melts at a lower temperature, is somewhat pasty and flows in a sluggish stream. The operation of producing wrought-iron is simply the extraction from pig-iron of the carbon and other impurities, by means of the flame in a reverberatory-furnace, and stirring the charge of melted metal with iron bars, in order to expose every particle to the action of the oxygen of the air, which, combining with the carbon, passes off up the chimney as a gaseous product. The chemical operation thus performed is called decarburizing, which, were it possible to perfectly accomplish, and did the pig-iron contain no impurities, would result in pure metallic iron, which would be always alike in quality and characteristics in all parts of the world. This, however, is never the case, and there results exceedingly wide variations in the product of the puddling-furnace. Pig iron, like its namesake, who would not be driven to market, must be humored, and so metallurgists, accepting the situation, have endeavored to regulate the quality of their iron by a judicious mixture of neutralizing tendencies. In this they have been entirely successful, and all that an engineer has to do, is to say just what he wants his iron to withstand, and the service to which it is to be put, and he can have a grade of metal proper for such uses made to order. As is the quality of the pig-iron, so is that of the puddled product, which leaves the furnace as a loose, spongy-looking mass, called a "puddle-ball," still impure with cinder and slag. The next process is to consolidate the ball, and force out the im-