

mately 2 feet and 6 inches above the floor, twice a day. The oiling of the bolster is done when the mule is at a standstill. In the course of the spinning the mule operative works in the space in front of the carriage, passing backwards and forwards as it moves in and out. During this work and especially when a torn thread has to be pieced the spinners have to lean over, which is a frequent occurrence (at an average 240 times per hour). The scrotal region comes in contact thereby with the faller shaft causing thus a rapid intermittent friction of his trousers with the skin of the region of the groin. The temperature in the spinning room is high, varying between 70° to 90°F, while the humidity is between 60 to 62 per cent.

The spinners are clad in a shirt and a thin pair of cotton or linen trousers, in former years, of a soft, white material, but which have been replaced steadily, since 1905 by blue overalls, made of a hard and coarse material and held by an inelastic brace. The English spinners do not wear undergarments or socks and shoes. The French mule operatives wear white cotton pants, undergarments, and a belt in place of a brace (Robertson). The American spinners wear woolen or linen shorts, depending upon the temperature in the mule-room, and shoes, but not socks (Heller).

Exposure to the lubricating oil is occasioned by oil sprayed off from the portion of the bare spindle immediately above the bearing, though for various reasons the amount of oil and the rate at which it is thrown off differ in various mills. A rough test with a piece of white, absorbent paper, hung from the bar for a definite period at different times after oiling, indicates that occasional drops may still be thrown off after two to three hours. It is from this source that the greatest amount of oil reaches the clothing of the workers, causing the trousers and lower parts of the shirt to be soaked with oil (Bridge and Henry; and Heller). It is not unusual to find oil in the lower parts of the trousers, originating from contact with carriage doors, or from spindle footsteps in machines without doors; and other parts of the pants are oily from kneeling or sitting down on the greasy floors, and from lying down during the cleaning job. Additional exposure to oil may be brought about by placing oily waste or the oil can in the pocket of the trousers, and rubbing oily fingers and hands dry upon the flanks of the overalls. Oily areas on the overalls are found, for these reasons, on both knees and on each thigh in front of the great trochanters extending around to the middle of the legs and groin in front. According to Owen's dust counter, there exist droplets of oil in suspension in the air of the mule room, the card room, and the ring spinning room, exposing to a minor degree the skin and clothing to oil.

Robertson has attempted to discredit the causal role of lubricating oil in the production of the so-called mule spinners' cancer, and has asserted that the cause is represented by mechanical friction in conjunction with the action of the blue aniline dye used in blue overalls. This claim has not found any recognition. It is an established fact that mule spinners' cancer was observed in Eng-