

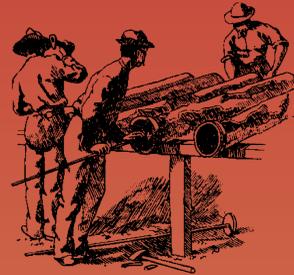
CASTING PIPE IN A PIT



The method of casting iron pipe vertically in a pit probably developed coincidentally with the casting of cannon centuries ago. The casting pit was a deep circular trench that held a large number of twelve-foot iron flasks, or molds. The top of each flask projected about three feet above ground. They were arranged in a circle so the ten-ton steam crane in the center could reach all of them. Since molten iron will adhere to metal, the molds were coated with a mixture of sand, clay, and anthracite coal dust. The coal dust burned away when the iron was poured, releasing the pipes from the flasks.

A core was inserted in each flask. The molten iron was poured between the core and the flask to form the wall of the pipe. This core was made by winding hay rope around a metal pipe perforated with numerous holes. The holes allowed hot gases to escape during the pour. A clay coating was applied to the rope-covered core as it was turned on a lathe to make the surface smooth. The clay used for this purpose came from Tryon Creek and a nearby pond (now Lakewood Bay). Finally, the cores were dried overnight in the core ovens.

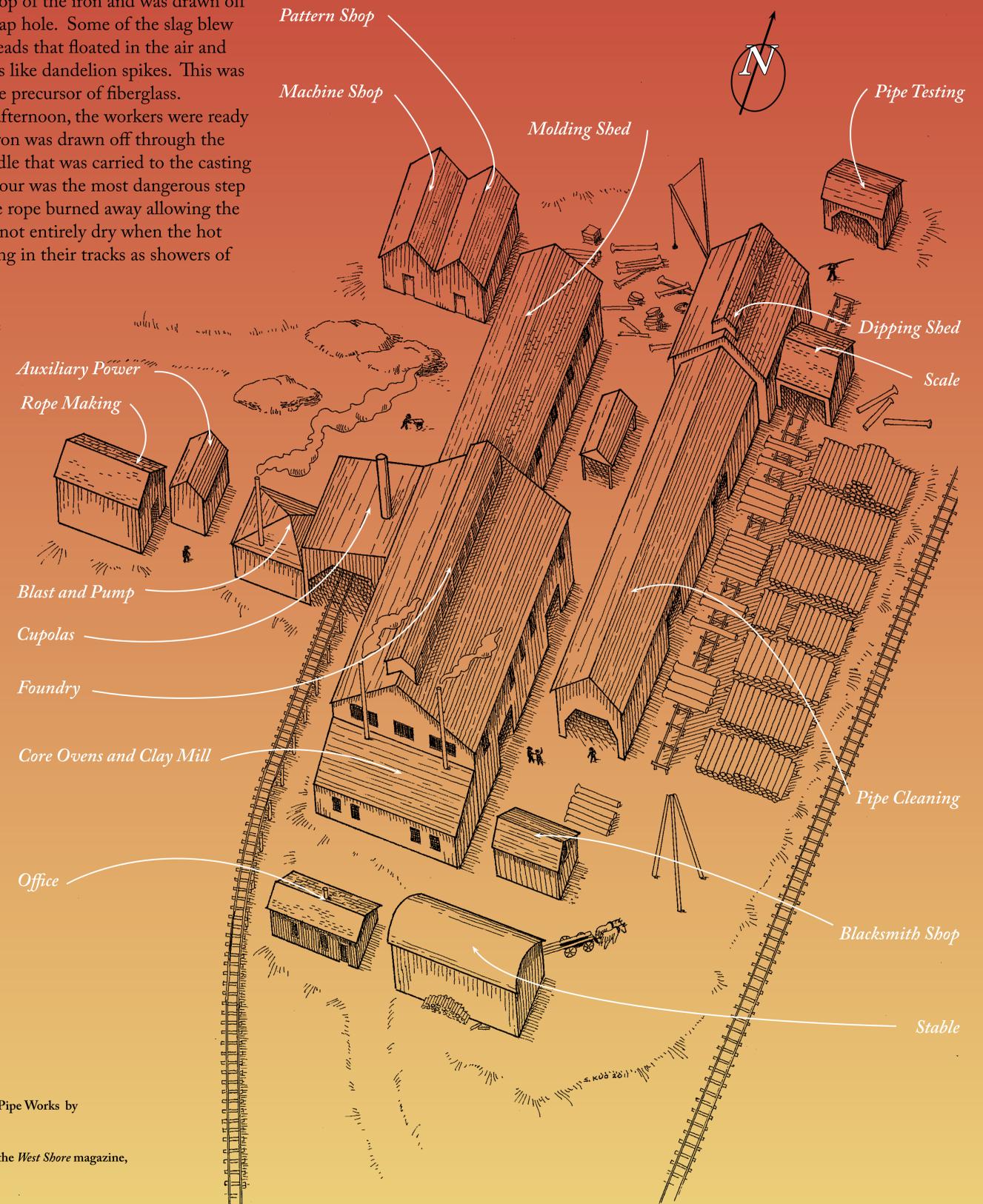
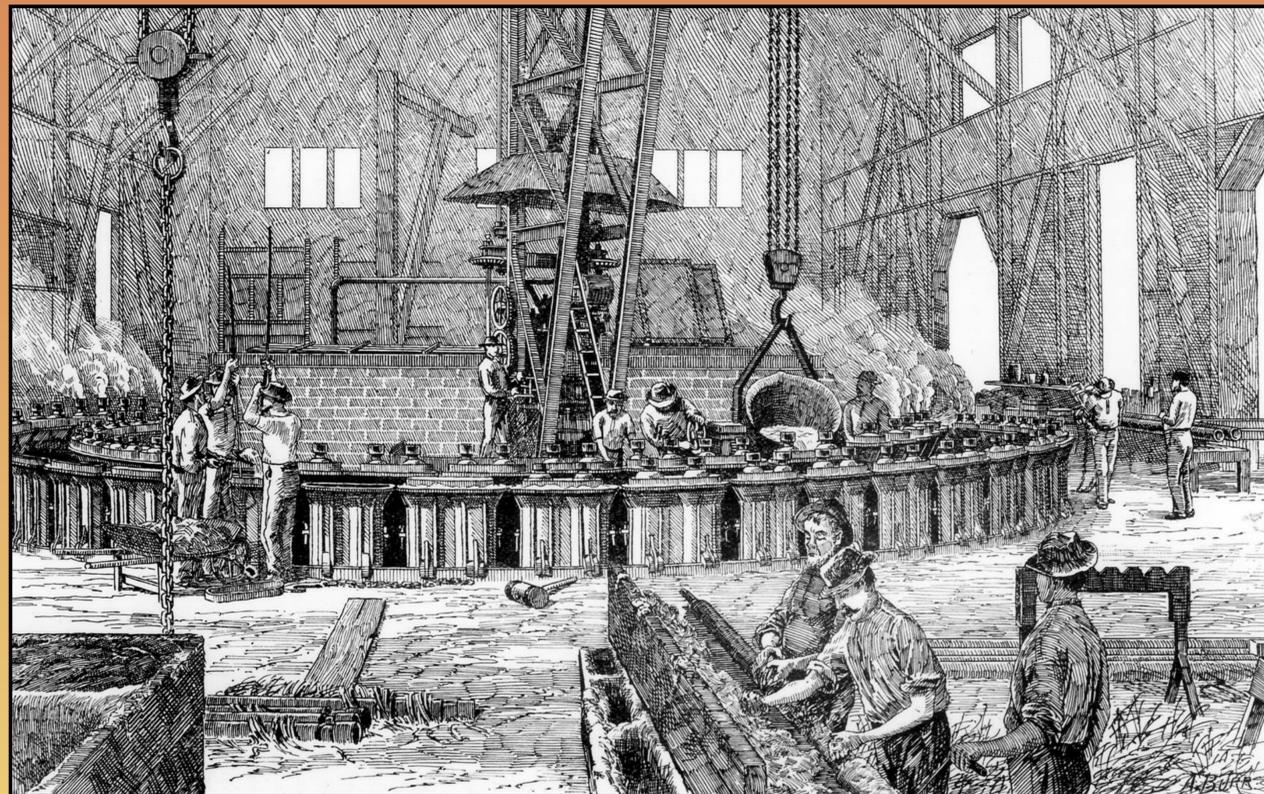
At four a.m. the next morning, workers began the process of heating and charging the cupola furnace. The cupola was shaped like a tall cylinder that stood on four legs. It was smaller than a blast furnace, but it worked in a similar way. Alternate layers of coke (baked coal), limestone, and pieces of iron were fed through a door in its side. Pig iron from the Oregon Iron & Steel Company blast furnace was used in the cupola until 1894, when the furnace shut down. After that, the foundry used imported pig iron and scrap metal. Molten iron collected in



the sand-lined bottom of the cupola. Slag, containing impurities, floated on top of the iron and was drawn off at intervals through a tap hole. Some of the slag blew into fine, glass-like threads that floated in the air and collected on projections like dandelion spikes. This was called mineral wool, the precursor of fiberglass.

Around two in the afternoon, the workers were ready to pour. The molten iron was drawn off through the tap hole into a giant ladle that was carried to the casting pit by the crane. The pour was the most dangerous step in the process. When the molten metal hit the cores, the rope burned away allowing the cores to be withdrawn from the flasks. If the cores were not entirely dry when the hot iron hit them, sparks would fly. Workers talked of freezing in their tracks as showers of molten sparks rained down on them.

While the new pipes were still hot, they were lifted out of the molds and rolled into the cleaning shed where the clay coating was hammered off with a wooden mallet. They were dipped in tar before being tested under 300 to 500 pounds of hydraulic pressure. The foundry produced pipes that ranged in diameter from three inches to forty-five inches. The Oswego Pipe Works operated intermittently from 1888 to 1928 producing gas and water pipe for cities from Seattle to San Francisco.



Bird's-eye-view of the Oswego Pipe Works by Susanna Campbell Kuo.

All other illustrations are from the *West Shore* magazine, November 2, 1889.