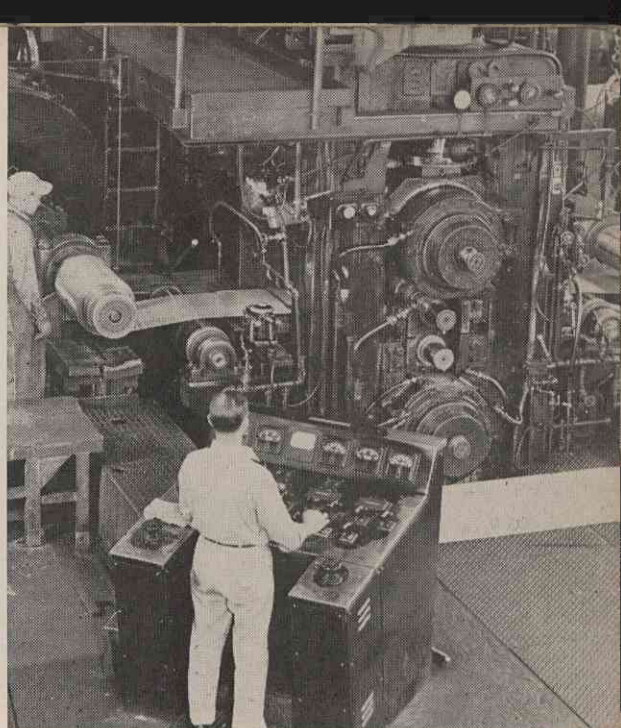


After leaving Hot Mill, brass bar goes first to straightener roll, visible at extreme right. Bar then proceeds to milling machine which cuts off scale from original casting operation and removes any defects present. Above, milled bar is being flipped over to the rack of bars at the left.



Brass is rolled to very fine tolerances by experienced operators at the East Alton mill. After repeated rollings on various mills, a coil of brass might be stretched out to a length of more than five thousand feet and perhaps nearly as thin as a leaflet of Ecusta cigarette paper.

When the Winchester Repeating Arms Co., was acquired in 1931, our brass facilities were augmented by those of Winchester. And in the same way that we built our first brass mill to supply the needs of military ammunition contracts for World War I, so we expanded our brass-making facilities again to obtain the unprecedented quantities of metal required for our military ammunition contracts for World War II.

Olin concentrates entirely upon custom orders or "tailor-made" brass. That is, each quantity of brass produced is made especially for a customer and is processed according to his specification. Such fine tolerances are maintained that some customers have eliminated their own inspection.

HOW BRASS IS MADE

But let's talk about the actual brass-making process, from the alloying of copper and zinc in the Cast Shop on through the various rolling and annealing operations in the Mill, until finished coils of brass are ready for shipping. For the sake of simplicity, let us consider the making of cartridge brass, which is basically similar to making any kind of brass.

Brass begins in the Cast Shop. The Cast Shop at East Alton is the big black annex on the west end of the mill. As you walk in you keep an eye out for the overhead crane that moves back and forth, picking up a newly cast brass bar, or transporting a heavy load of fodder for the hungry

furnaces—fodder of brass scrap, or pure copper and zinc ingots.

Perched high on a deck in the Cast Shop are 20 furnaces—electric so that they won't contaminate the brass alloy of copper and zinc being "cooked" in them, and perched high to provide room for the vertical molds into which molten brass is poured from the flaming furnaces.

You walk up onto the deck alongside the furnaces and look into them. Some are filled with molten metal of an orange-pink color — almost ready for pouring. In others, the "batch" of scrap brass, pure copper and pure zinc is scarcely melted. The furnace is just beginning the "build-up". Behind the furnaces are the meters, attached to a thermo-couple (device used to measure high temperatures) in the furnaces, where you can read the temperature history of a furnace — how it started out cool, began the "build-up" to temperatures in the range of 1135 degrees Centigrade — where the metal is right for pouring. Then the temperature drops off to begin a new cycle.

The temperature of pouring is very critical, as is the length of time of pouring. These factors have a bearing upon the grain size of the metal, and this must not be too large, or coarse. To judge grain size, samples are taken from the ends of the brass bars after casting. These samples are then milled in the Cast Shop Laboratory to a bright,

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