

ANNUAL REPORT

PLAINTIFF'S
EXHIBIT

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ASTOR, LENOX AND
TILDEN FOUNDATIONS
1917

OF THE

HMSO
CHIEF INSPECTOR

OF

FACTORIES AND WORKSHOPS

For the Year 1911.

Presented to both Houses of Parliament by Command of His Majesty.



LONDON:

PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

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Dust removal.—Mr. Arbuckle (Sheffield) again refers to the dust given off from pearl cutting and sawing, and the means that have been adopted for the removal of it. He describes how the saws run in water and give off fine sprays of dust resembling steam. Considerable difficulty arose at first in designing a hood to catch this dust, but it was overcome when the exhaust could be applied to the under side of the saw table. He adds that the dust arising from filing spoons and forks, from grinding file tangs, file snapping, and that from buffing, and in many cases from brass polishing and finishing has been dealt with satisfactorily, but the dust from stag horn and bone cutting still has to be considered. Mr. Wright (Leeds), Mr. Taylor (Bradford), and Mr. Owner (Hull), write that exhaust appliances have been installed for removal of dust in wood working machinery, sand papering, bobbin making and cardboard cutting, and Mr. Lauder (Newcastle) says that fan exhaust has been applied for the removal of fine dust and hair in three furriers' works with satisfactory results. Mr. Taylor (Leeds) remarks that the removal of the fused outside shell of old plumbago crucibles gives rise to considerable quantities of graphitic dust, and that exhaust plant has been provided. He further writes "An ingenious type of dust separator has been installed in connection with the exhaust plant for some grindstones. The separator consists of a series of canvas tubes arranged radially along an axis, the dust laden air is forced into the tubes by a fan, and the dust is retained inside. As the axis carrying the tubes slowly revolves, the ends of that set of tubes, when in a vertical position, are tapped by automatically worked hammers, and at the same moment the air current is reversed in the set, the dust falling into a small worm conveyor."

Card stripping.—Mr. Younger (Halifax) reports that steady progress has been made, and that proper appliances have now been provided in a large proportion of the cotton mills in his district, and that orders have been given in others. The appliances are of various designs, and in one of the latest the strippings as well as the dust are removed by exhaust draught, and conveyed to a small machine from which they are delivered into a hopper free from dust, the dust being blown into a collecting chamber. Mr. Younger thinks that a more difficult question to be dealt with is the stripping by hand of the cards in certain cotton waste mills, and possibly that the cleaning of the waste by a similar process to the above might solve the difficulty. Mr. Butler (Huddersfield) reports progress, though it is somewhat slow, and he thinks the most effective system he has seen is in two mills where the dust is drawn from the swift and doffer by traversing nozzles connected with a powerful vacuum pump. He quotes another instance where the installation has proved a failure, and a different system will have to be adopted. Both Mr. Wright (Leeds) and Mr. Taylor (Bradford), in whose districts there are very few cotton mills, say that exhaust ventilation has been or is being put in all the mills. The latter also mentions an asbestos factory in which similar appliance has been installed.

Beer bottling.—Mr. Hunt (Leeds) describes a new and simple device, patented, for preventing the necessity of sucking the bottle neck in starting the syphon fillers on beer bottling machines, which has been found very rapid and efficient in operation. It consists of a copper bowl with an indiarubber tube fitting to a pipe leading from the bottom of the bowl. The free end of the indiarubber pipe is fitted with a cone-like flap, the point of the cone being towards the bowl. The bowl is fixed on the back rod of the syphon machine, and the rubber pipe is pushed over each syphon tube in turn. The syphon tube opens the cone, and beer from the previously filled bowl fills the syphon. When the rubber tube is pulled off the syphon, the cone closes and prevents

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Fortunately the taking of the records is arousing interest not only among workers and managers, but also among occupiers, and in the current year a first step has been taken towards letting them have copies of the record taken in their own works. I look forward to fruitful results in diminished disease from this work if it is carried on widely and steadily. A good illustration of the amount of work to be done yet in securing installation of exhaust is seen in the conditions found by Miss Squire and Miss Whitlock in cotton waste factories.

Miss Squire.—Very bad conditions were found in a factory where the sweepings of weaving sheds are sorted, mixed with a white powder and torn up in teasing machines. We found about 40 women and a dozen men working in a thick haze of white powder, the floor being deeply covered with the same. The bales of sweepings having been opened were spread by women upon the floor, men shovelled fine white powder upon the layer of cotton and women covered it with a second layer, the process being repeated until the stack was complete—the cotton was then gathered up in baskets by the women, the powder with which it had been mixed rising about them in clouds. The contents of their baskets were tipped into the teasing machines, the rapidly revolving teeth tore up the material, and again clouds of dust and white powder escaped into the air. A fan in the roof above the machines seemed to draw very little of the dust. The occupier was required to box in each machine and to provide an exhaust pipe to each connected with a fan—this has made a very great improvement. The white powder which is used for restoring the colour to soiled cotton waste and also for giving it weight is powdered gypsum or plaster of Paris. Dr. Legge examined the workers and found the injurious effects which follow the inhalation of dust which, harmless in small amount, is present in great excess.

Miss Whitlock visited nine cotton waste factories and made a close enquiry into the health of the workers and found a good deal of bronchial trouble. She found it difficult to dissociate the effects of the dust from the poor physique of the casual workers employed in such unpleasant surroundings, though the evidence clearly pointed to aggravation of the bronchial trouble common among the elderly. She was also struck by the occurrence of three cases of pneumonia in two factories where the dusty conditions were worst. Dr. Legge, on examining women workers at one of the factories found an eczematous condition round the margin of the nose and chronic inflammation of the mucous membrane.

* Very defective provision for exhaust in the dusty processes in asbestos manufacture was found by Miss Whitlock in most of the factories she visited, and in some cases no provision had yet been made. Fortunately, so far not very many workers have been yet employed, and long before any possible further growth of the trade (the material coming largely from Canada) I hope that exhaust ventilation will be effectually applied at the points of origin of the dust. She visited 24 factories employing in all 1,075 workers, of whom 555 were female and 520 male. She found a good deal of respiratory trouble in one form or another amongst the workers. Men are employed mostly in the preliminary of the quasi-textile processes where "free fans are practically useless"; in one factory where women were doing this work she found all of them suffering from coughs and the two youngest also showed the soreness of nostrils and upper lip associated with dust inhalation. In the carding processes in which both sexes are nearly equally employed, men more often, Miss Whitlock also found evidence of phthisical trouble and pneumonia. In the spinning processes women predominate and the dust inhaled is much less. It is greater in weaving where men again are more found; amongst the women weavers there was evidence both of bronchitic and gastric trouble. In "mattress" making (for engine covering), a very dusty process, women are chiefly employed and phthisis and throat trouble were found. Here the difficulty of providing satisfactory exhaust is much greater owing to the wide area from which dust arises and probably the aid of suitable respirators is needed. All the occupiers are under direction as to installation of effectually applied exhaust, some having the matter already well in hand. Any further action necessary must belong to the current year.

Very marked proof of injury to all workers concerned was found in a small lace tinting business for dressmakers by dry methods in Miss Slocock's district. Dr. Collis's aid in examination was obtained and he found not merely the significant redness about the nostrils and in the pharynx, but also detected phthisical result from the use of finely divided dusts, shaken out by hand from the laces by the workers. Here the occupier subsequently at great expense provided efficient exhaust ventilation for the removal of dust from the lace in a manner to avoid all shaking by hand by those

enquiry into the occupation of the patient; and extension of compulsory notification elsewhere should make the same information available everywhere in time.

Humidity and steaming.—A good deal of steady work has been done both in Belfa and in Preston so far as was possible by this small branch in checking and preventing excess over the legal limit of moisture in flax and cotton industries. Miss Escreet points out that in Preston there are sheds without any of the recognised humidifiers, where steam is introduced in ordinary jets. Her experience and that of other Inspectors point to the exhausting effect of active work carried on in atmospheres charged with moisture or above the legal limit.

Miss Escreet.—I paid a visit to one shed—constantly found at the full limit of humidity during cleaning time on Saturday. Though introduction of steam had ceased a few minutes earlier, the effect of the atmosphere, combined with the very hard work was unmistakable and all the workers, from adults to children of 12 and 13 years old, had perspiration pouring down their faces.

Similarly Miss Meiklejohn reported a case where during the dinner hour the limit of humidity was exceeded and steam was pouring into the weaving shed while about a dozen women were taking their meal there. The records showed that the full limit humidity had been reached on many occasions. A statutory caution was sent in this another meal time case.

Heavy or constrained or unusual work, weights, hand presses.—It is reported by Mr Pearson that workers continually employed on hand presses in tin box works tend especially if the operator is above or below the normal height, to become crooked; that the effect is not noticeable when the operator is able to operate the press alternately with the right and left hand; she also found that blistering of the palms occurs if the handle is vertical but not when they are L shaped. Cases of work of an unusual character women noticed were, women unloading carts heaped up with heavy bales of material, in slaughter yards of a bacon factory (Ireland), stacking and loading crates of bottles in breweries. Heavy weights lifted, pushed or carried by women or young workers were observed during the year by the inspectors in jam and sweet factories, biscuit factor textile factories (especially weaving sheds), glassworks, potteries, breweries. Samples are (1) two women carrying a copper pan full of syrup weighing 155 lbs. and another couple 121 lbs. The accident register in this factory recorded five recent accidents women lifting pans and jars; (2) in glassworks women in couples carry boxes filled with "fired" glass to the warehouse which weigh 84 lbs. and over. Miss Squire noted in one factory that the boxes weighed 1 cwt. 6 lbs. and that empty iron trays, large unwieldy in shape, weighing 82 lbs. were being carried at intervals of 10 to 20 minutes across the glass house; recommendation was here made that trolleys should be provided; (3) Women are still found lifting and adjusting their loom weights, which weigh up to 60 and 70 lbs. apiece, and some managers remain in favour of this method, as allow more oscillation of the beam, rather than any automatic device. Miss Squire considers that serious risks are incurred by delicate women in these cases. But adds:—

Miss Squire.—It is encouraging to find that progress has been made in substituting automatic motions to looms for the more primitive weighting by means of weights tied by cord to the beam. One firm with over 7,000 looms having 5,000 of these weighted in the old way, while experimenting with new devices, made arrangements to get rid of all weights over 70 lbs. and to substitute weights of 50 to 60 lbs. This will be a great relief to the women girls, yet two bad accidents were caused by lifting 56 lbs. weights.

(4) Cut carrying or carrying of heavy pieces of cloth from weaving shed to warehouse still continues, though for workers under 14 the matter can now be controlled under the Employment of Children Act, and for those under 16 years the help of certifying surgeons. Miss Martindale found cases of women required to cut and carrying them up to 70 lbs. weight.

Miss Martindale.—The bulky nature of the cloth handled added greatly to the difficulty of carrying it. In the drawing-in shop of one factory I noted a girl of 18 years of age, had just completed drawing-in a beam and was about to remove it. By means of chains from above, she and another girl lowered the beam on to a little two-wheeled trolley, wheeled it into another room, where they lifted it on to a frame. They placed the arc under the frame and lifted it a few inches on to the frame. I saw the beam weighed the weight was 266½ lbs. The same girls then lifted and rolled another beam to the original frame, and by means of chains placed it on to the frame. I drew the attention of the manager to this matter, and he informed me that men were engaged to do this work.

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Miss Escreet.—I paid a visit to one shed—constantly found at the full limit of humidity during cleaning time on Saturday. Though introduction of steam had ceased a few minutes earlier, the effect of the atmosphere, combined with the very hard work was unmistakable and all the workers, from adults to children of 12 and 13 years old, had perspiration pour down their faces.

Similarly Miss Meiklejohn reported a case where during the dinner hour the limit of humidity was exceeded and steam was pouring into the weaving shed while about dozen women were taking their meal there. The records showed that the full limit humidity had been reached on many occasions. A statutory sanction was sent in this another meal time case.

Heavy or constrained or unusual work, weights, hand presses.—It is reported by Mr Pearson that workers continually employed on hand presses in tin box works tend especially if the operator is above or below the normal height, to become crooked and that the effect is not noticeable when the operator is able to operate the press alternately with the right and left hand; she also found that blistering of the palms occurs if handle is vertical but not when they are L shaped. Cases of work of an unusual character women noticed were, women unloading carts heaped up with heavy bales of material, in slaughter yards of a bacon factory (Ireland), stacking and loading crates of bottles breweries. Heavy weights lifted, pushed or carried by women or young workers were observed during the year by the inspectors in jam and sweet factories, biscuit factor textile factories (especially weaving sheds), glassworks, potteries, breweries. Samples are (1) two women carrying a copper pan full of syrup weighing 136 lbs. and another couple 121 lbs. The accident register in this factory recorded two recent accidents women lifting pans and jars; (2) in glassworks women in couples carry boxes full with "fired" glass to the warehouse which weigh 84 lbs. and over. Miss Squire noted in one factory that the boxes weighed 1 cwt. 6 lbs. and that empty iron trays, large and unwieldy in shape, weighing 32 lbs. were being carried at intervals of 10 to 20 minutes across the glass house; recommendation was here made that trolleys should be provided (3) Women are still found lifting and adjusting their loom weights, which weigh up to 60 and 70 lbs. apiece, and some managers remain in favour of this method, as allow more oscillation of the beam, rather than any automatic device. Miss Squire considers that serious risks are incurred by delicate women in these cases, but adds:—

Miss Squire.—It is encouraging to find that progress has been made in substituting automatic motions to looms for the more primitive weighting by means of weights tied by cord to beam. One firm with over 7,000 looms having 5,000 of these weighted in the old way, while experimenting with new devices, made arrangements to get rid of all weights 70 lbs. and to substitute weights of 50 to 60 lbs. This will be a great relief to the women girls, yet two bad accidents were caused by lifting 56 lbs. weights.

(4) Cut carrying or carrying of heavy pieces of cloth from weaving shed warehouse still continues, though for workers under 14 the matter can now be controlled under the Employment of Children Act, and for those under 16 years the help of certifying surgeons. Miss Martindale found cases of women required to cut and carrying them up to 70 lbs. weight.

Miss Martindale.—The bulky nature of the cloth handled added greatly to the difficulty of carrying it. In the drawing-in shop of one factory I noted a girl of 18 years of age, had just completed drawing-in a beam and was about to remove it. By means of chains from above, she and another girl lowered the beam on to a little two-wheeled trolley wheeled it into another room, where they lifted it on to a frame. They placed the trolley under the frame and lifted it a few inches on to the frame. I had the beam weighed the weight was 206½ lbs. The same girls then lifted and rolled another beam to original frame, and by means of chains placed it on to the frame. I drew the attention of the manager to this matter, and he informed me that men were engaged to do this work and that he would see that in future they did it. On returning a worker the same evening