each year and the building of new plants and the enlargement of old ones just about kept pace with the increasing demand. For a time the competition with other districts was negligible as other regions not favored with argillaceous limestones were slow to appreciate that a good quality of cement could be produced by the combination of calcareous and argillaceous rocks. Though no other cement region occupies so favorable position with reference to accessibility to good cement rock and fuel and proximity to the greatest industrial centers of the country, yet on account of freight charges the market for the product of the Lehigh District has narrowed greatly during the last twenty years. Even foreign cements have been shipped into the Atlantic coast ports. The business slump that began in 1929 and that has brought general stagnation to the building industry has been hard on the cement companies of the region. Some of the plants have been idle most of the time.

This region still possesses advantages over most other cement districts in that the raw stone is composed of the necessary constituents for the production of the best grade of cement. Likewise, in some quarries they are combined in the proper proportions. A few companies are compelled to purchase considerable high-quality limestone from operators in the Lebanon Valley. As yet no plant in the county has attempted to improve the quality of the quarry stone by flotation beneficiation although the feasibility of this process seems to have been proved by an elaborate series of experimental tests undertaken during the past year.

QUARRY METHODS

The quarry methods used by the cement companies are similar throughout the district. If possible the quarry is opened in the side of a hill and the tracks run into the quarry on the level so that as the quarry is extended a greater height of quarry face is obtained. In some places, however, it is necessary to open a quarry by excavating in a fairly level surface, and then the rock must be hauled up an incline to the surface.

In almost every quarry the variations in the rock in different parts make it advisable to have an extensive face and tracks radiating to different points in order to obtain a mixture of uniform composition by combining the rock high in lime with that low in lime.

Formerly the rock was quarried in benches by the use of small drills and small blasts. Now, however, the companies have found it more economical to blow down enormous masses of rock at one time, at some blasts more than 60,000 tons. To do this a series of churn drill holes is put down about ten to fifteen feet back from the quarry face and about the same distance apart and driven to the level of the