

His side has fallen in, and the liver has risen considerably in level; but he thinks that his side is again gaining something of its dimensions, more even than is due merely to recovery of power in the muscles; and the respiratory murmur has returned, even beneath the scar of the fistula.

Dr. Gordon has favoured me by reading the proof of this paper, and kindly furnishes me with the following confirmation of its details and statement of the patient's present condition:—

“I have perused the above case very carefully, and can testify to the accuracy of the details and the efficacy of the treatment. The patient was under my care for a very considerable time, labouring under a pleuro-pneumonia, followed by extensive effusion; and, although I advised the introduction of a tube into the pleura in September, the difficulties interposed were so many that the patient was in almost a hopeless state when Dr. Bennett saw him in January. I met him casually at the house of a relation about a fortnight since, and can testify to his being now in the most perfect health.—S. GORDON.”

ART. XIII.—*The Diseases which Prevail among Workers in Flax.*^a

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THE different processes that flax has to go through before it is made ready for clothing our persons or adorning our houses cause certain diseases in those that are employed in its manufacture, but one of the most injurious, and in certain branches very fatal, is the effect induced by the inhaling the flax-dust—called by the workers, “Pouce”—which is produced when the fibre is cleansed by machinery from the decayed wood and earth that had adhered to it in the steeping pools. This is given off largely in the scutch mills, where it is inhaled by the scutchers and those employed at the rollers through which the straw is passed; these workers suffer so much, from the effects it produces, that it is well for them there is an interval always between the seasons of their employment, during which time they are engaged in country work; this serves to partially repair the damage done to their lungs; not so with the

^a Read before the Annual Meeting of the British Medical Association at Sheffield, August 10, 1876.

flax dressers (roughers and sorters), who are constantly inhaling the dust; the roughers who prepare the flax as received from the scutchers suffer, but the machine-boys, who receive it after being put through the preliminary preparation, feel the effect of its inhalation more severely, as they are younger, being in very numerous instances half-timers.

The injurious effect that this inhalation of pounce produces in the lungs begins to manifest itself oftentimes in a few months, but more frequently in a few years, a good deal depending on the constitution of the individual; the first symptom is a sensation of dryness in the throat, which becomes inflamed, the inflammation creeps gradually downwards, as one told me, he felt his "windpipe becoming dry," thence into the lungs, soon bringing on the attacks of cough and dyspnoea, which seize them, especially in the morning and at night. In severe and well-marked attacks, the paroxysm of cough and dyspnoea lasts for a considerable time, and does not pass off until the contents of the stomach are ejected, and often blood is spat up. During this period the worker seizes any article that may be near, in order to enable him to get over the attack more easily; in the case of a machine-boy suffering from a severe paroxysm whilst at work, the table at which he is engaged is caught with both hands, and when thus observed by his companions he is said to be "pouncey." In a great number of instances the lad is obliged to leave the mill, and seek for employment in healthier trades; but still, in cold weather, he suffers from cough and shortness of breath, and in many cases his life is terminated by phthisis. The number that died of phthisis in one year, during the time they were in the factory class, was six per mill., but as numbers linger out a diseased existence in other callings, only to terminate in death, far more than six per mill. get the seeds of their death in the machine-room of a mill. At seventeen years of age, should his health be such as would enable him to continue working, he either becomes a rougher or sorter, and these two classes generally suffer from frequent attacks; when about thirty years of age their appearance begins to alter, the face gets an anxious look, shoulders become high—in fact, they become prematurely aged, and the greatest number die before forty-five years; many, as in the case of the machine-boys, are compelled, through chest affections, to seek for other means of support, so that it is a very rare occurrence to see a hackler over sixty years of age, that has always been employed as such. In my mortality tables the deaths from

phthisis and chest affections were 11·1 per mill. in one year; but, as mentioned before, a great number that had the seeds of the disease having left the mill, and died in other callings, makes the death-rate, from inhaling the dust, far more, really, than the return shows. Though not exactly included in this paper, I cannot avoid mentioning that this affection of the lungs that the flax dressers suffer so much from, is so well known to the army surgeons that they have forbidden the recruiting sergeants to enlist any from this department. But the class that suffers most from inhaling the dust is the preparing and carding; in this females are almost exclusively employed; these suffer in the same manner as the males, but in a far more aggravated degree. I need only mention one case in order to enable you to understand that the sufferings of some is very great, and that it is not strange they fly to whiskey for temporary relief. The patient (a woman) is forty years old; commenced to work at fourteen; after a few years her throat became dry, and she felt herself to be “choked up;” suffered also from headache; then attacks of cough and dyspnœa began to come on every morning and night; these attacks lasted for half an hour at a time; now, when they come on, she has to lie across one of the “cans” in order to get relief, and the paroxysm does not cease till she throws off the contents of her stomach, and sometimes blood; has to get up at five o’clock in the morning in order to be dressed in time for the mill at six, as she is often obliged to stop on account of the paroxysm coming on, and it is not surprising that in this department the death-rate in chest affections is exceedingly high—in fact, exceeding that of the entire district from all diseases by 8 per mill.; but the most fatal part of the preparing is that in which the “long line or cut line” is spread, as the dust is so fine, and of such an irritating character, that it almost invariably produces lung-disease. I may mention that when formerly, at Mr. Baker’s request, I made inquiries into the sanitary state of the workers, on asking a very clever manager of one of the mills respecting the health of this department, his reply was—“It is sure death.” I may also mention that the workers hasten their deaths by the inordinate use of alcohol. Before leaving this class of workers, I cannot avoid stating that the dust from certain descriptions of flax is more injurious than others, and also that of the dust in certain departments. The Irish is far less irritating than the Dutch or Flemish, but the dust from the Pernau is the worst of all. The dust in the preparing-room, being finer, is worse than that in the machine-room.

I have had an analysis of the flax fibre made by Dr. Hodges, which shows that in 100 parts nearly 13 parts are silica. An ori-nasal respirator is worn by workers in the preparing-room; it is called the "Baker respirator," after one of Her Majesty's Inspectors of Factories, and has been found very useful. I have been able, through the courtesy of Mr. Baker, to obtain a drawing of a portion of the lung of a flax-dresser. [This drawing was exhibited to the meeting.] He died of pulmonary disease. It is magnified forty times. "He was forty years of age; there was no history of hereditary phthisis in this case, and the cough and other lung symptoms were justly attributed to the inhalation of flax, as, having at one time changed his employment, the symptoms had greatly subsided, but they increased again when he returned to a flax mill, and he eventually died with symptoms of severe pulmonary disease." It is a vertical section, showing the particles of dust adhering to the sides of the bronchial tubes and air cells. The photograph of the sorter [also exhibited] was taken from one of those employed in a mill, aged fifty-two. He was a machine-boy for five years, then a rougher for two years, after this he became a sorter. He sometimes began to feel a dryness in the throat, and a "stuffy" feeling; occasionally this sensation gradually crept down the trachea, when he became "real poucey." At this time he felt as if his neck was a drawing down into the chest, and his limbs beginning to get weak, the hands and forearms becoming stiff. This came on frequently until the last five years, when it became almost permanent. His appetite began to fail, and he lost flesh. Has now frequent attacks of cough and dyspnœa, becoming quite exhausted when the paroxysm is over, which frequently terminates in vomiting or expectorating a glairy mucus; during the time he is suffering has to place his hands on a table, or any other support that is near; the breathing and attacks are worse when the wind blows from the N.E., and in cold or damp weather. Physical signs:—Chest sounds dull on percussion, resonance of voice; respiration 30 in the minute, with expiratory murmur prolonged and audible. Pulse 80, weak. Another photograph is of a machine-boy, aged fourteen; chest dull on percussion, respiration 20 in the minute; respiratory murmur weak, with expiration prolonged; pulse 84; coughs frequently; has been three years in a mill.

Another department that has a peculiar disease, called by the workers "mill fever," is the spinning. This generally attacks raw hands, and comes on when they are at work a few days. The symptoms are rigors, nausea, vomiting, quickly followed by pain in

the head, thirst, heat of skin, &c. This state continues from two to eight days, when the disease subsides of itself. No treatment is required or sought for, as the worker knows that it runs a certain course, and will leave her comparatively well, though weak, and that she may return to work without any dread of having it again. The cause assigned for the attack is the smell of oil, along with the vapour and heat of the room.

Another disease is a papular eruption, that attacks the exposed part of the body. This I call lichen, and is caused by the action of the flax water on the skin of young persons and children. Adults are not affected by it. I may say that a certain description of Russian flax produces a pustular eruption, so like variola, that during an epidemic of it the medical attendant was almost deceived at first.

Those that are engaged in bleaching yarn, where it is boiled in a certain kind of lee, which is of an irritating quality; suffer from an attack of eczema of the fingers and hands of so severe a character that fissures are formed, and bleed frequently. The disease commences in twenty-four hours after they have been working, and in two or three days the pain is so great that they have to stop until the parts become healed.

Before concluding this paper, I wish to mention that I have been informed by medical men of large practice amongst the factory workers, that phthisis is always acute among those that are employed in the spinning department (which is wet), and chronic in the preparing (which is dry).

Such are the specific and peculiar diseases to which those who are engaged in the manufacture of linen are liable.

Analysis of the Flax Fibre, by Professor Hodges.

100 parts of the ash of flax straw had the following composition:—

Potash, -	-	-	20·32
Soda, -	-	-	2· 7
Chloride of sodium,	-	-	9·27
Lime, -	-	-	19·88
Magnesia,	-	-	4·05
Oxide of iron, -	-	-	2·83
Sulphuric acid, -	-	-	7·13
Phosphoric acid,	-	-	10·24
Carbonic acid, -	-	-	10·72
Silicia, -	-	-	12·80

99·31