

THE BRICK AND TILE INDUSTRY

by Edward Kenagy

The brick and tile manufacturing industry of the Hubbard, Oregon, community had its beginnings about seventy years ago. Isaac Miller, a man with a sawmill that ran with water power, operated the first tile factory. The slabwood, a by-product of the sawmill, was used for the burning of the brick and tile. This first brick and tile plant was little more than a family operation. Only a few months of the year were used in the making of the brick and tile. Deposits of clay were within a few hundred feet of the factory site. A two-wheeled cart, a team of horses, a spade, and muscle power of men not afraid of hard work mined the clay in those early days. Isaac was expert, according to old-timers, in mining and tempering the clay before it was molded by the auger machinery. The tile was hand cut to specified lengths. Then it was stacked on pallets or racks to dry. After it was dried it was placed into the kiln. Slabwood from Isaac's sawmill was used to "burn" the tile.

The business was handed down to O. I. Miller, son of Isaac. It grew slowly and continued to be hard work. Very little change in principle or method took place. O. I. Miller ran the factory until D. D. Hostetler purchased the operation in 1911. One day in the spring of 1914, after the drying shed was about one-third full of tile, the old timbers gave way. The shed simply lay down across the tile much as a hen would die on her chicks. "Dan" as D. D. Hostetler is known, was forced to build a new drying shed. The new shed was a three-story building. It was a great improvement over the old one-story 110-foot-long building. This "new" building stands today after years of steady use. In 1936 the business had grown until it was necessary to double the size of the drying shed. As it now stands there is a drying shed 80' x 100' with three floors.

Power Machines Appear

Dan used several different methods of mining and handling the clay. Slip scrapers and teams were used. But for the most part men and spades were used. In 1941 a power shovel was installed to the relief of the "spade men." As the years moved along the claybank moved farther and farther away from the factory. The horse and cart were replaced with a small rail track and a gasoline powered dumptart. This rail system eventually gave way to "Model T" dump trucks, then to "Model A's." Today the Model A is a little outclassed by late model dump trucks. Many a "tough" truck has served its last in the very rugged service of the clay pit.

Steam power operated the mill from the beginning until electricity came along. Because of the expense of electricity steam was again installed. Then gasoline was tried and later they went back to steam again. Finally in 1939 a giant (in bulk) Diesel was used in running the factory. This 100 horsepower engine has a bore of seventeen inches and a twenty-eight inch stroke. Its steady "push-push" explosion can be heard for miles around the countryside. This has proved to be the most efficient power the factory ever had. It is still the main power for the mill.

Soon after Dan had taken over, it was necessary to replace the old kiln. In 1911 the new kiln was built. It is still being used, although during 1947 it was necessary to put a new crown, or dome, in it. In 1941 another kiln was built. Demand for brick and tile made it necessary. Somewhere along the line sawdust was introduced as a fuel to burn the tile. It was a cheaper fuel but it did not prove altogether satisfactory. Oil

(Below) Fresh tile are taken from the machine at the Hubbard Clay Works. Samuel Hostetler is removing the tile.

(Right) After the tile are made and carefully dried they are placed in the kiln where temperature of 1800 to 2500 degrees F. "bakes" them for seventy hours. This is a scene at the Needy Factory.





Clay is loaded by power shovel on a truck that will take it to the Needy Brick and Tile Factory of the Hubbard community. Frank Lais is operating the shovel.

was then tried which was cheap and easier to handle than either sawdust or wood. Oil is still the "burning" fuel at this brick yard.

In bygone years in the summer time the tile were made and stacked on the yard. In the winter time farmers for miles around used to drive their teams and wagons to the tile mill for much-needed holes to let off the extra Oregon moisture. There are still remnants of a tying and feeding rack for horses under the oak trees at the factory. Farmers would come from such great distances that it would take all day to make the trip. The horses were fed and cared for at the factory. It is said that as high as thirty wagons would be lined up at one time waiting their turn. With good roads and machines the old-timers that

Thousands of finished tile are stacked in the yard ready to be hauled away by farmers' trucks. More and more farmers are using tile to drain their land.

Ditch digging is an industry in itself. Needy Brick and Tile have dug over 400,000 feet of ditch in one year. In this picture Ed Hooley is operating the machine and Roy Hooley is laying the tile. Edward Kenagy is standing at the right.

now come to the factory laugh and joke at the memories of the deep ruts and slow rides and small loads.

In August of 1945 Dan Hostetler sold the Needy Brick and Tile Factory with some fifty acres of land to Kenneth Berkey and Edward Kenagy. The four main processes are still the same. They are mining, molding, drying, and burning. At present the mining is done with a power shovel. Moving the clay from pit to storage is done with dump truck. From storage to the granulator (mixer and feeder) a shovel-loader tractor

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moves it. From the granulator to the crushers there is a conveyor belt. The crushers break up the hard clods and mash them down to a sheet of clay about three-sixteenths of an inch in thickness. Then the clay is moved by belt to the pugmill which thoroughly mixes the clay. From here the clay drops into the augers which force the clay out through the die which forms it into whatever shape is desired. Immediately following the die is the cutting table which is operated automatically. The tile are cut to a specified length. After passing over the cutting table the tile are carted away and placed in the drying shed. The latest development in drying is a dryer which dries successfully in three to five days the same material that used to require from fourteen to twenty days in the open shed. This greatly increased the capacity of the factory without the added expense of building a large drying space.

The Process in the Kiln

After the tiles are dried they are parted into the kiln. Here they are stacked one on top of the other from ten to twelve feet deep. An equivalent of 40,000 brick can be stacked in each kiln. At present there are two kilns in operation. Next a slow wood fire is started in the kiln. This slow fire is, in tile men's language, "water smoking." It drives out the remaining moisture in the tile. At this point the whole kiln full of material could be ruined in just a few hours. After the moisture is all driven out the temperature of the fires is raised from 1800 to 2500 degrees F. Oil is used to make this "high fire." About thirty-five barrels of oil are burned in each kiln per burn. After about seventy hours of firing the kilns are allowed to cool. The tile are then removed and stacked on the yard waiting their turn to be hauled away.

The present production of Needy is two kilns per week. The manufacturing cycle just recorded above is repeated each week. The employees find a beaten path from week to week and become efficient in the routine. There are at present nine men kept busy at the factory. All are local men.

As time moves along the farmers become more and more aware of the value of draining their farms. The digging of ditch has become in itself a small industry. D. D. Hostetler owned and operated a "ditcher" for a number of years. Two of his sons are professional "ditcher men." They own two machines. These machines are capable of digging from 1500 to 3000 feet of ditch per eight hour day. Usually three men are with each machine. Needy Brick and Tile owns two such machines. Most of the output of the two tile factories at Hubbard are sold through these four "ditchers." Needy's ditchers dug over 400,000 feet of ditch the past season. During the winter months not too much effort is made to dig ditch for it is too wet at that time in Oregon. Better ditches can be dug easier and faster in the dry months.