

*Winding.*—Many winding machines are used, varying from makeshift types of primitive construction, at which the practice may obtain of holding the yarn in the hand, to modern universal winders for winding "cheeses." Dust may be evolved to some extent, particularly in connection with the above practice, which could be eliminated. Application of exhaust draught will then probably not be necessary, except in particular cases.

*Plaiting and Braiding.*—Plaiting and braiding, also carried on in engine packing and electric cable factories, and done at machines of normal design, cause some evolution of dust, except where the yarn is impregnated with "grease." While the amount of dust is sometimes less than in spinning, the difference is not material. But there is perhaps less exposure of the operative under ordinary working conditions and precautionary measures other than localised exhaust ventilation may suffice.

*Weaving.*—Looms vary greatly in size and general arrangement. As many as 140 looms may be found in a single room, but this is exceptional. The clear space between machines may not exceed 18 inches. Some looms are independently driven by electric motors. Cotton warp or weft is sometimes used. Thin cloth, for mattress covers, filters, clothing, etc., is woven from a single warp beam at a simple type of loom. Belting looms, for thick belting and brake lining material are complicated, several warp beams, arranged in tandem under the loom, or in some other convenient way, being required. These looms are narrow, but often very long. Tape looms are also narrow, unless several tapes are woven together when several shuttles, in line, working in unison, are used. Cloth is beamed at the front in the usual way, but belting may be led under the loom, and coiled high above it, at the back.

Most weaving is "dry," but some weaving is done wet, either warp or weft, and occasionally both being wetted. Wet weaving is accomplished more easily and a closer weave obtained, but rusting of heald fittings, and the subsequent drying entailed and the less satisfactory appearance of the material are disadvantages. Thoroughly dry fabric is required for brake linings and rubber-proofed material, and wet woven cloth may be strongly objected to on this account.

Considerable evolution of fine dust occurs in dry weaving as a result of (a) the forward movement of the slay in "beating up," this source being close to the operative, (b) the repeated contacts of the rising and falling warp threads with their neighbours, this source being the most important from a quantitative standpoint, (c) the disturbance of "dust" or "fluff" on machine parts, especially those in motion. A fine dust cloud may be observed behind the healds above the warp threads. Much less dust is produced in wet weaving.

Some "dry" looms are now fitted with localised exhaust usually applied to deal with dust evolved by both (a) and (b), in some cases (a) only. (a) A flat horizontal "hood" is fitted in front of the operative, just above the cloth, the opening facing towards the healds; (b) either an upright pyramidal hood, placed transversely, or horizontal flat hoods, one on each side facing each other, are fitted close behind the healds. The second arrangement is the more effective for narrow looms, as the "scissors-like" action of the warp threads appears to displace most of the dust to the sides. The exhaust draught has effected some improvement, but all the dust is not removed, especially that produced by (b). It may be impracticable to apply the draught to all dust-producing points behind the healds, particularly at long looms, but greater success would have been achieved with more powerful draught and larger air displacements, as is now being recognised.

The methods described for dealing with the dust created by (b) must be less successful at cloth looms of ordinary width. A few such looms in one factory have recently been equipped with large "bonnet" hoods, fitted transversely, close down over the machine, covering the slay, reed and healds. The hoods are of hemispherical section, with extensions over the shuttle boxes. An internal electric light fitting, and hinged sections, facilitate working. A powerful draught, suitably applied, should prevent escape of dust, generated within. In another case, experiment is said to have shown that a transverse inclined hood facing the operative, placed just below the warp near the front of the loom, can be more effective for reducing dust concentration in the air breathed, than present arrangements, and the new design is to be substituted.