

THE MANUFACTURE OF MACARONI.

BY W. FRANK M'CLURE.

Macaroni, vermicelli, stelletta, and other paste foods originally made in Italy, are manufactured from kinds of wheat which contain a goodly per cent of gluten. The flour obtained from these kinds of wheat, when mixed with water, forms a peculiar dough. In America the mixing is done by modern machinery, and this operation is followed by that of mechanical kneading, which results in producing a firm, hard paste. A typical macaroni mixing and kneading room is pictured on this page.

The flour is dumped into the mixing vats by the sackful, and hot water by the bucketful is added. The stirring is done by means of revolving machinery in these vats, and is continued until the mixture takes the form of dough. This dough is rolled upon a flat surface by a large stone or iron weight, which, like the mixing machinery, revolves. The stone weights are somewhat antiquated, as they require an attendant's efforts to keep the dough in proper position. The metal weights are ingeniously equipped with teeth, which keep the dough constantly in place. The kneading operation requires about a quarter hour's time. Experienced Italians are, in many factories, in charge of all the processes.

The firm, hard paste from the kneader is removed to double-cylinder presses, in which it is forced downward through copper dies. On the size of these dies depends the size and shape of the finished product. Vermicelli comes from the press in mere strings or shreds. The diameter of the ordinary macaroni, which is in the form of a hollow tube, is well known to everyone. Then there are the fancy shapes squeezed from a horizontal press. Other forms of the product of a macaroni factory are mere chunks or noodles.

The lengths of macaroni or paste foods are almost as varied as the thicknesses. The macaroni which is coming from the press shown in the photograph is cut off by the attendant, knife in hand, at intervals of four or five feet. Vermicelli may be but six or eight inches in length. In connection with the horizontal

presses, from which come the short lengths and fancy shapes, there is a knife which works automatically.

The long strips of macaroni, after coming from the presses, are placed evenly over racks. The racks are then hurried away to the drying rooms. The short fancy shapes are dried and cured upon trays. Mechanical fans assist in all drying operations. Before cur-

of macaroni in the United States report a steady increase in the demand for this commodity. This increase does not come wholly from among the foreigners, but from Americans as well, who are fast learning to like a food which has been universal among Italians far back in history. There are numerous factories in the United States, using in the neighborhood of fifty barrels of flour per day in the manufacture of these paste food products.

The encyclopedias tell us that macaroni was originally but lumps of paste and cheese squeezed into balls. In its infancy, the manufacture of macaroni was one of the chief industries of Genoa, and the wheat for its production was brought in largest quantities from Sicily. A long time ago in Italy the dough or paste was rolled into sheets, and the designs were stamped from these sheets.

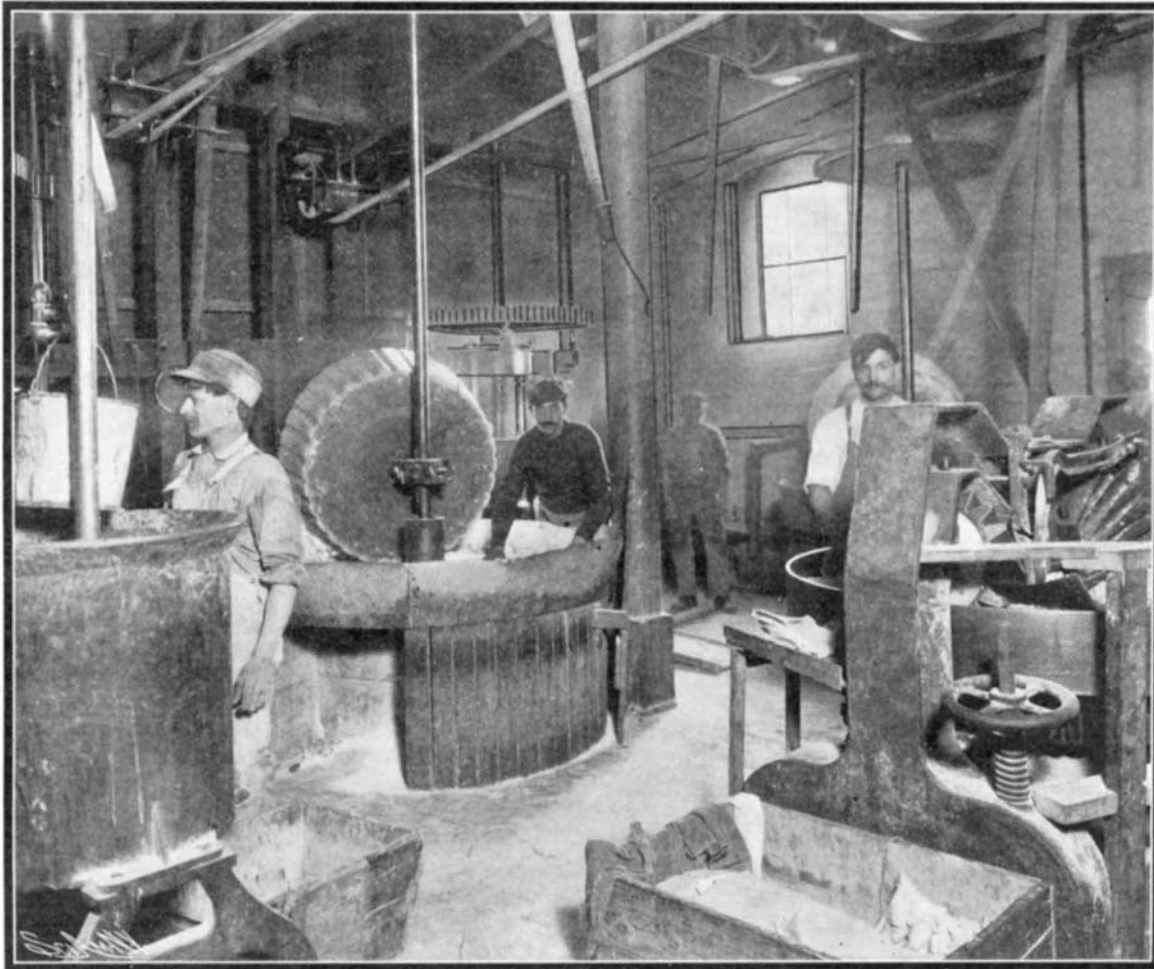
An Electrolytic Telephone.

In connection with the Jubilee Exhibition held by the German Electrical Society, in Berlin, at the end of November, Mr. E. Ruhmer exhibited a rather curious apparatus in the shape of a novel telephone receiver (the electrolytic telephone). This remarkable apparatus, which could be called a "speaking accumulator," consists mainly of an electrolytic cell, including electrodes of unequal size. On being traversed by microphone

currents, this cell renders truly any words spoken into the microphone to which it is connected. By means of two hearing tubings, similar to those of a phonograph, the words spoken at the sending station may be perceived with a high distinctness.

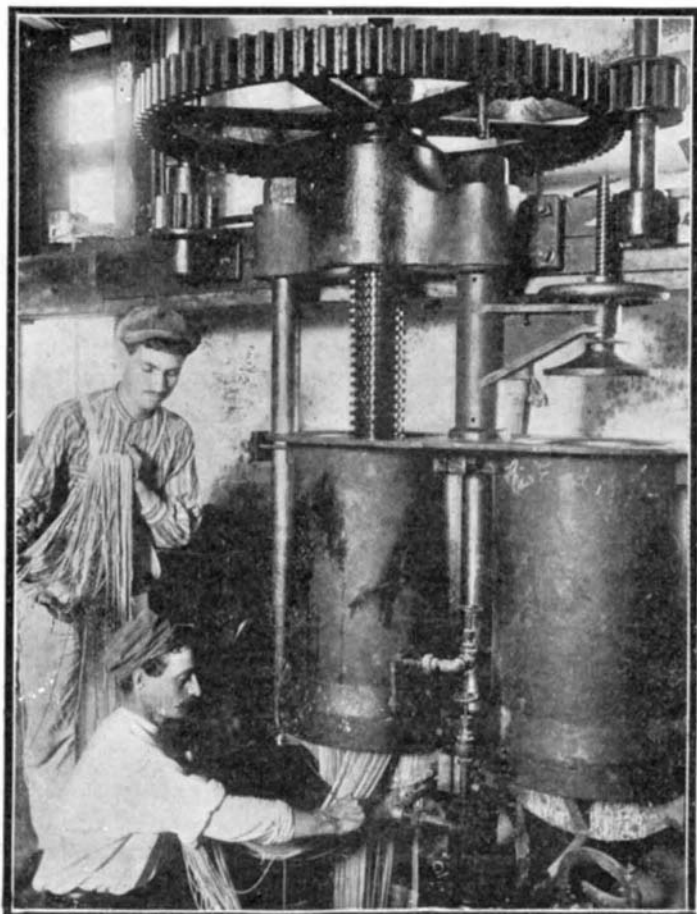
A Shadow Clock.

A clock which seems to be pre-eminently adapted for the sickroom or hospitals is the invention of Prof. Hirth, of Munich. It consists merely in the depression of a button, which cuts in a small electric lamp placed under the dial of an electrically-illuminated clock, throwing the shadow of the face and its hands upon the ceiling, in a highly magnified state. Viewed from the bed of a reclining invalid, it obviates the irksome craning of the neck.

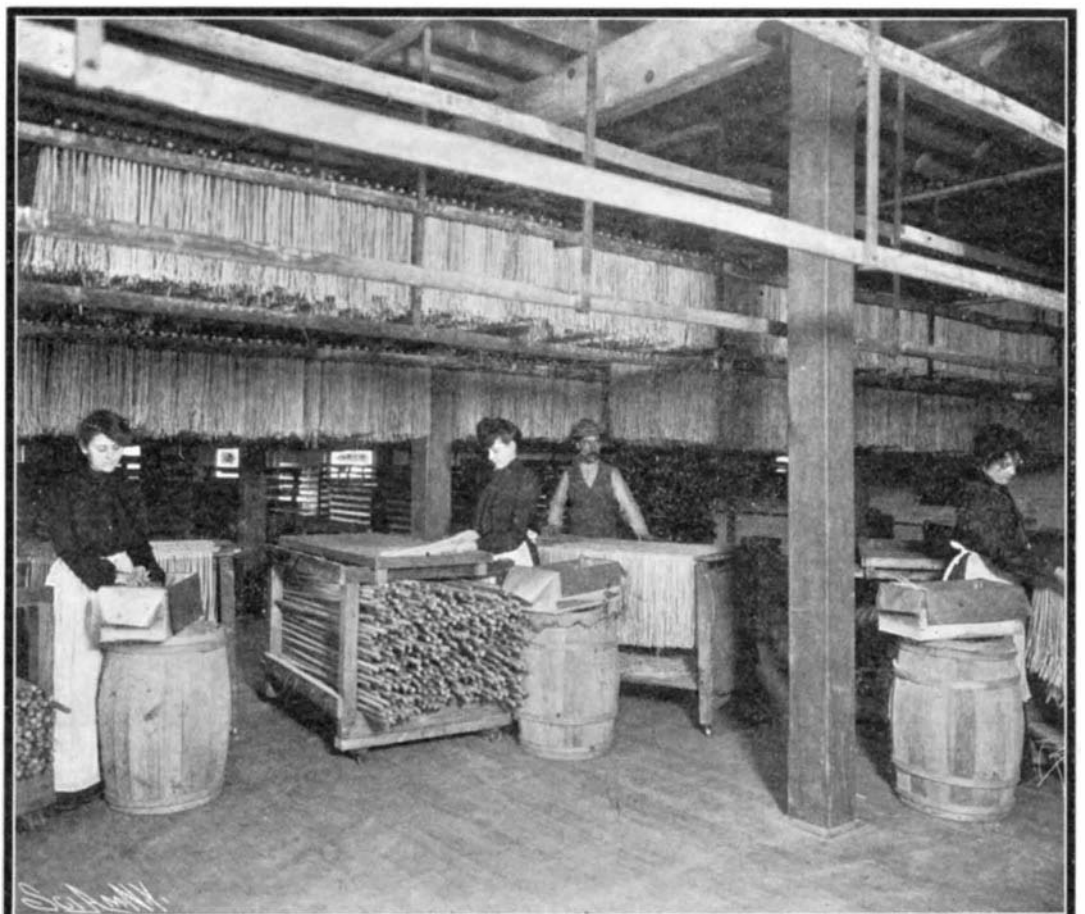


The Mixing and Kneading Room.

ing, the strips of macaroni are sometimes placed beneath blankets to moisten them. This keeps them from subsequently cracking in the curing room. In the cool air of the curing room, the macaroni is allowed to remain nearly a week, and then it is ready for packing. Before packing, the long strips are carefully inspected, and any that is found defective is placed by itself and sold for a less price. The perfect strips are packed in long boxes and shipped to the jobber. The processes of drying and curing may differ slightly in different factories or in the making of different kinds of macaroni. In some instances, the drying must proceed more slowly. Some may have wondered why macaroni, where larger than strings or shreds, is made hollow. The reason is that it may cook more uniformly. Those engaged in the making



Macaroni Presses.



Room in Which the Macaroni Is Inspected and Packed for Shipment.