

WILLAMINA CLAY PRODUCTS COMPANY

*no caps*  
YAMHILL COUNTY

Owner: O. K. Edwards, 0132 S. W. Mill, Portland, Oregon.

Location: The property of the Willamina Clay Products Company is

located in the SW $\frac{1}{4}$ , SE $\frac{1}{4}$  sec. 36, T. 5 S., R. 7 W. on Willamina  
Creek, 0.8 mile north of the town of Willamina.

History: Not known.

Topography: The property is situated in the Coast Ranges at the western

edge of the Willamette valley. The clay deposit is located  
along Willamina Creek on the southwest spur or nose of a north-south  
trending ridge lying between Rock Creek and Willamina Creek, which drain  
southward into the South Yamhill River.

Locally the relief is about 300 feet, and the slopes are gentle.

The pit is located at an elevation of nearly 300 feet.

Geology: Baldwin (1947) ~~has~~ mapped a part of the Coast Ranges in the

northwest corner of the Dallas quadrangle five miles south of  
Willamina as Siletz River volcanic series. This series of volcanics  
consist of lava flows, flow breccia, pillow lava, agglomerate, and tuffs  
with interbedded tuffaceous sediments.

Moving eastward from the volcanics the overlying Umpqua-Tyee series, consisting of massive bedded sandstone with limestone lenses in the basal part<sup>and</sup> with more argillaceous beds in the upper parts, occur.

It is possible that the clays and shales exposed in the Willamina Clay Products Company pit may be a part of the Umpqua-Tyee series. Both the Siletz River volcanics and the Umpqua-Tyee series are correlated as middle Eocene strata.

According to Washburne (1914), fossils from calcareous concretions collected from the deep cut of the Pacific Coast Face Brick Company, half a mile west of Willamina post office, indicate a probable Oligocene or lower Miocene age for the shale or clay shale exposed. However, the fossils were not specifically determinable.

Wilcox (1935) described the Willamina clay deposit as follows:

"The clay deposit and plant of the Willamina Clay Products Co. is located one mile north of Willamina. Clays are obtained with fired colors ranging from a pure white, through the creams and buffs, to a dark brown. The only light-colored face brick in the State is produced at this plant. The unburned colors of the light-firing clays are white, mottled-gray, gray, and black. The black color is due to the high carbon content. It appears as if these clays were originally all light firing, as the tan and brown color

is due to the presence in the clay of finely disseminated iron pyrite. The white and gray-colored clays do not carry any appreciable amount of pyrite, and some of the carbonaceous clay also is free from pyrite. The heavy pyrite is in carbonaceous clay only, which might indicate that the clay was deposited in water containing iron sulphate and that the sulphate was reduced to sulphide by the organic material in the clay. Some of the clay carries a small amount of limestone in the finely disseminated condition, and there are some places where calcite crystals are of sufficient size to cause trouble in the fired ware. Most of the clay from this pit is quite plastic, two different types of clay that occur in the upper part are only slightly plastic and do not break down readily in water. The clay that carries heavy pyrite has a fusion at cones 3 to 5; the plastic white-firing clay has a fusion at cones 8 to 9; a slightly less plastic clay has a fusion at cone 12; the hard, slightly plastic black clay has a fusion at cone 16; and a slightly plastic, mottled-gray clay has a cone-26 fusion. The drying shrinkage ranges from 4 to 5 percent and the total fired shrinkage from 9 to 11 percent".

"The light-firing plastic clay is used in making face brick and a bond for the nonplastic slightly weathered basalt in making common brick; it is also shipped to Portland and used in the manufacture of stoneware by the Pacific Stoneware Co. The light- and dark-burning clays are used for a bond in a firebrick mix."

"The clay measures in the pit are at least 50 feet thick but have been so mixed by slides that their true relationships are not shown. The underground workings show the beds to have a dip of about 10 degrees to the northeast. The beds are on the east

limb of a gently dipping anticline, the crest of which is about half a mile west of the plant. The beds are overlain by a greenish-colored tuffaceous sandstone, which is covered, in turn, by a brownish-gray shale and a basalt flow."

The Willamina black clay showed a mineral composition of 43.2 percent alkalic feldspar, 26.2 percent kaolinite, and 24.4 percent free silica, with 6 or 7 percent of alkaline earth and volatile matter.

References: Wilson and Treasher, 38:34-38

*14:84-85*  
Washburne, C. W., U.S.G.S. Bull. 590, p. 84-85, 1914.

*35:25-31, quoted*  
Wilcox, H. G., Univ. of Washington Library, Engineer of Mines thesis, pp. 25-31, 1935, quoted.