THE "MALARD" WOOL-SCOURING MACHINE.

Having read an article by M. Vandenbosch, engineer in a spinning mill at Wambrechies, on the Malard wool-scouring machine, W. P. Atwell, the United States Consul at Roubaix, sought the author, and obtained from him the following description of the machine:

The machine serves a triple purpose: It scours perfectly, eliminates from the wool secretions from which industrial potash is obtained, and thus renders the water that passes off into streams less poisonous. The complete purifying of the waste water may be effected by the addition of less acid, as the acid is not neutralized by the presence of salts of potash. The machine is an invention of M. Georges Malard, a Tourcoing engineer, and has been patented in France and other countries, including the United States. It is largely used in France, some combing establishments producing annually more than 2,204,600 lbs. of potash obtained from wool grease, and selling it at prices ranging from 27s. to 38s. per 100 kilos. (220 lbs.) of carbonate. The potash is obtained from the soluble grease secreted in the raw wool, which is run off in the scouring process in concentrated liquid, having a density of 12° to 13° Baume areometer (corresponding density 1.0744 to 1.099). This liquid is evaporated and calcinated in special ovens made of masonry, and leaves a saline residue of spongy form and grey blue in color. This product is known as wool potash, and contains from 75 to 90 per cent. of carbonate of potash, and very little soda. It is much used in the Roubiax district in glass-works, in the manufacture of soap and chemical products, in the preparation of refined and caustic potash, and in the manufacture of prussiate of potash. It has thus great commercial value.

The Malard scouring machine is very simple, requiring neither cellar, cistern, nor upper storey, like the old machines. It is movable, works on a level, and, being automatic, requires no special superintendence. One workman can easily feed several machines extracting the grease, and consequently several washing machines, since the wool leaving the first machine falls directly into the first tub of the second, or washing, machine, which may be of any pattern.

The wool is first spread on an open-work metal plate of about 6½ yards in length, and is carried over this to the first washing bath. The plate is of malleable sheet iron and serves to carry the wool in layers of 25 to 50 centimetres (9.8 to 9.16 inches). It is the invention of M. Paul Malard, of Tourcoing. It is extremely solid, holds its shape, and lasts indefinitely, as it offers the maximum of resistance. This plate is placed over a vat divided into six compartments, which is placed next to the receiving tub of any washing machine. A battery of centrifugal pumps puts in motion a small quantity of the liquids contained in the compartments, so that they moisten and pass through the layer of wool, eliminating its grease. The wool in its progress receives each one of the dissolvents, the strength of which decreases in regular proportion as the wool reaches the point from which it passes into the receiving tub.

The pumps are worked by a single belt, and are started into action simultaneously with the plate, by a single turn of the gear. An ingenious mechanism produces the automatic evacuation of a variable amount of the first grease drippings, when sufficient density is obtained. Hinged valves worked by floats constantly maintain a high level in each of the compartments of the machine, so that they neither overflow nor get empty. The automatic passage of the liquids from one compartment to another is obtained by means of these hinges. This passage is regulated as required, and is in an opposite direction from the movement of the wool. A very simple and absolutely sure contrivance regulates the supply of warm water for rinsing. This water, which takes the last alkaline traces from the wool, then passes into the last compartment of the machine. Its flow is constant, as it must supply the loss of liquid sustained by the receiving compartment, which pours the liquid through succeeding compartments by means of the valves spoken of above.

The automatic operation of the machine, regulating the duration of the cleansing process, preserves the strength of the wool and gives a clearer white. The wool is impregnated successively with liquids that lose in alkaline properties as they gain in heat, until the wool reaches the temperature of the first washing bath. The Malard machine permits absolute cleansing or partial cleansing to any degree desired. All the wool may leave the machine carrying a portion of grease regularly distributed, or it may be absolutely freed from the grease that clings to its filaments, by means of six liquids of decreasing density (12, 9, 7, 5, 3, and 1 Baume), then by rinsing in warm water.

The liquid products are usually 2° greater in density than in other modes of extraction, and this can readily be raised to 10° even with lambs' wool, which is not rich in fatty matter. This is regarded as a notable feature, in view of the constant rise in price of coal. Australian wool gives about 160 grammes of carbonate of potash, and fine qualities of Buenos Ayres as high as 190 grammes to each kilogramme of combed wool.

The Malard machine has a capacity per day of ten hours of 140 to 320 cubic feet of grease, 12° Baume, according to the kind of wool and capacity of washing tub. Each cubic metre (35.36 cubic feet) yields about 78 kilogrammes (172 lbs.) of wool potash, selling for about 12s. per metre.

REVOLUTION IN CARPET MANUFACTURE.

Entirely new machinery for carpet weaving has been in operation for some time past in Lucerne. It is of such a nature as to be likely to revolutionize the manufacture of pile fabrics of the kind now so extensively imported from the East. The Oriental weaver, with his hand loom, requires one day to produce one square yard of carpet; by the new machinery, fabrics identical in every material respect can be turned out with a ten-foot loom at the rate of 35 square yards a day. The inventions are those of Otto von Halleneleben. They comprise certain mechanical operations that do away with a large proportion of manual labor, and are calculated to have a very important influence on this branch of the textile industry in Great Britain and other countries. The Halleneleben inventions consist primarily of a shuttleless loom and an automatic system of yarn dyeing. This is the first time a practicable shuttleless loom has been produced, and its introduction is expected to create a great effect on the Bradford cheap carpet trade, seeing that low-grade material, such as cowhair, formerly practically waste products, can be woven by this loom as perfectly as any yarn now in use. The inventor has been successful in adapting his machinery to the production of carpets of the Brussels type, producing two carpets simultaneously at one operation, thereby doubling any given output in the same time.

It is, however, the automatic system of dyeing the yarns which is anticipated to produce the broadest effects in the general textile industry. The system produced by Halleneleben is radical in its departure from existing methods. Instead of using drums with their cumbrous accessories and large number of hands, Halleneleben, by one simple apparatus, produces three times the output with only two assistants. The dyeing is stated to be a true liquid dye, no molasses or other thickening material being required.

The entire process, as in operation in Lucerne, has been most exhaustively examined by James Wade, the well known