

chief Inspector of Factories, requires the use both in roughing and sorting shops of a special duct provided with a fan for drawing off the dust as it rises from the hackle. With the object of preventing the dust from reaching the mouth of the workman, this duct is placed behind the tow-box, in front of the operator, and has an opening opposite the hackle, which may be covered by perforated zinc or gauze, and which varies in area in the ratio of its distance from the fan. The dust is expelled from the room into the open air, or if a nuisance is thereby created it may be collected in a chamber containing water. The rougher's tools consist of a hackle and a touch pin. The former is a wooden stock, usually of beech, 16 in. long by 5 in. broad, and 1½ in. thick. An area 9¼ in. by 4 in. in the centre is studded with steel pins 6 in. to 7¼ in. long, and of a thickness at the root of 5 or 6 B.W.G., tapering to a point. There may be 11 pins in a row, and 5 rows in breadth. A rougher's hackle costs about 15s. when new. The touch pin is a steel pin of square or triangular section, set in a wooden or metal stock. The pin is usually of about ¼-in. side, and projects 2 in. above the block. Good touch pins can be made out of old files. The edges should be smooth but not sharp. Both the hackle and touch pin are bolted to a plank forming the front of the bench, and between the rougher and the tow-box, and the ventilating duct already referred to. It is found best in practice to set the hackle at an angle of about 30 deg. to the horizontal, the front portion being the highest. The rougher's berth is the space opposite his hackle, bounded on the right by his own table, 1 ft. 6 in. by 6 ft., and on the left by the table of his neighbor. A well-adapted roughing shop may thus be, say, 30 ft. to 35 ft. broad, allowing ample space for two rows of roughers, or double the width for four rows. The loftier and more airy it is the better; however, it must be at least of such a height as to give 250 cubic feet of air for each person employed, to comply with the rules of the Factory Act. The first operation of the rougher is the piecing out of his flax. He loosens the bands of the stones or heads and separates them into their individual stricks or fingers. Holding these with the root end from him, he separates each into pieces weighing about 2½ ozs., and in bulk containing as much fiber as can be easily grasped round between the finger and thumb. To effect this separation some badly scutched and handled flaxes, more often Irish, require to be rough ended, or the ends drawn through the hackle to open out the matted and tangled fibers. The rougher should first piece out a considerable quantity, depositing each piece by a sweep of the arm upon his table in such a way that they may be easily lifted again without tossing the others. When he has got some work ready, he proceeds with the roughing proper. First, taking a piece in his right hand, and catching it about two-thirds of its length from the root end, with a quick throw backward he frees the end with

a sharp crack, and spreads the root end level upon the hackle. Withdrawing the piece with a steady pull, he leaves the loose fibers or droppings in the hackle, and any which still remain upon the root end of the piece he pulls off, upon the corner pins of his tool. Relaxing his hold for a moment with his right hand, he grasps the loose fibers in the hackle, along with the piece, in such a position that when by main force he withdraws them from the hackle, they are square and level in the root end. He then draws this end once more through the hackle, laps the piece round his right hand, and taking the extreme end in the fingers of the left hand, he laps it round his "touch pin," and, with a skillful jerk of his right arm, breaks off and pulls out the uneven and loose fibers from that end. Turning the piece, and proceeding with the top end, he again goes through the roughing and breaking process, and then, laying the piece upon the table, withdraws his hand without taking out the lap which was formed round it, and leaves it so that, more pieces being added and a "bunch" formed, each piece may keep separate and be easily lifted without tossing the rest. A considerable amount of skill is required to square the root end and to open the flax with a minimum amount of tow. Sometimes the flax is only dropped in the root end and sometimes at both root and top. When the latter is the case, the top must be "dropped" first, as described, but the fibers not gathered from the hackle until the root end has been "dropped" also. Some men in the trade prefer to put the droppings into the top end of the piece, and by this means equalize the bulk from root to top, while others—the writer included—maintain that it is best to have the root end square, as it would naturally have been, had the pulling and scutching been done as they should be.

(To be continued).

SOUTH AFRICA, ITS PEOPLE AND TRADE.

ARTICLE I.

The obduracy of the Transvaal Boers and their president in refusing to concede the common rights of man to citizens not of their own race, is turning the attention of the civilized world to South Africa and its people. That quarter of the world possesses unusual interest to Canadians, not only from the standpoint of imperial politics, but from its commercial development and its possibilities as a field for Canadian trade. As a prelude to a review of the prospects for Canadian manufacturers and exporters, it will be well for the reader to know something of the causes of the present political complications.

The Cape of Good Hope, though discovered by Diaz, a Portuguese navigator, six years before Columbus landed in America, and though used as a port of call by the Portuguese for a century afterwards, it remained for two English captains, in the employ of the East India Company—Shillinge and Fitzherbert—to