but with enough modification in certain places to justify their classification as glacial clays. The clay material, however, is of residual origin.

The upper one to three feet of these clays has been modified by the addition of vegetable humus so that it cannot well be used for brick. However, in some brickyards the top soil was not removed and discarded even though it was recognized that the mixture of soil and clay affected the quality of the brick. The clay rests upon an irregular limestone surface characteristic of limestone weathering. Knobs or pinnacles of limestone may rise almost or quite to the surface in clay pits averaging ten or more feet in depth. This situation has made the use of power shovels difficult or impossible in the operation of some pits. Steam shovels have been used in some places. Of course, most of the clay pits of an earlier day were worked exclusively by hand.

In the early settlement of the region small brick yards were opened near the principal villages. In the absence of railroads, canals, and good roads the product was seldom transported any considerable distance. As transportation facilities improved, most of the small plants were closed and brick were obtained from larger operations within the county or in adjoining regions.

Now there is little indication of the former manufacture of brick in several places where, according to historical records, clay pits and brick kilns were formerly operated.

In the History of Lehigh County (1914) is the following account of early brick making at Guthsville.

Aaron Guth started the manufacture of building brick in the village before 1854. He erected a large kiln near the south bank of the Jordan, west of the road, and carried on the business until the race track was constructed in 1861. His production was many thousand and all were used in the erection of the brick buildings at Guthsville, including the hotel and store, and the Stettler, Snyder, Haas, Ritter, Diehl, Shuler and Hoffman dwelling-houses. Cord-wood was consumed for burning the brick. (p. 896.)

Most of the clay for brick has been dug in the suburbs of Allentown. Some of the pits were operated even after the city had grown and extended to or beyond the brick yards. Nine brick plants have been located in the north, east and south portions of the city. It is probable that clay was dug from still other localities where all evidence has been destroyed.

In 1886 according to a publication issued by the Board of Trade entitled "Past, Present and Future of the City of Allentown, Pa.", the following brick plants were in operation.

Daniel Swoyer had a plant on Ninth St. between Allen and Tilghman streets which he started in 1862. He had two kilns and produced 12,000 bricks daily.

W. J. Egge & Co. operated a brick plant on Tenth St. near Liberty. There were two kilns and six acres of clay land. The daily capacity was 18,000 bricks. It was started in 1861.

Edward Kiehlone had a plant in South Allentown. "After you cross the old-fashioned bridge over the Little Lehigh at the foot of Lehigh Street, you pursue the winding road up past the toll-gate and then the ranges of shedding covering piles of brick, the two great