2nd Report of the Factory Investigating Commission, 1913

State of N.Y.

X.

DANGEROUS TRADES

One of the most important industrial problems of the day is the protection of factory workers from industrial poisoning and occupational diseases. There are in many industries specific dangers connected with the trade which create certain pathological conditions to which much of the ill-health and premature death of workers are due. Investigations made in European countries show the large variety and number of diseases directly attributable to occupational hazards.

From the beginning of its inquiry the Commission has made a special study of industrial poisoning. In 1911 an investigation was made into lead and arsenic poisoning in New York City in which one hundred cases of lead poisoning were described and their origin in nearly every instance traced to industrial establishments. As a result of this investigation the Commission submitted to the last legislature a bill providing for hot and cold water washing facilities where poisonous substances were used or generated in the process of manufacture, prohibiting the eating of meals in workrooms in which such poisonous substances were generated, and providing for separate lunch rooms in such establishments. This bill was passed and has become a law.

In 1912 the Commission conducted the following investigations:

1. General conditions in the chemical industry.

2. Dangers to workers in the manufacture and use of commercial acids.

3. Further study of lead poisoning in various up-state factories.

4. The production, refining and use of wood alcohol and its dangers.

5. Study of diseases of the ear and upper respiratory tract among workers in the ostrich feather, fur, and cordage industries.

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THE CHEMICAL INDUSTRY

The investigations in the chemical industry covered 142 establishments in which there were 359 separate factories, and in which 11,087 wage earners were employed.

In no other industry are perils to the body and dangers to the health of the workers so many, so insidious, and so deadly as in the chemical industry. The workers come in direct, close, and daily contact with lead, arsenic, mercury, phosphorus, and other powerful poisons. Injurious gases and harmful fumes are generated in many of the various processes. Irritating dusts, excessively high temperatures and burning or spurting liquids are to be found in most of the factories. Yet there is hardly an industry in the United States in which there is less protection to the health and welfare of the workers. In European countries the chemical industry is carefully regulated. There they have special rules and regulations for the control of working conditions in the industry that are designed to safeguard the lives of the workers; but in this country we are just awakening to the dangers of this industry and to the necessity for resorting to every possible safe guard to protect the lives of the workers in it.

The general sanitary conditions in the establishments inspected were found to be poor. The washing facilities were inadequate, toilets unclean, and in many cases located a considerable distance from the factory building proper.

The special dangers to the workers found in the chemical trade may be summed up as follows: Gases, fumes, poisonous dusts, and accidental injuries. Where in other trades a poisonous ingredient is used occasionally and poisonous gas and fumes are generated at intervals, in the chemical trade they are regularly present in most of the working processes.

In no other industry is a knowledge of the poisonous substances which are handled, so necessary to the worker; but in no other industry is the ignorance of the worker as to the character of daily substances with which he works, so complete.

Constant contact with dangerous elements in the trade and daily familiarity with them breeds a consequent contempt on the part of the employers and workers, and a recklessness and carelessness

Labeling of Containers of Wood Alcohol

We recommend an amendment to the public health law to the effect that all bottles or vessels used for transporting or selling products containing wood alcohol shall be required to bear a prominent display label stating that they contain poison and calling attention to the danger of working with the material without ample ventilation.*

Educational Work

The opportunities for educational work in this field are unlimited. In most cases the employees and in very many cases the employers are ignorant of the dangers involved in their industries. The Department of Labor should issue bulletins calling attention to the injurious elements in an industry and the precautions to be taken to guard against them. Such bulletins should be printed in the language of the employees and distributed among them.

* Bill 27, Appendix I.

XI.

FOUNDRIES AND EMPLOYMENT OF WOMEN IN CORE ROOMS

FOUNDRIES

The necessity for marked improvement in sanitary conditions in the iron, steel, and brass foundries of the state is unquestioned. The occupation is an arduous one. The workers are subjected in the course of the day to extremes of temperature. They are constantly exposed to the inhalation of mineral and metallic dust. The result is that the workers in this industry are peculiarly susceptible to all forms of respiratory diseases, kidney trouble, and rheumatism.

There are no official vital statistics of foundry workers in this country. The recorded industrial insurance mortality statistics show, however, an excessive mortality rate from consumption among foundry workers, which becomes marked between the ages of twenty-five and thirty-four,—a time when the workers are in the very prime of life. Moreover, the liability to accident in a foundry is great.

The statistical data available, considered in conjunction with careful observation of working conditions, show that employment in this industry is more or less injurious to health. All reasonable measures calculated to promote greater safety and health for employees in foundries should not only be insisted upon by the state, but should be welcomed by the foundry owners themselves.

Legislation for the improvement of conditions in foundries is not special or class legislation. We have on the statute books to-day special requirements for bakeries, laundries, mercantile establishments, and places where poisonous materials are used in the process of manufacture.

A foundry is in many respects unlike the ordinary factory. It presents different conditions for which special provision should be made.

The measures to be enacted for the improvement of working conditions in foundries have received the Commission's careful

consideration. We visited a number of foundries and took the testimony of foundry owners and representatives of molders' organizations in the different cities of the state in which we held public hearings. Some of the employees in foundries testified before the Commission in executive session. The Commission then incorporated in a tentative bill the recommendations that had been received from different sources and copies of the proposed bill were sent to foundry owners and representatives of molders' organizations throughout the state for their suggestions and criticisms.

On November 25th, 1912, a public hearing was held in Albany to consider the proposed foundry bill and to receive suggestions for remedial legislation from all those interested. The hearing was largely attended. The Commissioner of the National Founders' Association appeared not only on behalf of the seventy-eight members of his organization in the state of New York, but as the authorized representative of a large number of other foundry owners in the state who did not belong to that organization. There were also present about twenty foundry owners and the same number of representatives of molders' unions.

We were impressed by the attitude taken by the foundry owners as a whole, concerning the advantages of improvement in working conditions in their establishments. The Commissioner of the National Association of Founders said:

> "I have been devoting considerable of my time in endeavoring to get the foundry owners throughout the country to bring about better working conditions which go far beyond anything you have suggested in these measures * * * It is a business proposition cutting out the philanthropy and all that sort of thing."

A very conservative foundry owner who was present stated:

> "We believe the most efficiency is obtained by men who are surrounded by good conditions and who are in well heated rooms free from gas, dust, and smoke, and furnished with water, good washing and bathing facilities."

These statements reflect a new attitude on the part of manufacturers that is everywhere appearing in the state of New York,

and one that is full of promise for the future. We have carefully considered all of the suggestions and criticisms that were made at the hearings in Albany and in other cities of the state and as a result submit the following recommendations.

HEATING OF FOUNDRIES AND PREVENTION OF DRAFTS

In a great many of the foundries no provision is made for heating the foundry in cold weather. The result is that the worker is subjected to extremes of temperature and is exposed to cold often while in a perspiring condition.

Anyone who has ever been in a foundry will recognize the necessity for the requirement that entrances to the foundry shall be so constructed and maintained as to minimize drafts. Doors should be kept vestibuled so that cold outer air will not blow upon the overheated molder.

It is recommended, therefore, that all foundries shall be properly and sufficiently heated during cold weather and that entrances to foundries shall be so constructed and maintained as to minimize drafts and that all windows therein shall be maintained in proper condition and repair.

PROPER VENTILATION

From the nature of the business there must be smoke and dust and gases in a foundry. This fact only emphasizes, however, the necessity for a prompt and effective removal of these deleterious substances. Where necessary, a forced system of ventilation with exhaust fans of sufficient capacity and power should be required.

Conditions so far as ventilation is concerned can never be ideal in a foundry, but every possible precaution should be taken to minimize the danger from dust which, as statistics show, renders the foundry worker very susceptible to pulmonary troubles.

The milling and cleaning of castings in a foundry will be considered later in this report.

MEASURES TO PREVENT ACCIDENTS

Accidents in foundries are of frequent occurrence. They are caused mainly by the following conditions:

1. Inadequate lighting.
2. Narrow and obstructed gangways.

During casting time when the molder is carrying the ladles of heated molten lead these narrow and obstructed gangways constitute an element of special danger and are the cause of many serious burns.

3. Defective ladles, tongs, chains, and other lifting devices.

For the prevention of accidents the Commission therefore makes the following recommendations:

1. All foundries shall be properly lighted during working hours.
2. The gangways in foundries shall be constructed and maintained of sufficient width to make the use thereof by employees reasonably safe, and such gangways during the progress of casting shall not be obstructed in any way.
3. The flasks, molding machines, ladles, cranes, and apparatus for transporting molten metal in foundries shall be maintained in proper condition and repair.

WASHING FACILITIES

Workers in foundries are exposed to a great deal of dust. The cores and molds are made of sand and after a day's toil, health and decency require that the worker be afforded every opportunity to cleanse himself and to change his working clothes.

Although recognizing the advisability of having adequate washing facilities in a foundry, many foundry owners have called attention to the fact that installation of these often involves useless expense, because the men will not use them. In some cases this is undoubtedly true, but it will often be found that the failure to use the washing facilities is due to the fact that those furnished are inadequate or that they are placed in remote or inaccessible parts of the building. Sometimes they consist of troughs to be used by the workmen in common, an arrangement

that is plainly objectionable and not conducive to habits of cleanliness. But simply because some workers will not use the washing facilities is no reason for saying that they should not be supplied. The workers should be encouraged to use them by the manufacturer and by the factory inspector. The education of the worker will soon bring him to an understanding of the benefits coming from habits of personal cleanliness.

Special requirements for washing facilities, it was felt, should not apply to small foundries in which less than ten persons are employed, since the expense of their installation in such cases would practically be prohibitive. These small foundries are, however, subject to the general requirements of the factory law.

PASSAGEWAYS TO OUTSIDE WATER CLOSETS

In many foundries the water closets are some distance from the foundries, and the workers, in order to use them, are obliged to go out in the cold and often inclement weather while they are perspiring and overheated.

The Commissioner of Labor testified before the Commission:

> "I have never been in a foundry yet where the men do not perspire rather freely and it is a very serious thing to require these men to go out into the open air while in the heat of their work. The condition of their bodies is such as to make it very hazardous to go out into the open air, though they cover themselves with a coat."

The workers in such cases should be protected against the elements. Where water closets or privy accommodations are permitted by the Commissioner of Labor to remain outside of the foundry, the passageway leading from the foundry to the water closets should be so protected and constructed that the employees in passing back and forth should not be exposed to the outdoor atmosphere, and the water closets themselves should be properly heated during cold weather.

MILLING AND CLEANING OF CASTINGS

The foregoing requirements were practically all approved by the foundry owners as a whole. The tentative bill contained

a provision that the milling and cleaning of castings should be done in rooms that were not used for any other purpose. To this requirement serious objections were offered. It was asserted that in many cases this would require a substantial change in structural conditions and that the requirement would work hardship, particularly where the foundry owner had provided a system of tumbling mills for the cleaning of castings, with a connecting exhaust system. It was also asserted that it would be impossible to clean large castings in a separate room.

Devices such as canvas curtains, and temporary partitions were called to the attention of the Commission as easy and inexpensive means of complying with the requirement. We believe, therefore, that no hard and fast rule should be made and that in a great many cases a mandatory requirement for the milling and cleaning of castings in a separate room irrespective of conditions, would work unnecessary hardship.

The matter should be left to the Industrial Board to make rules and regulations that would meet the varying conditions in different foundries. We wish to emphasize, however, the necessity for providing every possible device for the removal of dust during the cleaning process, so as to prevent its inhalation by the worker. The constant inhalation of this dust is a predisposing cause to tuberculosis and accounts to a great degree for the high death rate in that disease among foundry workers.*

EMPLOYMENT OF WOMEN IN CORE ROOMS

There are about 300 women employed in core rooms of foundries in this state. They have been drawn into the industry to take the place of boys under eighteen who had previously done this work and in some cases they have supplanted men also. The work that the women do at present is limited to the making of small cores. The women stand for the most part all day long. Although seats are provided they are rarely used because the work is not adapted to a sitting posture.

The core makers are exposed to dust, both metallic and mineral. The core ovens are generally located in the same room in which the women make the cores. The heat from the ovens is

* Bill 25, Appendix I.

enervating and the women inhale the core gas which arises from the ovens and the baked cores.

Even where there are exhaust systems over the ovens, considerable gas escapes into the room as the Commission noticed in one of the foundries visited. Core gas irritates the mucous membranes of the eyes, nose, throat, and bronchial passages, and causes nausea and headache.

The cores are placed in the ovens by men. In some places they are carried to the ovens, from the place in which they are made, by the women. In others, men or boys do this carrying.

The wages that women receive are on an average about $8 a week. Most of these women are piece workers. It was testified that men would receive almost three times as much for the work.

There are no satisfactory vital statistics for women core makers. No official statistics exist, but very limited industrial insurance statistics show an excessive death rate from consumption among core makers between fifteen and forty-four years of age.

The injurious effects of the work are minimized because of the fact that the women do not as general rule continue to work in the industry for more than four or five years.

Most of the women are of foreign birth though a fair number, principally in the smaller cities, are American. According to the testimony given by the foundry owners, women are employed on small cores, because first, it is difficult to secure the services of boys for that purpose; and second, the women are handier, more skillful, and more regular in their work on small cores.

FOUNDRY NO PLACE FOR WOMEN

The foundry is no place for women. The work is arduous and the surroundings are bad. We believe that it would have been far better if women had never been originally allowed to enter this employment.

There are to-day, however, about three hundred women earning a livelihood from this work upon which they are dependent for their support. Many of these have appealed to the Commission not to deprive them of what they, in small country towns, consider their only means of earning a living.

We cannot say that work in a core room as such, is under all circumstances and conditions absolutely detrimental to a woman's health. Although we should like to see this work stopped, and believe that its suppression would be beneficial to the race, and although we know that such a course of action would in no way injure the foundry industry of the state, nevertheless we cannot at this time recommend an entire prohibition of work that would result in throwing the three hundred women now in the industry out of employment. We believe that work by women in core rooms should be strictly confined to its present limits, and should be gradually eliminated. It should be discouraged and ultimately suppressed. Every obstacle should be thrown in the way of its increase and expansion.

For the present, the law should require this work by women to be done under the most sanitary conditions. No woman should be permitted to make cores in the same room in which cores are made by men. No woman should be permitted to make cores in the same room in which the core oven is located. The partition separating the room in which the women are employed from the core oven should be a substantial structure extending to the ceiling and the openings in the partition should be so arranged as to prevent any gas from the ovens from escaping into the room in which the women work.

The Industrial Board should be given the power to regulate the size of the cores that women shall be permitted to make and the weights that they shall be permitted to carry, and generally to make rules and regulations to safeguard the health of the women in this employment. If it is impracticable, as some of the foundry owners have testified, to separate the room in which the women are employed from the core oven by a substantial partition, so as prevent the core-gas from escaping into the room in which the women work, these owners should cease to employ women in work never intended for them. We have no sympathy for the foundry owner who appeared before us and said that so far as work in the core room was concerned, there should be no distinction as to sex.

In this enlightened age very few will be deceived by any such fallacy. Nature itself has made the distinction which the foundry owner has said should not be made. Instincts of chivalry and decency as well as concern for the preservation of the race, demand that we should not permit women to engage in work detrimental to their health, that overtaxes their strength, and impairs their vitality as wives and mothers.

The Commission has received descriptions of the abuses that the employment of women in core rooms has led to in other states. We have been told that the cores on which women originally began to work were of a small size but that to-day the women are making cores with a rammer and the size of these cores is such that they have to be hoisted by a derrick.

We believe if our recommendations are carried into effect and are enforced in the spirit which we intend, that not only will the work by women in the core rooms be confined to what it is to-day and that too under improved sanitary conditions, but that in a few years such work will be completely done away with.

We have gone into the matter very fully because we believe that our views on this subject represent the sentiment of the times. We believe that these opinions are shared generally by the people of the state who do not wish to see their women employed at manual labor in foundries.

We recommend that such work be restricted, and that where it does take place, it be conducted under the most sanitary conditions. We hope that ultimately, with the co-operation of enlightened foundry owners, it will be entirely done away with.

We therefore make the following recommendations for remedial legislation:*

1. The prohibition of the employment of women and men core makers in the same room.

2. The prohibition of the employment of women at making cores in the same room in which the core ovens are located.

3. Authority to the Industrial Board to make rules and regulations governing the size of the cores that women shall be permitted to make, and the weights that they shall carry.

4. Authority to the Industrial Board to make rules and regulations generally that shall safeguard the health of the women employed in the core rooms.

* Bill 26, Appendix I.