.2
<b>Political:</b>							
Accidental.....	12	.09	3,130	.11	17,343	1,445	5.5
Passively political, sympathetic, etc.....	2,184	16.66	336,306	12.41	1,928,737	883	5.7
With economic demands.....	926	7.06	299,782	11.06	4,574,253	4,940	15.3
Political demonstrations.....	5,336	40.70	963,819	35.57	6,469,708	1,212	6.7
With economic demands.....	457	3.49	87,975	3.25	1,028,321	2,250	11.7
Total.....	8,915	68.00	1,691,012	62.40	14,018,362	1,572	8.3
<b>Unknown.....</b>	6	.05	184	.01	260	43	.4
<b>Grand total.....</b>	13,110	100.00	2,709,695	100.00	23,609,387	1,801	8.7

Summing up these data, the report states, that altogether 1,018,499, or 37.6 per cent, of the strikers participated in purely economic strikes; 387,757, or 14.3 per cent, in semipolitical strikes with economic demands; 339,436, or 12.5 per cent, in accidental, passively political strikes, and 963,819, or 35.6 per cent, in purely political demonstrations.

No very definite conclusions can be made concerning the relation of the duration of strikes to their causes, except that seemingly the duration of the strikes combining political purpose with economic demands is longer than that of either the purely political demonstrations, or purely economic strikes.

**RESULTS OF THE STRIKES.**—In view of the abnormal conditions of the year and the causations of many strikes by reasons totally extraneous to the conditions of the labor contract, much the larger part of the strikes led to no economic results. According to the results, the strikes and strikers are divided as follows:



## NUMBER AND PER CENT STRIKES AND STRIKERS, BY RESULTS, 1905.

Results of strikes.	Strikes.		Strikers.	
	Number.	Per cent.	Number.	Per cent.
Succeeded.....	1,949	14.86	337,790	12.47
Compromised by mutual concessions.....	2,029	15.48	605,044	22.33
Leading to voluntary concessions of employers.....	450	3.43	66,383	2.45
Failed.....	1,254	9.57	421,285	15.55
Without any economic results.....	7,422	56.61	1,278,764	47.19
Unknown.....	6	.05	419	.01
Total.....	13,110	100.00	2,709,695	100.00

Combining the strikes compromised and those resulting in voluntary concessions of employers into one group of strikes partially successful, it appears that of all the strikes only 14.86 per cent were successful, 18.91 per cent partially successful, 9.57 per cent failed, and 56.61 per cent were without any results. The number of strikers was distributed as follows: 12.47 per cent successful, 24.78 per cent partly successful, 15.55 per cent failed, and 47.19 per cent were without results. The results in 1905 appear much less favorable than in the previous ten years when of all the strikes enumerated about one-half were more or less successful. But this seemingly unsatisfactory result is easily explained by the large number of strikes which led to no definite economic results, such strikes being in the nature of political demonstrations.

If these strikes without results are excluded, it is found that 34.27 per cent of the strikes in 1905 were entirely successful as against 28.2 per cent in 1895 to 1904; 43.58 per cent were partially successful as against 21.8 per cent, and only 22.05 per cent failed as against 45.4 per cent in the preceding decade. The same comparison obtains from the number of strikers. Thus, 23.61 per cent of the strikers were entirely successful, as against 27.1 per cent in the preceding ten years; 46.92 per cent partially successful as against 19.5 per cent, and 29.44 per cent failed as against 51.6 per cent. Thus nearly four-fifths of all the economic strikes and over seven-tenths of all the strikers participating in them were more or less successful in 1905.

The results of the strikes by industrial groups are shown in detail in the following table:

STRIKES AND STRIKERS, BY RESULTS AND BY INDUSTRIES, 1905.

STRIKES.

Industry.	In favor of strikers.	Voluntary concessions of the employers.		Mutual concessions.	In favor of employers.	Without economic results.	Un-known.	Total.
		Complete.	Partial.					
Cotton.....	184	22	9	213	150	417	.....	995
Wool.....	525	45	90	282	102	1,287	1	2,332
Silk.....	57	1	.....	11	13	53	.....	135
Flax, hemp, and jute.....	25	.....	1	47	36	73	1	183
Other textiles.....	70	5	6	74	30	237	.....	422
Paper and printing.....	178	65	36	205	117	1,056	.....	1,657
Woodworking.....	200	25	16	181	111	608	1	1,142
Metal working.....	256	51	21	446	404	1,477	2	2,657
Stone, glass, etc.....	88	2	.....	99	66	251	1	507
Animal products.....	115	9	1	135	54	572	.....	886
Food products.....	184	36	3	241	124	795	.....	1,383
Chemical products.....	67	4	2	95	47	596	.....	811
Total.....	1,949	265	185	2,029	1,254	7,422	6	13,110

STRIKERS.

Cotton.....	99,563	6,112	10,440	249,969	118,142	295,226	.....	779,452
Wool.....	58,437	7,918	4,235	53,199	26,330	129,170	126	279,415
Silk.....	5,800	69	.....	3,100	1,424	7,780	.....	18,173
Flax, hemp, and jute.....	15,984	.....	6	40,926	34,240	36,974	150	128,280
Other textiles.....	7,610	1,359	1,071	15,009	6,111	32,917	.....	64,077
Paper and printing.....	14,979	5,297	4,308	15,627	11,444	80,040	.....	131,695
Woodworking.....	16,238	1,211	1,730	11,665	14,322	49,740	22	94,928
Metal working.....	61,185	7,188	5,253	124,950	147,330	390,123	97	736,126
Stone, glass, etc.....	10,747	105	.....	23,228	10,793	31,144	24	76,041
Animal products.....	6,452	3,992	12	16,475	12,386	50,498	.....	89,815
Food products.....	27,148	4,468	385	31,901	18,278	105,050	.....	187,230
Chemical products.....	13,647	840	384	18,995	20,495	70,102	.....	124,463
Total.....	337,790	38,559	27,824	605,044	421,295	1,278,764	419	2,709,695

It was stated above that a very close relationship between the causes and the results of the strikes existed, the political strikes largely leading to no results. This relationship is brought out more clearly in the following table:

STRIKES AND STRIKERS, BY CAUSES AND BY RESULTS, 1905.

STRIKES.

Cause.	In favor of strikers.	Voluntary concessions.		Compromised.	In favor of employers.	Un-known.	Total.
		Complete.	Partial.				
Wages:							
Demands for higher wages.....	1,180	7	3	352	467	1	2,510
Resistance to lower wages.....	9	.....	.....	3	7	.....	19
Methods of pay, etc.....	57	.....	.....	58	35	.....	150
Total.....	1,246	7	3	913	509	1	2,679

## STRIKES AND STRIKERS, BY CAUSES AND BY RESULTS, 1905—Concluded.

## STRIKES—Concluded.

Cause.	In favor of strikers.	Voluntary con- cessions.		Com- pro- mised.	In favor of em- ployers.	Un- known.	Total.
		Com- plete.	Par- tial.				
<b>Hours of labor:</b>							
Demands for shorter hours.....	410		1	613	266		1,290
Resistance to longer hours.....	1			8			9
Arrangement of hours.....	8			4	6		18
Total.....	419		1	625	272		1,317
<b>Conditions of work, etc.:</b>							
Fines and deductions.....				2	1		3
Administrative personnel.....	42	1		34	49		126
Housing conditions.....	1			3	3		7
All new conditions and rules.....	15			25	17		57
Total.....	58	1		64	70		193
<b>Political:</b>							
Accidental.....	4			2	6		12
Passive, political, sympathetic, etc.....	8	79	13	3		2,081	2,184
With economic demands.....	190	95	27	337	234	43	926
Political demonstrations.....		22	14	1		5,299	5,336
With economic demands.....	24	61	127	84	161		457
Total.....	226	257	181	427	401	7,423	8,915
<b>Unknown.....</b>					2	4	6
<b>Grand total.....</b>	<b>1,949</b>	<b>265</b>	<b>185</b>	<b>2,029</b>	<b>1,254</b>	<b>7,428</b>	<b>13,110</b>

## STRIKERS.

<b>Wages:</b>							
Demands for higher wages.....	194,134	424	108	223,273	147,473	150	565,562
Resistance to lower wages.....	5,530			347	6,785		12,662
Methods of pay, etc.....	8,051			17,341	16,529		41,921
Total.....	207,715	424	108	240,961	170,787	150	620,145
<b>Hours of labor:</b>							
Demands for shorter hours.....	43,441		746	164,516	80,458		289,161
Resistance to longer hours.....	538			5,345			5,883
Arrangement of hours.....	6,057			2,890	2,278		11,225
Total.....	50,036		746	172,751	82,736		306,269
<b>Conditions of work:</b>							
Fines and deductions.....				406	360		766
Administrative personnel.....	17,652	115		14,512	23,333		55,613
Housing conditions.....	1,403			179	659		2,241
All other conditions and rules.....	5,209			22,206	6,050		33,465
Total.....	24,264	115		37,304	30,402		92,085
<b>Political:</b>							
Accidental.....	1,304			707	1,119		3,130
Passive, political, sympathetic, etc.....	759	12,189	3,109	775		319,474	336,306
With economic demands.....	50,523	11,710	6,522	136,383	87,250	7,394	299,782
Political demonstrations.....		5,356	6,335	108		952,022	963,819
With economic demands.....	3,189	8,765	11,004	16,057	48,990		87,975
Total.....	55,775	38,020	26,970	154,028	137,329	1,278,890	1,691,012
<b>Unknown.....</b>					41	143	184
<b>Grand total.....</b>	<b>337,790</b>	<b>38,559</b>	<b>27,824</b>	<b>605,044</b>	<b>421,295</b>	<b>1,279,183</b>	<b>2,709,695</b>

Of the 8,915 political or semipolitical strikes, 7,423, or 83.3 per cent, led to no results, and 401, or 4.5 per cent, ended in failures, so that only 1,091, or 12.2 per cent, were more or less successful. On the other hand, of the strikes primarily for the purpose of influencing wages, 80.4 per cent were more or less successful, and of those directed at the hours of labor nearly 80 per cent (79.3 per cent); so that nearly four-fifths of the strikes brought material results to the strikers.

The result of the economic strikes in 1905, partly because of the political unrest, caused a general increase of wages and a decrease of hours in Russian factories.

**LOSS FROM STRIKES.**—It is difficult to estimate the economic loss resulting from strikes, especially in view of the extent of the strike movement in Russia during the year reported. An estimate is, however, published in the report based upon an assumed productivity of labor and average wages. This estimate, given in the following table, shows the loss of production to the industry and the loss of wages to the workmen:

ESTIMATED LOSSES IN PRODUCTION AND IN WAGES DUE TO STRIKES, BY INDUSTRIES, 1905.

Industry.	Loss of—	
	Production.	Wages.
Cotton.....	\$20,080,000	\$2,119,000
Wool.....	6,441,000	795,000
Silk.....	233,000	37,000
Flax, hemp, and jute.....	2,148,000	337,000
Other textiles.....	1,192,000	211,000
Paper and printing.....	1,518,000	280,000
Woodworking.....	1,533,000	238,000
Metal working.....	18,066,000	3,942,000
Stone, glass, etc.....	578,000	204,000
Animal products.....	2,428,000	212,000
Food products.....	7,712,000	360,000
Chemical products.....	3,628,000	299,000
Total.....	65,557,000	9,034,000

**UNUSUAL OCCURRENCES.**—Following the methods introduced in the first statistical strike report, the present report concludes with an account of so-called unusual occurrences accompanying strikes. For the preceding ten years (1895 to 1904) 190 strikes resulted in dismissal of part of employees, 137 in dismissal of all employees, 269 in arrests and deportations of workmen to their rural homes; in 340 strikes the use of the military was resorted to, and in 71 strikes private property was destroyed. All together, there were 1,007 such extraordinary occurrences for the 1,765 strikes, or 57 occurrences per each 100 strikes. As is shown in the following statement, the number of such occurrences reported in 1905 was proportionately much smaller, especially as far as dismissal of employees, and their arrests and deportation is concerned.

## NUMBER AND PER CENT OF STRIKES WHICH WERE ACCOMPANIED BY EXTRAORDINARY MEASURES AND OCCURRENCES, 1905.

Nature of occurrence.	Extraordinary strikes.	
	Number.	Per cent of total strikes.
Strikes resulting in dismissal of—		
Part of employees.....	82	0.62
All employees.....	126	.96
All employees, with temporary suspension of work.....	88	.67
All employees, with indefinite suspension.....	44	.34
Strikes accompanied by—		
Arrests and deportations of workmen.....	42	.32
Use of military.....	444	3.39
Destruction of property of employers, and personal violence.....	32	.24
Murders, arson, etc.....	6	.05
Total.....	864	6.59

The use of the military was applied in 444 cases, but this is only 3.39 per cent of the total (13,110) strikes recorded.

The general statistical results lead to the following conclusions in the official report:

(1) The factory strikes of 1905 were of unusual dimensions, exceeding similar developments in any country. (2) These strikes coincide with the general political unrest in the country, and were primarily in the nature of political demonstrations. (3) The total number of striking establishments and strikers gave the semblance of a general strike, but in reality this did not take place. (4) The strikes extended throughout the year, with rises in January, May, October, and December in sympathy with political affairs. (5) Even at the time of greatest excitement, however, the strikes did not extend over more than one-fifth of all establishments and one-third of all employees. (6) A characteristic of the strike movement was the repetition of strikes in the same establishments. (7) The strike movement centralized itself in certain localities (primarily Poland, Lillmania, Baltic provinces, and Caucasus), and within these localities in certain establishments. (8) The total number of persons participating in strikes equaled only 60 per cent of the number employed in industrial establishments.

**MINING AND METALLURGICAL INDUSTRIES.**—The data furnished for strikes in the mining and metallurgical industries of Russia, though very scanty, are no less unusual. There were 103 strikes (the number of striking establishments not being given), with 154,968 strikers and 3,902,931 aggregate days lost.

The largest part of these strikes took place in the coal mines of western and southern Russia, and in the metallurgical establishments of Poland and in Ural.

## STRIKES, STRIKERS, AND WORKING DAYS LOST IN MINING AND IN METALLURGICAL INDUSTRIES, 1905.

Industry.	Strikes.	Strikers.	Average number of strikers.	Working days lost.		
				Total.	Average number per—	
					Strike.	Striker.
Coal mines.....	44	59,188	1,345	1,512,390	34,373	25.6
All other mines.....	15	19,376	1,292	325,013	21,668	16.8
Metallurgical establishments.....	44	76,404	1,736	2,065,528	46,944	27.0
Total.....	103	154,968	1,505	3,902,931	37,893	25.2

The average number of strikers per strike and the average number of days lost per strike and striker indicate that the strikes in the mining and in the metallurgical industries were much more severe than in the manufacturing industries. Especially is this true of the coal mines and of the metallurgical establishments. Moreover, these data concerning the mining industry do not include the strikes in the Baku oil industry, perhaps one of the most restless industrial regions during the year. An estimate, made in the report, puts the number of strikes in this industry at 231, the number of strikers at about 50,000, and the number of days lost at 980,000.

Combining the three totals, for manufactures, mining, and metallurgy, and the Baku oil regions, grand totals are obtained as follows: Strikes, 13,444; strikers, about 2,915,000; and days lost, 28,492,000. This, as was stated above, does not include railroads and many other governmental enterprises nor any territory in Siberia or Middle Asia.

## SPAIN.

*Estadística de las Huelgas, 1906.* Instituto de Reformas Sociales. 1908. 173 pp.

The present volume is the second report on strikes in Spain published by the institute of social reform of that country. The data contained in the report relate to strikes occurring during the year 1906.

The number of employees in establishments involved in strikes and the number of strikers are shown in the following table, by industries and sex of persons affected:

STRIKES AND STRIKERS, BY INDUSTRIES, 1906.

Industry.	Strikes.	Employees in establishments affected.			Strikers.		
		Males.	Females.	Total.	Males.	Females.	Total.
Agriculture.....	3	900	.....	900	380	.....	380
Mining and quarrying.....	16	11,785	103	11,888	9,778	26	9,804
Textiles.....	15	1,036	718	1,754	844	284	1,128
Leather, hides, etc.....	2	72	.....	72	72	.....	72
Woodworking.....	10	2,634	991	3,625	2,441	171	2,612
Metal working.....	9	4,908	15	4,923	2,137	.....	2,137
Ceramics.....	1	400	.....	400	400	.....	400
Foods and drinks.....	6	928	60	988	653	37	690
Clothing.....	9	545	168	713	240	32	272
Furniture.....	3	1,065	20	1,085	1,014	20	1,034
Building.....	16	1,432	.....	1,432	1,264	.....	1,264
Vehicles.....	4	419	50	469	187	15	202
Printing, art trades, etc.....	16	462	48	510	283	17	300
Marine transportation.....	3	854	.....	854	737	.....	737
Street transportation, etc.....	5	248	11	259	174	8	182
Other industries.....	4	a 265	.....	a 265	3,180	.....	3,180
Total.....	122	a 27,953	2,184	a 30,137	23,784	610	24,394

a Not including employees in establishments affected by 1 general strike not reported.

During the year there were 122 strikes reported, in which 24,394 strikers were involved, of whom 23,784 were males and 610 females. The largest number of strikers in any one industry was found in mining and quarrying, which furnished 40.2 per cent of all strikers reported. Of these, all but 26 were males. In the 2 strikes reported in the leather, hides, etc., industry and in the single strike occurring in the ceramic industry, all employees of the establishments affected were on strike. In the furniture industry the number of strikers equaled 95.3 per cent of all employees in the establishments involved.

The following table shows the strikes and strikers by industries and results:

STRIKES AND STRIKERS, BY INDUSTRIES AND RESULTS, 1906.

Industry.	Total strikes.	Strikes which—			Total strikers.	Strikers in strikes which—		
		Succeeded.	Succeeded partly.	Failed.		Succeeded.	Succeeded partly.	Failed.
Agriculture.....	3	2	—	1	380	180	—	200
Mining and quarrying.....	16	3	1	12	9,804	1,112	495	8,197
Textiles.....	15	1	6	8	1,128	4	837	287
Leather, hides, etc.....	2	—	—	2	72	—	—	72
Woodworking.....	10	2	4	4	2,612	395	1,034	1,183
Metal working.....	9	1	3	5	2,137	35	833	1,269
Ceramics.....	1	—	—	1	400	—	—	400
Foods and drinks.....	6	1	2	3	690	18	517	155
Clothing.....	9	3	1	5	272	84	90	98
Furniture.....	3	1	1	1	1,034	410	600	24
Building.....	16	4	5	7	1,264	564	313	387
Vehicles.....	4	—	—	4	202	—	—	202
Printing, art trades, etc.....	16	4	1	11	300	50	48	202
Marine transportation.....	3	1	—	2	737	250	—	487
Street transportation, etc.....	5	3	1	1	182	99	72	11
Other industries.....	4	—	—	4	3,180	—	—	3,180
Total.....	122	26	25	71	24,394	3,201	4,839	16,354

Of the 122 strikes reported, 26, or 21.3 per cent, were successful; 25, or 20.5 per cent, were partially successful; and 71, or 58.2 per cent, failed. The number of employees involved in strikes which were successful was 3,201, or 13.1 per cent of all strikers; in the partially successful strikes there were 4,839, or 19.8 per cent of all the strikers involved; and 16,354, or 67.1 per cent of all strikers involved, participated in strikes which failed. In the mining and quarrying industry, which furnished the largest number of strikers, 11.3 per cent of the employees were in strikes which were successful, 5.1 per cent were in strikes which were partially successful, and 83.6 per cent were in strikes which failed.

The following table shows the number of strikes, strikers, and strikes in which employees and employers were organized, classified according to duration of strikes:

STRIKES AND STRIKERS, BY DURATION, 1906.

Days of duration.	Strikes.	Strikers.	Strikes in which—	
			Employees were organized.	Employers were organized.
Under 2.....	8	360	2	2
2 to 5.....	32	7,994	17	10
6 to 10.....	18	5,067	10	5
11 to 15.....	10	1,150	8	1
16 to 20.....	4	790	3	1
21 to 30.....	12	2,172	10	7
31 and over.....	30	6,354	27	16
Not reported.....	8	507	5	1
Total.....	122	24,394	82	43



Of the 122 strikes, 58, or 47.5 per cent, involving 55 per cent of all strikers, lasted less than eleven days. In the 30 strikes, involving 6,354 strikers, which lasted longer than thirty days, the employees were organized in 27 instances and the employers in 16 instances. The two following tables show the results of strikes and the days of duration, classified according to method of settlement:

STRIKES AND STRIKERS, BY METHOD OF SETTLEMENT AND RESULTS, 1906.

Method of settlement.	Total strikes.	Strikes which—			Total strikers.	Strikers in strikes which—		
		Suc-ceeded.	Suc-ceeded partly.	Failed.		Suc-ceeded.	Suc-ceeded partly.	Failed.
Direct negotiations between employ-ers and employees.....	15	2	9	4	1,993	47	1,136	810
Between employers and working-men's unions.....	6	6	.....	.....	89	89	.....	.....
Between employers' associations and workingmen's unions.....	2	.....	2	.....	434	.....	434	.....
Intervention of authorities.....	49	13	13	23	11,828	2,070	3,239	6,519
Without intervention.....	50	5	1	44	10,050	995	30	9,025
Total.....	122	26	25	71	24,394	3,201	4,839	16,354

STRIKES AND STRIKERS, BY DURATION AND METHOD OF SETTLEMENT, 1906.

Method of settlement.	Strikes of which days of duration were—							
	Under 2.	2 to 5.	6 to 10.	11 to 15.	16 to 20.	21 to 30.	31 and over.	Not re-ported.
Direct negotiations between employ-ers and employees.....	2	5	.....	5	.....	2	1	.....
Between employers and working-men's unions.....	.....	4	1	.....	.....	.....	1	.....
Between employers' associations and workingmen's unions.....	.....	.....	.....	.....	.....	.....	2	.....
Intervention of authorities.....	1	17	11	2	4	5	7	2
Without intervention.....	5	6	6	3	1	4	19	6
Total.....	8	32	18	10	5	11	30	8

Method of settlement.	Strikers in strikes of which days of duration were—							
	Under 2.	2 to 5.	6 to 10.	11 to 15.	16 to 20.	21 to 30.	31 and over.	Not re-ported.
Direct negotiations between employ-ers and employees.....	65	670	.....	423	.....	642	193	.....
Between employers and working-men's unions.....	.....	51	3	.....	.....	.....	35	.....
Between employers' associations and workingmen's unions.....	.....	.....	.....	.....	.....	.....	434	.....
Intervention of authorities.....	50	5,961	1,689	498	1,174	855	1,371	230
Without intervention.....	245	1,312	3,375	229	16	275	4,321	277
Total.....	360	7,994	5,067	1,150	1,190	1,772	6,354	507

The group of strikes settled by the intervention of the authorities furnished the largest number of strikers in 1906. Of the strikers in such strikes 2,070, or 17.5 per cent, were in strikes which were successful; 3,239, or 27.4 per cent, were in strikes which were partially successful; and 6,519, or 55.1 per cent, were in strikes which failed.

As to duration, 65.1 per cent of the strikers engaged in strikes settled in this manner were in strikes which lasted ten days or less, 21.4 per cent were in strikes lasting from eleven to thirty days, and 11.6 per cent were in strikes which continued longer than thirty days. The days of duration were not reported in 2 strikes of this group, involving 1.9 per cent of the strikers.

The results of strikes, classified according to cause, are shown in the following table:

STRIKES, BY CAUSES AND RESULTS, 1906.

Cause.	Total strikes.	Strikes which—			Strikers.	Em- ployees in es- tablish- ments affected.
		Suc- ceeded.	Suc- ceeded partly.	Failed.		
Wage disputes.....	26	2	8	16	9,372	10,798
Hours of labor.....	27	7	4	16	4,072	4,984
Shop rules.....	10	3	3	4	1,231	1,483
Employment or discharge of persons.....	26	4	4	18	2,299	3,696
Trade unionism.....	4	2	.....	2	612	691
Sympathy with strikers.....	5	1	.....	4	3,451	3,006
Affront to dignity of employees.....	3	1	1	1	162	366
Hours of labor and wage disputes.....	5	.....	1	4	1,090	1,294
Wage disputes and employment or discharge of persons.....	3	.....	2	1	515	697
Wage disputes and shop rules.....	5	1	2	2	1,103	1,119
Shop rules and employment or discharge of per- sons.....	1	.....	.....	1	100	800
Shop rules and trade unionism.....	1	.....	.....	1	200	700
Employment or discharge of persons and trade unionism.....	2	1	.....	1	38	38
Wage disputes, hours of labor, shop rules, and employment or discharge of persons.....	2	2	.....	.....	19	22
Other causes.....	2	2	.....	.....	130	443
Total.....	122	26	25	71	24,394	30,137

• Not including employees in establishments affected by 1 general strike not reported.

It is seen from the foregoing table that the largest number of strikers participated in strikes resulting from wage disputes. This cause alone furnished 38.4 per cent of all strikers for the year, while in connection with other causes it furnished 49.6 per cent of all strikers. Of the strikes due to this cause alone 7.7 per cent were successful, 30.8 were partially successful, and 61.5 per cent failed. Disputes regarding hours of labor, alone or in connection with other causes, resulted in cessation of work by 5,181 strikers, or 21.2 per cent of the number reported for the year.

#### SWEDEN.

*Arbetsinställelser under åren 1903-1907, jämte öfversikt af arbetsinställelser under åren 1859-1902 samt den s. k. politiska storstrejken år 1902. Utgifven of K. Kommerskollegii afdelning för arbetsstatistik, 1900, 400 pp.*

This report on strikes and lockouts in Sweden was compiled by the office of labor statistics of the royal board of trade of that country.

The volume contains copious data relative to strikes and lockouts occurring during the years 1903 to 1907 and a summary of like events for the period 1859 to 1902. A chapter of the report is devoted to a detailed account of the general political strike of 1902. The facts for 1903 to 1907 are illustrated by means of graphics.

According to the information gathered by the office of labor statistics there were 1,148 labor disputes in Sweden during the five-year period 1903 to 1907. These disputes affected 111,920 persons, employed in 3,470 establishments, and entailed an aggregate loss of 4,411,000 working days. The following table shows the number of labor disturbances, and the number of establishments and employees affected, for each year of the period 1903 to 1907, classified according to character of dispute:

LABOR DISPUTES IN SWEDEN, BY YEARS, 1903 TO 1907.

Year.	Strikes.			Lockouts.			Mixed or indefinite.			Total.		
	Num-ber.	Estab-lish-ments in- volved.	Em- ployees affect- ed.	Num-ber.	Estab-lish-ments in- volved.	Em- ployees affect- ed.	Num-ber.	Estab-lish-ments in- volved.	Em- ployees affect- ed.	Num-ber.	Estab-lish-ments in- volved.	Em- ployees affect- ed.
1903....	109	256	5,970	16	96	982	17	126	17,619	142	478	24,571
1904....	169	383	8,299	12	62	1,218	34	153	2,731	215	598	12,248
1905....	152	325	12,186	12	12	456	25	510	19,264	189	847	32,906
1906....	229	668	15,050	8	12	560	43	49	3,045	290	729	18,665
1907....	243	498	11,278	23	37	5,669	46	283	6,593	312	818	28,540
Total.	912	2,130	53,783	71	219	8,885	165	1,121	40,252	1,148	3,470	111,920

As a rule, the strikes occurring during the five-year period were of less extent than the lockouts or the disputes of a mixed or indefinite character. The average number of working people involved in each strike was 59, in each lockout 125, and in each dispute of a mixed or indefinite character 298. Of the 1,148 disputes recorded, 1,034, or more than 90 per cent, affected a maximum of but 5 establishments. The average number of establishments affected by each cessation of work was 3 in 1903 and 1904, 4.5 in 1905, and 2.5 in 1906 and 1907. Approximately one-half of the total number of disputes affected 25 employees or less; the largest number in any one year occurred in 1907, while 1905 furnished the largest number of establishments and employees affected. The average number of employees involved was 173 in 1903, 57 in 1904, 174 in 1905, 64 in 1906, and 75 in 1907.

The following table shows the disputes for each year, classified according to results:

RESULTS OF LABOR DISPUTES IN SWEDEN, BY YEARS, 1903 TO 1907.

Year.	Results.								Total.	
	In favor of employers.		In favor of employees.		Compromised.		Unknown.		Strikes and lock-outs.	Employees affected.
	Strikes and lock-outs.	Employees affected.	Strikes and lock-outs.	Employees affected.	Strikes and lock-outs.	Employees affected.	Strikes and lock-outs.	Employees affected.		
1903.....	37	17,411	45	1,632	47	4,666	13	862	142	24,571
1904.....	63	1,629	68	3,540	73	6,925	11	154	215	12,248
1905.....	47	1,840	71	5,122	53	25,557	18	387	189	32,906
1906.....	73	2,739	116	7,487	90	8,152	11	277	290	18,655
1907.....	70	2,589	93	4,121	126	15,893	23	937	312	23,540
Total.....	290	26,208	393	21,902	389	61,193	76	2,617	1,148	111,920

Of the 1,148 disputes reported, 290, or 25.3 per cent, resulted in favor of the employers; 393, or 34.2 per cent, resulted in favor of the employees; and 389, or 33.9 per cent, were compromised. In 76 disputes, or 6.6 per cent of the total number reported, the results were unknown. As to employees affected, 26,208, or 23.4 per cent, were in disputes which terminated in favor of the employers; 21,902, or 19.6 per cent, were in disputes which terminated in favor of the employees; 61,193, or 54.7 per cent, were in disputes which were compromised, and 2,617, or 2.3 per cent, were in disputes the results of which were unknown.

In the following table the number and results of disputes, establishments involved, and employees affected, are shown by groups of industries:

LABOR DISPUTES IN SWEDEN, BY INDUSTRIES AND RESULTS, 1903 TO 1907.

Industry.	Disputes.	Estab-lishments in-volved.	Em-employees affected.	Results.			
				In favor of employers.	In favor of employees.	Compromised.	Un-known.
Agriculture, stock raising, and gardening.....	44	89	2,044	18	11	13	2
Forestry.....	24	66	2,661	5	6	11	2
Mining.....	24	38	2,785	7	4	9	3
Food products.....	86	162	5,115	26	25	26	9
Textiles.....	42	52	3,830	17	13	12	.....
Clothing.....	104	396	6,254	19	42	38	5
Leather, hair, and rubber goods.	47	91	2,380	7	21	18	1
Wooden ware.....	129	202	8,948	35	37	48	9
Wood pulp and paper.....	24	47	5,838	6	8	8	2
Printing.....	6	6	48	2	1	2	1
Ore smelting and refining.....	12	12	814	4	4	4	.....
Metal working.....	59	138	2,124	8	32	16	8
Machinery and shipbuilding....	46	246	29,974	14	15	17	.....
Clay, stone, etc., products.....	125	176	7,649	23	36	52	14
Chemical products.....	29	29	1,454	12	6	10	1
Building trades.....	239	1,217	19,644	50	101	71	17
Lighting, waterworks, etc.....	10	16	1,214	3	2	3	2
Commerce and merchandise....	19	89	578	4	7	8	.....
Land transportation.....	63	329	7,680	19	20	21	5
Water transportation.....	5	18	308	3	1	.....	1
Hotels, restaurants, etc.....	12	51	568	8	1	2	1
Total.....	1,148	3,470	111,920	290	393	389	76

Of the 21 groups of industries enumerated above, that of building trades furnished the largest number of disputes, also the largest number of establishments involved. The group of machinery and shipbuilding had the largest number of employees affected, being more than one-fourth the entire number reported. Of the 239 disputes occurring in the building trades, 50, or 20.9 per cent, resulted in favor of the employers; 101, or 42.3 per cent, resulted in favor of the employees; 71, or 29.7 per cent, were compromised; and 17, or 7.1 per cent, terminated with results unknown. In machinery and shipbuilding 30.4 per cent of the disputes ended favorably to the employers, 32.6 per cent favorably to the employees, and 37.0 per cent were compromised.

Computed on a basis of the total number of persons shown by official statistics to have been employed in building trades in 1905, a yearly average of 18.8 per cent of the employees in this industry were affected by labor disputes during the period 1903 to 1907. The average percentage of employees affected by disputes in the group of leather, hair, and rubber goods during the same period was 7.7, and in wood pulp and paper it was 5.7. The smallest percentage of strikers and persons locked out in any one industry was in printing, where only 0.1 per cent of all employees in the industry were affected.

The duration of labor disputes, grouped according to results, is shown in the following table:

DURATION OF LABOR DISPUTES IN SWEDEN, BY RESULTS, 1903 TO 1907.

Days of duration.	Results.				Total strikes and lockouts.
	In favor of employers.	In favor of employees.	Compromised.	Unknown.	
7 and under.....	147	196	148	10	501
8 to 30.....	46	106	138	12	302
31 to 90.....	25	62	68	5	160
91 to 180.....	4	16	16	3	39
Over 180.....	9	8	16	8	41
Unknown.....	59	5	3	38	105
Total.....	290	393	389	76	1,148

The disputes were mostly of short duration, 803, or 69.9 per cent, out of a total of 1,148, lasting 30 days or less. These disputes affected 52,171 employees, or 46.6 per cent, out of a total of 111,920. The employers were successful in 193, or 24.0 per cent of such disputes, the employees were successful in 302, or 37.6 per cent of the number, the differences were compromised in 286 instances, or 35.6 per cent of the disputes reported, and the results were unknown in 22, or 2.8 per cent of the cases. The number of disputes which lasted 7 days or less was 501, or 43.6 per cent of the entire number reported.

The classification of disputes by number of establishments involved appears in the following table:

LABOR DISPUTES IN SWEDEN BY NUMBER OF ESTABLISHMENTS INVOLVED, 1903 TO 1907.

Year.	Establishments involved.					Total strikes and lockouts.	Total working days lost.
	1 to 5.	6 to 10.	11 to 20.	Over 20.	Un-known.		
1903.....	128	5	4	4	1	142	642,000
1904.....	193	10	5	5	2	215	386,000
1905.....	169	10	6	3	1	189	2,390,000
1906.....	271	6	3	7	3	290	479,000
1907.....	273	18	8	5	8	312	514,000
Total.....	1,034	49	26	24	15	1,148	4,411,000

Of the 1,148 disputes recorded, 1,034, or 90.1 per cent, involved from 1 to 5 establishments; 49, or 4.3 per cent, involved from 6 to 10 establishments; 26, or 2.2 per cent, from 11 to 20 establishments, and 24, or 2.1 per cent, over 20 establishments. In 15 cases, or 1.3 per cent of the total, the number of establishments involved could not be ascertained.

In the following table are shown the results of disputes during the five years, 1903 to 1907, arranged according to the principal cause or object:

RESULTS OF LABOR DISPUTES IN SWEDEN, BY CAUSE OR OBJECT, 1903 TO 1907.

Cause or object.	Results.				Total.
	In favor of employers.	In favor of employees.	Compromised.	Un-known.	
Increase of wages.....	129	150	235	21	535
Reduction of wages.....	9	21	9	6	45
Other causes affecting wages.....	27	53	34	18	132
Recognition of trade union.....	12	18	2	2	34
Demand for collective contract.....	10	42	42	8	102
Other disputes concerning trade unionism.....	16	20	6	4	46
Circumstances of personal nature.....	18	4	4	1	27
Hours of labor.....	14	7	10	4	35
Reinstatement or discharge of employees.....	29	47	32	7	115
Opposition to shop rules.....	5	5	3	1	14
Differences over interpretation of contract.....	5	14	7	2	28
Other causes.....	16	12	5	2	35
Total.....	290	393	389	76	1,148

The most frequent causes of cessation of work during the five-year period were wage disputes, 712 differences, or 62 per cent of the total, being attributable to such causes. The demands for increased wages alone resulted in 535 strikes, or 46.6 per cent of all interruptions of work. Of the disputes due to this cause, 129, or 24.1 per cent, ended favorably to the employers, 150, or 28.1 per cent, favorably to the employees, 235, or 43.9 per cent, were compromised, and 21, or 3.9 per cent, ended with results unknown.

The next two tables show, respectively, the number of disputes, and the number of employees affected, classified according to duration of disputes, for each year from 1903 to 1907:

LABOR DISPUTES IN SWEDEN, BY DAYS OF DURATION, 1903 TO 1907.

Year.	Days of duration.						Total strikes and lockouts.
	7 and under.	8 to 30.	31 to 90.	91 to 180.	Over 180.	Un-known.	
1903.....	59	41	25	3	6	8	142
1904.....	99	49	22	9	12	24	215
1905.....	93	38	28	10	7	13	189
1906.....	128	79	41	7	10	25	290
1907.....	122	95	44	10	6	35	312
Total.....	501	302	160	39	41	105	1,148

EMPLOYEES AFFECTED BY LABOR DISPUTES IN SWEDEN, BY DURATION, 1903 TO 1907.

Year.	Days of duration.						Total employees affected.
	7 and under.	8 to 30.	31 to 90.	91 to 180.	Over 180.	Un-known.	
1903.....	3,174	2,252	16,637	1,008	1,307	193	24,571
1904.....	4,392	2,411	2,628	612	1,858	347	12,248
1905.....	7,361	2,439	3,473	4,062	15,349	217	32,906
1906.....	6,956	6,033	3,791	612	802	461	18,655
1907.....	5,565	11,588	3,250	1,724	271	1,142	23,540
Total.....	27,448	24,723	29,784	8,018	19,587	2,360	111,920

It is seen from the above tables that, with regard to duration, the largest number of trade disputes was of those lasting 7 days or less, while those which continued from 31 to 90 days affected the largest number of persons. Unusual instances of prolonged disputes are seen in the figures for 1903 and 1905, in which years a large proportion of employees were affected by disputes lasting from 31 to 90 days, and more than 180 days, respectively.

The following table shows the number of disputes occurring during each year of the period 1903 to 1907, classified according to the number of employees affected:

LABOR DISPUTES IN SWEDEN, BY YEARS AND NUMBER OF EMPLOYEES AFFECTED, 1903 TO 1907.

Year.	Employees affected.						Total strikes and lockouts.
	1 to 5.	6 to 25.	26 to 50.	51 to 100.	Over 100.	Un-known.	
1903.....	13	58	27	21	22	1	142
1904.....	32	94	31	27	26	5	215
1905.....	17	69	47	20	32	4	189
1906.....	42	93	60	47	44	4	290
1907.....	33	124	49	49	47	10	312
Total.....	137	438	214	164	171	24	1,148

The above table shows that of the 1,148 disputes considered, 137, or 11.9 per cent, affected from 1 to 5 persons; 438, or 38.2 per cent, from 6 to 25 persons; 214, or 18.6 per cent, from 26 to 50 persons; 164, or 14.3 per cent, from 51 to 100 persons, and 171, or 14.9 per cent, over 100 persons. In 24 instances, or 2.1 per cent of the total, the number of persons affected was unknown.

In 849 of the 1,148 disputes the employees were wholly or partly organized; in 225 they were unorganized, and in the 74 cases remaining the facts as to organization were not reported. Of the 849 disputes in which the employees were organized, 144, or 17 per cent, resulted in favor of the employers, 324, or 38.2 per cent, in favor of the employees, 317, or 37.3 per cent, were compromised, and in 64 cases, or 7.5 per cent, the results were unknown. As to the 225 cases in which the employees were unorganized, 115, or 51.1 per cent, terminated favorably to the employers, 50, or 22.2 per cent, favorably to the employees, 52, or 23.1 per cent were settled by compromise, and the results were unknown in 8 cases, or 3.6 per cent of the total number.



## OPINIONS OF THE ATTORNEY-GENERAL ON QUESTIONS AFFECTING LABOR.

[It is one of the duties of the Attorney-General of the United States to furnish opinions advising the President and the heads of the executive departments in relation to their official duties when such advice is requested. Opinions on questions affecting labor will be noted from time to time under the above head.]

**COMPENSATION FOR INJURIES TO EMPLOYEES—ACCIDENTS—CONSTRUCTION OF STATUTE—***Advance sheets, 27 Op., page 346.*—The present opinion involves the construction of the federal compensation act of May 30, 1908 (35 Stat., 556), in its application to a case of disability from injury incurred while operating a hand press in the Bureau of Engraving and Printing. There was no accident, in the ordinary sense of that word, and the point in issue was whether or not the law covered a case of that nature. Contrary opinions had been rendered by the solicitors of the two departments concerned, i. e., of the Treasury Department, under which the injured workman was employed, and of the Department of Commerce and Labor, to the Secretary of which is committed the administration of the statute. The Secretary of Commerce and Labor thereupon submitted the matter to the Attorney-General for his opinion, which is for the most part reproduced herewith.

The facts submitted are as follows:

The claimant, Alfred A. Clark, a person employed by the United States as a plate printer in the Bureau of Engraving and Printing, was injured in the course of his employment on September 3, 1908. His employment at the time of the injury consisted in working a hand press, which involved the five operations of inking the plate with a hand roller, wiping the surplus ink off the plate with a rag, polishing the plate with the hands, placing the plate on the bed of the press, and pulling it through by the handle bars. This had been the claimant's occupation for several years, and he had been accustomed to perform the various operations mentioned on an average of about 950 times a day. During the day, and at the time of the injury, the physical conditions of his employment were as usual, except that the ink used was probably somewhat thicker than it should have been. The injury sustained by the claimant consisted of a condition of relaxation of the posterior ligaments (of right wrist), commonly known as a sprain, complicated by a rupture of the synovial sac surrounding the ligaments leading from the back part of the forearm to the fingers, of which the subjective symptoms were a swelling, due to the rupture, and a weakness of the flexor and extensor muscles. The injury continued (for more than fifteen days), inasmuch as it had to be treated

by placing the wrist in a plaster cast and allowing it to rest for several weeks. The injury did not, however, immediately result in incapacity for work. The claimant continued to work on the day of the injury and on the day following, as well as during a part of the next day. He was then absent from work on account of the injury for six days, when he returned to work and worked for seven days. Thereafter he was absent from work on account of the injury for several weeks.

Having stated these facts, the Attorney-General said:

The opinions of the two solicitors which you send me chiefly discuss the question whether Mr. Clark's injury was caused by an "accident" or came on by slow and imperceptible degrees, without there having been something unforeseen, unexpected, and unusual "in the act which preceded the injury." One solicitor holds against Mr. Clark, saying that to allow him compensation during absence would be equivalent to giving sick leave with pay, and likening his case to that of a man whose physical powers give way after a time because the work is too severe for him, and to the case of a watchman suffering from pneumonia brought on by exposure to drafts of air, and that of an engraver suffering as a result of the constant and severe strain upon his eyes.

The act referred to is entitled "An act granting to certain employees of the United States the right to receive from it compensation for injuries sustained in the course of their employment." Section 1 reads as follows:

"That when, on or after August first, nineteen hundred and eight, any person employed by the United States as an artisan or laborer in any of its manufacturing establishments, arsenals, or navy-yards, or in the construction of river and harbor or fortification work, or in hazardous employment on construction work in the reclamation of arid lands or the management and control of the same, or in hazardous employment under the Isthmian Canal Commission, is injured in the course of such employment, such employee shall be entitled to receive for one year thereafter, unless such employee, in the opinion of the Secretary of Commerce and Labor, be sooner able to resume work, the same pay as if he continued to be employed, such payment to be made under such regulations as the Secretary of Commerce and Labor may prescribe: *Provided*, That no compensation shall be paid under this act where the injury is due to the negligence or misconduct of the employee injured, nor unless said injury shall continue for more than fifteen days. All questions of negligence or misconduct shall be determined by the Secretary of Commerce and Labor."

The first few lines of section 3 are as follows:

"That whenever an accident occurs to any employee embraced within the terms of the first section of this act, and which results in death or a probable incapacity for work, it shall be the duty of the official superior of such employee to at once report such accident and the injury resulting therefrom to the head of his bureau."

The first few lines of section 4 are as follows:

"That in the case of any accident which shall result in death, the person entitled to compensation under this act or their legal representatives shall, within ninety days after such death, file with the Secretary of Commerce and Labor an affidavit setting forth their relation-

ship to the deceased and the ground of their claim for compensation under the provisions of this act."

The question involved in your inquiry is whether or not the purpose of the act, as expressed in the first section and as indicated by the title, viz, to secure to employees of the United States of the class specified the right to receive compensation for injuries sustained in the course of their employment, is controlled and narrowed by the use in sections 3 and 4 of the word "accident."

It will be observed that, in the first and second sections of the act, which confer the right, the language employed refers broadly to injuries received by an employee in the course of his employment. This is safeguarded by the proviso in the first section that no compensation shall be paid where the injury is due to the negligence or misconduct of the employee injured, "nor unless the said injury shall continue for more than fifteen days." By section 2, if such employee shall die during the year by reason of such injury received in the course of his employment, leaving a widow or relatives of the designated class, the amount which would have been paid to such employee during the remainder of the year is required to be divided among and paid over to such widow or other relatives in the manner provided in the act. The word "accident" is only employed in the third and fourth sections, the third section relating to the report of the occurrence of the accident and the character of such report, and the fourth section referring to "the case of any accident which shall result in death," and providing for the affidavit of claim and other proofs. Later on in the fourth section occurs this paragraph:

"In the case of incapacity for work lasting more than fifteen days, the injured party desiring to take the benefit of this act shall, within a reasonable period after the expiration of such time, file \* \* \* an affidavit setting forth the grounds of his claim for compensation, to be accompanied by a certificate of the attending physician as to the cause and nature of the injury and probable duration of the incapacity. \* \* \*

In other words, the statute quite consistently provides for the cases of injuries in the course of the employment and accidents resulting in death or otherwise. The word "injury" is employed comprehensively to embrace all the cases of incapacity to continue the work of employment unless the injury is due to the negligence or misconduct of the employee injured and including all cases where as a result of the employee's occupation he, without any negligence or misconduct, becomes unable to carry on his work and this condition continues for more than fifteen days. The word "accident" is employed to denote the happening of some unusual event, producing death or injury which results in incapacity for work, lasting more than fifteen days. That is to say, within the language of the statute an employee may be injured in the course of his employment without having suffered a definite accident.

This is a beneficent statute, in the nature of an act granting pensions of limited duration and of special application. The language employed appears to me to be clear and unambiguous, and should not be so construed as to exclude from its benefits any of those cases which it fairly includes. I therefore deem it unnecessary to enter upon an extended discussion of the authorities which have dealt with the definition of the word "accident" as distinguished from "injury,"

although there are many interesting precedents dealing with such definitions; and the modern tendency of courts has been to apply the term "accident" to include all injuries arising out of the pursuit of claimant's employment which, without his own fault, incapacitate him from carrying on his labor.

The case of *Fenton, pauper, v. Thorley* (19 Times Law R. 684), arising under the British compensation act and decided by the House of Lords, was as follows:

"On December 3, 1901, Fenton was at work at his machine. He had got through the operation on that day a good many times without hitch or difficulty; but about 9 p. m. or a little later, when the time came for opening the vessel, the wheel would not turn. He then called a fellow-workman to his assistance, and the two men together set to work to move the wheel. Suddenly Fenton felt something which he describes as a 'tear' in his 'inside', and it was found that he was ruptured.

"Fenton was a man of ordinary health and strength. There was no evidence of any slip or wrench or sudden jerk. It may be taken that the injury occurred while the man was engaged in his ordinary work, and in doing or trying to do the very thing which he meant to accomplish.

"Founding themselves upon that expression, the learned judges of the court of appeals held, in '*Hensey v. White*,' as they have held here, that there was no accident, because there was 'an entire lack of the fortuitous element.' What the 'man was doing,' it was said, 'he was doing deliberately, and in the ordinary course of his work,' and that which happened was in no sense a fortuitous event. \* \* \*

"If a man, in lifting a weight or trying to move something not easily moved, were to strain a muscle, or crick his back or rupture himself, the mishap in ordinary parlance would be described as an accident. Anybody would say that the man had met with an accident in lifting a weight, or trying to move something too heavy for him. One other remark I should like to make. It does seem to me extraordinary that anybody should suppose that when the advantage of the insurance against accident at their employer's expense was being conferred on workmen, Parliament could have intended to exclude from the benefit of the act some injuries ordinarily described as accidents which beyond all others merit favorable consideration in the interest of workmen and employers alike. A man injures himself by doing some stupid thing, and it is called an accident, and he gets the benefit of the insurance. It may be even his own fault, and yet the compensation is not to be disallowed unless the injury is attributed to 'serious and willful misconduct' on his part. A man injures himself suddenly and unexpectedly by throwing all his might and all his strength and all his energy into his work by doing his very best and utmost for his employer, not sparing himself or taking thought of what may come upon him, and then he is to be told that his case is outside the act because he exerted himself deliberately, and there was an entire lack of the fortuitous element! \* \* \*

"There is, however, a recent decision of the court of session in Scotland, to which I would like to call your lordships' attention, and in which I agree entirely. It is the case of *Stewart v. Wilson's and Clyde Coal Company (Limited)* (5 Fraser 120). A miner strained

his back in replacing a derailed coal hutch. The question arose, Was that an accident? All the learned judges held that it was. True, two of the learned judges expressed an opinion that it was 'fortuitous,' but they could not have used that expression in the sense in which it was used in *Hensey v. White*. What the miner did in replacing the hutch he certainly did deliberately and in the ordinary course of his work. There was nothing hazardous about it. Lord McLaren observed that it was impossible to limit the scope of the statute. He considered that 'if a workman in the reasonable performance of his duties sustains a physiological injury as the result of the work he is engaged in \* \* \* this is accidental injury in the sense of the statute.' Lord Kinnear observed that the injury was 'not intentional,' and that 'it was unforeseen.' 'It arose,' he said, 'from some causes which are not definitely ascertained, except that the appellant was lifting hutches which were too heavy for him. If,' he added, 'such an occurrence as this can not be described in ordinary language as an accident, I do not know how otherwise to describe it.' \* \* \*

"Lord Shand, in the course of a judgment, which was read by Lord Macnaghten, said: 'I shall only add that concurring as I fully do in holding that the word "accident" in the statute is to be taken in its popular and ordinary sense, I think it denotes or includes any unexpected personal injury resulting to the workman in the course of his employment from any unlooked for mishap or occurrence.'"

These are very authoritative declarations of the meaning of a law whose rule of compensation expressly concerned injuries by accident. Certainly no greater weight or narrower meaning should be given to that word in the case of the statute in question than ought to have been given by the House of Lords in the case just mentioned.

On a day which seems to be fixed, Mr. Clark's wrist was sprained and the synovial sac ruptured. After working off and on for a few days he was absent from work on account of this injury for several weeks, the injury having to be treated by placing the wrist in a plaster cast. He was injured in the course of his employment as a plate printer. The conditions of his employment on the day in question were as usual, except that the ink used was probably somewhat thicker than it should have been. When injured he was working a hand press involving five operations, which he had been accustomed to perform for years on an average of 950 times a day.

The statement of facts shows that the man's wrist was sprained by something involved in his exertions in doing his work, and I shall assume that no further information exists concerning the cause of the injury. I assume, moreover, an absence of misconduct or negligence on his part, as nothing of the kind is suggested; and shall also assume that you consider the Bureau of Engraving and Printing as a manufacturing establishment within the meaning of the act of May 30, 1908.

The purpose of the law was not to set in motion an interminable series of technical inquiries, such as would puzzle the minds of learned and profound judges, but to provide immediate pecuniary relief by giving leave of absence with pay from the time when the incapacity for work occurred, to persons receiving injuries under the circumstances mentioned in section 1, taking the language of that section in its obvious sense and as intended to be addressed to administrative officers.

In my opinion, for the reasons I have attempted to indicate, the injury as you set it forth is "an injury" within the meaning of the act of Congress approved May 30, 1908, on account of which compensation may be paid.

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**EIGHT-HOUR LAW—LABORERS CUTTING TIMBER ON INDIAN RESERVATION—***Advance sheets, 27 Op., page 139.*—The Secretary of the Interior requested of the Attorney-General an opinion as to the application of the federal eight-hour law of 1892 to the work of laborers employed by the Indian Service in the cutting of timber and the conversion thereof into logs and other lumber, on an Indian reservation. The reply of the Attorney-General was to the effect that laborers of the class named were not within the provisions of the law, as appears from the following quotation from his opinion:

I do not think work of this character is within the purview of the eight-hour law. In a sense, the persons engaged in such work may be said to be in the employ of the United States, but it can hardly be assumed that the Congress contemplated employees of this character, whose compensation comes virtually out of the pocket of the wards of the nation, and whose employment is made by the Government, not for the general benefit of the nation, but as a trustee for the benefit of a comparatively small number of individuals, toward whom it stands in a special judiciary relation imposing upon it different duties and conferring upon it different powers from those it exercises and fulfills toward its citizens generally.

The purpose of the act of 1892 was undoubtedly to prevent the lengthening of hours of labor in work done for the Government through the unrestricted operation of competition among laborers and mechanics thus employed. In this case competition of the character described is substantially eliminated by the restriction of the work to Indians, and, for practical purposes, to Indians of this particular tribe. The same persons who will be paid for their labor in doing the work will have an interest in the net proceeds representing the profits of the enterprise, so that, in large measure at least, the work contemplated by this act [authorizing the cutting of the timber] constitutes a cooperative undertaking in which the tribe furnishes the capital, the raw material, and, so far as possible, the labor employed. It seems reasonable to suppose that if the Congress had intended work done under such peculiar conditions to be affected by the prohibitions in the general statute enacted in 1892 it would have expressly provided that no mechanic or laborer employed in this work should labor for more than eight hours a day.

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**IMMIGRATION—INDUCEMENTS BY STATES AND TERRITORIES—ALIEN LABORERS—CONSTRUCTION OF STATUTES—***Advance sheets, 27 Op., page 479.*—The legislature of the Territory of Hawaii passed, on April 24, 1905, an act creating a board of immigration, whose duty it was to use such means as might be at their disposal to properly

represent the advantages afforded by Hawaii to residents of other countries desiring to improve their conditions by emigrating. This board was empowered to employ agents to carry out the objects for which it was created, to advertise in foreign magazines, to contract with transportation companies for a low rate of fare for immigrants to Hawaii, to pay their passage, and to solicit and receive from private sources funds to be expended by the board, together with funds appropriated by the legislature, to accomplish the purposes for which it was created. For some time funds were thus obtained, largely from sugar planters, but after the act of Congress of February 20, 1907, the territorial legislature passed a further act (Hawaiian Laws of 1909, p. 39) providing for a special tax of 2 per cent on incomes in excess of \$4,000 per annum, three-fourths of the proceeds thereof to be used for immigration purposes by the board of immigration, thus eliminating the feature of aid with private funds. The board received information of a number of persons in the Azores and Madeira who desired to emigrate to Hawaii, having been influenced so to do partly by letters received from their friends in those islands, and partly in consequence of opportunities made known to them by firms engaged there in the business of facilitating emigration to other countries, and proposed to send to those places one A. J. Campbell as its agent to make arrangements for the transportation of such persons to Hawaii, a representative of the United States Public Health and Marine-Hospital Service to accompany him for the purpose of making proper medical examination of the immigrants before they start upon their journey. It was stipulated that there has not been and will not be any offer or promise made to any of said immigrants of any special employment, but that their immigration was induced solely by a representation of the resources of the Hawaiian Islands and the industrial conditions there existing, and that they will have, when reaching there, perfect freedom of action in choosing their places of residence and the vocations which they will follow.

The above facts were submitted to the President of the United States by the Secretary of the Interior, who had been requested so to do by the governor of Hawaii, to the end that the President might sign, if he would, a letter addressed to the agent, Campbell, approving the undertaking, and commending him to the favorable consideration of the officers of the United States abroad. The President referred the matter to the Attorney-General, expressing his willingness to sign the letter if the proposed course should be found not to conflict with the provisions of the alien contract labor law and the immigration laws of the United States.

Attorney-General Wickersham rendered an opinion in which the plans were held to be consonant with the laws, saying in part:

The answer to this inquiry depends upon a correct interpretation of the provisions of the act of February 20, 1907 (34 Stat. 899-902).

In the second section of that act, among the classes of aliens who are subject to exclusion from admission to the United States are mentioned the following:

"Persons hereinafter called contract laborers, who have been induced or solicited to migrate to this country by offers or promises of employment or in consequence of agreements, oral, written or printed, express or implied, to perform labor in this country of any kind, skilled or unskilled; those who have been, within one year from the date of application for admission to the United States, deported as having been induced or solicited to migrate as above described; any person whose ticket or passage is paid for with the money of another, or who is assisted by others to come, unless it is affirmatively and satisfactorily shown that such person does not belong to one of the foregoing excluded classes, and that said ticket or passage was not paid for by any corporation, association, society, municipality, or foreign government, either directly or indirectly."

In the third and fourth provisos skilled labor which can not be found in this country, and professional men and servants, are excluded from the effect of the foregoing provision.

The act further provides:

"SEC. 4. That it shall be a misdemeanor for any person, company, partnership, or corporation, in any manner whatsoever, to prepay the transportation or in any way to assist or encourage the importation or migration of any contract laborer or contract laborers into the United States unless such contract laborer or contract laborers are exempted under the terms of the last two provisos contained in section two of this act."

"SEC. 6. That it shall be unlawful and be deemed a violation of section four of this act to assist or encourage the importation or migration of any alien by promise of employment through advertisements printed and published in any foreign country; and any alien coming to this country in consequence of such an advertisement shall be treated as coming under promise or agreement as contemplated in section two of this act, and the penalties imposed by section five of this act shall be applicable to such a case: *Provided*, That this section shall not apply to States or Territories, the District of Columbia, or places subject to the jurisdiction of the United States advertising the inducements they offer for immigration thereto, respectively."

In section 12, among the questions which are required to be answered by the alien, are "whether the alien has paid his own passage or whether it has been paid by any other person or by any corporation, society, municipality, or government, and if so, by whom," and "whether coming by reason of any offer, solicitation, promise, or agreement, express or implied, to perform labor in the United States."

By the clauses above quoted from section 2, three classes of aliens are excluded from admission into this country, to wit: First, persons "induced or solicited to migrate to this country by offers or promises of employment or in consequence of agreements, oral, written, or



printed, express or implied, to perform labor in this country of any kind, skilled or unskilled;" second, those who have been deported within one year under said clause; and, third, any person whose ticket has been "paid for by any corporation, association, society, municipality, or foreign government, either directly or indirectly."

With reference to the first class, the said act of 1907 made a very material modification in the law as it had previously existed. The contract labor law had its origin in chapter 164, act of February 26, 1885 (23 Stat. 332), by section 1 of which it was provided:

"That from and after the passage of this act it shall be unlawful for any person, company, partnership, or corporation, in any manner whatsoever, to prepay the transportation or in any way assist or encourage the importation or migration of any alien or aliens, any foreigner or foreigners, into the United States, its Territories, or the District of Columbia, under contract or agreement, parol or special, express or implied, made previous to the importation or migration of such alien or aliens, foreigner or foreigners, to perform labor or service of any kind in the United States, its Territories, or the District of Columbia."

By the act of February 23, 1887 (24 Stat. 414), alien contract laborers were prohibited from landing; and by the alien immigration acts of March 3, 1891 (26 Stat. 1084), and of March 3, 1903 (32 Stat. 1214), it was recognized that aliens brought to this country in violation of the said act of 1885 were subject to exclusion.

Under this law it was uniformly held that it was essential to justify the exclusion of the alien, or to inflict the penalty provided for its violation, that there should have been a completed contract made previous to the importation of the alien. In consequence of this construction of the statute, Congress, by the act of 1907, provided that an alien shall be subject to exclusion who has been "induced or solicited to migrate to this country by offers or promises of employment," thereby making it no longer necessary to show that he came in pursuance of a contract for labor previously entered into.

The meaning of the words added in the act of 1907 does not require that their effect be given greater force than to cure the defect in the previous law, which it was the manifest purpose of the amendment to remedy; and the statute as thus amended could very properly be construed to prohibit only an offer or promise of employment which is of such definite character that an acceptance thereof would constitute a contract. Certainly a representation to an alien or aliens as to the resources of a locality or the industrial conditions there existing, by which representation the alien is induced to migrate to the United States, does not fall within the prohibition of the statute.

A broader meaning is not suggested by the sixth section of the act, which makes it unlawful to assist or encourage the importation or migration of any alien by promise of employment through advertisements printed and published in any foreign country. This, like the similar phrase in section 2, is directed against a promise which specially designates the particular job or work or employment for which the alien's labor is desired.

Inasmuch, therefore, as Mr. Campbell's mission is only to make arrangements for the transportation of those who have already determined to migrate to Hawaii, and who will, when they arrive there,

have perfect freedom of action in selecting their places of settlement and in choosing their employment, there is nothing in the course which is being pursued by that Territory which is in conflict with the letter or spirit of this provision of the act.

The present inquiry does not concern the second class of contract laborers subject to exclusion, to wit, those who have within one year been deported under the contract-labor clause.

The third class are those whose tickets or passage have been paid for by a corporation, association, society, municipality, or foreign government, either directly or indirectly. As above shown, the money to be expended by Mr. Campbell in securing transportation for immigrants is raised by taxation levied by the territorial legislature on incomes above \$4,000 and the expenditure is made by authority of the territorial board of immigration, which is a body created and its duties defined by said legislature. The funds are, therefore, territorial property and are expended by an agent of the Territory. The fact that a very large proportion of those funds is collected under the statute from sugar planters, who it is supposed will be largely benefited by the importation of the aliens, can not change their ownership or character.

This act is, therefore, valid unless in its object it is inconsistent with the clauses of the immigration law now under consideration. No such inconsistency exists, because, in the first place, a Territory has the right to make known to aliens its resources and inducements for immigration thereto. The proviso to section 6, which makes it unlawful to encourage the immigration of an alien by offer or promise of employment by printed advertisements published in a foreign country, expressly excludes from its effect States or Territories, the District of Columbia, and all places subject to the jurisdiction of the United States, advertising the inducements they offer for immigration thereto; and there is no other provision of the statute which suggests a prohibition against their advertising their inducements in any other way than by printed publications.

In the second place, an alien whose passage has been paid by a territorial government is not for that reason subject to exclusion. A Territory is not a corporation, association, society, or foreign government.

By the act of 1903 an alien was subject to exclusion "whose ticket or passage is paid for with the money of another, or who is assisted by others to come, unless it is affirmatively and satisfactorily shown that such person does not belong to one of the foregoing classes."

Under this provision the payment of an alien's passage was not of itself a ground of exclusion, but placed upon him the burden of showing that he did not belong to one of the excluded classes, among which was the contract-labor class. But, under the act of 1907, when his passage is paid by another, he must show, not only that he does not fall within one of the excluded classes, but also that it was not paid by "a corporation, association, society, municipality, or foreign government," the payment by such a body being, therefore, of itself made a ground of exclusion. However, when he shows that his passage is paid by a person or body not mentioned by the statute, as a State, or Territory, this ground of exclusion no longer exists.

Neither does the action of the Territory of Hawaii violate sections 4 and 6 of the act of 1907. Section 4 makes it a misdemeanor for any person, company, partnership, or corporation to prepay the transportation, or to in any way encourage the immigration of aliens other than those mentioned in the last two provisos in the second section of the act. Section 6 prohibits the making of an offer or promise of employment by published advertisements. The former section is a criminal statute and can have no application to a Territory, while the prohibition in the latter section extends only to the making of an offer or promise of employment, and by the proviso thereto it is expressly declared that it shall not, even in this respect, apply to a State or Territory, or the District of Columbia, or any place within the jurisdiction of the United States, advertising inducements for immigration.

The law clearly recognizes a distinction between the importation of contract laborers to do certain work in competition with American laborers, and the importation into States, Territories, and communities of immigrants whose presence is necessary or helpful in developing their resources. Immigration of the latter class, when the individuals composing it are of the proper character, is not discouraged, but rather encouraged by the provisions of the act. And it is certainly not against the policy of the law to send an agent into a foreign country to arrange for the transportation of aliens whose emigration has already been determined upon, and to secure their settlement in a section of the country where the industrial conditions are such that their presence is badly needed; and this appears to be the sole object of Mr. Campbell's mission.

As appears from an inspection of the reports of the Commissioner-General of Immigration, the most difficult problem in connection with the immigration question is to secure a proper distribution of the immigrants. Their tendency is to form "colonies" in the large cities and thus create festering sores upon the body politic instead of a material addition to the productive resources of the country. Section 40 of the act of 1907 provides for the appointment of agents by the States and Territories to be located at the immigration stations, for the purpose of inducing the settlement of immigrants therein. But these agencies do not appear to have brought the desired relief. In his report for 1906 the Commissioner says:

"It is true that in the vast majority of cases the alien has determined in advance, at least tentatively, upon his future place of settlement; and it would appear, therefore, to be almost necessary, in order to secure a considerable number of immigrants for a certain locality, that a representative of such place present its resources and attractive features to them before they leave the foreign territory. And, manifestly, any plan which has in view a distribution of the alien immigrants among the rural population, and to procure their services in the development of industries in which labor is deficient, and thus remove them from competition with American laborers in those vocations which are overcrowded, is in entire accord with the spirit of our immigration laws.

LEAVES OF ABSENCE FOR EMPLOYEES OF THE UNITED STATES—WHO ENTITLED—ARSENALS—PER DIEM EMPLOYEES—PIECEWORKERS—*Advance Sheets, 27 Op., page 613.*—The Secretary of War submitted certain questions as to the application of the act of Congress of February 1, 1901 (31 Stat. 766), which reads as follows:

“Each and every employee of the navy-yards, gun factories, naval stations, and arsenals of the United States Government be, and is hereby, granted fifteen working days’ leave of absence each year without forfeiture of pay during such leave: *Provided*, That it shall be lawful to allow pro rata leave only to those serving twelve consecutive months or more: *And provided further*, That in all cases the heads of divisions shall have discretion as to the time when the leave can best be allowed without detriment to the service, and that absence on account of sickness shall be deducted from the leave hereby granted.”

The inquiries were three in number, and were presented in the opinion of the Attorney-General in the following form:

1. Whether employees in the general depot of the quartermaster’s department at Philadelphia, Pa., are entitled to the benefit of the stated act.

2. Whether the act embraces employees working “at a fixed rate of pay per day or hour.”

3. Whether the act applies to pieceworkers.

The answer was in part in the following language:

In my opinion the first of these questions must be answered in the affirmative, and the second and third questions must be answered in the negative. The main reasons upon which I base these conclusions are as follows:

1. The applicability of the quoted statute to employees in the general depot of the quartermaster’s department at Philadelphia rests upon the question whether such depot is an “arsenal of the United States Government” within the language of the statute. I am informed that, while arms and ammunition are not made or stored at that depot, clothing for the troops is made and stored there, and military clothing, tents, and other articles of camp and garrison equipment manufactured by others than the Government, and perhaps also other military supplies, are stored at such depot and distributed therefrom as needed at military posts. These functions of the depot seem to make it an arsenal within the spirit of the legislation under consideration.

The word “arsenal” is defined in leading American dictionaries thus:

“A repository or magazine of arms and military stores of all kinds, whether for land or naval service.”—(Century Dictionary.)

“A public establishment for the storage or for the manufacture and storage of arms and all military equipments, whether for land or naval service.”—(Webster’s Dictionary.)

“A magazine of arms and military stores.”—(Worcester’s Dictionary.)

These definitions cover such depot of military supplies as that at Philadelphia.

It is not unimportant, also, that this depot was officially known until 1873 as the "Schuylkill Arsenal," that designation having been changed to the "Philadelphia depot of the quartermaster's department" by General Orders, No. 78, War Department, Adjutant-General's Office, July 25, 1873. So far as I am advised, the operations and purposes of the depot were the same before as since the alteration of its official name.

It will be noticed, too, that this act of 1901 unmistakably applies to employees generally in navy-yards and naval stations; and it therefore embraces many employees in those yards and stations who render no service in the manufacture or keeping of arms or ammunition, and in part it embraces in those yards and stations many employees whose service, like the work of the employees at the Philadelphia depot, is connected with the warehousing and distribution of military supplies other than arms or ammunition. In view of this unmistakable operation of the act of 1901 in favor of employees at navy-yards and naval stations, whose work is like that of the employees in the general depot at Philadelphia, it seems quite out of question to hold the statute inapplicable to the latter employees.

The interpretation heretofore put by executive officers upon this statute of 1901 has been liberal, as it should be. Attorney-General Knox, in an opinion given May 10, 1901, ruled that the act extends to "employees of the powder and ordnance depots, the national armory, and civilian employees in the service of the Ordnance Department at works of private establishments having government contracts." (23 Op. 443.) And under date March 20, 1901, the Judge-Advocate-General of the Army decided "that the word 'arsenals' used in this law is broad enough to include armories and ordnance and powder depots."

Any sufficient reason for restricting the privilege of leave of absence under the statute to such employees only as work at government storehouses of arms or ammunition, and for refusing that privilege to such employees as work at government storehouses of other sorts of military supplies, can hardly be suggested; and the general spirit and policy of the statute should therefore be given full play when, as shown by what has already been said, the actual language of the act interposes no obstacle, but, on the contrary, fully warrants such interpretation.

2. Upon the question whether this statute of 1901 reaches to employees who work "at a fixed rate of pay per day or hour" the general course of congressional enactment and executive decision in reference to leaves of absence for government employees, without loss of pay, is thoroughly significant, if not decisive.

The statutes of 1883, 1893, and 1898 granting leave of absence to clerks and employees in the executive departments and rulings thereon were then quoted, after which the opinion continues:

Particular features of the language of the act of 1901 reenforce the idea, derived from the rule of interpretation established when that act was passed, that the statute does not extend to workers by the day or hour or piece. The statute speaks of "leave of absence," and says that it shall be without "forfeiture" of pay, and further says that heads of division shall have "discretion as to the time when the

leave can best be allowed without detriment to the service." These statements are not natural except in reference to employees whose time and service belong to the Government for a considerable, continuous period by reason of the Government's paying an integral sum for such entire and considerable length of service. "Leave of absence" seems to imply a surrender by the Government of time or service which is part of a larger total time or service contracted for by the Government. The statement that pay shall not be "forfeited" during the leave of absence similarly suggests that the employee works under an arrangement which entitles the Government to his time and service. Likewise, the provision giving heads of department[s] discretion as to the time when the leave of absence shall be allowed presupposes that the arrangement or contract between the Government and the employee gives the Government control over the question when the employee shall work; and only a continuous time contract accords with that supposition. Workers by the day or hour or piece can be absent in their own discretion without violating a contract giving their continuous time to the Government.

The clause of the statute which declares "that absence on account of sickness shall be deducted from the leave hereby granted" is peculiarly significant. It again rests upon the idea that the absence because of sickness has already taken from the Government service which the Government under its contract with the employee has already paid for. In the case of workers by the day or hour or piece, however, the Government has lost nothing through the workman's absence because of sickness, since by the very nature of the contract workers by the day or hour or piece are paid only for service actually rendered. There is a reason for this clause requiring deduction from leave of absence for previous absence through illness in the case of employees under a time arrangement, who receive their salary though absent, if that absence be not a breach of the contract; but there is no reason for the provision in the case of laborers by the day or hour or piece, who are paid only for actual work.

3. The reasons given for my conclusion as to workers by the day or hour apply with no less force for my conclusion as to pieceworkers. But a new and potent consideration is in the way of construing the act of February 1, 1901, as inclusive of pieceworkers. That statute fixes no rule for estimation or determination of the rate of pay which should be given to a worker by the piece during leave of absence. I am unable to see how the head of an executive department or of a division or bureau could fix that rate of pay in the absence of a statutory rule. The method of calculating it, in the case of pieceworkers, must inevitably be somewhat arbitrary, and the power to adopt an arbitrary rule of calculation can hardly rest outside of Congress. In case of the Government Printing Office and the Bureau of Engraving and Printing Congress has felt the necessity for its own prescription of the rule of pay to the pieceworker during his absence, and has has itself enacted such a rule. This particular point, supplementing all that has been said concerning the case of workers by the day or hour, appears to be quite decisive.

It may be added that the analogy between the cases of workers by the day or hour, on the one hand, and of pieceworkers, on the other hand, is much closer than between the cases of workers by the day or

hour and ordinary time employees. The rule concerning leave of absence for workers by the day or hour would therefore be made by Congress the same as obtains in case of pieceworkers much more naturally than it would be made the same as the rule concerning long-time employees, and this consideration adds to the reasons for my conclusion concerning workers by the day or hour all the force of the special difficulty in the case of pieceworkers, through absence from the statute of any rule for pieceworkers' remuneration during leave of absence.

## DECISIONS OF COURTS AFFECTING LABOR.

[Except in cases of special interest, the decisions here presented are restricted to those rendered by the federal courts and the higher courts of the States and Territories. Only material portions of such decisions are reproduced, introductory and explanatory matter being given in the words of the editor.]

### DECISIONS UNDER STATUTE LAW.

**EMPLOYERS' LIABILITY—RAILROAD COMPANIES—ACCEPTANCE OF RELIEF BENEFITS—CONSTRUCTION OF STATUTE—***Potter v. Baltimore and Ohio Railroad Company, Supreme Court of the District of Columbia, 37 Washington Law Reporter, page 466.*—This was an action by Clarence G. Potter, a brakeman in the employment of the company named, to recover damages for the loss of an arm. The injury had been received while making a coupling with an old-fashioned coupler, and there was no controversy as to liability, but the plaintiff had been a member of the company's relief association, and had accepted various sums of money, giving a receipt and release therefor. Under his contract, this was to relieve the company from further liability, but Potter claimed that under the federal statute of June 11, 1906, 34 Stat. 232, he was entitled to prosecute his suit regardless of the receipt and release above named. This statute provides that no contract of employment, insurance, relief benefit, or indemnity for injury or death, nor the acceptance of benefits under such contract, shall constitute any bar or defense to an action for injuries for death of an employee. Payments toward a fund or indemnity actually paid may be put in as a set-off in the trial of any action to recover damages, however.

The company's contention was that this provision was an interference with the freedom of contract and was unconstitutional. The same contention had been decided against this defendant in the case of *Goldenstein v. B. & O. R. Co.*, 37 Wash. L. R. 2 (Bulletin No. 81, p. 410), but the court carefully reviewed the law and the reasons therefor, reaching the same conclusion as in the earlier case. The opinion was delivered by Judge Stafford, who first stated the points in issue, after which he recited the law and found it applicable to the details of the contract of the relief association, next taking up the question of the constitutionality of the particular section involved.

On this point he said in part:

The right to make all reasonable contracts is a property right, a right that was possessed both by the defendant and by the plaintiff.



They entered into this contract, and under it the defendant paid the benefits and the plaintiff accepted them, and we will assume that if it were not for the statute itself the acceptance of the benefits after injury would constitute a release of the plaintiff's damages; but the Congress has undertaken to say that such a contract is against sound public policy and shall not be recognized. Are there any grounds upon which the legislature could base such an enactment? More than once in its brief the defendant shows that the entering into of this contract by the plaintiff was not only a part of his contract of employment, but was the condition of his being employed at all, and although the contract itself as elaborately set forth provides for certain preferences to be given those employees who become members of the relief benefit department, the defendant states, on page 15 of its brief, that all employees of the defendant are required to become members of the relief department as a condition of employment by that company. That is to say, every employee is required to agree upon a scale of benefits, so much for the loss of an arm, so much for the loss of an eye, so much for the loss of a life, and so on, which sums, if accepted by the employee or his representative, after the injury or death has occurred, shall constitute a bar to any action for the real damages. It is now said that no harm has been done by such a contract because the employee retained his option to accept or refuse the benefits after the injury has been received. During the oral argument the court asked the counsel for the defendant why the company exacted of its employees such an agreement in advance if it expected to rely only upon a voluntary acceptance of benefits after the injury and not at all upon the previous contract. The reply was that a question might arise as to the condition of the employee at the time the benefits were accepted; that it might be claimed that he was not then in a condition to make an intelligent decision, and in such a case the fact that he had agreed upon such benefits at the time of his employment and when he was in the full possession of all his faculties would help to sustain the act of acceptance. May this not have been one of the reasons for the action taken by Congress? If it is necessary to come back to the original contract in order to sustain the act of acceptance, then it is necessary to come back to a contract which the Congress has clearly declared to be a contract made between parties who do not stand on a level, and one party to which is presumably subject to the undue influence of the other.

The real heart of the question is whether the circumstances and situation are such that the lawmaking body has a right to say that the contract is made between parties one of whom has presumably an undue advantage over the other? In the case at bar the plaintiff employee was required to and did pay the sum of \$2 per month into the relief department. He alleges that he lost his arm, or a good part of it, through the negligence of the defendant. For that loss he received, according to the plea in bar, \* \* \* \$155 and an artificial arm, and this sum was due to him regardless of the question whether the company was negligent or not. On the other hand, of course, the company had agreed to contribute toward the fund and guaranteed the payment regardless of the question of its own negligence. The defendant has argued at length that these relief benefit contracts are of great advantage to the workman, but evidently Congress thought

otherwise, and if this case is a fair example of the returns to be received there will probably be many others who will share that view.

The fact should not be overlooked that although the employee has the option to reject the relief benefit contract after he is injured, if he does so he forfeits what he has paid under it. He is not placed back where he was at the beginning when he entered into the contract of employment.

The act, however, provides that while the amounts paid as relief benefits shall not bar the action they shall be credited to the defendant so far as they were contributed by the defendant, thus showing that Congress took note of the fact that the employee himself had contributed on his part to the relief benefit by the deductions from his wages, and intended that these shall not inure to the benefit of the defendant.

The Congress probably took notice of the fact that when the employee accepted the benefits he got nothing that he was not legally entitled to under the contract by which he became a member of the department. No new consideration passed to him. He was only ratifying the old contract which he entered into as a part of his employment. He was only exercising the option he had bought and paid for out of his wages. The consideration of his agreement was the contract of employment. The company said to him: "We will not employ you at all unless you come into this department. If you do come into it you will be entitled to share in its benefits." Now Congress says: "That is all right so far; but the provision in the contract that the employee, by accepting those benefits which he has bought and paid for, shall bar himself from recovering his real damages is unfair and against sound policy and shall be void. What is received under such a contract shall relieve the company only so far as it ought to be relieved." Can the court say there is no basis whatever for such a legislative decision? It is easy to see that it may be for the interest of the carrier to treat itself as liable in all cases of accident and injury to its employees, waiving the question of negligence, provided the amounts to be paid for such injuries are sufficiently low, and it may appear when the average is struck that the carrier has made an immense saving. If Congress thought that these relief benefits and insurance contracts tended on the whole to relieve the common carrier of a large part of the burden which they ought to bear, and threw the burden upon the public, that may have been a good reason for the passage of the act. Before the court decides that the act has no sound rational basis it ought to look at all possible reasons that may have induced Congress to adopt it. What Congress evidently intended to do was to cut up, root and branch, this whole attempt on the part of the employer to substitute its own determination of its liability and its own adjustment of the extent of that liability as far as the same were embraced in the original contract of employment, and to substitute for it an adjustment in open court, or at least an adjustment by the parties independent of such original contract. There is still another consideration that may have had weight with Congress. That body has attempted to secure a greater degree of safety to railroad employees by requiring railroads to use certain safety appliances and to abstain from the use of certain other appliances, such as old-fashioned couplings which maim and kill large numbers of their workmen. If railroads can disobey such laws and turn themselves into insurance

companies for the settlement of claims growing out of their violation of these laws, and fix the amounts to be paid at such rates as are shown by the plea in bar now under consideration, it may be very difficult to enforce such statutes at all.

Liberty of contract is certainly a very valuable right, but it may not be hard to understand, in view of all these considerations, how Congress came to look upon the so-called liberty of contract between the employee and the employer as theoretical rather than real, and to conclude that an act like this would be really in favor of liberty rather than against it. This court can not find it in its province to attempt to undo the work of the legislature in this humane act.

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**EMPLOYERS' LIABILITY—RAILROAD COMPANIES—FEDERAL STATUTE—INJURIES CAUSING DEATH—DAMAGES—*Duke v. St. Louis and San Francisco Railroad Company, United States Circuit Court, Western District of Arkansas, 172 Federal Reporter, page 684.***—Mrs. Clyde Duke had sued as administratrix, etc., to recover damages from the company named for the death of her husband, who was killed while in its employment as a brakeman. The action was based on the federal statute of April 22, 1908, (c. 149, 34 Stat., 65), relating to railroad companies engaged in interstate commerce. Judgment in the amount of \$17,545 was secured, and the company moved for a new trial. The court ordered a new trial unless Mrs. Duke should consent to remit all in excess of \$6,000 of the judgment, the evidence being to the effect that Duke's earnings, past and prospective, and the consequent loss of support to his family, would not warrant a larger recovery. The measure of damages was considered by the court in part as follows:

The deceased was 29 years of age. His life expectancy was about 36 years. He was married in 1900, at about the age of 20, and killed in a derailment while a brakeman on one of defendant's trains on the 28th of March, 1909. In the nine years of his married life (which embraced all of his adult years), while apparently industrious, he had spent several thousand dollars of his wife's estate, and all he had made himself, and his estate at his death amounted to about \$250. Before his marriage he had taught a country school, and had nothing when he married. After his marriage he had driven a team used in hauling (presumably his own). For a time he had stacked lumber at a sawmill, had farmed one year, and then began braking on a railroad. What his earnings were prior to going into the service of the defendant company, 33 months before his death, are not shown. During the 33 months of his service as brakeman in defendant's service his total gross earnings were \$2,139.92; the average monthly gross earnings \$64.84. After deducting certain sums held by the defendant company to pay for meals, hospital expenses, dues, etc., upon his order, the actual amount he drew from the company in cash was \$1,740.42, or a monthly average of \$52.74. This estimate does not cover the earnings during the month he was killed, which amounted to \$76.26, covering 26 days' service in that month. Out of the \$1,740.42 actually drawn should be deducted at least for his actual personal

expenses, such as clothing, food when not on the road, doctor's bills, medicines, and other incidental expenses. If one-third of the \$1,740 be treated as going to his personal expenses, then he could not have appropriated in excess of \$1,111.28 to his family during the 33 months next prior to his death, or an average of about \$34 a month, or \$408 per annum. Three per cent on the verdict would yield an annuity of \$526.35, and leave at the end of the life expectancy the entire amount of the verdict untouched. But it is said that, in addition to such sums as the evidence shows plaintiff appropriated to the support of his family, his children are entitled to recover for the loss of care, attention, instruction, and training resulting from the father's death, and the jury were so instructed. That seems to be the settled law in some of the States, including Arkansas. But I am driven to confess, upon a re-examination of this case, that I am unable to find any federal case which recognizes the doctrine to that extent, and it may be that the instruction is erroneous. I have, however, found two cases in the federal courts bearing upon the subject. In *Spiro v. Felton* (C. C.), 73 Fed. 91, Clark, district judge, held under a statute of Tennessee for an injury causing death, the recovery under the Tennessee statute being for the benefit of the widow and next of kin of the deceased, evidence of the number and ages of the children of the deceased is competent; and in *Baltimore & Potomac R. Co. v. Mackey*, 157 U. S. 72, 15 Sup. Ct. 491, 39 L. Ed. 624, under an act of Congress passed February 17, 1885 (chapter 126, 23 Stat. 307), under an act similar to the Lord Campbell Act, it was held that:

"It is not error to charge a jury that in estimating damages they may take into consideration the age of the deceased, his health and his strength, his capacity to earn money as disclosed by the evidence, his family and who they are what they consist of, and from all the facts and all the circumstances make up their minds how much the family would probably lose by his death."

And in that case the court say:

"The injury shown to a family, consisting of a widow and helpless young children, who depended for support entirely upon the labor of her husband and father, whose death was caused by the wrongful act of others, is much greater than would be done to any next of kin able to maintain themselves and who have never depended, and had no right to depend, upon the labor or exertions of the deceased for their maintenance."

An examination of the statute under which that decision is made will disclose that, though it is couched in different language, the substance is practically the same as the employer's liability act (act April 22, 1908, c. 149, 35 Stat. 65) under which the case at bar was brought, and it is expressly provided in that statute that the recovery shall inure to the benefit of the family of the deceased. This case so nearly supports the instruction to which I have referred that I should not feel inclined to disturb a verdict based upon the assumption that the instruction given by the court in this case was error. It is but a single step—it seems to me now a logical step—from the instruction given by the court to the principles recognized in the cases to which I have referred. It may be that upon an exhaustive examination I may find that the federal court does not go as far as the instruction went, and in that event, of course, this court will follow the federal authorities.

The state of Duke's health was then considered, the evidence showing that he had cough, night sweats, and fever. After stating these facts, the court said:

The case, as considered up to this time, is upon the theory that he was a sound man, and that there is no substantial reason why he might not live out his life expectancy; but the conditions just stated cannot be overlooked. In *Vicksburg & Meridian R. Co. v. Putnam*, 118 U. S. 556, 7 Sup. Ct. 3 (30 L. Ed. 257), the Supreme Court of the United States said:

"Life and annuity tables are formed upon the basis of the average duration of the lives of a great number of persons. But what the jury had in this case to consider was the probable duration of this plaintiff's life and of the injury to his capacity to earn his livelihood."

So, in the case at bar, one of the questions for the jury to determine was whether or not the deceased would live out the term of his life expectancy. If he would not, then no recovery could be had for any loss that might flow from his death to his widow and children beyond the life period of the deceased.

If his life was to terminate from disease in a few years at most, as the evidence tended strongly to indicate, then his earning capacity and his care and attention to his children must inevitably have terminated also. This uncertainty of his life makes it more difficult to determine what should be the maximum of his recovery, and leaves the mind of the court to lean towards setting aside the verdict in toto and to grant a new trial. But in the opinion of the court the verdict was for the right party, and the record free from any vital error affecting that right to recover. Naturally, therefore, the court feels that it ought to give the plaintiff the right to elect as to whether she will enter a remittitur, or take the chances of another verdict. Some of the States fix arbitrarily by statute the recovery in such case at \$5,000, and in some it is indefinite, depending on the proof, as it is under the employer's liability act under which this suit was brought. In the latter class of cases it is left to the sound discretion, good judgment, and varied experience of the jury, subject always to the supervision of the court.

Under all circumstances of this case, after the most careful thought and consideration, I have concluded that I would not have set aside a verdict for \$6,000, and if plaintiff will file a remittitur within two weeks reducing the verdict to the sum mentioned, I will enter judgment therefor; otherwise set aside the verdict, and grant a new trial.

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EMPLOYERS' LIABILITY—RAILROAD COMPANIES—FEDERAL STATUTE—INJURIES CAUSING DEATH—SURVIVAL OF RIGHT OF ACTION—*Fulgham v. Midland Valley Railroad Company, United States Circuit Court, Western District of Arkansas, 167 Federal Reporter, page 660.*—The plaintiff sued as administrator of the estate of E. C. Pogue, who was killed by accident while in the employment of the railroad company above named. The action was based on the provisions of the same statute as that considered in the Duke case

above. The principal point involved in the decision made by the court was as to the question of the survival of an injured employee's right of action to the personal representatives of the deceased employee where the injury resulted in death. The court held that the law in question made no provision for such survival; and since the common law provides for the extinction of actions for tort with the death of the person injured, judgment was for the defendant company. Judge Rogers, who delivered the opinion of the court, set forth the rule of law that where a federal statute is enacted affecting others it supersedes and takes the place of all state statutes on the subject, so that no action could be brought under the provisions of the federal law in question unless they were specifically provided for in that law itself, no statute of the State of Arkansas being available to supplement or indicate rights of action under the federal act.

The concluding portion of Judge Rogers's opinion is as follows:

It can not be that legislation so much discussed in and out of Congress, and which had to be so carefully matured and drawn in order to meet the views of the courts, legislation, too, which inherently shows the skill of the lawyer evidently familiar with the settled principles of the common law, which it modifies in the interest of justice and humanity, is not expressive of the will of Congress, or omits anything which Congress intended to do by it. It would have been so easy for Congress to have said, as the legislation of so many States had previously provided, that in the event the employee injured should die from the injury his cause of action should survive to his personal representative, that it can scarcely be conceived that the provision would have been omitted had Congress so intended. But whatever Congress may have intended, it has not done so, and the courts must confine themselves to the administration of the law, and neither add nor take from a statute where its language is clear and unambiguous. In the opinion of the court the right of action given to the injured employee by the act of April 22, 1908, does not survive to his personal representative in the event of his death, but, as at common law, perishes with the injured person. I might add that this conclusion is in harmony with the known purposes of the act, which was intended to make some provision for the unfortunate family of the deceased employee, and not to make provision for the creditors of his estate. Can it be supposed that Congress would make a railroad company the insurer of an employee, killed in its service, for the purpose of paying the debts the employee had incurred in his lifetime? And yet that would be the inevitable result if the contention of plaintiff's counsel is sound, for whatever is recovered on account of injuries sustained and for which the injured employee had a cause of action in his lifetime must go to his estate. Indeed, such is the prayer of the complaint in this very case.

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EMPLOYERS' LIABILITY—RAILROAD COMPANIES—FEDERAL STATUTE OF 1906—VALIDITY IN TERRITORIES AND DISTRICT OF COLUMBIA—*El Paso and Northeastern Railway Company v. Gutierrez*, Supreme Court of the United States, 30 Supreme Court Reporter, page 21.—This

case was before the Supreme Court on appeal from the supreme court of Texas, in which Enedina Gutierrez had been awarded damages in a suit as administratrix of the estate of Antonio Gutierrez. The deceased was an employee of the company named and met his death, as was alleged, because of the wrongful act of the company.

The question of the validity and application of the federal statute of 1906 (32 Stat. 232) was involved, the plaintiff contending that, inasmuch as the accident occurred after the enactment of this law, it was of controlling effect. A statute of New Mexico (chapter 33, Acts of 1903), within whose boundaries the accident occurred, was also considered, but since it has been abrogated by congressional action it will not be noted here, particularly since any effect it may have had was held to be subordinate to the power of Congress to legislate for the Territories.

The railroad company's contention that the federal statute was unconstitutional, in view of the rulings in the Employers' Liability Act cases, 207 U. S. 463, 28 Sup. Ct. 141 (see Bulletin No. 74, p. 216), was denied in the supreme court of Texas, whereupon the company appealed. The appeal resulted in the opinion of the Texas supreme court being affirmed, on grounds that appear in the following portion of the opinion of the Supreme Court, as delivered by Judge Day:

Coming to consider the merits: This court, in *Atchison, Topeka and Santa Fe R. R. v. Sowers*, 213 U. S., *supra*, held that in order to give due faith and credit to the territorial statute, under section 906 of the Revised Statutes of the United States, the plaintiff suing in a State must show compliance with the preliminaries of notice and demand as required by the territorial law. As the answer in the present case set up noncompliance with these requisites, and the state court sustained a demurrer thereto, the judgment must be reversed, unless the state court was right in denying the benefit of the territorial act thus set up, because the federal employers' liability act superseded the New Mexico law, and is constitutional so far as the Territories are concerned.

In view of the plenary power of Congress under the Constitution over the Territories of the United States, subject only to certain limitations and prohibitions not necessary to notice now, there can be no doubt that an act of Congress undertaking to regulate commerce in the District of Columbia and the Territories of the United States would necessarily supersede the territorial law regulating the same subject.

Is the federal employers' liability act of June 11, 1906, unconstitutional so far as it relates to common carriers engaged in trade or commerce in the Territories of the United States? It has been suggested that this question is foreclosed by a decision of this court in the Employers' Liability Act cases, 207 U. S. 463. In that case this court held that, conceding the power of Congress to regulate the relations of employer and employee engaged in interstate commerce, the act of June 11, 1906, (32 Stat. 232,) was unconstitutional in this, that in its provisions regulating interstate commerce Congress exceeded its constitutional authority in undertaking to make employers

responsible, not only to employees when engaged in interstate commerce, but to any of its employees, whether engaged in interstate commerce or in commerce wholly within a State. That the unconstitutionality of the act, so far as it relates to the District of Columbia and the Territories, was not determined is evident from a consideration of the opinion of the court in the case. In answering the suggestion that the words "any employee" in the statute should be so read as to mean only employees engaged in interstate commerce, Mr. Justice White, delivering the opinion of the Court, said:

"But this would require us to write into the statute words of limitation and restriction not found in it. But if we could bring ourselves to modify the statute by writing in the words suggested the result would be to restrict the operation of the act as to the District of Columbia and the Territories. We say this because immediately preceding the provision of the act concerning carriers engaged in commerce between the States and Territories is a clause making it applicable to 'every common carrier engaged in trade or commerce in the District of Columbia or in any Territory of the United States.' It follows, therefore, that common carriers in such Territories, even although not engaged in interstate commerce, are by the act made liable to 'any' of their employees, as therein defined. The legislative power of Congress over the District of Columbia and the Territories being plenary and not depending upon the interstate commerce clause, it results that the provision as to the District of Columbia and the Territories, if standing alone, could not be questioned. Thus it would come to pass, if we could bring ourselves to modify the statute by writing in the words suggested; that is, by causing the act to read 'any employee when engaged in interstate commerce,' we would restrict the act as to the District of Columbia and the Territories, and thus destroy it in an important particular. To write into the act the qualifying words, therefore, would be but adding to its provisions in order to save it in one aspect, and thereby to destroy it in another; that is, to destroy in order to save and to save in order to destroy." (211 U. S. 500.)

A perusal of this portion of the opinion makes it evident that it was not intended to hold the act unconstitutional in so far as it related to the District of Columbia and the Territories, for it is there suggested that to interpolate in the act the qualifying words contended for would destroy the act in respect to the District of Columbia and the Territories by limiting its operation in a field where Congress had plenary power, and did not depend for its authority upon the interstate commerce clause of the Constitution. The act in question is set forth in full in a note to Employers' Liability cases, 207 U. S. 490. We are concerned in the present case with its first section only. This section reads:

"That every common carrier engaged in trade or commerce in the District of Columbia, or in any Territory of the United States, or between the several States, or between any Territory and another, or between any Territory or Territories and any State or States, or the District of Columbia, or with foreign nations, or between the District of Columbia and any State or States or foreign nations, shall be liable to any of its employees, or, in the case of his death, to his personal representative for the benefit of his widow and children, if any; if none, then for his parents; if none, then for his next of kin dependent



upon him, for all damages which may result from the negligence of any of its officers, agents or employees, or by reason of any defect or any insufficiency due to its negligence in its cars, engines, appliances, machinery, track, roadbed, ways or works."

A perusal of the section makes it evident that Congress is here dealing, first, with trade or commerce in the District of Columbia and the Territories; and, second, with interstate commerce, commerce with foreign nations, and between the Territories and the States.

Coming to consider the statute in the light of the accepted rules of construction, we are of opinion that the provisions with reference to interstate commerce, which were declared unconstitutional for the reasons stated, are entirely separable from and in nowise dependent upon the provisions of the act regulating commerce within the District of Columbia and the Territories. Certainly these provisions could stand in separate acts, and the right to regulate one class of liability in nowise depends upon the other.

When we consider the purpose of Congress to regulate the liability of employer to employee, and its evident intention to change certain rules of the common law which theretofore prevailed as to the responsibility for negligence in the conduct of the business of transportation, we think that it is apparent that had Congress not undertaken to deal with this relation in the States where it had been regulated by local law, it would have dealt with the subject and enacted the curative provisions of the law applicable to the District of Columbia and the Territories over which its plenary power gave it the undoubted right to pass a controlling law, and to make uniform regulations governing the subject.

Bearing in mind the reluctance with which this court interferes with the action of a coordinate branch of the Government, and its duty, no less than its disposition, to sustain the enactments of the National Legislature, except in clear cases of invalidity, we reach the conclusion that in the aspect of the act now under consideration the Congress proceeded within its constitutional power, and with the intention to regulate the matter in the District and Territories, irrespective of the interstate commerce feature of the act.

While not binding as authority in this court, we may note that the act, so far as it relates to the District of Columbia, was sustained in a well-considered opinion by the court of appeals of the District of Columbia. (*Hyde v. Southern R. R. Co.*, 31 App. D. C., 466 [see Bulletin No. 78, p. 582].)

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**EMPLOYERS' LIABILITY—RAILROAD COMPANIES—FELLOW-SERVANTS—INSTANTANEOUS DEATH—SURVIVAL OF RIGHT OF ACTION—CONSTRUCTION OF STATUTE—*Dillon v. Great Northern Railway Company*, Supreme Court of Montana, 100 Pacific Reporter, page 960.**—This case was before the supreme court of Montana on appeal from the district court of Flathead County, in which Winifred Dillon, in behalf of herself and children, had obtained a judgment for damages against the company named, on account of the death by accident of her husband, Thomas Dillon, while in the employment of the company. Thomas Dillon was at the time of the injury causing his

death riding in a car of the company on its road, and was killed by the negligent acts of fellow-servants, who ran another train into the one in which he was riding. It was agreed in making the appeal that Dillon was without fault; that his death was instantaneous; that the negligence was the act of fellow-servants, and that the company itself was not negligent. Action was brought under the fellow-servant law of 1905, chapter 1, Acts of 1905, which provides for the abrogation of the defense of fellow-servants in cases of injury resulting from the neglect or mismanagement of employees in the use and operation of railways. The second section of the act is as follows:

SECTION 2. In case of the death of any such employee in consequence of any injury or damage so sustained, the right of action shall survive and may be prosecuted and maintained by his heirs or personal representatives.

On the facts shown, the court held that the law provided for no recovery, and reversed the judgment of the court below, remanding the case with orders that it be dismissed. The grounds on which this finding was based are set forth in the following extracts from the opinion of the court, which was delivered by Judge Holloway:

It was a rule at common law that, if one person was injured by the wrongful act of another, he had a right of action against the wrongdoer for damages sustained by him: (a) If the injured party died before bringing his action, the cause of action literally died with him; (b) if he brought his action, but died before judgment, the action abated with his death; (c) if the injuries were occasioned by the negligence of his fellow-servant, the injured party could not recover from the common employer, if that fact appeared. The rule is recognized and enforced in this country generally; in some of the States as a rule of the common law, while in others it is embodied in statutes. However, in practically every State the rule has been modified by abolishing subdivisions (a) and (b), and substituting in lieu thereof provisions by which, in case of the death of the injured party, his heirs or personal representatives may prosecute his right of action, and recover for the benefit of his estate. These statutes are commonly designated "survival statutes." In some of the States the rule is further modified by permitting recovery from the common master by one servant whose injuries are occasioned by the negligence of a fellow-servant. Statutes making this qualification are generally referred to as "fellow-servant statutes." The above rule of the common law, as modified by our general survival statute (section 6494), and our fellow-servant statute (sections 5251, 5252, Rev. Codes), has been recognized and enforced in this State. Every survival statute presupposes the existence of a cause of action in favor of the injured party. Such a statute does not create a new cause of action, but only carries forward the right which the injured party had before his death.

It was also a rule of the common law, generally speaking, that for the death of one person caused by the wrongful act of another there was not any remedy by civil action. Because of the harshness of this rule the English Parliament in 1846 enacted a statute (St. 9 and 10

Vict. c. 93), generally known as "Lord Campbell's Act." This act is the model after which a like statute has been enacted in nearly every State in this Union.

To mention the fact is sufficient to call attention to the marked distinction between an action prosecuted under the common-law rule first above mentioned and one prosecuted under Lord Campbell's Act. In the first case the injured party seeks compensation for his mental and physical pain and suffering, for medical attention, for loss of time, and for decreased earning capacity. In the second case the kindred seek compensation for such portion of the deceased's earnings as would have come to them had he lived, and, possibly, for the loss of companionship and the like. In the first case the damages sought are the damages which the injured party himself sustained. In the second case the damages sought are those which his kindred sustained.

But to avoid the defense that Dillon's injuries resulted from the negligence of his fellow-servants, this action is prosecuted under the provisions of our fellow-servant statute above. The act is carried forward into the Revised Codes as sections 5251 and 5252. It may be an open question whether the legislature intended to create a new cause of action, or only intended to abolish the defense of the negligence of a fellow-servant. But, assuming that it was the intention to create a new cause of action, our first inquiry then is: In whose favor does such cause of action arise? The title reads: "An act to determine the liability of persons or corporations operating railways or railroads in this State for damages sustained by employees thereof, and to declare void contracts restricting such liability." The avowed purpose is to provide for determining the liability of railroad companies to their employees for damages sustained by the employees, not for damages sustained by their heirs. The first section of the act emphasizes this view. Counsel for respondents, however, seem to rely chiefly, if not altogether, upon the second section; but we are unable to find any suggestion here which sustains their view. This second section is clearly a survival statute, and was intended for nothing else.

The manifest purpose of the whole act is to enable an employee of a railroad company to recover damages from the company for injuries inflicted upon him by reason of the negligence of a fellow-servant, and, in case death results from such injuries after the cause of action has accrued, then to enable his heirs or personal representatives to prosecute the action to judgment. If it was intended to create a new cause of action in favor of the heirs for damages sustained by them, the legislature certainly did not give any intimation of such intention in the title of the act, and securely concealed such intention in the body of the statute. The act does not create a cause of action in favor of the heirs.

Our general survival statute (section 6494 above) relates to a cause of action which "arose in favor of such party prior to his death." Section 2 of the act of 1905 provides that, in case of the death of the employee in consequence of an injury sustained as set forth in section 1, then the right of action for damages occasioned by such injury shall survive. It goes without saying that a thing which never existed cannot survive. In order that these heirs could have prosecuted this action under the act of 1905, which we have determined is a survival

statute, it was necessary that it appear that the cause of action arose in favor of Dillon himself prior to his death; and, as his death was instantaneous, it seems to us impossible that such a cause of action could arise in his favor for the wrongful act which caused his death, and, as such cause of action did not arise prior to his death, we hold that there was not any survival of a right of action. While the object of the act of 1905, in principle, is praiseworthy, it is couched in such language as to make it practically meaningless, or at least to so far obscure its meaning as to make it of little or no practical use.

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**EMPLOYERS' LIABILITY—RAILROAD COMPANIES—POWERS OF FEDERAL GOVERNMENT—CONSTITUTIONALITY OF STATUTE—*Hoxie v. New York, New Haven and Hartford Railroad Company*, Supreme Court of Errors of Connecticut, 73 Atlantic Reporter, page 754.**—William H. Hoxie, a train hand in the employment of the company named above, was injured by the negligence of a fellow-servant and sued to recover damages from the company. His action was based on the provisions of the federal statute of April 22, 1908, 35 Stat. 65, which abolishes the defense of fellow-service in actions for damages against railroads engaged in interstate commerce. The law is given in full in Bulletin No. 77, pages 413, 414. The questions of the constitutionality of the statute, the powers and status of state courts in the matter of the enforcement of federal statutes, and the determination of the authority of the state and Federal Governments in the control of employees within the States but employed in interstate transportation were discussed by the court on appeal.

The court below had decided against Hoxie on grounds involving jurisdiction and the constitutionality of the statute, and the appellate court affirmed such ruling. The reasons on which this conclusion was based are given in the following extracts from the opinion of the court, which was delivered by Judge Baldwin. After discussing briefly the relations of the state and Federal Governments, Judge Baldwin said:

We find, then, under our American system of government, each State possessing legislative power over most subjects, and having courts that may exercise a commensurate judicial power, and the United States possessing legislative power over a few subjects and having courts that may exercise a commensurate judicial power. The act of Congress now in question creates a statutory right of action. It is one not existing at common law, nor in chancery. It is one which, if warranted by the Constitution of the United States, may, under their general laws regulating the jurisdiction of the circuit courts of the United States (act Aug. 13, 1888, c. 866, 25 Stat. 433 [U. S. Comp. St. 1901, p. 508]), whenever damages exceeding \$2,000 are claimed, be made the subject of judicial proceedings in the courts of the United States as a suit of a civil nature arising under the laws of the United States without reference to the citizenship of the parties.

In view of these circumstances and conditions, two questions present themselves at the threshold of the present case. The first is whether Congress intended by this act to authorize the institution of an action under it in the courts of the States. The second is whether, if such were its intention, it had power to make it incumbent on the state courts to assume jurisdiction.

At common law a servant cannot recover from his master for injuries received from the negligence of a fellow-servant acting in the same line of employment. This is a part of that general American common law resting upon considerations of right and justice that have been generally accepted by the people of the United States, in administering which in any State the federal courts have not deemed themselves bound by the judicial decisions of that State as to what according to its common law are the limits of that doctrine there. The Supreme Court of the United States has treated it as a rule of general jurisprudence, especially when invoked in cases arising in the course of commerce between States, and as justly supported by the principle that negligence of a servant resulting in an injury to a fellow-servant does not of itself prove any omission of care on the part of the master in his employment, and only such omission of care can justify holding the master responsible. *Baltimore & Ohio R. R. Co. v. Baugh*, 149 U. S. 368, 378, 386, 13 Sup. Ct. 914, 37 L. Ed. 772. The common law had established the fellow-servant doctrine upon two main considerations: One, that above mentioned, viewing it as a rule of justice; and the other, viewing it as a rule of policy, in that it tended to make each servant more watchful of his fellows, and thus to promote the safety of all, as well as the efficiency of their common work. Congress has now seen fit to give an action where the common law denied it. It makes a demand legal, which the common law deemed impolitic. It is not lightly to be presumed that these provisions were intended to found original proceedings in the courts of the States and to lay down for them new rules, not only of right and policy, but of procedure. *Carpenter v. Snelling*, 97 Mass. 452, 458. Sections 4 and 6 of the act of 1908 clearly indicate that the action is one to be brought under the statute. The methods of procedure which are prescribed can all be easily pursued in the federal courts. Some of them it might be difficult or even impossible to follow in the courts of a State. Others could only be observed there at the cost of setting up in the same tribunal conflicting standards of right and policy and practice.

The question now under consideration is not whether Congress may not prescribe a new rule of right as to transactions occurring in the course of commerce between the States, to be recognized and to control the disposition of causes in all courts, state and federal. Undoubtedly it can. *Schlemmer v. Buffalo Railway*, 205 U. S. 1, 27 Sup. Ct. 407 [Bulletin No. 71, p. 385]. It would be a change in substantive law, and thus alter so far forth the law of the land. But the superior court was called upon to say whether the plaintiff could under the act of Congress of 1908 insist on its entertaining an original action, which could only be brought, if at all, under that act, and which could only be sustained by disregarding many of the requirements of our own law with respect both to pleadings and evidence.

We have then a statute plainly intended to give an action in the courts of the United States, and, assuming that it is not unconsti-

tutional, well adapted to that purpose. It is a statute not expressly purporting to give an action in a court of a State, and which in this State at least is not in harmony with our system of administrative justice. If it gives such an action, it can only be on the ground that as its terms are general, and do not exclude state courts, a right to sue in them is implied. Undoubtedly the courts of every State and of the United States together constitute in a certain sense one judicial system for the enforcement of legal rights; but it is not to be presumed that Congress would (if it could) require those of a State to enforce rights newly created by the laws of the United States, which can only be enforced by following modes of procedure not permitted by the state law, and opposed to the public policy which that law declares. (*Claffin v. Houseman*, 93 U. S. 130, 136, 23 L. Ed. 833.) Nothing short of express provisions or necessary implications in the language of an act of Congress could suffice to force upon a state court the exercise of a jurisdiction so incompatible with the legislation and practice which constitute its ordinary and natural rules of action.

It is true that under the present statutes of the United States no action under the act of 1908 would lie in a court of the United States unless the damages claimed exceeded \$2,000. Congress may, however, well be deemed to have had in mind the power of the plaintiff to claim what damages he pleases, and the rule that the sum named determines the jurisdiction. But, if Congress intended to give an action under the act of April 22, 1908, in the courts of the States, as well as in those of the United States, it is our opinion that the superior court was justified in sustaining the demurrer. The right to engage in commerce between the States is not a right created by or under the Constitution of the United States. It existed long before that Constitution was adopted. It was expressly guaranteed to the free inhabitants of each State by the Articles of Confederation (article 4) and impliedly guaranteed by article 4, section 2, Const. U. S., as a privilege inherent in American citizenship. [Cases cited.] The reserved powers of the States leave them charged with the sole duty and power of preserving public order and the security of persons and property within their territorial limits, except so far as, by or under the Constitution of the United States, it may be otherwise provided. A like duty and power exist with reference to the regulation of the private relations of employer and employee, and in general to the duties of common carriers. That a regulation so adopted by a State may incidentally affect commerce between the States does not render it invalid. [Cases cited.]

The State of Connecticut has under her laws, written and unwritten, so regulated the relations of employer and employee that no action can be maintained in her courts by a servant against his master for personal injuries sustained within her territorial limits through the negligence of one of his fellow-servants, nor for such injuries sustained through the negligence of the master, combined with that of the plaintiff himself, when the latter's negligence essentially contributed to the result, whether it were or were not as great as the master's. The servant of a common carrier falls within these rules. This is not because of the nature of his master's business. They apply to every servant and every master. If it be assumed that Congress has power to prescribe a different rule for accidents occurring in or outside of Connecticut in the course of running a railroad train between States,

and to create a new statutory action for its enforcement cognizable by the courts of the United States, it can not, in our opinion, require such an action to be entertained by the courts of this State. It would open a door to serious miscarriages of justice through confusing our juries if one rule of procedure were to be prescribed in one class of suits against an employer and another, diametrically opposed to it, in another class of them. It would also compel the courts established by a sovereign power, and maintained at its expense for the enforcement of what it deemed justice, to enforce what it deemed injustice. If Congress may thus change the common-law relations of master and servant by giving a new form and cause of action in the courts of the United States, it does not follow that they can give a servant a right to such a remedy in those of States where these relations remain unaltered.

The act of 1908, furthermore, if constitutional, enlarges the judicial power of the courts of the United States by giving in a certain class of causes a judicial remedy where none previously existed. This remedy is by a plenary action. If we understand correctly the position of the Supreme Court of the United States, no part of the judicial power of the United States, when it is to be exercised in the form of an original plenary action, can be vested in any court not created by the United States. In *Martin v. Hunter's Lessee*, 1 Wheat. 304, 330, 4 L. Ed. 97, it was stated that "Congress can not vest any portion of the judicial power of the United States except in courts ordained and established by itself." *Houston v. Moore*, 5 Wheat. 1, 27, 5 L. Ed. 19, which reaffirmed this position, was the subject of consideration in *Claffin v. Houseman*, 93 U. S. 130, 141, 23 L. Ed. 833, where it was held to have decided "not that Congress could confer jurisdiction upon the state courts, but that these courts might exercise jurisdiction on cases authorized by the laws of the State, and not prohibited by the exclusive jurisdiction of the federal courts." *Robertson v. Baldwin*, 165 U. S. 275, 279, 17 Sup. Ct. 326, 41 L. Ed. 715, in words previously quoted, pronounces it as the better opinion that the Constitution was intended to confine to courts created by Congress the trial and determination of cases in courts of record falling within the grant of federal judicial power. This case does not present the question which might arise if the State of Connecticut by appropriate legislation had accepted for its courts the jurisdiction which the plaintiff invokes. If he could then maintain his suit, it would be because the State had in effect granted him the right to sue. *Ex parte Knowles*, 5 Cal. 300. But, if Congress may authorize a state court to entertain a plenary action created by a law of the United States, it would not follow that the jurisdiction must be assumed. The judicial duty of the courts of a State is fulfilled when they administer justice as its laws require. If they may, when not prohibited by the statutes of their State, accept jurisdiction of statutory actions given by act of Congress, they are also free to decline it; and the objection may be taken by demurrer.

Thus far we have refrained from discussing the constitutionality of the act, except as to the single objection that, if it can be considered as intended to give an action in the courts of the States, it goes in that respect beyond the powers of Congress. In our opinion it also transcends them otherwise. By section 1 the rule of respondeat superior is extended so as to make the common carrier by railroad between

States responsible for an injury received by one of its servants in the course of his employment in interstate commerce, due in whole or part to the negligence of any of its officers, agents, or employees, whether they are or are not at the time themselves employed in such commerce. An interstate carrier is generally also an intrastate carrier. It may have a considerable force of officers, agents, or employees engaged in business that is wholly local.

Except so far as the act is a regulation of commerce between the States, its enactment was beyond the power of Congress. That it remotely affects such commerce is not sufficient, if that result is only to be secured by invading the settled limits of the sovereignty of the States with respect to their own internal police. The act can not be interpreted as referring only to negligence of employees while engaged in interstate commerce. It substantially reenacts in this particular the words of the previous Employers' Liability Act of June 11, 1906 (34 Stat. 232, c. 3073 [U. S. Comp. St. Supp. 1907, p. 891]), and must be presumed to have been drafted with knowledge of the judicial construction which those words had received. (The Employers' Liability cases, 207 U. S. 463, 500, 28 Sup. Ct. 141 [Bulletin No. 74, p. 216].)

The provision of section 5 that any contract between an interstate carrier and any of its employees in such business intended to enable it to exempt itself from any liability created by the act "shall to that extent be void" is in our opinion in violation of the fifth amendment to the Constitution of the United States as tending to deprive the parties to such a contract of their liberty and property without due process of law. The contract may be one made on a full consideration by an employee, or one seeking to become such, who is fully capable of understanding its meaning and effect. The employees of a railroad company are in general men of more than ordinary intelligence. The dangerous nature of the business requires and secures this. It can not be regarded as one made for the protection of train hands, for it covers every kind of employees. It denies them one and all that liberty of contract which the Constitution of the United States secures to every person within their jurisdiction. The act, it is to be remembered, does not confine itself to avoiding a contractual provision for exemption from liability for the negligence of the carrier's servants while engaged in carrying on the work of transportation. It avoids a provision for exemption from liability for the negligence of its servants while not engaged in carrying on the work of transportation, and even while not engaged in the line of their service, at all. The provisions of section 3 allow and apparently require the recovery of some damages, although the plaintiff's negligence was gross and that of his fellow-employee slight. If, as aptly suggested by the defendant's counsel, an engineer, hearing, but negligently disregarding, an automatic warning bell, should derail his train at a switch negligently left open by the man in charge, and the latter be struck by an overturned car, each could recover from the common employer for any personal injury, although it came from a plain violation of known rules, and the employer's loss from the consequent destruction of life and property were enormous. The doctrine of comparative negligence, as it has been generally understood where it obtains, is that slight negligence shall not defeat an action against one guilty of gross negligence. In the form assumed



by the act of 1908 it sanctions a recovery where the plaintiff has been guilty of gross negligence and the defendant of none at all. To hold the carrier liable in such case because of the imputed negligence of any officer, agent, or employee, whether the latter be at the time engaged in interstate commerce or not, seems to us not an appropriate or legitimate regulation of commerce between the States, but rather an arbitrary and unlawful deprivation of property within the meaning of the fifth amendment to the Constitution of the United States. It serves to confirm this conclusion that the liability thrown upon the carrier by section 1 is not confined to damages resulting solely from the negligence of its officers, agents, or employees. It is fixed and complete if such negligence contributes in any degree to the injury, although it be partly due to the act or omission of a mere stranger. There can be no contribution between wrongdoers. If, therefore, the carrier in such a case could be held under the statute, his property would be taken to pay for a wrong mainly, perhaps, done by one with whom it stood in no contractual relations, and who, except for this particular act, had no connection with commerce between the States. The act gives a remedy for injuries causing death, without limitation of the damages recoverable, in favor of the executor or administrator, the fund to be distributed in a manner which is inconsistent with the law of every State with respect to the devolution of the estate of a deceased person. In our opinion, Congress can not create such a right of action in favor of personal representatives of an inhabitant of a State. They are appointed or their appointment is approved, by authority of the State, exercised through some court to which they are accountable. If the damages recoverable are to be treated as representing estate left by the decedent, it is for the State of his domicile to regulate their distribution. If they are to be treated as a fund created by this act, which does not represent anything that ever belonged to the decedent, it was in our opinion not within the competency of Congress thus to bring into existence a new duty of executors or administrators to collect and a new duty of masters to pay what the decedent never owned. Such legislation falls solely within the sphere of the States. It does not appear that Congress would have enacted this measure without the provisions on which we have thus commented. These parts of the statute can not be severed from the rest, and their invalidity renders it wholly void, so far as it applies to the case before us. The Employers' Liability Act cases [supra].

A statute enacted in a jurisdiction where a written constitution obtains is *prima facie* presumed by its courts if its validity be questioned before them to be in accord with that constitution. Whether such a presumption exists, either in a state court or in those of the United States, in favor of an act of Congress which, if valid, reduces the limits within which the sovereignty of the States has for more than a century been freely exercised, and especially of this act, which by its title does not purport to be a regulation of interstate or foreign commerce, but simply to relate "to the liability of common carriers by railroad to their employees in certain cases," we need not inquire. If the statute under review has the support of such a presumption, that support is overthrown by the considerations previously stated.

To sum up our conclusions, the judgment of the superior court was right on each of the following grounds: (1) Congress did not intend by the act of April 22, 1908, to authorize the institution of an action under it in the courts of the States. (2) It had no power to make it incumbent on the state courts to assume jurisdiction of such an action. (3) The issues before the superior court involved the consideration of these points, which justified of themselves the dismissal of the plaintiff's action; but, further (4) the act, so far as it concerns this cause, is wholly void by reason of certain of its provisions which can not be separated from the rest.

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**EMPLOYERS' LIABILITY—RAILROAD COMPANIES—POWERS OF FEDERAL GOVERNMENT—CONSTITUTIONALITY OF STATUTE—***Watson v. St. Louis, Iron Mountain and Southern Railway Company, U. S. Circuit Court, Eastern District of Arkansas, Eastern Division, 169 Federal Reporter, page 942.*—This is an action brought under the federal Employers' Liability Act of April 22, 1908, to recover damages for the death of a fireman killed as was alleged by the negligence and wrongful acts of the conductor and engineer in charge of the train and locomotive on which the deceased was employed. The facts in the case were not disputed, the question turning purely on the point of the constitutionality of the above-named act of Congress. (For the law in full, see Bulletin No. 77, pp. 413, 414). Certain contentions of the defendant company were dismissed as having been already decided, the power of Congress to regulate interstate commerce being considered as fully determined in the Employers' Liability cases, 207 U. S., 463; 28 Sup. Court, 141; see Bulletin 74, pages 216 to 239. The claim that the present law is unconstitutional since it is restricted to common carriers by rail was disallowed, the statute being held not to violate the provisions of the fifth amendment of the Constitution with reference to proper classification and application of laws, citing *U. S. v. Delaware & Hudson Co.*, 213 U. S. 366, 29 Sup. Ct. 527. Reference was also made to the fact that state statutes relating to railway employment only are uniformly sustained as being within the powers of the state legislature without regard to the restrictions of the fourteenth amendment.

The constitutionality of this law was upheld, the opinion of the court being given by Judge Trieber, which reads in part as follows:

The object of Congress in the enactment of the law was to protect the men employed in this hazardous occupation, in which thousands are annually killed or maimed without any fault of the master himself, but by the negligence of other employees, over whom the servant has no control, and in whose selection he had no voice. The legislation is neither new nor revolutionary. A similar act was passed by the English Parliament as early as 1880, and among the States of the Union a large number have either abolished the fellow-servant rule entirely or modified it materially in respect to employees

engaged in hazardous occupations. Similar statutes have also been for a long time in force in most of the continental states of Europe. This evidences that such legislation is in compliance with the demands of an enlightened public opinion. To effect this purpose it is wholly immaterial what the employment of the fellow-servant is. Public opinion, as expressed through the legislative departments of the nation, as well as many of the States, evidently considered it an injustice that persons injured, or in case of death, the surviving members of the family, should become burdens on the public and objects of charity, and therefore considered it better public policy that the employer should be required to make some provision for them, charging the moneys thus expended to expenses of management, or cost of production, and collect it indirectly from the public. The enactment of such a statute not only results in protecting the employees of carriers by rail, but at the same time guards the public welfare by securing the safety of travelers. The latter is one of the reasons mentioned by the court in *Johnson v. Southern Pacific Ry. Co.*, 196 U. S. 1, 17, 25 Sup. Ct. 158 [Bulletin No. 56, p. 303], involving the safety appliance act.

The liability of the master for injuries caused by the wrongs committed by his servants while acting about the business of the master and within the scope of his employment is based upon the maxim of *respondeat superior*; but, when the fellow-servant rule was first established, it was held that this maxim does not apply so as to make the master responsible for injuries inflicted upon his servants by the negligence of a fellow-servant. The main reason assigned for this exception is that of assumption of risk.

If Congress has the power to abolish the rule so far as it applies to master and servant when engaged in interstate commerce, then the employment of the servant whose wrong or negligence caused the injury is clearly immaterial, as the liability of the master by the repeal of that rule is imposed by the maxim of *respondeat superior*. Congress having by the enactment of this statute abolished the fellow-servant rule as to employees while engaged in interstate commerce, such servant, when so engaged to serve a master who is a carrier by rail engaged in interstate transportation, does not undertake, as between himself and his employer, to assume the risk of negligence upon the part of a fellow-servant. And, in order to prevent the evasion of the provisions of this act, Congress, by section 5 (act April 22, 1908, c. 149, 35 Stat. 66), declares:

"That any contract, rule, regulation or device whatsoever, the purpose or intent of which shall be to enable any common carrier to exempt itself from any liability created by this act, shall, to that extent, be void."

As the powers of Congress are limited to those granted by the Constitution, and the only provision of that instrument authorizing such legislation is the commerce clause, and that is limited to "commerce with foreign nations and among the several States and Indian tribes," it can, of course, only legislate for the safety of those employed in those branches of commerce, and not in intrastate carriage. That is all the act under consideration attempts to do. It is limited to those who are in the employment of railroads engaged in commerce between the States and while they are actually engaged in such employment. What difference does it make what the employment

of the fellow-servant is—whether interstate or intrastate? The safety of the employees of an interstate train, as well as of the passengers intrusted to their care, can in no wise be affected by that. Congress having the exclusive power to regulate interstate commerce, that power necessarily includes the right to regulate the relation of the master and servant operating such trains and legislate for the safety of the employees. (*Johnson v. Southern Pacific Ry. Co.*, *supra*; *Schlemmer v. Buffalo, etc., Ry. Co.*, 205 U. S. 1, 27 Sup. Ct. 407 [Bulletin No. 71, p. 385]; *Employers' Liability cases*, *supra*.)

If the contention of defendant is sustained, the effect would be that although the employee of a carrier by rail engaged in interstate transportation is injured while engaged on an interstate train, if the cause of the injury was the negligence of a fellow-servant not engaged at the time in interstate work, Congress is powerless to provide for a recovery of compensation for the injuries suffered. Therefore, if an engineer or fireman on an interstate train is injured by reason of the negligence of a switchman or other employee of a train operated on a branch line, which is used exclusively for intrastate business, the failure of Congress to except such accidents from the provisions of the statute makes it unconstitutional as being in excess of its powers under the Constitution.

There is nothing in the *Employers' Liability* cases to warrant the construction claimed on behalf of defendant. What the court did decide in that case was that as the act under consideration included all employees of an interstate carrier, even if they (the employees) were engaged in an employment wholly disconnected from the interstate business, citing "employees of a purely local branch operated wholly within a State, employees in repair shops, construction work, accounting and clerical work, storage elevators and warehouses, not to suggest, besides, the possibility of it being engaged in other independent enterprises," and then held that:

"As the act thus includes many subjects wholly beyond the power to regulate commerce and depends for its sanction upon that authority, it results that the act is repugnant to the Constitution."

In *Northern Securities Co. v. United States*, 192 U. S. 197, 331, 24 Sup. Ct. 436, 48 L. Ed. 679, the contention was that the defendant was not a railroad company, that it was a corporation created by one of the States and its corporate powers limited to buying, selling, and holding stock, bonds, and other securities, and for that reason Congress had no power to regulate it; but the court held that, under the power to regulate commerce among the several States, Congress had the authority to enact the statute, and that it applied to the securities company. Another case in which one of the issues was very much like that now under consideration is *Loewe v. Lawlor*, 208 U. S. 274, 301, 28 Sup. Ct. 301 [Bulletin No. 75, p. 622]. It was there claimed that the Sherman antitrust act July 2, 1890, c. 647, 26 Stat. 209 (U. S. Comp. St. 1901, p. 3200), was not applicable, or, if applicable, not within the power of Congress to enact it, because the defendants were not themselves engaged in interstate commerce; but the contention was by the court overruled. The same conclusion was reached in *United States v. Debs* (C. C.) 64 Fed. 724, 745, 755, affirmed in 158 U. S. 564, 15 Sup. Ct. 900, 39 L. Ed. 1092.

Other statutes of similar nature have been repeatedly enacted by Congress, and, when questioned, sustained. Act July 3, 1866, c. 162, 14 Stat. 81, digested as sections 5353, 5354, 5355, Rev. St. (U. S. Comp. St. 1901, pp. 3637, 3638), makes it a criminal offense to transport or ship, by a carrier engaged in interstate transportation, dangerous explosives, regardless of the fact whether the shipment is interstate or intrastate, provided the carrier is at the time engaged in interstate transportation. The gravamen of the offense is to transport, or cause to be transported, any of the prohibited articles on any vessel or vehicle employed in interstate traffic. It was the passengers and employees on such vehicles or vessels whom Congress sought to protect, and under the commerce clause had the right to protect. The danger to them was as great if the explosion occurred from an intrastate shipment as an interstate. The constitutional limitation was fully met by confining the provisions of the act to vehicles employed at the time in interstate traffic. The constitutionality of this act seems never to have been questioned. In fact, the only reported case construing this act, which the court has been able to find, is *United States v. Saul* (D. C.) 58 Fed. 763.

It is well known that, while there may be some few railroads engaged wholly in intrastate traffic, there are practically none engaged in interstate transportation which is not also engaged in intrastate carriage of freight or passengers. To limit the liability of the railroad to its employees on a train employed in interstate traffic for injuries caused by fellow-servants engaged in like employment would in many instances make the act valueless and of no benefit to the employee.

The safety appliance acts make it unlawful to haul any car in interstate transportation not equipped with certain appliances deemed necessary for the safety of employees. When these statutes first came before the courts for construction, it was contended that they could only apply to carriers whose lines traverse more than one State; otherwise they would be in excess of the powers possessed by Congress. Some of the trial courts sustained this contention, but upon appeal it has been practically uniformly held that they apply to all railroads, although operating entirely within a single State, independently of all other carriers, if any interstate freight is carried on any car of the train. The test of the application of the act is held to be the transportation of any articles of interstate commerce, and, as thus construed, the act has been enforced as a constitutional exercise of the powers vested in Congress.

In view of the conclusions reached, it is unnecessary to determine whether that question can be raised by defendant in this case, as the complaint shows on its face that the accident was caused by reason of the negligence of the conductor and locomotive engineer of the train on which plaintiff's intestate was the fireman, and which train, it is alleged, was at the time engaged in interstate transportation.

In the opinion of the court the act in controversy is a valid exercise of the powers granted to Congress by the Constitution, and the demurrer must be overruled.

HOURS OF LABOR ON PUBLIC WORKS—MUNICIPAL CORPORATIONS—CONSTITUTIONALITY OF STATUTE—*Byars v. State, Criminal Court of Appeals of Oklahoma, 102 Pacific Reporter, page 804.*—This case involved the constitutionality of the law of Oklahoma, which provides that "Eight hours shall constitute a day's work in all cases of employment by and on behalf of the State or any county or municipality," repeating the words of the state constitution, section 1, article 23. The law provides also penalties for violation. G. L. Byars was convicted in the county court of Logan County of a violation of this law in connection with street paving work under contract with the city of Guthrie, and appealed, contending that the law was in violation of the right of contract and repugnant to the provisions of the fourteenth amendment of the Federal Constitution. There was no dispute as to the facts, the case turning entirely on the constitutionality of the act and of the provision of the state constitution. The court upheld the law and affirmed the judgment of the court below, on grounds that appear in the following extracts from its opinion, which was delivered by Judge Doyle.

Having recited the article of the constitution and the law, Judge Doyle said:

The foregoing provision of the constitution was formulated and adopted by the people of Oklahoma as a part of the organic law. The manifest purpose of this provision is to promote the industrial welfare of the people by fixing a high standard for employees on public work. The statute in question is clearly calculated to promote the purpose and public policy of the State as expressed in the constitution, and does not restrict or interfere with the right or liberty of the employee and employer to contract, and can only be regarded as a direction by a principal to his agent, and therefore as a matter of consideration to the principal and agent only. Oklahoma as a sovereign State is no less free as a party to contract than any person in the State, and the lawmaking power has the right to provide that contracts made by the State or any agent of the State shall be executed in conformity with the requirements of the constitution and the statute, and the only way to make such laws effective is to make their violation criminal. The State has declared by constitutional provision and by this statute that eight hours shall constitute a day's work in all cases of employment by and on behalf of the State or any county or municipality, and that all laborers or employees engaged in the service of the State or any county or municipality shall not work thereunder more than eight hours per day, and that any violation of the statute shall be punished as a misdemeanor. The State does not take away the property of the citizen or interfere with his personal liberty. The right by virtue of which the State regulates the use of its property is not only one of dominion and sovereignty. It is also the same in quality and character as the right of the person with whom it contracts, and, when the State engages directly or indirectly in the construction of public improvements, it may employ and refuse employment to whom it will, the same way and to the same extent that any

citizen may exercise this right in reference to his private and personal affairs. The right is the same in either case. This proposition is so elementary that a citation of authorities is unnecessary. A contractor bidding for work to be done by the State, county, or municipality understands in making his estimates that under the law eight hours per day is the maximum time which his employees may work. He can not be prejudiced for all other bidders on the same work have equal knowledge of the law governing the hours of labor to be performed on public work. It is obvious that otherwise an unscrupulous contractor would have an unfair and undue advantage over his law-respecting competitors who base their estimates upon, and intend to conform to the requirements of the statute. A contractor is not compelled to bid. He does so voluntarily with full knowledge of the restrictions imposed by the statute, and all contracts made by any agent of the State must conform to the provisions of the statute, and, if not actually inserted therein, they would still be as the law of the State a part of the contract.

The case of *Atkin v. State of Kansas*, 191 U. S. 207, 24 Sup. Ct. 124 [Bulletin No. 50, p. 177], is precisely in point on every question involved in the case at bar. The statute of Kansas is similar to ours. *Atkin* contracted with Kansas City to pave a public street in said city, and hired a laborer to shovel dirt for 10 hours a day in execution of the work. He was prosecuted and convicted. The case was tried upon an agreed statement of facts as in this case. He appealed to the supreme court of Kansas, which court affirmed the judgment, and sustained the validity of the statute. The case was then taken to the Supreme Court of the United States, where the judgment of the supreme court of Kansas was affirmed.

Judge Doyle quoted at length from the opinion in the *Atkin* case, one portion of which is as follows:

Such [municipal] corporations are the creatures—mere political subdivisions—of the State for the purpose of exercising a part of its powers. They may exert only such powers as are expressly granted to them, or such as may be necessarily implied from those granted. What they lawfully do of a public character is done under the sanction of the State. They are in every essential sense, only auxiliaries of the State for the purposes of local government. They may be created, or, having been created, their powers may be restricted or enlarged, or altogether withdrawn at the will of the legislature; the authority of the legislature, when restricting or withdrawing such powers, being subject only to the fundamental condition that the collective and individual rights of the people of the municipality shall not thereby be destroyed.

Quotations were also made from the case of *Ryan v. City of New York*, 177 N. Y. 271, 69 N. E. 599 (Bulletin No. 55, p. 1672), and the *Rodgers* case, 166 N. Y. 1, 59 N. E. 716 (Bulletin No. 35, p. 805), after which the opinion concluded:

The foregoing opinions and authorities therein cited set forth the true principles upon which this statute must be sustained. If the principles enunciated, and the conclusions therein reached are correct, and we believe they are, and hereby adopt them, they conclusively refute and fully answer the contention of defendant that the

statute under consideration in this case is unconstitutional and void. The constitution of Oklahoma expressly reserves to the State control over all public highways, including the roads, streets, and alleys of its municipalities. The opening, construction and maintenance of public highways is purely a governmental function, whether done by the State directly or by one of its municipalities, for which the State is primarily responsible. And it is immaterial whether such public work is paid for by the State, the county, the city, or by the benefited property owners. It is a work of a public, not private character. The manner of payment does not change the character of work.

For the reasons stated, the judgment of the county court of Logan County is hereby affirmed, and the cause remanded with direction to carry into effect the judgment.

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**INJUNCTION—STRIKES—BOYCOTTS—SECONDARY BOYCOTTS—PICKETING—***Pierce v. Stablenen's Union, Local No. 8760, et al., Supreme Court of California, 103 Pacific Reporter, p. 324.*—E. G. Pierce had procured an injunction against the union named in the superior court for the city and county of San Francisco, and the union appealed. This appeal resulted in some modifications in the injunctive order, which was, with such modifications, affirmed.

Judge Henshaw delivered the opinion, which states the facts in the case, and is reproduced practically in full:

Plaintiff conducted a livery, board, and feed stable in the city and county of San Francisco. The officers and representatives of defendant made request of him to "unionize" his stable by discharging his nonunion employees and employing union men in their places. Upon his refusal a strike of the union men was declared. Following the strike a boycott was decreed. A patrol about plaintiff's place of business was established, and, under the findings, these representatives of the defendants, the pickets, "called forth in loud, threatening, and menacing tones to the patrons and customers of plaintiffs not to patronize plaintiffs in their said business. Defendant, the Stablenen's Union, through its agents and representatives, has stated to, and threatened, patrons and customers and other persons dealing with plaintiffs that, if said patrons and customers and other persons continued to patronize and do business with plaintiffs, said Stablenen's Union would cause them respectively to be boycotted in their business." Menacing terms and threatening language were made use of by the agents, representatives, and pickets of the union toward the employees of the plaintiff, such as "Unfair stable, union men locked out, and nonunion men put in. Look at this stable; the only unfair stable on Market street; the stable that always was, and always will be, unfair. This is a scab stable. When we catch you outside, we will finish you. We will get you yet. It is a scab stable, full of scabs. We will fix you yet. It is a matter of time when we will get you all right. You will never get out of the stable alive. We will break you in half. We will beat you to death. When we catch you outside, we will finish you." A judgment for an injunction



followed upon these findings, and that judgment by its terms commanded the defendant, its agents, and employees to desist and refrain "from in any wise interfering with, or harassing, or annoying, or obstructing plaintiffs in the conduct of the business of their stable, known as the 'Nevada Stables,' and situated at No. 1350 Market street, in the city and county of San Francisco; or from in any wise molesting, interfering with, threatening, intimidating, or harassing any employee or employees of plaintiffs; or from intimidating, harassing, or interfering with any customer or customers, patron or patrons, of plaintiffs in connection with the business of plaintiffs, either by boycott or by threats of boycott, or by any other threats; or by any kind of force, violence, or intimidation, or by other unlawful means, seeking to induce any employee or employees of plaintiffs to withdraw from the service of plaintiffs; or by any kind of violence, threats, or intimidation inducing, or seeking to induce, any customer or customers, patron or patrons, of plaintiffs to withdraw their patronage or business from them, or from stationing or placing in front of said plaintiff's place of business any picket, or pickets, for the purpose of injuring, obstructing, or in any wise interfering with, the business of plaintiffs, or for the purpose of preventing any customer or customers, patron or patrons, of plaintiffs from doing business with them; or from in any other way molesting, intimidating or coercing, or attempt to molest or intimidate or coerce, any customer, patron, or employee of plaintiffs now or hereafter dealing with, or any employee now or hereafter employed by or working for, plaintiffs in their said business." This appeal is from the judgment.

The findings are not attacked. Certain objections to the complaint are presented upon demurrer, and these may be briefly disposed of. The complaint is sufficient to invoke the interposition of a court of equity. It is in this respect similar to the complaint considered in *Goldberg-Bowen Co. v. Stablemen's Union*, 149 Cal. 429, 86 Pac. 806 [Bulletin No. 68, p. 181]. The complaint alleges specific acts calling for preventive relief, and is not confined to mere generalities, as was the case in *Davitt v. American Bakers' Union*, 124 Cal. 99, 56 Pac. 775. The fact that certain of the acts charged amount to crimes, or threatened crimes, does not offer reason why equity will refuse to restrain them. While equity will not attempt to restrain the commission of a crime as such, the fact that an act threatening irreparable injury to property rights is of itself criminal does not deprive a court of equity of its right and power to enjoin its commission. (In re Debs, 158 U. S. 564, 15 Sup. Ct. 900; *Sherry v. Perkins*, 147 Mass. 212, 17 N. E. 307; *Vegelahn v. Guntner*, 167 Mass. 92, 44 N. E. 1077 [Bulletin No. 9, p. 197].) In like manner, while equity will not enjoin against a trespass as such, yet when the acts committed and threatened are in the nature of a continuing trespass, working irreparable injury, they will be enjoined. [Cases cited].

Appellants' principal contentions upon the appeal, however, are the following: First, that, as the controversy between these parties arises from and over a trade dispute, the court is powerless to grant any injunction, under the language of "An act to limit the meaning of the word 'conspiracy' and also the use of restraining orders and injunctions as applied to disputes between employers and employees in the State of California approved March 20, 1903 (St. 1903, p. 289, c. 235; Pen. Code, p. 581)"; second, that the boycott is a legal

weapon in a trade dispute, and therefore an injunction should not issue to restrain its use, or threatened use; third, that "picketing" as an adjunct to the boycott is itself legal, and may not be forbidden.

1. As to the first of these contentions, this court had occasion in *Goldberg, etc., Co. v. Stablemen's Union* [supra], to consider the statute above referred to and relied upon by appellants, and declared that, if the construction there contended for (and here contended for) was the proper construction, this provision of the act was void. Not only would it be void as violative of one's constitutional right to acquire, possess, enjoy, and protect property, but as well would it be obnoxious to the constitution in creating arbitrarily and without reason a class above and beyond the law, which is applicable to all other individuals and classes. It would legalize a combination in restraint of trade or commerce, entered into by a trades union, which would be illegal if entered into by any other persons or associations. It would exempt trades unions from the operation of the general laws of the land, under circumstances where the same laws would operate against all other individuals, combinations, or associations. It is thus not only special legislation, obnoxious to the constitution (article 4, 25, subds. 3, 33), but it still further violates the constitution in attempting to grant privileges and immunities to certain citizens, or classes of citizens, which, upon the same terms, have not been granted to all citizens (article 1, 21).

2. In considering the second proposition whether or not a court of equity may enjoin a "boycott," the meaning of the word is of primary importance. It is defined in 4 Am. & Eng. Ency. of Law (2d Ed.) p. 85, as follows:

"The boycott is a conspiracy, the direct object of which is to occasion loss to the party or parties against whom the conspiracy is directed, and the means commonly used in the inducing of others to withdraw from such party or parties their patronage and business intercourse by threats that, unless they so withdraw, the members of the combination will cause, directly or indirectly, loss of a similar character to them." Appellants announce their willingness to accept this definition, substituting the word "confederacy" or "combination" for "conspiracy." But the definition, even as so amended, it will be noted is not complete. The "means commonly used" are specified, but other means may be, and frequently are, employed. A boycott may adopt illegal means, thus become a "conspiracy," a word which imports illegality; or a boycott may employ legal means and methods, and thus be merely a legitimate combination by a number of men to accomplish, within the law, a legal result. The crux of the question and the strain in every case turns, then, upon the means employed.

We think that to-day no court would question the right of an organized union of employees, by concerted action, to cease their employment (no contractual obligation standing in the way), and this action constitutes a "strike." We think, moreover, that no court questions the right of those same men to cease dealing by concerted action, either socially or by way of business, with their former employer, and this latter act, in its essence, constitutes the primary boycott. But what acts organized labor may do, and what means it may adopt to accomplish its end, without violation of the law, have presented

questions of much nicety, over which the courts have stood, and still stand, widely divided. It would not be profitable to discuss and analyze these widely divergent cases. It is sufficient to formulate briefly the principles adopted in this State many of which have recently found elaborate expression in the case of *Parkinson v. Building and Trades Council of Santa Clara* (Cal.) 98 Pac. 1040 [Bulletin No. 81, p. 438]. The right of united labor to strike, in furtherance of trade interests (no contractual obligation standing in the way) is fully recognized. The reason for the strike may be based upon the refusal to comply with the employees' demand for the betterment of wages, conditions, hours of labor, the discharge of one employee, the engagement of another—any one or more of the multifarious considerations which in good faith may be believed to tend toward the advancement of the employees. After striking, the employee may engage in a "boycott," as that word is here employed. As here employed, it means not only the right to the concerted withdrawal of social and business intercourse, but the right by all legitimate means—of fair publication, and fair oral or written persuasion—to induce others interested in, or sympathetic with, their cause to withdraw their social intercourse and business patronage from the employer. They may go even further than this, and request of another that he withdraw his patronage from the employer, and may use the moral intimidation and coercion of threatening a like boycott against him if he refuse so to do. This last proposition necessarily involves the bringing into a labor dispute between A., and B. C., who has no difference with either. It contemplates that C., upon the request of B., and under the moral intimidation lest B. boycott him, may thus be constrained to withdraw his patronage from A., with whom he has no controversy. This is the "secondary boycott," the legality of which is vigorously denied by the English courts, the federal courts, and by the courts of many of the States of this nation.

Without presenting the authorities, which are multitudinous, suffice it to state the other view, in language of the President of the United States, but recently uttered: "A body of workmen are dissatisfied with the terms of their employment. They seek to compel their employer to come to their terms by striking. They may legally do so. The loss and inconvenience he suffers he can not complain of. But when they seek to compel third persons, who have no quarrel with their employer, to withdraw from all association with him by threats that, unless such third persons do so, the workmen will inflict similar injury on such third persons, the combination is oppressive, involves duress, and, if injury results, it is actionable." (President Taft, *McClure's Magazine*, June, 1909, p. 204.) Notwithstanding the great dignity which attaches to an utterance such as this, which, as has been said, is but the expression of numerous courts upon the subject-matter, this court, after great deliberation, took what it believed to be the truer and more advanced ground, above indicated and fully set forth in *Parkinson v. Building Trades Council*, etc., supra. In this respect this court recognizes no substantial distinction between the so-called primary and secondary boycott. Each rests upon the right of the union to withdraw its patronage from its employer, and to induce by fair means any and all other persons to

do the same, and in exercise of those means, as the unions would have the unquestioned right to withhold their patronage from a third person who continued to deal with their employer, so they have the unquestioned right to notify such third person that they will withdraw their patronage if he continues so to deal. However opposed to the weight of federal authority the views of this court are, that they are not unique may be noted by reading *National Protective Association v. Cumming*, 170 N. Y. 315, 63 N. E. 369 [Bulletin No. 42, p. 1118]; *Lindsay v. Montana Federation of Labor*, 37 Mont. 264, 96 Pac. 127 [Bulletin No. 78, p. 604], where the highest courts of those States formulate and adopt like principles.

It has been said that it is important to any correct understanding of, or adjudication upon, such questions that a definition of the word "boycott" should be first stated. Thus, to say that a boycott is a "conspiracy" immediately implies illegality, and puts the conduct of the boycotters under the ban of the law. So also does the definition which describes boycotting as "illegal coercion," designed to accomplish a certain end. As we have undertaken to define boycott, it is an organized effort to persuade or coerce, which may be legal or illegal, according to the means employed. In other jurisdictions where a definition is given to a boycott which imports illegality, the injunction will of course lie against boycotting as such. In this State the injunction will issue depending upon the circumstance whether the means employed, or threatened to be employed, are legal or illegal.

3. We are thus brought to consider the method of "picketing," the use of which appellants contend is a legal weapon in their hands. So far in this discussion we have dealt exclusively with the respective rights of the employer and of the employee. There are other parties, however, whose rights are entitled to equal consideration, and whose rights always become involved and imperiled when picketing is adopted as a coercive measure in aid of a boycott.

If the strikers have the right, as above indicated, to withdraw patronage themselves, and by fair publication, written and oral persuasion, to induce others to join in their cause, and finally by threat of like boycott, to coerce others into so doing, their rights go no further than this. It is the equal right of the employer to insist before the law that his business shall be subject at the hands of the strikers to no other detriment than that which follows as a consequence of the legal acts of the strikers so above set forth. It is not to be forgotten that when the employees have struck, they occupy no contractual relationship whatsoever to their former employer, and have no right to coerce him, or attempt to coerce him, by the employment of any other means than those which are equally open to any other individual, or association of individuals. No sanctity attaches to a trades union which puts it above the law, or which confers upon it rights not enjoyed by any other individual or association. The two classes of persons to whom we have adverted, and whose rights necessarily become involved where a picket or patrol is established, are, first, the rights of those employed, or seeking employment, in the place of the striking laborers; and, second, the rights of the general public. It is the absolute, unqualified right of every employee, as well as of every other person, to go about his legal business unmolested and unobstructed, and free from intimidation, force, or duress. The right of

a labor association to strike is no higher than the right of a nonunion workman to take employment in place of the strikers. Under the assurance and shield of the constitution and of the laws, the nonunion laborer may go to and from his labor, and remain at his place of labor, in absolute security from unlawful molestations, and wherever such protection is not fully accorded, their execution, and not the laws themselves, is to be blamed. In this country a man's constitutional liberty means far more than his mere personal freedom. It means that, among other rights, his is the right freely to labor and to own the fruits of his toil. (Ex parte Jentzsch, 112 Cal. 468, 44 Pac. 803, [Bulletin No. 6, p. 670].) Any act of boycotting, therefore, which tends to impair this constitutional right freely to labor, by means passing beyond moral suasion, and playing by intimidation upon the physical fears, is unlawful.

The inconvenience which the public may suffer by reason of a boycott lawfully conducted is in no sense a legal injury. But the public's rights are invaded the moment the means employed are such as are calculated to, and naturally do, incite to crowds, riots, and disturbances of the peace. A picket, in its very nature, tends to accomplish, and is designed to accomplish, these very things. It tends to, and is designed by physical intimidation to, deter other men from seeking employment in the places vacated by the strikers. It tends, and is designed, to drive business away from the boycotted place, not by the legitimate methods of persuasion, but by the illegitimate means of physical intimidation and fear. Crowds naturally collect; disturbances of the peace are always imminent and of frequent occurrence. Many peaceful citizens, men and women, are always deterred by physical trepidation from entering places of business so under a boycott patrol. It is idle to split hairs upon so plain a proposition, and to say that the picket may consist of nothing more than a single individual, peacefully endeavoring by persuasion to prevent customers from entering the boycotted place. The plain facts are always at variance with such refinements of reason. Says Chief Justice Shaw, in *Commonwealth v. Hunt*, 4 Metc. (Mass.) 111, 38 Am. Dec. 346: "The law is not to be hoodwinked by colorable pretenses; it looks at truth and reality through whatever disguise it may assume." If it be said that neither threats nor intimidations are used, no man can fail to see that there may be threats, and there may be intimidations, and there may be molesting, and there may be obstructing, without there being any express words used by which a man should show violent threats toward another, or any express intimidation. We think it plain that the very end to be attained by picketing, however artful may be the means to accomplish that end, is the injury of the boycotted business through physical molestation and physical fear, caused to the employer, to those whom he may have employed, or who may seek employment from him, and to the general public. The boycott having employed these means for this unquestioned purpose is illegal, and a court will not seek by overniceties and refinements, to legalize the use of this unquestionably illegal instrument. (*Vegelehn v. Guntner*, supra; *Crump v. Commonwealth*, 84 Va. 927, 6 S. E. 620, 10 Am. St. Rep. 895; *Union Pacific v. Ruef* (C. C.) 120 Fed. 124 [Bulletin No. 47, p. 967]; 18 Ency. of Law (2d Ed.) p. 85.)

In conclusion, then, and applying these principles to the injunction here under consideration, it appears that, while the injunction was properly granted, it was broader in its terms than the law warrants. It was, for example, too broad in restraining defendants from "in any wise interfering with" plaintiff's business, since the interference which we have discussed, of publication, reasonable persuasion, and threat to withdraw patronage, is legal, and such as defendants could employ. So, also, was the injunction too broad in restraining defendants from "intimidating any customer by boycott to threat of boycott" since, as has been said, the secondary boycott is likewise a legal weapon. In all other respects, however, the injunction was proper.

The trial court is directed to modify its injunction in the particulars here specified, and in all other respects the judgment will stand affirmed.

Judge Shaw dissented in part, saying:

I agree with all that is said by Justice Henshaw in his opinion, except the part relating to the so-called "secondary boycott" and the attempt to draw a distinction between the compulsion of third persons caused by picketing and the compulsion of third persons produced by a boycott. My views concerning the "secondary boycott" are expressed in my dissenting opinion in *Parkinson v. Building Trades Council* (Cal.) 98 Pac. 1040. The means employed for the coercion or intimidation of a third person in a "secondary boycott" are unlawful whenever they are such as are calculated to, and actually do, destroy his free will, and cause him to act contrary to his own volition in his own business, to the detriment of the person toward whom the main boycott or strike is directed; in other words, whenever the means used constitute duress, menace, or undue influence. Whether this coercion or compulsion comes from fear of physical violence, as in the case of picketing, or from fear of financial loss, as in the "secondary boycott," or from fear of any other infliction, is, in my opinion, immaterial, so long as the fear is sufficiently potent to control the action of those upon whom it is cast. I can see no logical or just reason for the distinction thus sought to be made. There is no such distinction in cases where contracts or wills are declared void, because procured by duress, menace, or undue influence. There should be none where actual injury is produced or threatened through such means acting upon third persons. Nor do I believe any well-considered case authorizes any such distinction. The opinions in the case of *National Protective Association v. Cumming* are devoted to a discussion of the right to strike, and the limitations of that right, and not to a discussion of the "secondary boycott." A close analysis of the cases on the subject will, as I believe, show that this court stands alone on this point.

For these reasons I do not agree to that part of the judgment directing a modification of the injunction. I believe that it should stand in the form as given by the court below.

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PAYMENT OF WAGES—SEMIMONTHLY PAY DAY FOR RAILROAD COMPANIES—CONSTITUTIONALITY OF STATUTE—*New York Central and Hudson River Railroad v. Williams*, *Supreme Court of New York*, 64 *Miscellaneous Reports*, page 15.—The commissioner of labor of the

State of New York, John Williams, sued the company above named to recover a penalty for its violation of a statute (chap. 442, Acts of 1908) which requires the payment of the wages of railroad employees semimonthly; an earlier law required monthly payments. A number of railroads undertook to secure an injunction to restrain the commissioner of labor from proceedings to recover the penalties provided, and the case of the company above named was brought before the supreme court, the question turning entirely on the constitutionality of the statute in question.

The law was held to be constitutional by Judge Betts, who delivered the opinion of the court, in the face of various contentions: First, that the law was retrospective in its effect and tended to impair the obligations of the contract made between the railroad company and its employees; second, that the effect of the law would be to deprive the company of its right of contract, which is property, and therefore within the protection of section six of article one of the state constitution and of the fourteenth amendment to the Constitution of the United States; third, because it restricted the right of the employee as well as of the employer to contract; fourth, because it discriminated between corporations and other employers, thus constituting class legislation and depriving corporations of equal protection of the laws; and, fifth, because it was a restriction upon interstate commerce. None of these contentions was held to be valid.

Judge Betts first reviewed the history of the legislation in question, covering a period of approximately twenty years, after which he said:

During this time legislation has been had in many other States, aside from New York, along the lines of the statute here assailed. In many of these States it is now provided, and has been for some time, that all corporations must pay the wages of their employees weekly, in some States every two weeks, some States semimonthly and in some States monthly. In the State of Massachusetts, in which this plaintiff's cars run and in which it does business, weekly payments of employees are compelled by statute. It appears here that this plaintiff does business in many other of the States of the United States, so that it undoubtedly is familiar with the fact of the changes in the laws of those States fixing a period at which employees of railroad corporations must be paid and making various short periods for such payments and providing penalties for noncompliance with such statutes. The judicial decisions concerning those statutes in those various States, and kindred labor statutes are in hopeless conflict. No good purpose could be served by attempting to reconcile them. From an examination of these decisions and those statutes it is apparent that the legislature of the State of New York had access to, and would be presumed to have knowledge of the facts of the progressive legislation that was being enacted in various places for what, may be perhaps termed the better assurance to the employees of corporations that their wages would be frequently, regularly and

promptly paid. It is a recognized fact of which the court can take judicial notice that frequent conflicts have occurred between employers and employees in this and other States. Various corporations have combined and from numerous, smaller corporations a great corporation has grown. That is the fact in the case of the plaintiff. It has grown to its present size by combinations of smaller railroad corporations. As the size of the corporations increase and the number of employees increase, of necessity, there is not that close contact on the part of the employer and employee that formerly obtained. The relation is more of a stranger, hence it is that with the distributed employees on over 2,000 miles of plaintiff's railroad in this State, it is not practical for the employees in all cases to apply to their employer for a change in the character of payment and in the time of payment as it would be were the railroad shorter, the employees less and the employer more easily approachable.

This corporation now has in its service upwards of 41,000 employees that it is alleged are subject to the provisions of these sections of the statute. These are the wage-earners. Taking into consideration the number of persons in the families of these 41,000 wage-earners who must be supported from the wages earned by those employed by this plaintiff and the further fact that nine other large railroad corporations in this State have brought similar actions against the same defendant for the same purposes, one of which alleges that it has over 35,000 employees that will be affected by the provisions of this statute and then taking into consideration the number of residents of this State who are dependent on the vast army of wage-earners of these corporations it will be seen that if the statute here assailed is class legislation it is legislating for a very large class or portion of the people of the State of New York. These facts are all to be presumed to be accessible and within the knowledge of the legislature in enacting these statutes.

This corporation owes its existence to the powers delegated to it by compliance with the statute of the State of New York passed in pursuance of the constitution of this State. We have seen that this constitution reserves the right to alter or amend statutes applicable to corporations. It has been held to be a valid exercise of the legislative power to amend the laws affecting corporations whether such amendments were directed to the corporation law or otherwise.

In *Berea College v. Kentucky*, 211 U. S. 45, a somewhat similar question to this was before the United States Supreme Court and in the course of its opinion the court held as follows: "The language of the statute is not in terms an amendment, yet its effect is an amendment, and it would be resting too much on mere form to hold that a statute which in effect works a change in the terms of the charter is not to be considered as an amendment, because not so designated."

The court of appeals held in *Lord v. Equitable Life Assurance Society*, 194 N. Y. 212-232 on this subject: "We think the act of 1908, so far as it is now before us, is a valid exercise of legislative power, forbidden by neither state nor federal Constitution. The authorities relied upon are not directly in point for the situation is without precedent, but it is clear that the tendency of authority, both state and national, is to hold that the legislature has wide latitude of amendment when the general power is reserved either by constitution or statute." (See also cases cited in that case.)



By the facts admitted in this case (upon which the case was tried, and is now being determined by me) it appears in the sixth paragraph thereof as follows: "Substantially all of the persons employed on and prior to the 20th day of May, 1908, are still in plaintiff's employ and were and are employed with full knowledge of the fixed rule and regulation of the plaintiff which provided and still provides for the payment to such employees respectively on or before the 20th day of each month of the wages or salary due them for the previous month.

From this established fact the plaintiff argues that the provisions of this law interfere with the provisions of an existing contract and is therefore unconstitutional. But the facts stated do not establish that the time of payment is such an ingredient or essential part of the contract of employment as would be affected by the provision providing for the semimonthly payment. It does not allege that the time of payment as now had by the company is a part of the contract but it is alleged that the company had such a rule and regulation and that the employee knew of it and entered into his contract with that end in view. So far as shown on this proceeding the plaintiff has no contract with its employees by which it could compel them to continue in its service if they were disposed to quit or by which the employee could compel the plaintiff to continue to furnish him labor if it desired to discharge him. In other words, these are simply contracts determinable upon the will of either party and the time of payment is a mere incident to that contract and not an essential part of it, so that this legislation does not interfere with the rights of either party under this contract.

It is also claimed on behalf of the plaintiff that it will be put to an expense aggregating the sum of \$5,000 more per month by paying semimonthly than it now has and it alleges that this is a taking of its property without due process of law. The court will assume that any amendment to the corporation law which would require any further or additional reports would entail some extra expense upon it, yet numerous amendments of that kind have been, and are constantly being made and they have never been declared void for that reason, nor are they.

The same means of ascertaining the progressive trend of public sentiment, as evidenced by the operations of legislative bodies, that was accessible to the legislature of the State of New York were and are accessible to this plaintiff, yet it has so managed its business that twelve times in a year it owes to its employees fifty days' wages. This is a condition which the legislature might well consider that the employees scattered over the 2,000 miles of its railroad were practically unable to remedy and that it properly called for legislative action for the improvement and betterment of the condition of a large class of citizens.

It may be that in its zeal to serve the public well and to earn dividends for its stockholders, the plaintiff has neglected to keep its methods of paying its employees abreast with the improvements which it has undeniably effected in caring for its patrons and serving the interest of its owners. It may be that some other way than the historic pay car which now traverses the road at the end of every month could be invented if proper ingenuity and study were directed to that end. The plaintiff does a cash business as a carrier of passengers. Every person who procures a ticket must pay before he

procures it. Its business of freight is very largely a cash business, so that it is in a position easily to pay cash and the court will take judicial notice that this cash is received by the company, not all from its New York terminal from which it starts its pay car but from its various stations along the road. The number of employees it has at these different stations, are many of them small. It might not be unreasonable for the legislature to conclude that the employees reporting to a certain station could be paid in cash by the station agent there, except where repair or car shops are, as well as to have the cash receipts remitted to New York and then sent back along the line of the road.

The requirement that the plaintiff must "pay" does not mean that the plaintiff must pursue its fleeing employees to remote parts of the State every fifteen days and there compel them, however unwilling they might be, to accept their wage. There are two parties to any payment, in this case the plaintiff and its employee, and the employee must do his reasonable part in the transaction. The law does not compel nor expect impossibilities. It would be fully complied with by having the cash accessible to the employee somewhere near where his work is.

The property of this railroad corporation is a property affected with a public use. It is a common carrier of freight and passengers, having obtained such powers as it possesses by virtue of statutes passed by the New York legislature.

Many of the employees of this corporation receive small wages. They must deal for the wants of themselves and their families with small retail storekeepers and buy in small quantities, hence the possession of cash will be a great advantage to them in obtaining the necessities of life and such luxuries as the extent of their wages and the number of persons dependent thereon will warrant. In addition to the large number of people that we have seen are employed by this plaintiff and those dependent on them the legislature may well have taken into consideration, the rights and needs of those storekeepers who supply them with their daily needs and the desirability of a more frequent payment for the benefit of that class of citizens.

The court can not inquire, and has no means of ascertaining all the reasons or motives that impelled the legislature to pass and the governor to approve these statutes here attacked. The court can not even determine if good judgment was exercised by the legislature, but the court can, from facts proven and other facts of which it can take judicial cognizance consider that there is a large class of people affected by this legislation and that agitation has been had along similar lines in this and other States for many years, that a more restrictive law has been on the statute books for many years, applying to other corporations and its constitutionality not attacked and that similar laws have been passed in other States and upheld, and from these facts conclude that a general demand for the passage of a law of this kind existed and that the legislature in order to promote the general welfare of a large number of citizens passed the acts here assailed.

The court will not determine that a law passed in pursuance of such demand and after such an inquiry as to the legislature would seem desirable and sufficient should be lightly interfered with. Judicial caprice should not be too hasty to charge legislative caprice.

Courts should rather assume that in its own way and manner and as a condition precedent to any action, the legislature had made a sufficient inquiry, recollecting that remedies for existing wrongs are to be provided by the legislature and not by the courts and if rightly provided, should be upheld by the courts.

I am of the opinion that these statutes are a valid exercise of the power reserved to the legislature to amend laws applicable to charters of corporations of the nature of the plaintiff in this action and that the law is not unconstitutional.

A more difficult question perhaps is presented as to whether these statutes are a proper exercise of what is commonly referred to as the police power of the legislature, which is a power outside of the constitution.

We have seen the large number of people who will be affected by these statutes, as to the time at which plaintiff's employees will receive their wages. It is for the interest of the State, of course, to see that its citizens are prosperous, healthy and comfortable and if the legislature after proper inquiry thinks that the physical welfare of a large number of citizens of this State would be promoted by a more frequent payment of the employees of steam surface railroad corporations, it is difficult to see why the court should interfere with such a disposition. In many States such legislation has been upheld as a valid exercise of the police power.

In *Holden v. Hardy*, 169 U. S. 366 [Bulletin No. 10, p. 387] the United States Supreme Court upheld a statute of Utah providing that the period of employment of workmen in all underground mines should be eight hours per day as being a valid exercise of the police power of the State and not in violation of the provisions of the fourteenth amendment to the Constitution of the United States. The court on page 392, quotes from the opinion of Chief Justice Shaw in the case of *Commonwealth v. Alger*, 7 Cushing 53, 84 as follows: "We think it is a settled principle, growing out of the nature of well-ordered civil society, that every holder of property, however absolute and unqualified may be his title, holds it under the implied liability that its use may be so regulated, that it shall not be injurious to the equal enjoyment of others having an equal right to the enjoyment of their property, nor injurious to the right of the community. All property in this Commonwealth, as well that in the interior as that bordering on tide waters, is derived directly or indirectly from the Government, and held subject to those general regulations, which are necessary to the common good and general welfare. Rights of property, like all other social and conventional rights are subject to such reasonable limitations in their enjoyment, as shall prevent them from being injurious, and to such reasonable restraints and regulations established by law as the legislature, under the governing and controlling power vested in them by the Constitution, may think necessary and expedient." The court says that this power legitimately exercised can neither be limited by contract nor bartered away by legislation. The court further says on page 397: "The legislature has also recognized the fact, which the experience of legislators in many States has corroborated, that the proprietors of these establishments and their operatives do not stand upon an equality, and that their interests are, to a certain extent, conflicting. The former naturally desires to obtain as much labor as possible from their employees, while

the latter are often induced by the fear of discharge to conform to regulations which their judgment, fairly exercised, would pronounce to be detrimental to their health or strength. In other words, the proprietors lay down the rules and the laborers are practically constrained to obey them. In such cases self-interest is often an unsafe guide, and the legislature may properly interpose its authority.

"It may not be improper to suggest in this connection that although the prosecution in this case was against the employer of labor, who apparently under the statute is the only one liable, his defense is not so much that his right to contract has been infringed upon, but that the act works a peculiar hardship to his employees, whose right to labor as long as they please is alleged to be thereby violated. The argument would certainly come with better grace and greater cogency from the latter class. But the fact that both parties are of full age and competent to contract does not necessarily deprive the State of the power to interfere where the parties do not stand upon an equality, or where the public health demands that one party to the contract shall be protected against himself. The State still retains an interest in his welfare, however reckless he may be. The whole is no greater than the sum of all the parts, and when the individual health, safety and welfare are sacrificed or neglected, the State must suffer."

The objection was also made that these statutes interfere with and constitute a restriction upon interstate commerce and are therefore void under the commerce clause of the Constitution of the United States. I do not see how they do so. Employees are employed by this corporation, which is a New York State corporation, and are paid by it. They would not render any poorer service if paid semi-monthly instead of monthly and as the plaintiff would under these statutes, at all times owe its employees for fifteen days' wages and for most of the time any number of days between fifteen and thirty it can not be said that requiring it to make this payment from fifteen to thirty days after the wages were earned would so cripple the corporation that it could not carry out its interstate-commerce engagements, nor that providing for such payment would in any way be an infringement of the commerce provision of the federal Constitution.

Considerable argument was had by the plaintiff that the statutes interfere with the freedom of contract, not so much on the part of the plaintiff as upon the part of its employees. As was said in *Holden v. Hardy* (supra) this objection might perhaps better come from the employees and no one appeared before the court urging that they should not receive the benefit of the statute. It does not interfere with the freedom of contract for the reason that the State in granting powers to a corporation can prescribe the terms upon which it may employ its employees and it grants its charter with this restriction the same as it grants it with other restrictions and other benefits and advantages to it and as we have seen may amend it. If the employees do not wish to work under the onerous provision of being required to accept their wages every fifteen days they can easily seek for and probably obtain employment elsewhere, but of this unwillingness the court has not heard.

The defendant is labor commissioner of New York State and his jurisdiction does not extend beyond its borders. This law applies only to citizens of this State and can be enforced only on behalf of its citizens.

I think that the enactment of the statutes in question is a valid exercise of the police power possessed by the legislature of this State and should be upheld.

It follows that the complaint should be dismissed with costs.

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**RAILROADS—SAFETY APPLIANCES—EQUIPMENT AND REPAIRS—**  
*United States v. Baltimore and Ohio Railroad Company, United States District Court, Western District of Pennsylvania, 170 Federal Reporter, page 456.*—This case was an action by the United States to recover a penalty for the alleged violation of the federal safety appliance act. The principles controlling are set forth in the charge of Judge Orr to the jury, of which the following is a syllabus, prepared by the court:

1. An action for penalty under the federal safety appliance act (act March 2, 1893, c. 196, sec. 1, 27 Stat. 531 [U. S. Comp. St. 1901, p. 3174]) is a civil case, and the Government is only required to prove its case by a preponderance of the evidence and not beyond a reasonable doubt.

2. If a railroad company hauls a car which is defective as to coupling appliances or grab irons or handholds, although the defective car does not contain any interstate traffic, yet if it is hauled in a train which contains another car that is loaded with interstate traffic, then the statute is violated.

3. The safety appliance act (act March 2, 1893, c. 196, sec. 1, 27 Stat. 531 [U. S. Comp. St. 1901, p. 3174]) imposes upon a railroad company an absolute duty to maintain the prescribed coupling appliances, grab irons, and handholds in operative condition, and is not satisfied by the exercise of reasonable care to that end.

4. The coupling and uncoupling apparatus on each end of every car must be in an operative condition.

5. Positive testimony is to be preferred to negative testimony, other things being equal; but where it was the duty of an inspector on the part of the railroad company to inspect cars, and he says that he did inspect the cars that came in and did not see certain defective appliances, that is not such negative testimony that it should not receive the same consideration, other things being equal between the witnesses, as positive testimony.

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**RAILROADS—SAFETY APPLIANCES—EQUIPMENT AND REPAIRS—**  
*United States v. Illinois Central Railroad Company, United States Circuit Court of Appeals, Sixth Circuit, 170 Federal Reporter, page 542.*—In this case the United States sought to recover a penalty from the railroad company named for alleged violations of the federal safety appliance law. Judgment had been against the company in the court below, whereupon an appeal was taken resulting in a reversal of the judgment and orders for a new trial. The point on which the reversal of judgment was ordered was as to whether or not the action in question was of a civil or criminal nature, the appellate court holding that

it was civil in its nature, differing therein with the ruling of the court below, and modifying vitally the rule as to the degree of proof required to determine liability.

The second point was as to the degree of care required in the maintenance of the condition of the appliances directed by the statute to be installed. On this point Judge Severens speaking for the court said in part:

The instruction given to the jury in regard to the measure of the duty imposed upon the railroad company by the provisions of the safety appliance act was in the main, but not altogether, substantially in accord with the construction which we gave to them in the case of *St. Louis & S. F. R. Co. v. Delk*, 158 Fed. 931, 86 C. C. A. 95 [Bulletin No. 77, p. 378]. It is urged, however, by counsel for the Government that our opinion in that case has been overruled by the opinion of the Supreme Court in the case of *St. Louis, Iron Mountain & S. Ry. v. Taylor*, 210 U. S. 281, 28 Sup. Ct. 616 [Bulletin No. 78, p. 578]. If this seemed to us with certainty to be so, we should of course be bound to yield our own opinion to the superior authority of that court. But if the judgment of the Supreme Court has not concluded the questions now presented, we think the duty incumbent upon this court is to follow its own decision, unless, indeed, it should become convinced that it was wrong. Thereupon, it will remain for the Supreme Court to determine whether the ruling it has announced is to be extended to facts such as those of the present case.

The question recurs, to what extent is a judgment of a superior court of controlling authority? We do not allude to that respect and confidence which is always due to every expression of opinion of the superior court from the subordinate court, but to those declarations of essential import resting upon the facts and leading to the conclusion manifested by the judgment. Declarations of law bearing upon the issues and indicating the proper judgment thereon are binding. The facts and law of the instant case only are in the eye and thought of the court. But expressions of opinion as to how the law would be upon facts essentially different from those in issue are not controlling, in another case when such different facts and issues are presented. These rules have been declared on many occasions by the Supreme Court itself, and no appellate tribunal has more strongly emphasized them. [Cases cited.]

In the case of *St. Louis, etc., Ry. Co. v. Taylor*, supra, the suit was an action to recover damages for a personal injury, and not a penal action such as is provided by section 6. It was founded upon the provisions of those sections of the act which relate to the subject of equipping the cars, and was not a prosecution for the use of such cars.

We gather from the facts stated in the opinion in the *Taylor* case that the defect in the couplings of cars existed when the cars started on their journey, and that plates of metal, called "shims," were provided for temporarily remedying the inequality in the height of the drawbars. If that was so, the railroad company was chargeable with notice of the defective condition of the drawbars when the cars were sent out, and was at fault in not putting them in order, and did not relieve itself by trusting to its employees the making of the temporary makeshifts.

We are of opinion that, when the Government has proved that a car laden for interstate traffic and with defective couplings has been hauled upon its tracks, the railroad company is bound to prove exculpatory facts, such as that it has used all reasonably possible endeavor to perform its duty to discover and correct the fault. We think, for example, that the court was in error in charging the jury that in the case of the cars coming from Mound City the jury might indulge the presumption that the appliances of the cars were in proper condition when they started, and that they remained so until such time as they were shown to be otherwise. We think the burden of proof was on the other party.

Now, as an original proposition we are unable to understand why it was, if Congress intended to enact such a law as it is now contended this law is, it should, after having proposed to itself the enacting a law "to promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their cars with automatic couplers," and having used fitting language to carry that purpose into effect and nothing more, have failed to declare that, having so equipped its cars with the couplings, the carrier should be required at all times and in all circumstances when in use to have them in effective condition. To hold that Congress has done this is to insert an interpolation into the act, and to make this interpolation such as shall require things confessedly impossible and to be apologized for by saying, as counsel for the Government insist that we should, the law is so written; that it is a matter for the legislature, and not for the courts, to determine. Is this a proceeding to be justified in order to make the statute mean what the counsel thinks the law ought to be? It seems clear to us that Congress, having accomplished its purpose by requiring carriers to equip their cars in the manner prescribed and to continue such equipment, was content to leave the incidents of their use to be regulated by the rules and principles of the common law.

#### DECISIONS UNDER COMMON LAW.

ASSIGNMENT OF WAGES—FUTURE EARNINGS—FUTURE EMPLOYMENT—REVOCATION OF POWER OF ATTORNEY—INTEREST—EQUITY.—*Cox v. Hughes et al.*, Court of Appeals, Third District of California, 102 Pacific Reporter, page 956.—Albert W. Cox had, in January, 1906, executed a power of attorney to the officers of a loan company, authorizing them to make out assignments of wages or salary, due or to become due in the course of his present or any future employment, such power of attorney to be irrevocable, being coupled with an interest so long as the said Cox remained indebted to the loan company. Various blanks and forms were filled out for the purpose of carrying out the purpose of making assignments of Cox's wages, and some of these were used by the loan company on August 1, 1907, in assigning to themselves wages earned by Cox during that month in an employment on which he had entered in October, 1906, having left the service of the employer with whom he was at the time he had

given the power of attorney. On August 15, 1907, Cox filed in the office of the county recorder a revocation of his grant of power of attorney, which, however, the loan company refused to recognize. Cox then instituted proceedings in equity to secure an order restraining Hughes, the resident manager of the loan company, from exercising any power under the instrument given in January, 1906. The answer of the loan company showed a continuing indebtedness and the interest of the loan company in the power given, to which answer Cox demurred, claiming that it was not sufficient to constitute a defense. The superior court of the city and county of San Francisco sustained the demurrer and gave judgment in Cox's favor, whereupon Hughes appealed, securing a reversal of the judgment.

The opinion of the court was delivered by Judge Burnett, and is of interest as presenting the common law on the subject of assignments of wages. The opinion is in the main as follows:

The main points of controversy may be presented as follows: Respondent, [Cox] in the first place, insists that we are dealing with a power of attorney which attempts to assign wages and salary to become due from any future employer by virtue of contracts of employment not in existence at the date of the execution of the alleged power of attorney, and that such an attempt is illegal and void as against public policy. Appellants [Hughes and others, for the loan company] admit that an assignment of wages to be earned in the future where there is no existing contract of employment is invalid because the assignor has no present interest, but they claim that there was an existing contract, and therefore that the possibility of obtaining such future earnings, though contingent and liable to be defeated, was coupled with an interest, and hence it was a vested right.

Among the cases cited by respondent in support of his contention, which may be taken as fairly illustrative of all, is *Lehigh V. R. Co. v. Woodring*, 116 Pa. 522, 9 Atl. 61, wherein it is said: "The attempt was to assign that which had no existence, either substantial or incipient. There was no foundation or contract on which an indebtedness might arise. It was the mere possibility of a subsequent acquisition of property. This is too vague and uncertain. It cannot be sustained as a valid assignment and transfer of property." The case was an action at law brought by the creditor to recover on the assignment; and, as the assignment did not transfer the mere possibility, it was rightly held that there was no sufficient basis for the suit. On the contrary, when there is an existing employment, the rule is as stated in 2 Am. & Eng. Ency. of Law, p. 1031: "An assignment of wages or salary to be earned under an existing employment made in good faith and for a valuable consideration is valid. It is immaterial in such a case that the assignor works from day to day, and is hired for no specified time, or that he works by the piece, and his wages per month vary, or that he is removable at any time." Indeed, we have the same principle enunciated in the provisions of the Civil Code. Section 1044 provides that "property of any kind may be transferred, except as otherwise provided by this article." And section 1045: "A mere possibility, not coupled with an interest, cannot be trans-



ferred." The chance that A. may be employed some time in the future by B., and thereby earn wages, is, of course, a mere possibility not coupled with an interest, and it does not possess the element of negotiability. But, if the employment already exists, the wages to be earned from such employment, although a mere possibility, is coupled with an interest in A., and therefore assignable under the Code and the authorities. The proposition is so obvious as to require no further exposition.

In the light of the foregoing, it is clear that at the time of the execution of the said power of attorney by plaintiff he had no assignable interest in the wages or salary that he might thereafter earn from his employment by Newman & Levinson, [on which he entered some months after executing the power of attorney]. Appellants are entirely mistaken in their contention that an existing employment by the Emporium [where Cox worked when he executed the instrument] changes the rule as to Newman & Levinson. It is the wages or salary that may be earned from the existing employment that can be assigned for the reason stated. But an existing employment can be no support for the assignment of what may possibly be earned from some other employment. If plaintiff could not legally assign the wages to accrue from a possible employment by Newman & Levinson, it must follow that he could not authorize any one else to make such assignment. This will not be disputed. Hence, if we were only concerned with the question of the legal sufficiency on said January 2, 1906, of the assignment or of the power of attorney attempting to authorize said assignment of said wages, the conclusion would be irresistible that respondent's position must be upheld.

Some other questions, however, demand attention. The revocation of said power of attorney is said also by respondent to justify the court's conclusion. Herein is a sharp issue between the parties involving the power of revocation. It is agreed that as a general rule the principal may revoke the authority of his agent so far as it relates to things concerning which the agency has not been executed, but that an exception exists where, as provided in section 2356 of the Civil Code, the power of the agent is coupled with an interest in the subject of the agency. Here the plaintiff declared the power to be coupled with an interest and irrevocable, and it was given as security for the payment of an indebtedness. The appellants had an interest in what was the subject-matter at the time of its execution, to wit, the wages to be earned from the existing employment. It is therefore clear that the power could not be revoked while that employment existed unless the debt were discharged. But, as we have already seen, plaintiff himself had no legal interest in the wages to be received from Newman & Levinson until the beginning of said employment. Prior to that time, therefore, he could not legally invest any one with an interest in said wages. Hence, up to the time of the second employment appellants' power of attorney, as far as the wages due from Newman & Levinson are concerned, was not coupled with an interest in the subject of the agency, and, in the absence of other circumstances, could be revoked. But, when the attempt was made to revoke it, the second employment had begun, and the agent had made an assignment while said employment was in existence.

The facts disclosed either expressly or by implication in the pleadings are that defendants advanced money to plaintiff upon the faith and assurance based upon a solemn promise in writing that defendants should be allowed to appropriate as they deemed advisable the future earnings of plaintiff until the debt was satisfied. Confiding in plaintiff's plighted honor, defendants advanced more money to respondent. We must assume that no advantage was taken of plaintiff, that there was no overreaching, no misrepresentation, no concealment, nothing unconscionable in the transaction; in other words, no infraction whatever of the principles of honesty and fair dealing. Indeed, it must have been a great accommodation to plaintiff for defendants to advance the money upon such uncertain security and without exacting excessive interest. After receiving the benefit of the confidence reposed in his fidelity, a court of equity will not aid plaintiff in the repudiation of his agreement, and will not unqualifiedly decree the cancellation of the written evidence of his moral obligation. Admitting the legal invalidity of the transaction to the extent that we have noted, and that defendants could not in an action at law recover the wages due from the Newman & Levinson employment, still, under the facts disclosed, plaintiff is entitled to no relief in this equitable action unless he is willing to pay defendants what is due. This follows from the familiar maxim of equity jurisprudence that he who seeks equity must do equity.

In *Ency. of Law*, supra, p. 1032, it is declared that "there can be no valid assignment of future wages where they constitute a mere possibility coupled with no interest. \* \* \* But, speaking generally, it may be said that such assignments are valid in equity when the consideration is meritorious and no rights of third parties intervene." In *Field v. Mayor*, etc., of New York, Am. Dec. 435, it is held that "the assignment of money to be earned by performance of a contract for work and materials, although a mere possibility, cannot operate immediately, but it becomes operative in equity when the subject-matter becomes existent or due." In *Edwards v. Peterson*, 80 Me. 367, it is held that an assignment of wages expected to be earned in the future in a specified employment, though not under an existing employment or contract, is valid in equity. The only possible answer to the foregoing is that a contract to assign future wages or salary is against public policy, and therefore void. But this position cannot be maintained. In the case of *Smith v. Atkins*, 18 Vt. 461, it is said: "It is argued that such contracts are so much against public policy that they ought not to be supported, but we think they are rather beneficial and enable the poor man to obtain credit when he could not otherwise do it, and that without detriment to the creditors." In *Mallin v. Wenham*, 209 Ill. 258, 70 N. E. 566, 65 L. R. A. 602, 101 Am. St. Rep. 233, it is said: "We cannot see that there is anything intrinsically vicious in an assignment of wages. The assignor in such case simply draws upon his future prospects to supply present needs, which may be of the most urgent and pressing character. There is no law in this State to prevent a poor person from mortgaging or pledging any or every article of property he possesses, as security for his debts, and such a privilege may be of great value." A person has the same right to assign his wages as he has to mortgage his homestead or to mortgage personal property that is exempt from execution. If he does not

choose to avail himself of the liberal exemptions which the statute provides, the courts cannot interfere in his behalf. It is universally held, as stated by Greenhood on Public Policy, that: "The power of the courts to declare a contract void for being in contravention of sound public policy is a very delicate and undefined power, and, like the power to declare a statute unconstitutional, should be exercised only in cases free from doubt." Before a court should declare a contract not *malum in se* opposed to sound public policy, it must be entirely satisfied that the public will be substantially benefited, and that such advantage is not merely theoretical or problematical.

Of course, if there was any element of fraud in the transaction by which defendant secured the power of attorney and assignments in controversy, the plaintiff should be permitted to amend his complaint and so allege, but, as the record shows, he has come into a court of equity relying upon his naked legal right without tendering or offering to pay what is justly due appellants, and not showing himself entitled to the generous aid of this comprehensive jurisdiction that looks to the morality and good faith of the transaction, and therefore we are satisfied the court erred in overruling the demurrer to the complaint and sustain the demurrer to the answer.

The judgment is reversed.

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**EMPLOYERS' LIABILITY—EVIDENCE OF NEGLIGENCE—EXCESSIVE HOURS OF LABOR.**—*McCrary v. Southern Railway Company, Supreme Court of South Carolina, 65 Southeastern Reporter, page 3.*—L. I. McCrary sued as administratrix to recover damages for the death of E. D. McCrary, a flagman on a train of the company named above, procuring judgment in the circuit court of common pleas of Richland County. From this judgment the company appealed, chiefly on account of the admission of evidence to which objection had been made. While the matter discussed by the supreme court was largely technical, one point involved the subject of requiring work for an excessive period, raising questions of the negligence of the company and of the contributory negligence of the employee under the circumstances described. The court refused to disturb the finding of the court below on any of the grounds urged, Judge Gary delivering the opinion.

That portion of the opinion which discussed the subject above mentioned is here reproduced.

McCrary was what is known as an extra flagman, having no regular run, but accepting employment as offered, under the rules of the company. On the morning of August 15, 1906, he went with an excursion train from Columbia to Walhalla, being absent from Columbia from 9 or 10 a. m. of the 15th until about 6 a. m. on the 16th. At 6 a. m., he was called for a run, but being entitled to 10 hours' rest he declined to go, but was called again between 9 and 10 a. m. to go with a wrecking train. Some opportunity was given for sleep

on the night of the 16th, and McCrary continued with the train on the 17th until in the afternoon, when he was run over and killed while lying, presumably asleep, with his head on a rail of the track.

The claim of the railroad company was that the evidence failed to show willfulness or wantonness or any negligence on its part, and that the only inference possible was that the deceased came to his death by reason of his own negligence. On these grounds it asked for a nonsuit, and the refusal of the judge to grant it was assigned as error. Speaking on this point Judge Gary said:

In the case of *Republic Iron & Steel Company v. Ohlet*, 161 Ind. 393, 68 N. E. 901, in speaking of the liability of a master to a servant who had lost an eye by reason of stivers[slivers] flying from an iron rod which he was holding while it was being hammered, after the servant had been continuously on duty for 48 hours, the court says: "It is not reasonable to assert that a man who had labored continuously for a period of 48 hours without sleep, or even for a much shorter time, is in his normal condition, or that he under the circumstances can properly exercise all of the faculties or sense with which he is endowed. The law of nature is inexorable in its demands. The cravings of hunger and nature's demands for sleep or rest must have consideration. A human being deprived of sleep for period which appellant was becomes dull in intellect and apprehension, and must necessarily be more or less unmindful of his surroundings." In the case of *Pennsylvania Company v. McCaffrey*, 139 Ind. 430, 38 N. E. 67, 29 L. R. A. 104, the court, in discussing whether or not a railway company is liable to an employee injured by reason of the absence from a train of part of the crew who had gone for their meals after being in service for nineteen hours without anything to eat, says: "Unless it be that a master has a right to require a servant to stand at his post of duty without food or rest for 19 hours every day, Sundays included, and that such conduct is not a breach of duty to the public as well as to its other servants, it follows that the appellant in this case has not performed its duty towards decedent without which it is liable if this negligence was the proximate cause of his death. That it was is clear. The law of nature is inexorable in its demands. The cravings of hunger must be appeased. The laws of humanity declare that every man fit to be a member of a train crew must have three meals, some rest, and eight hours of sleep a day. The appellant well says: 'Deprived of these requisites of intelligent life, a soldier becomes a coward; a workingman a crone.' Any being would lose his strength if worked a few months by the time schedule provided for this crew. Every statute and employer's rule is made in the presence of, and subject to, the laws of nature. Hunger, thirst, and sleep are imperative; and, when a schedule is made of 19 consecutive hours of service on a train, and no provision is made by the company for their supply of food, it is understood that the employees must of necessity at times during the service leave their places to get their meals. So that, when the engineer and conductor left the train after 13 hours of service on the day of the accident to get their suppers, it was in obedience to this law of nature, an overruling necessity, and was not therefore negligence

on their part." These cases are in accord with our own case of *Reed v. Railway*, 75 S. C. 162, 55 S. E. 218. [Bulletin No. 69, p. 450.] Accepting as correct the statement set out in the argument of the appellant's attorneys, it shows that there was testimony tending to show negligence on the part of the defendant, and that the evidence was susceptible of the inference that the plaintiff's intestate was not guilty of contributory negligence.

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**INJUNCTION—CONTEMPT—NATURE OF PROCEEDINGS—APPEALS.—***Gompers et al v. Buck Stove and Range Company, Court of Appeals of the District of Columbia, 37 Washington Law Reporter, page 706.*—This case was before the court of appeals on appeal from a decree of the supreme court of the District of Columbia finding Samuel Gompers, Frank Morrison, and John Mitchell guilty of contempt of court for the violation of an injunction, and sentencing them to terms in jail of twelve, six, and nine months, respectively. (See Bulletin No. 83, p. 169. For other proceedings in the same case, see Bulletins No. 74, p. 246, and No. 80, p. 124.) The decree was affirmed by a divided court, on grounds appearing in the opinions here reproduced practically in full. On account of the great interest in the case and the important diversity of views expressed, the dissenting opinion is also given.

Judge Van Orsdel, speaking for the court, said:

On the 19th day of August, 1907, a bill of complaint was filed by the complainant corporation in the supreme court of the District of Columbia praying for an order of injunction restraining certain parties, among whom were these defendants, from conducting a boycott against the business of complainant. On the 18th day of December, 1907, the temporary restraining order set forth in the petition herein was entered.

The bond required by the court to be filed to indemnify the defendants against any damage they might sustain by reason of the order, was filed by complainant on the 23d day of December, 1907. The temporary restraining order, therefore, did not become effective until that date. Thereafter, evidence was taken by the respective parties, and, on hearing, the court, on March 23, 1908, entered a decree making the temporary injunction perpetual as to the original defendants.

From the final decree making the temporary injunction perpetual, an appeal was taken to this court. No supersedeas bond was given nor any action taken by the defendants to stay the judgment. On hearing, this court (33 App. D. C., 84: 37 Wash. Law Rep., 154), modified the decree to read as follows:

The decree of injunction was then reproduced as modified, but as the decision of the court did not turn thereon, it is omitted. (See Bulletin No. 83, p. 169.)

Continuing, the court said:

This cause arose out of the alleged disobedience by these defendants of the decree of the court below. On July 20, 1908, complainant filed a petition in the original cause in equity charging the defendants, Samuel Gompers, Frank Morrison, and John Mitchell with willful and premeditated violations of both the temporary and perpetual injunctions, and with a total disregard of the same, and, in so doing, they are charged with acting in gross and willful contempt of the authority of the court.

On the same day the petition in the present case was filed, a citation was issued requiring the defendants, on or before the 8th day of September, 1908, to appear and show cause why they should not be adjudged in contempt of the order and decree of the court. Within the time allowed, the defendants appeared and answered separately, substantially admitting the facts alleged in the petition in so far as they directly applied to them individually or collectively; but each specifically denying any intention to disregard or treat with contempt the decrees of the court. As we shall later observe, the answers, in the state of this record, become of little importance in the disposition of this appeal.

A voluminous amount of evidence was taken by the respective parties. On hearing, the court entered the following decree:

"Now come the parties, by their attorneys, and the respondents, Samuel Gompers, Frank Morrison, and John Mitchell, in their proper persons, and this cause having been submitted to the court on, to wit, the 17th day of November, A. D. 1908, upon the petition of the complainant for a rule upon the respondents, Samuel Gompers, Frank Morrison, and John Mitchell, to show cause why they should not be adjudged in contempt, the answers of the said respondents and the testimony taken thereunder, and after full argument by the solicitors of the parties, respectively, and the same having been duly considered by the court, it now finds the fact to be that, on or about the 24th day of January, 1907, while the injunction pendente lite of December 18, 1908, was, and was by them known to be, in force, the said respondents published and caused to be widely disseminated a paper signed by them, and which they caused to be accompanied by another paper, therein referred to as an editorial from the February, 1908, *Federationist*, which papers, in violation of the express mandates of the said injunction, made reference to the fact that a boycott had been declared against the complainant, its business, and its product, and that organized labor had asked its friends to use their influence and purchasing power in aid thereof, alleged that the said injunction was an invasion of the liberty of the press and of free speech, and declared that it could not 'compel union men or their friends to buy the Buck's stoves and ranges,' and that 'for this reason the injunction will fail to bolster up the business of this firm, which it claims is so swiftly declining,' that on or about the 25th day of January, 1908, the respondent, John Mitchell, in like violation of the said boycott, combined with sundry persons, acting in aid of and in conjunction with himself and others of the defendants, in calling attention to the said boycott, and in giving notice that any one of the 300,000 members of the United Mine Workers of America who should purchase a stove of the complainant's manufacture should be fined therefor and expelled from the said organization if the fine were not paid; that in

April, 1908, when the permanent injunction of March 23d, 1908, was, and was by them known to be in full force, the respondents, Samuel Gompers and Frank Morrison in violation thereof, published in the said American Federationist and widely disseminated a letter signed by them and addressed to the numerous state branches and central bodies of the defendant, the American Federation of Labor, requesting them to 'bear in mind that an injunction issued by a court in no way compels labor or labor's friends to buy the product of the Van Cleave Buck's Stove and Range Company, of St. Louis. Fellow-workers, be true and helpful to yourselves and to each other. Remember that united effort in the cause of right and justice must triumph;' and the court further finds as a fact that the respondents, Samuel Gompers, Frank Morrison, and John Mitchell, are guilty of the several acts charged in paragraphs 17 and 26 of the complainant's petition; that the said respondents Gompers and Morrison are guilty of the several acts charged in the 16th and 20th paragraphs of the said petition; that the respondent Morrison is guilty of the acts charged in the 25th paragraph of the said petition; and that the respondent Gompers is guilty of the several acts charged in the 19th, 21st, 22d, and 23d paragraphs thereof.

"And, the court being fully advised in the premises, it is by it, this 23d day of December, A. D. 1908, considered that the said respondents, Samuel Gompers, Frank Morrison, and John Mitchell, are guilty of contempt in their said disobedience of the plain mandates of the said injunctions; and it is therefore ordered and adjudged that the said respondent Frank Morrison be confined and imprisoned in the United States jail in the District of Columbia for and during a period of six months, that the said respondent John Mitchell be confined and imprisoned in the said jail for and during a period of nine months, and that the respondent Samuel Gompers be confined and imprisoned in the said jail for and during a period of twelve months, said imprisonment as to each of said respondents to take effect from and including the date of the arrival of said respective respondents at said jail."

From this judgment the case comes here on appeal.

At the threshold of this inquiry, we are met with a motion filed by complainant to dismiss the appeal. This motion is based upon three grounds: first, that the judgment of the court below is reviewable by writ of error only, and not by appeal; second, that the record contains no bill of exceptions, agreed statement of facts, or other appropriate basis for review of the judgment in this court, and, third, that the appeal presents no case susceptible of review by this court upon the record therein.

No bill of exceptions has been preserved or appears in the record. The case was brought here by the defendants upon the theory that the judgment decreeing them guilty of contempt is in the nature of an interlocutory order made in the original injunction proceedings, and that the case should come here for review on appeal as part of the equitable proceeding. The motion, therefore, primarily raises the question whether this case can be reviewed upon appeal or whether it should have come here on error. Section 226 of the Code providing for appeals to this court is as follows: "Any party aggrieved by any final order, judgment, or decree of the supreme court of the District of Columbia, or of any justice thereof, including any final order or judgment in any case heard on appeal from a justice of the peace, may

appeal therefrom to the said court of appeals; and upon such appeal the court of appeals shall review such order, judgment, or decree, and affirm, reverse, or modify the same as shall be just." This provision of the Code embraces appeals in cases both at law and in equity, but it in no way affects the character of record necessary to obtain a review in this court. The record in a law cause must still contain a bill of exceptions, or its equivalent, to bring before the court the evidence and rulings thereon of the court below. (*Ormsby v. Webb*, 134 U. S., 47; *Met. R. R. Co. v. District of Columbia*, 195 U. S., 322.) The record, therefore, essential to properly present a law cause for review in this court, must be the same as if the case were brought upon writ of error instead of appeal. That being true, the general rule as to the preparation of the record applicable to the appeal of contempt cases in federal courts will apply to this court.

We are of the opinion that, under our practice, where the contempt is civil and the order adjudging contempt is made in the course of the original proceedings, the order may be treated as interlocutory, and may be considered as a part of such proceedings, and so treated, either upon the appeal of the original cause or upon a special appeal. Hence, if the contention of counsel for defendants is correct, the order being one made in the original injunction proceeding, if a civil contempt, would be appealable and reviewable in the same manner as the original cause.

The mere fact, however, that the alleged contempt was brought to the attention of the court by petition of the complainant, and not upon complaint of the prosecuting officer of the Government, is immaterial in determining whether the process issued thereon is civil or criminal. We are not concerned with the manner in which the court's attention was called to the offense, but with the proceedings after the court took cognizance thereof.

Blackstone (book 4, ch. 20), considering the general subject of crimes, treats contempt of court under the head of "summary convictions." The only distinction he makes between contempts and other misdemeanors is in the manner in which they are prosecuted. Enumerating the different species of contempt, he refers to "those committed by parties to any suit or proceeding before the court, as by disobedience of any rule or order made in the progress of a cause, by nonpayment of costs awarded by the court upon a motion, or by nonobservance of awards duly made by arbitrators or umpires after having entered into a rule for submitting to such determination. Indeed, the attachment for most of this species of contempts, and especially for nonpayment of costs and nonperformance of awards, is to be looked upon rather as a civil execution for the benefit of the injured party, though carried on in the shape of a criminal process for a contempt of the authority of the court. And therefore it hath been held that such contempts, and the process thereon, being properly the civil remedy of individuals for a private injury, are not released or affected by the general act of pardon."

It will be observed that the learned commentator is careful to limit civil contempts to the disobedience of orders made in the nature of civil execution for the benefit of the injured party. The commitment in such instances is upon civil process, and is coercive to compel obedience to the order. When the order is complied with, the restraint is at an end. We are not here confronted with such a case. This is an



alleged disobedience of a decree of injunction restraining the defendants from doing certain acts injurious to the complainant. It comes within the general classification of criminal contempts. The penalty is imposed by way of punishment, and is inflicted, not for the benefit of the complainant, but on behalf of the public to prevent a repetition of the offense in similar cases.

In the leading case of *Bessette v. W. B. Conkey Co.*, 194 U. S., 324, Mr. Justice Brewer, in distinguishing between civil and criminal contempts quoted with approval from the opinion of Judge Sanborn of the court of appeals of the eighth circuit in *In re Nevitt*, 54 C. C. A., 622, 632; 117 Fed., 448, 458, as follows: "Proceedings for contempts are of two classes, those prosecuted to preserve the power and vindicate the dignity of the courts and to punish for disobedience of their orders, and those instituted to preserve and enforce the rights of private parties to suits, and to compel obedience to orders and decrees made to enforce the rights and administer the remedies to which the court has found them to be entitled. The former are criminal and punitive in their nature, and the Government, the courts and the people are interested in their prosecution. The latter are civil, remedial and coercive in their nature, and the parties chiefly in interest in their conduct and prosecution are the individuals whose private rights and remedies they were instituted to protect or enforce. [Cases cited.] A criminal contempt involves no element of personal injury. It is directed against the power and dignity of the court, and private parties have little if any interest in the proceedings for its punishment. But if the contempt consists in the refusal of the party or the person to do an act which the court has ordered him to do for the benefit or the advantage of a party to a suit or action pending before it, and he is committed until he complies with the order, the commitment is in the nature of an execution to enforce the judgment of the court, and the party in whose favor that judgment was rendered is the real party in interest in the proceedings."

The distinction between civil and criminal contempts seems to be that where the order of the court is made in a civil proceeding solely for the benefit of one of the parties litigant and is disobeyed by the other party to the suit, an order committing such party for contempt until he yields obedience to the order is a civil proceeding. Such are orders requiring the payment of money or the performing of some act for the benefit of the opposing litigant, and are not matters in which the public is interested. Criminal contempts consist in such disobedience of the mandates or decrees of a court as constitute a defiance of the power and authority of the court. A disobedience or disregard of an order of injunction is usually treated as a criminal contempt.

Both the federal and state courts have generally regarded the disobedience of an injunctive order, where the order does not involve the performance of some act for the exclusive benefit of a party litigant, as a criminal contempt, and have universally refused, in the absence of a bill of exceptions, or its equivalent, appearing in the record, to consider the facts on appeal. A recent decision, strongly in point, is found in the case of *Continental Gin Co. v. Murrey & Co.*, 162 Fed., 873, in which the Murrey Company brought suit against the Continental Gin Company in the circuit court for the district of Delaware, alleging infringement of patents. The circuit court entered an interlocutory decree against the Gin Company for an injunction and

account. The injunction restrained defendants generally from making, using, or selling the articles with respect to which the infringement was alleged. Subsequently, on motion of the Murrey Company in the same proceeding, the plaintiffs in error were adjudged guilty of contempt for disobedience of the injunction and ordered to pay a fine of \$250 to the United States, and \$500 to the complainant as counsel fee and the costs of the proceeding. The matter was brought to the circuit court of appeals upon writ of error, but no bill of exceptions appeared in the record. Mr. Justice Moody delivering the opinion of the court held that, while judgment in contempt may be reviewed in the circuit court of appeals by writ of error, in the absence of the evidence adduced at the hearing of the contempt proceeding in the court below appearing in the record by bill of exceptions, "there is no record in the proper sense of the word in which the assignment of error can be applied, and in the further absence of any finding of facts or special verdict or request for ruling upon the facts or upon questions of law, there is nothing left in the record to consider except the motion for attachment, the order to show cause, and the judgment."

The order finding the defendants guilty of contempt was not an interlocutory order in the injunction proceeding. It was in a separate action, one personal to the defendants, with the defendants on one side and the court vindicating its authority on the other. In *Alexander v. United States*, 201 U. S., 217, a witness refused to answer certain questions and produce certain books, on the ground of immateriality, claiming immunity also under the fifth amendment to the Federal Constitution. The court overruled the objections, and ordered him to answer the questions and produce the books. The order left the witness no alternative but to obey or answer for contempt. The court held that the order was interlocutory in the original suit from which an appeal would not lie, but that if the witness had been punished for contempt, it would constitute a separate, independent action from which an appeal would lie.

The offense here charged is a criminal one, from which an appeal will lie; but the failure to include in the record a bill of exceptions or its equivalent closes the record so far as this inquiry is concerned, except as to the petition, answers, citation, and judgment. In the absence of a bill of exceptions, we must presume that the evidence was sufficient to establish the truth of each charge contained in the petition, of which the trial justice found the defendants guilty. Our inquiry, therefore, is limited solely to questions of law.

This brings us to a consideration of the charges contained in the petition. It appears, among other things, that between the date when the court announced its decision granting the temporary injunction and the date of filing the bond required by the complainant, the defendants Gompers and Morrison advanced the issue and circulation of the January, 1908, edition of the *American Federationist* and printed therein the name of complainant in the "Unfair" or "We Don't Patronize" list. For this, the trial justice found these defendants guilty of contempt. It is contended by counsel for defendants that the temporary restraining order did not become operative until the filing of the bond, and that, until the required undertaking had been filed, there could be no disobedience of the order. We need not

express an opinion on this point. The defendants were found guilty of circulating through the American Federationist, after the injunction became effective, the "Unfair" or "We Don't Patronize" list with complainant's name thereon, as published in the said January, 1908, and previous editions of that paper. It is charged, and found to be true by the trial court, that this circulation continued up to the date of the filing of the petition in this cause. It is also charged in the petition, and found to be true, that the defendants Gompers and Morrison published and circulated through the American Federationist articles calling the attention of the members of the American Federation of Labor and their friends throughout the country to the injunction issued by the court below in such a manner as to cause their followers to disregard and disobey the same, the intended effect of which was to injure and interfere with complainant's business and the sale of its product, and to restrain the membership of the American Federation of Labor and the public generally from patronizing the complainant and to continue and maintain the boycott against the business of complainant.

Then follow quotations from various issues of the paper named, after which the court said:

It will be observed that in each of the above publications, the members of the American Federation of Labor and their friends are combined together. This is most significant, and, in the conditions then existing, was manifestly intended to encourage and counsel a continuation of the forbidden acts.

It is charged in the petition that, on numerous occasions, while the injunction was in full force and effect, the defendant Gompers gave utterance to similar statements in public speeches. For example, in a speech delivered before a public gathering of working people on May 1, 1908, in the city of Chicago, Ill., Gompers said:

"I might say just parenthetically about the hatters' case that you are not now permitted to boycott the Loewe hats, but I want to call your attention to the fact that there is no law compelling you to wear a Loewe hat, nor has any judge issued a mandamus compelling you to buy a Loewe hat. That applies equally to Mr. Van Cleave's stoves and ranges. And, by the way, I don't know why you should buy any of that sort of stuff. I won't; but that is a matter to which we can refer more particularly in our organizations."

In a public address to the working people of New York City on the 19th of April, 1908, Gompers made the following statement:

"Of course, in the case of the Buck's Stove and Range Company, if I told you that the Buck's Stove and Range Company was still unfair, when I got back to Washington to-morrow, or some place where they say people play checkers with their noses—well, as I say, I am not prepared to tell you that these things are unfair. But there is no law, no court decision that compels you to buy them, nor does any law compel you to buy anything without the union label."

It was found by the court below to be a fact, not only that these statements were made as charged, but that they were made with the intent of inciting the membership of the American Federation of Labor and their friends to continue the boycott against the business of complainant in defiance of the decree of the court. The defendants

having been found guilty of the offenses above charged, in the absence of the evidence from the record, the sole question left for us to consider is whether, under the circumstances, they constitute contempt of court.

It must be remembered that the injunction affected directly and indirectly several millions of the people of the United States. The decree did not run alone against these defendants, but against about two million members of the American Federation of Labor throughout the country. Hence, it is proper to consider the effect of the acts of the defendants upon this membership and the persons who had been formerly prevented by the boycott from patronizing the complainant. While these acts, if they had affected only the conduct of the defendants, or if the injunction had been against them alone, might not have amounted to more than a comment or criticism of the action of the court, yet, if the remarks, when published and uttered, were such as to tend to inflame their followers into a feeling of resentment to the decree of the court and lead to disobedience of its commands, the defendants would be chargeable with contempt for producing this result. Contempt may be committed by innuendo and insinuation. It may consist in maliciously saying or doing anything that will have a tendency to induce others to disregard the authority of the court. While the publications and utterances before us may not, when literally interpreted, constitute a technical contempt, yet, if the manifest intent of the defendants was not only to disobey the order of the court themselves, but also to inspire their followers to do likewise, it may be regarded as a punishable contempt. We think it is this sort of an offense of which the defendants are here guilty.

The boycott waged by the American Federation of Labor against the business of complainant had become so acute and extensive that the terms "boycott," "unfair," and "we don't patronize," when used in connection with complainant's name, had acquired such a significance to the organization and its friends that the mere printing or uttering of the name in that connection was a signal to the membership and their friends not to deal with the complainant or persons having business relations with it. As Mr. Justice Robb said in the opinion of this court in the former case (33 App. D. C., 84), referring to the "Unfair" or "We Don't Patronize" list: "The court below found, and in this finding we concur, that this list in this case constitutes a talismanic symbol indicating to the membership of the Federation that a boycott is on and should be observed." The mere mention of complainant's name by these leaders in the columns of the Federationist or on the public platform in connection with the expressions "boycott," "unfair," or "we don't patronize" might tend to influence many to disregard the decree of the court, and thus become as effective notice to their followers as it had formerly been when published in the "Unfair" or "We Don't Patronize" list. We are convinced that the acts charged were committed by the defendants for the express purpose of nullifying the order of the court, in the belief that they were technically avoiding the charge of contempt. The acts of these defendants, taken as a whole, can produce in the mind of any reasonable person but one impression—a concerted, well-planned effort to encourage the membership of the American Federation of Labor and their friends to disregard and disobey the orders

of the court, and to create among their followers and their sympathizers a lack of respect for the authority and dignity of the court.

In paragraph eighteen of the petition, the defendant, John Mitchell, is charged with presiding over and taking part in the deliberations of a convention of the United Mine Workers of America on the 25th of January, 1908, at which a resolution was adopted placing the product of the complainant on the "Unfair" list, and fining any member of the organization five dollars for purchasing a stove manufactured by complainant; providing that for nonpayment of the fine, expulsion from the order should be imposed as a penalty. The defendant in his answer admits that he was present and presided over the convention, but disclaims any knowledge of either the consideration or passage of the resolution, until his attention was called to it by the filing of the petition herein. Upon this important issue of fact, owing to the absence of the evidence from the record, we must accept the conclusion of the trial justice as to the truth of these charges and the guilt of the defendant.

The adoption of this resolution could accomplish but one end, the perpetuation and continuation of the boycott. A labor organization can conduct an unlawful boycott as effectually by compelling its own members to refrain from dealing with the party boycotted, as by coercing others into similar action. The willful participation of the defendant being established, the act charged constituted a separate and complete offense, committed in open and brazen disobedience of the express commands of the court.

In addition to finding the defendants guilty of the foregoing offenses as charged, they were also found guilty of numerous other offenses charged in the petition. Since, however, the finding of guilt on the counts or charges above considered, is sufficient to support the judgment of the court, and the penalty imposed is not greater than could have been inflicted had they constituted the only offenses charged, it will not be necessary to consider the other offenses charged in the petition of which the defendants were found guilty. In a criminal proceeding where the accused is found guilty as charged under an indictment containing numerous counts, the judgment will not be reversed, though some of the counts are bad, if the good ones are sufficient to support the judgment.

In *Claasen v. United States*, 142 U. S., 140, where the defendant had been convicted of embezzlement on five different counts, the court considered the first count, which it found to be sufficient to support the verdict, and refused to consider the other counts, stating: "This count and the verdict of guilty returned upon it being sufficient to support the judgment and sentence, the question of the sufficiency of the other counts need not be considered. In criminal cases, the general rule, as stated by Lord Mansfield before the Declaration of Independence, is, 'that if there is any one count to support the verdict, it shall stand good, notwithstanding all the rest are bad.' (Peake v. Oldham, Cowper, 275, 276; *Rex v. Benfield*, 2 Bur., 980, 985. See, also, *Grant v. Astle*, 2 Doug., 722, 730.) And it is settled law in this court, and in this country generally, that in any criminal case a general verdict and judgment on an indictment or information containing several counts can not be reversed on error, if any one of the counts

is good and warrants the judgment, because, in the absence of anything in the record to show the contrary, the presumption of law is that the court awarded sentence on the good count only. \* \* \*” Applying to the case at bar this wholesome rule in the enforcement of criminal law, the order of the court below finding the defendants guilty of the offenses herein considered, of the petition, is sufficient to support the penalty imposed by the court. Hence, further consideration of this branch of the case is unnecessary.

That the supreme court of the District of Columbia has jurisdiction of contempt proceedings growing out of the disobedience of its lawful orders will be conceded. But it is contended that the court below exceeded its jurisdiction in entering the decree for the disobedience of which the defendants are held in contempt. On appeal this court modified that decree. It is insisted that the defendants are held for disobedience of those parts of the order of injunction which were, on appeal, eliminated. It is, therefore, urged that, inasmuch as the portions of the decree eliminated were held to be an invasion of the constitutional rights of free speech and a free press, under the first amendment to the Constitution of the United States, the court was, therefore, without jurisdiction, and the portion of the decree thus eliminated was totally void and not binding upon these defendants.

On the other hand, it is insisted by counsel for complainant that the court below had jurisdiction to hear and determine the injunction case and enter a decree therein restraining the defendants from continuing the boycott; that, having jurisdiction to enter such a decree, the modification thereof on appeal involved merely the correction of error, and can not affect the court's jurisdiction; and that the decree became a final and binding judgment against the defendants until reversed or modified on appeal.

On this point we find it unnecessary to express an opinion. As to the two specific offenses herein considered, the petition charges a direct violation of those provisions of the original decree which were on appeal affirmed and approved by this court. We need not, therefore, consider the effect of the alleged disobedience by the defendants of such parts of the original restraining order as were subsequently eliminated by us; hence, for the purposes of this case, we may dismiss all further reference to the first amendment to the Constitution of the United States.

With great eloquence, counsel urged at bar the high character of the defendants and the distinguished position which they have attained among their fellow-men, as matters to be considered by us in reviewing the judgment of the court below. Such an argument might with propriety be addressed to the pardoning power, but the court should not be biased by such considerations.

We have a deep sense of the far-reaching importance of this case. Three distinguished citizens, leaders in a great cause for the improvement and uplift of their fellow-men, with a larger following, probably, than was ever marshalled under single leadership in any philanthropic movement, are at the bar of justice to answer the charge of disobedience of an order of a court of the United States. We are not unmindful of the high position which the defendants have attained, but their intelligence forbids any inference or conclusion that the acts charged were committed by them in ignorance of their duty to the courts of

their country; hence, that excuse can not be advanced with convincing force.

The courts are the agencies appointed by the Constitution for dispensing justice and for the orderly adjudication of controversies arising from conflicting interests. There, all must stand upon exact equality. The law knows no distinction. The rich and the poor, the intelligent and the ignorant, irrespective of race or color, are entitled to equal protection, and the scales of justice should be balanced without favor or prejudice. Government, in its most liberal form, is harsh; law is restrictive; but organized government must exist for the preservation of society. Hence, whether just or unjust, correct or incorrect, the mandates of its appointed agencies can not be subjected to individual disrespect and disobedience. The sole question before us is the guilt or innocence of the defendants. The high distinction which they have attained, the fairness or unfairness of the Buck's Stove and Range Company and the larger organization to which it belongs, the National Manufacturers' Association, are not matters to be here considered. Neither are we, as a court of review, permitted to modify or extenuate the extreme penalty imposed. These matters, as we have suggested, may be presented properly to the officer vested with authority to commute or pardon.

Individual interests dwindle into insignificance when compared with the higher principle involved in this cause. The fundamental issue is whether the constitutional agencies of government shall be obeyed or defied. The mere fact that the defendants are the officers of organized labor in America, lends importance to the cause and adds to the gravity of the situation, but it should not be permitted to influence the result. If an organization of citizens, however large, may disobey the mandates of the courts, the same reasoning would render them subject to individual defiance. The one has no greater rights in the eyes of the law than the other. Both are subject to the law, and neither are above it.

The inherent power of the court to preserve an orderly administration of its affairs, and to enforce its orders and decrees, has always been recognized. In many instances, as in the case at bar, punishment for contempt is the only means by which the court can enforce its lawful decrees. With a proper exercise of this power, the purpose of its creation and organization is made effective; without it, it would become an impotent and a useless adjunct of government. If a citizen, though he may honestly believe that his rights have been invaded, may elect when, and to what extent, he will obey the mandates of the court and the requirements of the law as interpreted by the court, instead of pursuing the orderly course of appeal, not only the courts, but government itself, would become powerless, and society would soon be reduced to a state of anarchy.

The judgment is affirmed with costs, and it is so ordered. Affirmed.

Mr. Justice ROBB, concurring:

I concur in the opinion and conclusion of Mr. Justice Van Orsdel and desire to add but a word on one point. The contention is put forward that the opinion of the learned justice who awarded sentence below should be considered here, and that if it is it will appear therefrom that the finding of guilt and the fixing of punishment were based upon conduct of the defendants antecedent to the issuance of the restraining order. I agree with Mr. Justice Van Orsdel that we are

not at liberty to consider that opinion on this appeal. Assuming, however, that it is properly before us it seems to me clear that unless it is given a forced and unreasonable construction it will not sustain the above contention.

After a recital of facts tending to show predetermination to violate the injunction the learned justice below said: "Having in mind what may be in the foregoing delineation which indicates that either of the three respondents did before the issuance of the injunction deliberately determine to willfully violate it and did counsel others to do the same, let us now turn to their sayings and doings since the decision of Mr. Justice Gould was formally announced, and the order of injunction itself put into technical operation by the giving of the injunction bond."

This language, to my mind, conclusively shows that the conduct of the defendants antedating the injunction was considered only on the question of intent, which the court was entirely justified in doing. To hold otherwise would be to convict the court of ignorance of the law in holding the defendants guilty of violating an injunction long before it was issued.

Mr. Chief Justice SHEPARD, dissenting:

I am unable to concur in affirming the decree appealed from, for reasons which I shall state as briefly as I can.

1. As regards the conclusion that this proceeding must be regarded as criminal solely, and in consequence that the evidence upon which the conviction rests can not be considered, because not presented in a bill of exceptions reserved on the hearing, I will content myself with saying that I am not clearly convinced that it must be so regarded. The complaint was made by the complainant on whose behalf the injunction had been granted and for its own redress. No fine was imposed on behalf of the United States. The relief sought in the original bill was not pecuniary. The punishment by imprisonment for disobedience of the writ was the only way in which the relief sought could be secured. For these reasons the proceeding might well be regarded as ancillary to the main suit, the order as one entered in execution of the decree made therein, and therefore the evidence might not only be taken but considered also in accordance with the practice in equity cases, notwithstanding the fact that the language contained in the opinion of the trial justice and the unusual severity of his sentence indicated that he regarded the proceeding as punitory and not remedial.

2. Assuming that the proceeding is criminal in its nature, there being no bill of exceptions, the presumption follows that the allegations of the complaint found to be true, were supported by satisfactory evidence. Whether the record of complaint and decree upon which the case has been considered may be supplemented by the opinion of the court, filed in the cause and made a part of the record, is a question that will be considered later.

The complaint consists of twenty-six paragraphs. It has been ordered to be printed in the report of the case, and need not be repeated or summarized. An examination of it will show that the first fifteen paragraphs charge conduct and language used by respondents in public meetings, long antedating the commencement of the original suit; some occurring in the year 1897 and long before any controversy had arisen. The sixteenth paragraph is the first that charges any act subsequent to the order for the injunction, and in disobedience thereof



the order was announced December 17, 1907, and entered on December 18th, directing the injunction to issue upon the execution of a bond in the usual form by the complainant. The order was to the effect that the injunction "shall be in full force, obligatory, and binding upon the defendants," etc., provided the complainant shall first execute the necessary bond. This order was in compliance with equity rule 42, of the supreme court of the District of Columbia, which makes the execution and approval of the bond a "precedent condition."

This bond was not given until December 23d. The specific charge is that after the granting of the order and before the giving of the bond, the respondents, Gompers and Morrison, hastened to deposit in the mails the already printed January number of the American Federationist, which contained the publication of complainant's name in the "unfair list." It is not charged that any subsequent issue of the journal contained a similar publication. Some general allegations respecting the circulation of the January number of the journal are too vague to form the foundation of a criminal charge and conviction. The gist of the charge is this "rushing" of the journal in the mails between December 17th and 23d. The decree convicting the respondents can not be supported on this charge because the order for the injunction did not become operative and effective before compliance with the precedent condition.

In the earlier equity practice an injunction was issued without bond, and was, therefore, effective from the moment of granting the order. In such case if an injunction was improvidently granted, the defendant had no redress for the injuries he might sustain thereby. To remedy the great mischief resulting from this practice courts of equity began to require bonds when in their discretion it seemed just to do so. But modern statutes and rules of court authorized by statute have, in general, gone much farther and required bonds as conditions precedent to the taking effect of the order. Equity rule 42 is one of these. Adopted by express authority of Congress, it has all the force of a statute. Until the bond be given, the order for the injunction is clearly inoperative, without effect or obligation. This has been held by the court which promulgated the rule. *Lamon v. McKee*, 7 Mackey.

This question was reconsidered by this court in a recent case and the same conclusion reached. *Drew v. Hogan*, 21 App. D. C., 55-62. Similar statutes and rules have received the same construction throughout the country. *Clark v. Hoome's Exrs.*, 2 Hen & Munf. (Va.), 23; *Winston v. Nayson*, 113 Mass., 411-421; *Diehle v. Frieston*, 37 Ohio St., 473; *Elliott v. Osborne*, 1 Cal., 391; *State ex rel. v. Commissioners*, 35 Kan., 150-155; *State ex rel. Wilson v. Commissioners*, 42 Kan., 739-748; *Van Fleet v. Stout*, 44 Kan., 523, 525; *Pell v. Lander*, 8 B. Mon., 554, 556; *Davis v. Dixon*, 1 How. (Miss.), 64-67; *State ex rel. Downing v. Greene*, 48 Nebr., 327-332; *Marlatt v. Perrine*, 17 N. J. Eq., 49-51; *Lowton v. Richardson*, 115 Mich., 12; *Carpenter v. Keating*, 10 Abbott Pr. N. S., 223.

3. Coming now to the remaining paragraphs, excepting that relating to the respondent John Mitchell, I find that they contain references to the effect of the injunction, in an "urgent appeal" to the friends of the labor organization to aid with funds in the prosecution of an appeal from the order, as well as declarations in speeches made in public meetings. In the view of my brethren these show an express

contempt of the court granting the injunction, as well as an attempt to incite others to disobey it. There is no allegation that any act enforcing the boycott which had been enjoined, has been committed by the respondents or any of their adherents. So far as it was declared that the injunction did not compel anyone to purchase the goods of the complainant, the declaration was the statement of a fact. The language was in bad taste, under all the circumstances, but seems to have been directed to the assertion of the right of free speech and free publication for which the respondents were then and are now contending. Had these publications and speeches been followed by acts renewing or continuing the boycott, as that had been defined by this court, I grant that they might have been considered as circumstances, among others, tending to show that they were intended to incite others to disobey the injunction. That they were not so regarded by those so completely under the influence of the respondents, affords some inference that they were not so intended.

The last paragraph (26) is so general and vague that it can not form a sufficient foundation for a judgment of conviction of crime. It seems to be the statement of a general conclusion from the facts previously charged, in the nature of a general conclusion of an ordinary common law indictment.

In the opinion of the majority of the court it is substantially conceded that some of the charges in the complaint of which respondents were found guilty do not show anything done in disobedience of the writ. They say: "In addition to finding the defendants guilty of the foregoing offenses as charged, they were also found guilty of numerous other offenses charged in the petition. Since, however, the finding of guilt on the counts or charges above considered, is sufficient to support the judgment of the court, and the penalty imposed, is not greater than could have been inflicted had they constituted the only offenses charged, it will not be necessary to consider the other offenses charged in the petition of which the defendants were found guilty. In a criminal proceeding where the accused is found guilty as charged under an indictment containing numerous counts, the judgment will not be reversed, though some of the counts are bad, if the good ones are sufficient to support the judgment."

Assuming the analogy between the two cases as stated, the general doctrine is in accordance with the law as laid down by the Supreme Court of the United States in *Claassen v. U. S.*, 142 U. S., 140-146, and other cases. But the presumption of law that in such a case the sentence was on the good count solely, can only be indulged "in the absence of anything in the record to show the contrary." It is very clear that the presumption can not be indulged if we can be permitted to consider the opinion of the learned justice, who awarded the sentence. That opinion has been made a part of the transcript in accordance with paragraph F, Rule V of this court, and is found in the printed record of which it fills 54 pages. It undertakes a recital of all the facts found under two heads, entitled as follows: "Conditions Antecedent the Injunction," and "Since the Injunction." The statement of antecedent conditions covers 31 of the 54 pages. This opinion shows conclusively that the finding of guilt, and the extreme severity of the punishment were based upon the antecedent conduct and declarations of the defendants, as well as upon those in the paragraphs or counts aforesaid. In my judgment justice demands that

this opinion be considered as what it is, namely, the special findings of fact on which the decree is founded and by which it must be tested.

5. The complaint states one specific charge of violation of the injunction by the respondent Mitchell alone, namely, his presiding over and participating in a meeting of the United Mine Workers of America in Indianapolis on June 25, 1908, and approving a resolution then and there adopted reciting the controversy between the complainant and "Organized Labor," and imposing a fine of \$5 upon any member who shall thereafter purchase a stove of complainant's manufacture. This was an act violating both the original and the modified decree for injunction, that was then in force. It appears, however, from the findings of fact in the opinion aforesaid, relating to the defendant Mitchell that the court took into consideration certain other acts and declarations of said Mitchell. These comprise statements made in a book published by him in 1903, declarations in a speech made before the National Civic Federation, December 13, 1901, to the effect that if a court should "enjoin him from doing something he had a legal, constitutional, and moral right to do, he would violate the injunction;" and his affixing his signature to the "urgent appeal" before mentioned.

When we consider the severity of the sentence of Mitchell, I think it impossible to say that it was not founded in part upon the foregoing declarations which long antedated the controversy with the complainant.

Upon the assumption that each and all of the defendants committed some acts in violation of the injunction, both as originally issued and as modified on appeal, I am of the opinion that the decree should be reversed and the case remanded for trial upon evidence confined to the real question involved.

6. There is another and stronger reason for my dissent so far as the respondents Gompers and Morrison are involved. The specific acts charged against them relate wholly to declarations and publications which violated the preliminary injunction as issued. I have heretofore expressed the opinion that so much of the injunction order was null and void, because opposed to the constitutional prohibition of any abridgment of the freedom of speech or of the press. (33 App. D. C., p. 129.) Subsequent reflection has confirmed the views then expressed. I concede that the court had jurisdiction of the subject-matter of the controversy and of the parties, but I can not agree that a decree rendered in excess of the power of the court—a power limited by express provision of the Constitution—is merely erroneous and not absolutely void. That proposition is met and conclusively disposed of by Mr. Justice Miller in *Ex parte Lange*, 18 Wall., 163-175. I quote therefrom as follows: "But it has been said that conceding all this the judgment under which the prisoner is now held is erroneous, but not void; and as this court can not review that judgment for error, it can discharge the prisoner only when it is void. But we do not concede the major premise in this argument. A judgment may be erroneous and not void, and it may be erroneous *because* it is void. The distinctions between void and merely voidable judgments are very nice, and they fall under the one class or the other, as they are regarded for different purposes. It is no answer to say that the court had jurisdiction of the person of the prisoner and of the offense under the statute. It by no means follows that these two facts make valid,

however erroneous it may be, any judgment the court may render in such case."

In a later case the same justice said: "When, however, a court of the United States undertakes by its process of contempt to punish a man for refusing to comply with an order which that court had no authority to make, the order itself being without jurisdiction, is void, and the order punishing for contempt is equally void." (Ex parte Fisk, 113 U. S., 713-718.) To the same effect are *In re Snow*, 120 U. S., 274-285; *In re Ayres*, 123 U. S., 443-485; *Hans Neilsen*, petitioner, 131 U. S., 176-183; *Windsor v. McVeagh*, 93 U. S., 274, 283.

In Nielsen's case Mr. Justice Bradley stated the rule here contended for as follows: "It is difficult to see why a conviction and punishment under an unconstitutional law is more violative of a person's constitutional rights, than an unconstitutional conviction and punishment under a valid law. In the first case, it is true, the court had no authority to take cognizance of the case; but in the other, it had no authority to render judgment against the defendant. This was the case of *Ex parte Lange*, where the court had authority to hear and determine the case, but we held that it had no authority to give the judgment it did. It was the same in the case of *Snow*; the court had authority over the case, but we held that it had no authority to give judgment against the prisoner. He was protected by a constitutional provision, securing to him a fundamental right. It was not a case of mere error in law, but a case of denying to a person a constitutional right." See, also, *In re Frederick*, 149 U. S., 70-76; *In re Bonner*, 151 U. S., 242-256.

Convinced that the court was without authority to make the only order which the defendants Gompers and Morrison can be said to have disobeyed, I can have no other opinion than that the decree should be reversed.

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INTIMIDATION—INTERFERENCE WITH EMPLOYMENT—INJUNCTION—RIGHTS OF BONDHOLDERS TO SUE.—*Carter et al. v. Fortney et al.*, *United States Circuit Court, Northern District of West Virginia*, 170 *Federal Reporter*, page 463.—M. H. Carter and three associates, citizens of Maryland, filed a bill against Osburn Fortney and others, citizens of West Virginia, praying an injunction against the latter to prevent their interference with the conduct of the business of the Merchants' Coal Company. This company is a corporation owning and operating mines in West Virginia, and is indebted to the complainants, who are holders of the company's bonds. The employees of the company had refused a reduction of wages in March, 1908, whereupon the mines were closed until August, 1908, when the company sought to reopen the mines, again offering the reduced wage. The former employees refused to go to work, and interfered with the employees who had been procured, so that the mines were again closed down, remaining so until December. At this date a number of former employees and other workmen engaged to work for the company, but were so subjected to threats, insults, and violence as to intimidate many and to

put the company at great loss in operating its mine and protecting its men and property. The prayer for an injunction against the defendants named them as conspirators whose acts would destroy the value of the property and render the bonds held by the complainants valueless.

The bill was demurred to on several grounds, the principal ones being that the complainants had no such interest in the contract between the company and its employees as would entitle them to the relief sought, and that it was not shown that they would in any case suffer irreparable injury by the continuance of existing conditions. The demurrer had the effect of admitting the facts as charged, and was itself the only subject passed upon by Judge Dayton, who gave the opinion of court, overruling the demurrer in every point. His opinion is in part as follows:

It is hardly necessary now to say that injunction will be granted "where the members of a labor organization, or other employees, conspire unlawfully to interfere with the management or business of another, and to compel the adoption of a particular scale of wages, by congregating riotously and in large numbers in and near the place of business of such other person, and for the purpose of preventing other laborers from entering into such other person's employment or remaining in such employment, by intimidation, consisting in physical force or injury, either actual or threatened, to person or property." Hogg, Eq. Principles, 387, Sec. 278.

Such acts on the part of employees are common results of a strike on their part. A strike may be entirely legal where it is a voluntary refusal on the part of such employees to work for their employer because of conditions existing and his refusal to correct the same in accord with their lawful demands. On the other hand, it becomes illegal if it be the result of an agreement depriving those engaged in it of their liberty of action, and it becomes criminal if it be a part of a combination for the purpose of injuring or molesting either masters or men. *Arthur v. Oakes*, 63 Fed. 310, 11 C. C. A. 209, 25 L. R. A. 414.

On the other hand, there may be a combination of persons not employees created "for the purpose of injuring or destroying the business of another, either by efforts to prevent, by unlawful means, the sales of his products to the public or the use of some particular thing in his business, or by materially lessening or entirely stopping the manufacture of his products, through the loss or want of the necessary or proper employees, vehicles, or machinery, the lack whereof is caused or brought about by the illegal acts of such combination, or by the union of both of these unlawful and unwarranted agencies operating at the same time upon the business of such other person." Such combination is known as a "boycott," and is condemned alike by the common law and modern decisions as illegal. *Hopkins v. Oxley Stave Co.*, 83 Fed. 912, 28 C. C. A. 99 [Bulletin No. 16, p. 459]; Hogg's Eq. Principles, 387, Sec. 279.

The allegations of this bill, in effect, charge a conspiracy involving the elements of both the strike and of the boycott. It may be well

termed a lawful strike that has degenerated into a boycott in many respects not only illegal but criminal in character. Counsel for these defendants has most ably argued that the purpose and object of the bill must be construed from its allegations to be only to protect the coal company in its contract with its present employees, to which contract the plaintiffs are not parties and therefore have in law naught to do. If I could construe this to be the true purpose and object of the bill, I would have no trouble in sustaining the demurrer. To so protect the men from intimidation and injury may be an incident of the relief sought, but the scope of the bill I conceive to be much broader. It may, it seems to me, be epitomized from its apt allegations to be to protect the property of this company, depending for its sole value, as alleged, upon its ability to profitably mine and dispose of its coal in place thereon, which mining can only be done by individual employees; to protect it from inevitable breach of contracts with its customers whereby loss and damage will be incurred; to enable it lawfully to carry on its business, a property right it has, without illegal and criminal interference on the part of these alleged conspirators defendants, and this in order that the value of its property may not be lessened or destroyed, the lien of plaintiffs' trust bonds be thereby impaired or rendered valueless, but on the contrary, it may be permitted to fulfil its trust contract with plaintiffs by paying them the semiannual interest and the bond principal when due.

It would seem clear that the allegations of the bill justify an injunction in the premises at the instance of the coal company, had it applied for it to a court of competent jurisdiction. The question then resolves itself into whether this court has right to grant it at the instance of these trust bondholders.

The course of reasoning by which Judge Dayton arrived at an affirmative answer to this question is omitted, as it is not a labor question. In conclusion Judge Dayton said:

My predecessor, Judge Jackson, in several cases similar to this, but not reported, has sustained injunctions awarded to bondholders, and no question has been heretofore raised as to the correctness of his ruling in this particular. I am persuaded that no good reason exists for now reversing it.

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LABOR ORGANIZATIONS—MUNICIPAL CORPORATIONS—DISCRIMINATION IN LETTING PUBLIC CONTRACTS—*Miller et al. v. City of Des Moines et al.*, *Supreme Court of Iowa*, 122 *Northwestern Reporter*, page 226.—This was a case in which the plaintiffs, taxpayers and job printers in the city of Des Moines, prayed for an injunction to restrain the performance of a contract entered into by the city with reference to its printing, and to procure the repayment of such sums as had already been paid over on the contract. From an adverse decision in the district court of Polk County the plaintiffs appealed. The contract was declared invalid, but since there was no showing but that it had been entered into in good faith by the company who did the printing, payments previously made under it were not disturbed.

The grounds of the plaintiffs' undertaking were that the mayor and council had discriminated in favor of union shops, rejecting bids at lower rates from nonunion shops, to the greater expense of the city and in violation of the equal rights of competitors generally. The view taken by the court of these facts, and their legal effect, are set forth in the following extracts from the opinion, which was delivered by Judge Weaver:

The controversy presented by this appeal is complicated by very few disputes of fact, while the questions of law involved, though not entirely easy of solution, are not difficult to state. The fact with which we are at this time principally concerned has reference to the manner and method pursued by the city council in passing upon the proposals tendered by the several bidders already named, and the considerations upon which the award was made. The evidence is undisputed that, with the possible exception of one, each of the bidders whose offer was lower than that of the Register and Leader Company [with whom the contract was made] was amply able, ready, and willing to accept the contract on the basis of their several bids, and to perform the same promptly in an efficient and workmanlike manner. Nor is there any claim that the sufficiency of their qualifications in this respect was unknown to any member of the council. They were well-known proprietors of job printing offices in the city, or, if not well known, there is not the slightest evidence of any attempt on the part of any member of the council to inquire into the facts and ascertain whether they or any of them could perform the work if awarded the contract.

We shall not take time for an extended discussion of this evidence. Considered in the light of all the facts developed on the trial it is impossible to escape the conclusion that the nonunion bidders for this work were excluded from the competition, not because they lacked financial responsibility, business facilities, office equipment, experience, or reliability, but because they employed nonunion labor, and the contract was awarded to a higher bidder because it was the lowest among those bidders employing union labor. It may be true that in the absence of union bidders, or possibly in the absence of any competition between union bidders, the council would have felt at liberty to award the contract to a nonunion shop, but, with both present and bidding, there is here exhibited a set purpose to give the preference to a union bidder even at a larger price, so long at least as there was reason to believe the latter able to perform the required service satisfactorily. It is said by appellees, and correctly, that neither in the notice to bidders, the resolutions of the city council, nor in the contract with the Register and Leader Company is there any mention of union shops or of the use of the union label; but this is not decisive of the question at issue, if it further appear with reasonable certainty that this test was in fact applied in awarding the contract, and discrimination made between the bidders upon that ground. That such discrimination was made is bluntly admitted by the mayor, the official head of the council. The testimony of the three councilmen on this point is somewhat more diplomatic in expression, but points not less unerringly to the same conclusion. In other words, with eight equally competent and responsible bidders

seeking the contract, competition was limited by the council to the four highest upon the list, because they or some of them were privileged to use the union label, while the four others, whose bids were lower than the lowest union bidder, were excluded because of their employment of nonunion labor. We have then to inquire whether such discrimination is within the discretion which the laws of the State and the ordinances of the city gave to the council. That it is an unwarranted excess of the legislative power vested in the council is too clear for argument. Government is instituted for the benefit of all the people and not for the benefit of any one class to the exclusion of others. City officials are charged with the collection and disbursement of vast sums of money to which all the people must contribute in proportion to their estate without regard to social position, political affiliation, religious belief, or economic theories. Experience has shown that the interests of the taxpayers are best conserved by offering contracts for public work to the competition of all persons able and willing to perform it. When the opportunity to compete is fairly and openly offered, and contracts are fairly awarded, there is ordinarily no room for official or private graft at public expense; but just in proportion as competition is restricted, and the award is hedged about with express or implied conditions by which a favored person or a favored class is insured a preference over others of equal ability and capacity, public rights are imperiled and public interests are sacrificed. Such discrimination tends to monopoly, and involves a denial of the equality of right and of opportunity which lies at the foundation of republican institutions. Dealing with a very similar situation the supreme court of Illinois has well said: "It is immaterial whether there was any attempted ordinance as a basis for such action, or whether it had been approved. The statute and the ordinance required the contract to be let to the lowest bidder, and this implied equal opportunity and freedom to all who might choose to bid. The Sentinel Democrat Printing Company could not claim to be the lowest bidder when another and lower bid was rejected under such an arrangement to prevent other persons from competing." *Holden v. Alton*, 179 Ill. 318, 53 N. E. 556.

The citizen may be rich or poor in purse; union or nonunion upon the labor question; Catholic, Protestant, Jew, or infidel in matters of religion; Republican, Democrat, or Prohibitionist in political affiliation; but, by the stand of constitutional and statutory right, he is neither more nor less than a citizen of the State, entitled to an equal opportunity therein according to the capacity and ability with which nature may have endowed him. In denying him that opportunity a double wrong is perpetrated, first, upon the individual who is entitled to be considered upon his personal merits uninfluenced by these extrinsic considerations; and, secondly, upon the State at large, whose expenses are multiplied, and whose integrity jeopardized by a system of favoritism, the demoralizing effect of which is patent to every thoughtful student of public affairs. It is not material that the sum of money involved in this controversy is insignificant as compared with the city's revenue or its ability to pay. The mischief is not so much in the particular case under review, as in its tendency and in the far-reaching consequences of legitimizing a system or practice so pregnant with evil possibilities.



For the purpose of this action it may be freely conceded that the council and its members acted in perfect good faith, influenced by the belief that in giving the contract to the lowest union bidder they were in some way serving the best interest of the city, but the question here presented is not one of good faith, but of power and jurisdiction. Undoubtedly there is good authority for the proposition that in selecting or ascertaining the "lowest responsible bidder" the council may take into consideration the comparative ability and qualification of the several bidders for the proposed work, and that the lowest price bid is not in every instance a controlling factor. But this rule, if adopted, presupposes that all bidders are given an equal opportunity, and that there is applied to them no arbitrary classification by which those of one class are to receive no consideration so long as a satisfactory bidder can be found in the other class. An award so made is not the result of the exercise of legal discretion. It is manifest abuse of discretion. Finding as we do that the award of the contract was made arbitrarily, and not in the exercise of the legal discretion of the council upon consideration of the comparative merits of all the bids presented, we must hold the action void, and that the suit to adjudicate its invalidity is maintainable by the plaintiffs as tax payers of the city.

We have left us to consider the effect of these conclusions upon the rights of the party to whom the contract was awarded. There is nothing in the record to indicate that this bidder or any other of the competitors employing union labor acted in bad faith, or brought to bear any improper influence upon the council to secure a preference in the award, but, as already remarked, the good faith of any or all of the parties cannot avail to give life to the contract when it is once determined that the council had no authority to make it in the manner in which it was attempted to be made. If the contract be void as we have found it to be, it must be held void as to all parties thereto. In any event the work has been done; it has been accepted by the city; it is of a character which cannot be returned to the contractors and thus place them in statu quo; it is work which if not done by this contractor would have to be done by some other person; the prices charged are not shown to be unreasonable; the invalidity of the contract is not chargeable to any wrong or omission on the part of the contractor, but solely to the act of the city through its council. To say that the party doing such work must receive no remuneration therefor, and must return the compensation already received, is to impose all the penalty upon an innocent party for the profit of the only party chargeable with the wrong. We are not disposed to so order. Courts of equity often refuse to enforce a naked legal right where the results would be manifestly unjust or unconscionable.

We apply the principle to the case before us the more readily from the fact that the appeal was not submitted to this court for decision before the expiration of the term for which the disputed contract was made. Without, therefore, attempting to define what rights at law, if any, the city may have with respect to do so much of the contract compensation, if any, as remains unpaid, the record as it stands does not call for equitable interference.



# INDEX TO BULLETIN No. 86.

	Page.
Accidents to labor in Washington, statistics of, 1908.....	223
American factories, phosphorus poisoning and factory conditions in.....	86-140
Austria, phosphorus poisoning in, discussion of.....	77, 78
Austria-Hungary, phosphorus poisoning in, discussion of.....	77
Belgium, phosphorus poisoning in, discussion of.....	76, 77
Boot and shoe industry in Great Britain, earnings and hours of labor of employees in.....	193-195, 202, 203
British clothing industries, earnings and hours of labor in. ( <i>See Earnings and hours of labor in British clothing industries.</i> )	
British Trade Boards Act, 1909.....	185-191
Canadian Industrial Disputes Investigation Act, 1907:	
Amendments suggested.....	17-21
Applications for boards of conciliation and investigation, January, 1908, to August, 1909.....	24-29
Bills presented in New York and in Wisconsin.....	21
Boards appointed, number of, by industries.....	4
Boards of conciliation and investigation, procedure of, January, 1908, to August, 1909.....	24-29
Coal-mine strikes, operation of the act in connection with.....	4-8, 24, 25
Conclusions as to operation of the act.....	21, 22
Cotton mills, operation of the act in connection with.....	2
Disputes considered.....	3-9
Electric railways, operation of the act in connection with.....	4
Employees affected in strikes investigated.....	4
Employers, attitude of, toward the act.....	10
Industries and occupations to which the act applies.....	1, 2
Industries other than mines, agencies of transportation and communication, and other public utilities, operation of the act in relation to.....	28, 29
Intervention under the act.....	4-9, 24-29
Labor unions, attitude of, toward the act.....	11-16
Metal mines, operation of the act in connection with.....	4, 26, 27
Method of procedure.....	2, 3
Miners, attitude of, toward the act.....	13-16
Municipal employees, operation of the act in connection with.....	4
Occupations and industries to which the act applies.....	1, 2
Organized labor, attitude of, toward the act.....	11-16
Proceedings under the act, summary of, January, 1908, to August, 1909.....	24-29
Public opinion toward the act.....	9-16
Purpose of the act.....	2
Railway unions, attitude of, toward the act.....	12, 13
Railways, operation of the act in connection with.....	4, 8, 9, 26-29
Scope of the act.....	1, 2
Settlements without strikes, number of.....	4
Shipping industry, operation of the act in connection with.....	4, 28, 29
Shoe factories, operation of the act in connection with.....	4
Street railways, operation of the act in connection with.....	28, 29
Strikes, illegal, number of, begun before or pending investigation.....	4
Strikes, legal, number of, begun after report of a board.....	4
Capital invested in manufacture of matches at each census, 1860 to 1900, and in 1905.....	43
Cases of phosphorus poisoning, number of, in the United States.....	32, 33
Child labor in Minnesota, 1907.....	212
Clothing industries, British, earnings and hours of labor in. ( <i>See Earnings and hours of labor in British clothing industries.</i> )	
Cost of living:	
New York, 1907.....	215
Washington, 1908.....	223
Cotton, woolen, and knitting mills of North Carolina, statistics of, 1908.....	219, 220
Decisions of courts affecting labor:	
Assignment of wages—future earnings—new contract of employment—revocation of power of attorney—interest—equity.....	349-353
Employers' liability:	
negligence—evidence—excessive hours of labor.....	353-355
railroad companies—federal statute—acceptance of relief benefits.....	310-313
railroad companies—federal statute—injuries causing death—damages.....	313-315
railroad companies—federal statute—injuries causing death—survival of right of action.....	315, 316
railroad companies—federal statute—powers of Federal Government—constitutionality of statute.....	322-331
railroad companies—federal statute of 1906—validity in Territories and the District of Columbia.....	316-319
railroad companies—fellow-servants—instantaneous death—survival of right of action—construction of statute.....	319-322
Hours of labor on public works—municipal corporations—constitutionality of statute.....	332-334
Labor organizations—	
injunction—contempt—nature of proceedings—appeals.....	355-370
injunction—strikes—boycott—secondary boycott—picketing.....	334-340
intimidation—interference with employment—injunction—right of bondholders to sue.....	370-372
letting of public contracts—discrimination—municipal corporations.....	372-375
Payment of wages—railroad companies—semi-monthly pay day—constitutionality of statute.....	340-347
Railroads—safety appliances—equipment and repair.....	347-349

# BULLETIN OF THE BUREAU OF LABOR.

	Page.
Denmark, phosphorus poisoning in, discussion of.....	67, 68
Digest of recent foreign statistical publications:	
Austria—	
Die Arbeitseinstellungen und Aussperrungen in Österreich während des Jahres 1907.....	227-232
France—	
Statistique des Grèves et des Recours à la Conciliation et à l'Arbitrage Survenus Pendant l'Année 1907.....	233-239
Germany—	
Streiks und Aussperrungen im Jahre 1907.....	239-244
Great Britain—	
Report on Strikes and Lockouts and on Conciliation and Arbitration Boards in the United Kingdom in 1907.....	245-252
Italy—	
Statistica degli scioperi avvenuti in Italia nell' anno 1905.....	252-264
Netherlands—	
Werkstakingen en Uitsluitingen in Nederland gedurende 1906.....	264-269
Norway—	
Arbeidskonflikter i Norge, 1903-1906.....	269, 270
Russia—	
Statistika Stachek Rabochikh na Fabrikakh i Zavodakh za 1905 god.....	270-284
Spain—	
Estadística de las Huelgas, 1906.....	284-288
Sweden—	
Arbetsinställeiser under åren 1903-1907, jämte öfversikt af arbetsinställeiser under åren 1859-1902 samt den s. k. politiska stortrejken år 1902.....	288-294
Digest of recent reports of state bureaus of labor statistics:	
Louisiana, 1906-1907.....	207
Massachusetts, 1908.....	207-211
Minnesota, 1907-1908.....	211-213
New York, 1907.....	213-218
North Carolina, 1908.....	218-220
Virginia, 1907.....	221, 222
Washington, 1907-1908.....	223, 224
West Virginia, 1907-1908.....	224-226
Dressmaking, millinery, and mantle-making industries in Great Britain, earnings and hours of labor of employees in.....	193-198
Dyeing and cleaning industry in Great Britain, earnings and hours of labor of employees in.....	193-195, 204, 205
Earnings and hours of labor in British clothing industries.....	192-206
Boots and shoes.....	193-195, 202, 203
Dressmaking, millinery, and mantle-making.....	193-198
Dyeing and cleaning.....	193-195, 204, 205
Laundries.....	193-195, 205, 206
Miscellaneous clothing.....	193-195, 204
Shirts, blouses, underclothing, etc.....	193-195, 198, 199
Silk and felt hats.....	193-195, 203, 204
Tailoring.....	193-195, 199-202
Employees in match factories at each census, 1850 to 1900, and in 1905, by sex and age groups.....	43
Employees of match factories in the United States in 1909.....	33, 45-60
By age and race.....	46, 47
Conjugal condition of, by sex and race.....	47, 48
Earning less than specified amounts, per cent of, by sex.....	48, 49
Earning specified amounts, number and per cent of, by age and sex.....	49
Exposed to phosphorus fumes and not so exposed, by age and sex.....	50
Of each specified age, number and per cent of, by sex.....	46
Wages of.....	48, 49
Employment offices, free:	
Minnesota, 1908.....	212
Washington, 1907-1908.....	224
West Virginia, 1902-1908.....	226
Employment, state of, in New York, 1907.....	213, 214
Establishments engaged in manufacture of matches at each census, 1860 to 1900, and in 1905.....	43
Exports and imports of matches, value of, 1891 to 1899.....	44
Exports of domestic made matches to principal foreign countries, value of, 1890, 1890, 1900, 1905.....	45
Factories, match, number of, in the United States.....	33
Factory conditions and phosphorus poisoning in American factories.....	86-140
Farmers of North Carolina, statistics of, 1908.....	217
Finland, phosphorus poisoning in, discussion of.....	67
Foreign countries, summary of action taken by, as to manufacture of matches.....	36-39
France, phosphorus poisoning in, discussion of.....	68, 69
Free employment offices. (See Employment offices, free.)	
Furniture factories of North Carolina, statistics of, 1908.....	220
Germany, phosphorus poisoning in, discussion of.....	71, 72
Great Britain, phosphorus poisoning in, discussion of.....	72-76
Great Britain, White Phosphorus Prohibition Act of 1908.....	145
Hat industry, silk and felt, in Great Britain, earnings and hours of labor of employees in.....	193-195, 203, 204
Health of employees in match factories, phosphorus used in manufacture of matches and its effect upon.....	57-66
Hours of labor and earnings in British clothing industries. (See Earnings and hours of labor in British clothing industries.)	
Hours of labor in—	
Massachusetts, 1908.....	210
New York, 1907.....	215
Hungary, phosphorus poisoning in, discussion of.....	78-81
Imports and exports of matches, value of, 1891 to 1899.....	44
Industrial Disputes Investigation Act, 1907, Canadian. (See Canadian Industrial Disputes Investigation Act, 1907.)	

Industrial poisons:	Page.
Extent of danger.....	152, 153
Introduction and discussion.....	147-150
List of.....	155-168
Methods of combating.....	153, 154
Methods of entry into the system of.....	151
Nature of.....	150
Industrial statistics of Virginia, 1907.....	221, 222
Industries, new, established in West Virginia, 1906-7.....	225
International Association for Labor Legislation and its publications.....	169-184
International convention respecting the prohibition of the use of white (yellow) phosphorus in the manufacture of matches.....	146
Iron mine statistics of Minnesota, 1907 and 1908.....	212, 213
Italy, phosphorus poisoning in, discussion of.....	71
Japan, phosphorus poisoning in, discussion of.....	85
Knitting, cotton, and woolen mills of North Carolina, statistics of, 1908.....	219, 220
Labor, hours of, and earnings in British clothing industries. ( <i>See Earnings and hours of labor in British clothing industries.</i> ).....	
Labor Legislation, International Association for, and its publications.....	169-184
Labor organizations:	
Massachusetts, 1908.....	209, 210
Minnesota, 1907-8.....	212
New York, 1898 to 1907.....	215-217
Laundries in Great Britain, earnings and hours of labor of employees in.....	193-195, 205, 206
Louisiana, report of the bureau of labor of, 1906-7.....	207
Luxemburg, phosphorus poisoning in, discussion of.....	70
Manufacture of matches. ( <i>See Matches, manufacture of.</i> ).....	
Manufactures, statistics of:	
Massachusetts, 1908.....	210, 211
North Carolina, 1908.....	219, 220
Virginia, 1907.....	221, 222
Washington, 1907.....	224
West Virginia, 1907.....	224, 225
Massachusetts, statistics relating to, 1908.....	207-211
Labor organizations.....	209, 210
Manufactures, statistics of.....	210, 211
Strikes and lockouts.....	207-209
Wages, rates of, and hours of labor, changes in.....	210
Match industry, phosphorus poisoning in. ( <i>See Phosphorus poisoning in the match industry in the United States.</i> ).....	
Matches, manufacture of:	
Capital invested in, at each census, 1860 to 1900, and in 1905.....	43
Cost of materials used in, at each census, 1860 to 1900, and in 1905.....	43
Description of processes of.....	50-57
Description of various kinds of matches.....	41
Development of the industry in the United States.....	42-45
Employees engaged in, at each census, 1860 to 1900, and in 1905.....	43, 45-50
Employees engaged in, number of, 1909.....	35
Establishments engaged in, at each census, 1860 to 1900, and in 1905.....	43
Establishments engaged in, 1909.....	35
Foreign countries, summary of action of, as to.....	36-39
Kinds of phosphorus used in, description of.....	40, 41
Nonpoisonous, attitude of manufacturers to use of formula for.....	35, 36, 57
Nonpoisonous, formula for.....	57
Phosphorus in, white, prohibition of use of, international convention regarding.....	146
Phosphorus used in, and its effect upon health of the workers.....	57-66
Poisonous phosphorus, substitute for, in.....	56
Processes of, and phosphorus poisoning.....	39-42
Processes of, description of.....	50-57
Products of factories engaged in, value of, at each census, 1860 to 1900, and in 1905.....	43
Prohibition of the use of white phosphorus in, international convention for.....	146
Substitute for poisonous phosphorus in.....	56
Swiss federal law concerning, November 2, 1898.....	141, 142
Wages paid in factories engaged in, at each census, 1860 to 1900, and in 1905.....	43
Materials used, cost of, in manufacture of matches, at each census, 1860 to 1900, and in 1905.....	43
Mining, iron-ore, in Minnesota, statistics of, 1907 and 1908.....	212, 213
Minnesota, statistics relating to, 1907-8.....	211-213
Child labor.....	212
Free employment offices.....	212
Labor organizations.....	212
Mining.....	212, 213
Railroad switch yards.....	212
Netherlands, phosphorus poisoning in, discussion of.....	70
New York, statistics relating to, 1907.....	213-218
Cost of living.....	215
Course of wages and earnings.....	215
Employment, state of.....	213, 214
Hours of labor.....	215
Trade unions.....	215-217
Union fees and dues.....	217, 218
Wages and earnings.....	214
Nonpoisonous matches, formula for.....	57
North Carolina, statistics relating to, 1908.....	218-220
Cotton, woolen, and knitting mills.....	219, 220
Factories, furniture.....	220
Factories, miscellaneous.....	219
Farmers, condition of.....	218
Railroad employees.....	220
Trades, condition of.....	218, 219

	Page.
Norway, phosphorus poisoning in, discussion of.....	81, 82
Opinions of the Attorney-General on questions affecting labor.....	295-300
Compensation for injuries to employees—accidents—construction of statute.....	300
Eight-hour law—laborers cutting timber on Indian reservation.....	300-305
Immigration—inducements by States and Territories—alien laborers—construction of statutes.....	306-309
Leaves of absence for employees of the United States—who entitled—arsenals—per diem employees—pieceworkers.....	
Phosphorus:	
Effect upon health of the workers of, used in match manufacture.....	57-66
Kinds of, used in manufacture of matches, description of.....	40, 41
Matches, White, Prohibition Act, 1908, Great Britain.....	145
White (yellow), international convention respecting the prohibition of the use of, in manufacture of matches.....	146
Phosphorus necrosis:	
Description of.....	40
Effects of.....	40
Treatment of.....	40
(See also Phosphorus poisoning in the match industry in the United States.)	
Phosphorus poisoning in the match industry in the United States:	
American factories, phosphorus poisoning and factory conditions in.....	86-140
Capital invested in manufacture of matches at each census, 1860 to 1900, and in 1905.....	43
Cases of phosphorus poisoning, number of, in the United States.....	32, 33
Development of match industry in the United States.....	42-45
Editorial note regarding investigation.....	31
Effect of phosphorus used in manufacture of matches upon health of the workers.....	57-66
Effects of phosphorus poisoning.....	40
Employees in match factories at each census, 1850 to 1900, and in 1905, by sex and age groups.....	43
Employees of match factories in the United States in 1909.....	33, 45-50
by age and race.....	46, 47
conjugal condition of, by sex and race.....	47, 48
earning less than specified amounts, per cent of, by sex.....	48, 49
earning specified amounts, number and per cent of, by age and sex.....	49
exposed to phosphorus fumes and not so exposed, by age and sex.....	50
of each specified age, number and per cent of, by sex.....	46
wages of.....	48, 49
Establishments engaged in manufacture of matches at each census, 1860 to 1900, and in 1905.....	43
Establishments engaged in manufacture of matches, 1909.....	33
European experience with phosphorus poisoning.....	67-85
Austria.....	77, 78
Austria-Hungary.....	77
Belgium.....	76, 77
Denmark.....	67, 68
Finland.....	67
France.....	68, 69
Germany.....	71, 72
Great Britain.....	72-76
Hungary.....	78-81
Italy.....	71
Japan.....	85
Luxemburg.....	70
Netherlands.....	70
Norway.....	81, 82
Russia.....	84, 85
Spain.....	84
Sweden.....	82-84
Switzerland.....	69, 70
Exports and imports of matches, value of, 1891 to 1899.....	44
Exports of domestic made matches to principal foreign countries, value of, 1880, 1890, 1900, 1905.....	45
Factories, match, number of, in the United States.....	33
Factory conditions and phosphorus poisoning in American factories.....	86-140
Foreign countries, summary of action taken by, as to manufacture of matches.....	36-39
Great Britain, White Phosphorus Matches, Prohibition Act, 1908.....	145
Health of the workers, phosphorus used in manufacture of matches and its effect upon.....	57-66
Imports and exports of matches, value of, 1891 to 1899.....	44
International convention respecting the prohibition of the use of white (yellow) phosphorus in the manufacture of matches.....	146
Manufacture of matches, description of processes of.....	50-57
Match factories, number of, in the United States.....	33
Match industry in Switzerland, regulation of.....	141-144
Match industry in the United States, development of.....	42-45
Match manufacture, description of processes of.....	50-57
Match manufacture, phosphorus used in, and its effect upon the health of the workers.....	57-66
Matches, international convention respecting the prohibition of the use of white (yellow) phosphorus in the manufacture of.....	146
Matches, kinds of, description of various.....	41
Matches, manufacture and distribution of, Swiss federal law concerning, November 2, 1898.....	141, 142
Matches, manufacture of, summary of action of foreign countries as to.....	36-39
Matches, nonpoisonous, formula for.....	57
Matches, value of, entered for consumption in the United States by principal countries of export, 1894, 1900, 1905, and 1907.....	44
Matches, White Phosphorus, Prohibition Act, 1908, Great Britain.....	145
Materials used, cost of, in manufacture of matches, at each census, 1860 to 1900, and in 1905.....	43
Nonpoisonous matches, attitude of manufacturers to use of formula for.....	35, 36, 57
Nonpoisonous matches, formula for.....	57
Phosphorus, kinds of, used in manufacture of matches, description of.....	40, 41
Phosphorus necrosis—	
description of.....	40
effects of.....	40
treatment of.....	40

	Page.
Phosphorus poisoning in the match industry in the United States—Concluded.	
Phosphorus used in match manufacture and its effect upon health of the workers.....	57-66
Phosphorus, White, Matches Prohibition Act, 1908, Great Britain.....	145
Phosphorus, white (yellow), international convention respecting the prohibition of the use of, in manufacture of matches.....	146
Poisoning, phosphorus, and factory conditions in American factories.....	86-140
Processes in match manufacture, description of.....	50-57
Processes of manufacture and phosphorus poisoning.....	39-42
Products, value of, of match factories at each census, 1860 to 1900, and in 1905.....	43
Results of the investigation, summary of.....	32-36
Summary of action taken by foreign countries as to manufacture of matches.....	36-39
Summary of results of the investigation.....	32-36
Switzerland, match industry in, regulation of.....	141-144
Wages paid in match factories, at each census, 1860 to 1900, and in 1905.....	43
White Phosphorus Matches Prohibition Act, 1908, Great Britain.....	145
White (yellow) phosphorus, international convention respecting the prohibition of the use of, in manufacture of matches.....	146
Poisoning, phosphorus, European experience with.....	67-85
Austria.....	77, 78
Austria-Hungary.....	77
Belgium.....	76, 77
Denmark.....	67, 68
Finland.....	67
France.....	68, 69
Germany.....	71, 72
Great Britain.....	72-76
Hungary.....	78-81
Italy.....	71
Japan.....	85
Luxemburg.....	70
Netherlands.....	70
Norway.....	81, 82
Russia.....	84, 85
Spain.....	84
Sweden.....	82-84
Switzerland.....	69, 70
Poisoning, phosphorus. ( <i>See also</i> Phosphorus poisoning in the match industry in the United States.)	
Poisons, industrial. ( <i>See</i> Industrial poisons.)	
Processes in match manufacture, description of.....	50-57
Products, value of, of match factories at each census, 1860 to 1900, and in 1905.....	43
Railroad employees of North Carolina, statistics of, 1908.....	220
Railroad switch yards in Minnesota, 1907 and 1908, condition of.....	212
Russia, phosphorus poisoning in, discussion of.....	84, 85
Shirt, blouse, underclothing, etc., industry in Great Britain, earnings and hours of labor of employ- ees in.....	193-195, 198, 199
Spain, phosphorus poisoning in, discussion of.....	84
Strikes and lockouts:	
Austria, 1907.....	227-232
France, 1907.....	233-239
Germany, 1907.....	239-244
Great Britain, 1907.....	245-252
Italy, 1905.....	252-264
Massachusetts, 1908.....	207-209
Netherlands, 1906.....	264-269
Norway, 1903-1906.....	269, 270
Russia, 1905.....	270-284
Spain, 1906.....	284-288
Sweden, 1903-1907.....	288-294
Washington, 1907-8.....	223
Sweden, phosphorus poisoning in, discussion of.....	82-84
Switzerland—	
Match industry in, regulation of.....	141-144
Phosphorus poisoning in, discussion of.....	69, 70
Tailoring industries in Great Britain, earnings and hours of labor of employees in.....	193-195, 199-202
Trade Boards Act, British, 1909.....	185-191
Trade unions. ( <i>See</i> Labor organizations.)	
Trades, condition of, in North Carolina, 1908.....	218, 219
Virginia, industrial statistics of, 1907.....	221, 222
Wages paid in match factories, at each census, 1860 to 1900, and in 1905.....	43
Wages, statistics of, in:	
Massachusetts, 1908.....	210
New York, 1907.....	214
Washington, statistics relating to, 1907-8.....	223, 224
Accidents to labor.....	223
Cost of living.....	223
Free employment offices.....	224
Organized labor.....	223
Statistics of manufactures.....	224
Strikes and lockouts.....	223
Violation of labor laws.....	223
Wage-earners.....	224
West Virginia, statistics relating to, 1907-1908.....	224-226
Free employment bureau.....	226
New industries established.....	225
Statistics of manufactures.....	224, 225
White Phosphorus Matches Prohibition Act, 1908, Great Britain.....	145
White (yellow) phosphorus, international convention respecting the prohibition of the use of, in manufacture of matches.....	146
Woolen, cotton, and knitting mills of North Carolina, statistics of, 1908.....	219, 220





# **DIRECTORY OF BUREAUS OF LABOR IN THE UNITED STATES AND IN FOREIGN COUNTRIES.**

State.	Name of bureau.	Title of chief officer.	Location of bureau.
<b>UNITED STATES.</b>			
United States.....	United States Bureau of Labor.....	Commissioner.....	Washington, D. C.
California.....	Bureau of Labor Statistics.....	Commissioner.....	San Francisco.
Colorado.....	Bureau of Labor Statistics.....	Deputy Commissioner	Denver.
Connecticut.....	Bureau of Labor Statistics.....	Commissioner.....	Hartford.
Idaho.....	Bureau of Immigration, Labor, and Statistics.	Commissioner.....	Boise City.
Illinois.....	Bureau of Labor Statistics.....	Secretary.....	Springfield.
Indiana.....	Bureau of Statistics.....	Chief.....	Indianapolis.
Iowa.....	Bureau of Labor Statistics.....	Commissioner.....	Des Moines.
Kansas.....	Bureau of Labor and Industry.....	Commissioner.....	Topeka.
Kentucky.....	Department of Agriculture, Labor, and Statistics.	Commissioner.....	Frankfort.
Louisiana.....	Bureau of Statistics of Labor.....	Commissioner.....	Baton Rouge.
Maine.....	Bureau of Industrial and Labor Statistics.	Commissioner.....	Augusta.
Maryland.....	Bureau of Industrial Statistics.....	Chief.....	Baltimore.
Massachusetts.....	Bureau of Statistics.....	Director.....	Boston.
Michigan.....	Bureau of Labor and Industrial Statistics.	Commissioner.....	Lansing.
Minnesota.....	Bureau of Labor.....	Commissioner.....	St. Paul.
Missouri.....	Bureau of Labor Statistics and Inspection.	Commissioner.....	Jefferson City.
Montana.....	Bureau of Agriculture, Labor, and Industry.	Commissioner.....	Helena.
Nebraska.....	Bureau of Labor and Industrial Statistics.	Deputy Commissioner	Lincoln.
New Hampshire.....	Bureau of Labor.....	Commissioner.....	Concord.
New Jersey.....	Bureau of Statistics of Labor and Industries.	Chief.....	Trenton.
New York.....	Department of Labor.....	Commissioner.....	Albany.
North Carolina.....	Bureau of Labor and Printing.....	Commissioner.....	Raleigh.
North Dakota.....	Department of Agriculture and Labor.	Commissioner.....	Bismarck.
Ohio.....	Bureau of Labor Statistics.....	Commissioner.....	Columbus.
Oklahoma.....	Department of Labor.....	Commissioner.....	Guthrie.
Oregon.....	Bureau of Labor Statistics and Inspection of Factories and Workshops.	Commissioner.....	Salem.
Pennsylvania.....	Bureau of Industrial Statistics.....	Chief.....	Harrisburg.
Philippine Islands.....	Bureau of Labor.....	Director.....	Manila.
Rhode Island.....	Bureau of Industrial Statistics.....	Commissioner.....	Providence.
South Carolina.....	Department of Agriculture, Commerce, and Industries.	Commissioner.....	Columbia.
Texas.....	Bureau of Labor Statistics.....	Commissioner.....	Austin.
Virginia.....	Bureau of Labor and Industrial Statistics.	Commissioner.....	Richmond.
Washington.....	Bureau of Labor.....	Commissioner.....	Olympia.
West Virginia.....	Bureau of Labor.....	Commissioner.....	Wheeling.
Wisconsin.....	Bureau of Labor and Industrial Statistics.	Commissioner.....	Madison.
<b>FOREIGN COUNTRIES.</b>			
Argentina.....	Departamento Nacional del Trabajo...	Presidente.....	Buenos Aires.
Austria.....	K. K. Arbeitsstatistisches Amt im Handelsministerium.	Vorstand.....	Wien.
Belgium.....	Office du Travail (Ministère de l'Industrie et du Travail).	Directeur General.....	Bruxelles.
Canada.....	Department of Labor.....	Minister of Labor.....	Ottawa.
Canada: Ontario.....	Bureau of Labor (Department of Public Works).	Secretary.....	Toronto.
Chile.....	Oficina de Estadística del Trabajo.....	Jefe.....	Santiago.
Finland.....	Industristyrelsen (a).....	.....	Helsingfors.
France.....	Office du Travail (Ministère du Travail et de la Prévoyance Sociale).	Directeur.....	Paris.
Germany.....	Abteilung für Arbeiterstatistik, Kaiserliches Statistisches Amt.	Präsident.....	Berlin.
Great Britain and Ireland.....	Labor Department (Board of Trade)...	Commissioner of Labor.	London.

<sup>a</sup> Issues a bulletin of labor.

*Directory of bureaus of labor in the United States and in foreign countries—Concluded.*

State.	Name of bureau.	Title of chief officer.	Location of bureau.
FOREIGN COUNTRIES—concl'd.			
Italy.....	Ufficio del Lavoro (Ministero di Agricoltura, Industria e Commercio).	Direttore Generale....	Rome.
Netherlands.....	Centraal Bureau voor de Statistiek (a).	Directeur.....	's Gravenhage.
New South Wales.....	State Labor Bureau.....	Director of Labor.....	Sydney.
New Zealand.....	Department of Labor.....	Minister of Labor.....	Wellington.
Spain.....	Instituto de Reformas Sociales.....	Secretario General.....	Madrid.
Sweden.....	Afdelning för Arbetsstatistik (Kgl. Kommerskollegii).	Direktör.....	Stockholm.
Switzerland.....	Secrétariat Ouvrier Suisse (semiofficial).	Secrétaire.....	Zürich.
Uruguay.....	Oficina del Trabajo (Ministerio de Industrias, Trabajo é Instrucción Pública).	.....	Montevideo.
International.....	International Labor Office.....	Director.....	Basle, Switzerland.

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Cooperative distribution, by Edward W. Bemis, Ph. D.<sup>(a)</sup>
- No. 7. Industrial communities: Various communities, by W. F. Willoughby.<sup>(a)</sup>  
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