REPORT OF INSPECTOR OF FACTORIES, 1912.

INSPECTOR OF FACTORIES,
VANCOUVER, B.C., January 20th, 1913.

To the Hon. the Attorney-General,
Victoria, B.C.

SIR,—In accordance with section 50 of the "Factories Act," I have the honour to transmit to you, and through you to the Honourable Legislature, this, the third, report of this Department for the year 1912.

The law as at present constituted is giving good results, and has the support and endorsements of manufacturers and wage-earners generally throughout the Province.

During the year I have inspected 380 factories. Number of males employed, 17,356; and females, 1,548. I have endeavoured during the year to inspect as many of the factories in the Province as my time would permit. The territory is large and cannot be covered thoroughly in the time at my disposal. Nevertheless, all the large manufacturing establishments and industrial centres have received attention. For various reasons it was necessary to visit some of these places several times to the exclusion of some of the small industries.

The number of persons employed, men and women, are herein presented. It must not be considered that these are a complete census of the establishments of the Province; they are a record of visits made and of the help employed at the time of my inspection.

ACCIDENTS.

There were 135 accidents reported, of which 18 were fatal. April 1st to December 31st, 1909, 115, of which 8 were fatal; January 1st to December 31st, 1910, 151, of which 15 were fatal; January 1st to December 31st, 1911, 146, of which 8 were fatal.

It would seem, in view of all that has been done to safeguard employees, that accidents from machinery should be few. In a sense they are, and in another sense they are not. Considering the number of employees and the hazardous nature of the work of many of them, the accidents from machinery are few. However, if men will place ladders upon overhead shafting and climb up to oil and adjust belts while machinery is in motion; if they will crawl between the upper and lower parts of a swiftly moving belt to reach across dangerous parts of machinery in motion, to work with baggy sleeves, to jump on or off elevators in motion; if they will persist in moving safety devices, or neglect to look about them, or possibly to think that it is the other fellow's business to be on the watch or keep out of the way, the careless workman is apt to cause many serious injuries to others. If they wear gloves or mittens when working around gears or saws or when adjusting belts, then accidents will not materially lessen in number. All these things are done notwithstanding the warnings and lessons taught by prior accidents.

Two serious accidents to foremen have happened on the jointer. This is a very dangerous machine and workmen cannot be too careful in operating it. The circular cylinder, a new style of knife, is recommended by Factory Inspectors as the best means of protection on jointers. It is claimed that it is impossible to get the entire finger cut off when the cylinder is used. A number of these circular cutters are in use in the Province. A few slight accidents happened on them, which the injured men assured me would have caused the loss of fingers on the old-style cutters. In Germany the old-style square cutter is prohibited. English Inspectors think that the new cutter-block is an excellent device. Mr. Walmsley, in his report, thinks that the delay is mainly caused by the high price that is charged for the alteration. Mr. Arbuckle writes in the same strain, but thinks it will in time replace the old style, as the risk caused by the carelessness and neglect to make use of an efficient guard will be too great for the occupiers to face.

SYSTEMATIC EFFORT TO PREVENT ACCIDENTS.

The best authorities, after careful consideration, are unanimous in the opinion that a large percentage of industrial accidents can be prevented if the proprietors or managers of factories take the question up seriously in their establishments. Treating this subject in a

valuable paper read before the American Society of Mechanical Engineers, John Calder says: "It is believed that, by proper supervision and precautions in all plants and industrial processes, and the cultivation of greater care by operatives, at least one-third of the present annual sacrifice of life and limb can be prevented, thus increasing our national assets, and large amount of human suffering and sorrow obviated."

COMPLAINTS.

Ten complaints were received, four concerning defective water-closets, one regarding girls working overtime, four regarding dust, and one from moulders regarding shop equipment.

During the year I have met workmen who do not hesitate to make me aware of conditions which were not according to the requirements of the law. That there are many causes for complaint will be evident when it is considered that the time between my visits is very long, and violations may easily occur without my being in a position to learn of them.

A sad accident, by which a small boy lost his life by being caught on an exposed key in the end of fly-wheel shaft in the cold-storage plant in which his father was manager, makes it necessary to emphasize the dangerous custom of allowing children to frequent places where there is machinery. Proprietors of mills have been warned, yet the practice is allowed to continue, and one life has been sacrificed and two have had fingers severed.

GUARDING MACHINERY.

Devices are on the market for guarding all sorts of machinery, so there is no reason why any machine or its attachment should be left unprotected. During the year I have issued 1,794 orders to protect dangerous parts of machinery, as per section 32.

MOTIVE POWER.

The motive power in establishments is: Steam, 40,855 horse-power; electric, 26,391; water, 13,050; gas, 43.

The fact that nearly every industry is increasing its capacity by installing more machinery makes it necessary for me to order new safety appliances at every inspection.

SANITARY CONDITIONS.

I am pleased to be able to report a marked improvement in the sanitary condition of the factories. More attention is paid to light and ventilation than heretofore.

DUST.

Efficient exhaust ventilation has, where practicable, been required in those processes in which dust is generated and inhaled by the workers to an injurious extent, but mechanical difficulties continue to cause much trouble.

Hess, a German scientist, has made a careful study of the amount of dust inhaled by workmen in different trades, as is shown by the appended table:—

	Per Day.	300 Days per Year.
Ironfoundery	2.16 grains.	648 grains.
Tobacco-works	5.60 "	1,690 "
Flour-mill	1.93 "	579 "
Chemical-works	17.30 "	5,190 "
Saw-mill	13.90 "	4,170 "
Horsehair-works	7.70 "	2,310 "

From this it follows that an ironworker adds over an ounce of iron dust to his lung-tissue every year. Of course, all of this dust does not remain permanently in the lungs, but some of it does, especially the jagged splinters of steel which embed themselves deeply in the tissue.

AGE LIMIT.

During the year I have found some seven children employed in factories—four boys under age limit (fourteen years) and three girls under age limit (fifteen years). I ordered the dismissal of the parties. Four boys, fourteen years, produced birth certificates.

HOURS OF LABOUR.

The hours of labour have been during the year well within the maximum allowed by the "Factories Act."

ELEVATORS.

Elevators and hoists are always a source of danger. I have experienced a great deal of trouble in having orders and recommendations adhered to.

Below is a list of elevator accidents selected, and the following statements show the causes and what might have been done to prevent them :—

(1.) The injured person was standing on back of car when heel caught in projection in shaft.

Suggestion for Prevention.—This accident would not have occurred if the elevator-car had been enclosed solidly on all sides except the entrance side.

(2.) Workman riding on elevator had his foot extended over the edge of the platform. When the platform reached the floor above, the toes were caught and badly lacerated.

Suggestions for Preventing.—Had the projecting floor been equipped with bevel guard so attached to the projection that the foot would be pushed back as the car ascends, this provision would have practically made the above accident impossible.

(3.) One workman killed and two injured. Elevator fell from fourth story to ground.

No regular attendant on elevator. Cables pulled out, allowing elevator to drop. Safety device to catch tested week previous and found in good condition. The dangerous positions an elevator is liable to get into are various, and the operator should be able to determine at once the proper way to extricate it. For instance, if the car has dropped or has moved at an excessive speed, causing its safety device to set, the operator should use extreme caution in releasing the safety, ascertaining at the beginning if there is any slack in the hoisting-cables, and, if there is such, have the strain placed on them before doing anything else. This accident may have occurred when the operator released the car that was being held by the safety without first observing and tightening the cables. His failure to do so would result in the car dropping to the bottom of the shaft.

PROSECUTIONS.

Two cases were taken during the year. One conviction was obtained for neglect to protect shafting. In this case $250 penalty was awarded. In November complaint was filed against the Reliance Sash and Door Co. for operating a jointer without attaching a guard thereto. The Magistrate held that the Company's duty ceased when proper guards were supplied, unless the workmen were compelled, in order to save time, to operate the machine without adjusting the guard to suit the work.

CONCLUSION.

I hope that my efforts in the accomplishment of my duties as Inspector will receive your approval.

I have the honour to be,
Sir,
Your obedient servant,
C. R. GORDON,
Inspector of Factories.

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