kilns, which ranged from 45 to 65 pounds of coal to the barrel of cement, was much less than that required in the rotary kilns.

From the mills the cement is taken to the storage bins, where it remains for some time to season and is then withdrawn for shipment. It is shipped in paper or occasionally cloth bags that hold 95 pounds. Originally much was shipped in barrels that held 380 pounds. The Bates valve bag is widely used in the district. Bulk shipment in freight cars of special construction started a few years ago and is increasing.

**Descriptions of Individual Plants**

Four different portland cement companies have 9 mills in Lehigh County. All are working the argillaceous limestone of the Jacksonburg formation. A general description of the physical and chemical characteristics of the stone used is equally applicable to all the quarries. In detail, there are some important differences in that the percentages of CaCO\(_3\) and MgCO\(_3\) may vary a few points and thus render the stone highly acceptable or otherwise. In general the Jacksonburg limestone of Lehigh County is deficient in CaCO\(_3\), thus necessitating the purchase of high-calcium stone, most of which comes from the Lebanon Valley.

**Cement Mills in Lehigh County**

   One mill at Coplay
2. Giant Portland Cement Co.
   Two mills near Egypt
3. Lehigh Portland Cement Co.
   Mills, A, D and F at Ormrod; B at West Coplay and H at Fogelsville
   One mill at Cementon

Besides these existing plants there was the initial plant of the Universal Atlas Cement Co. located between Cementon and Coplay, first known as the Keystone Co. and later as the Atlas Portland Cement Co. It is known as the Coplay plant of the Universal Atlas Cement Co. Operations were started in 1889. In 1895 the company built a plant on the east side of the Lehigh River in Northampton County and in 1907 abandoned its operations in Lehigh County, although still holding a lease on the property. The mill is now practically in ruins.

**COPLAY CEMENT MANUFACTURING CO.**

The oldest cement company in the Lehigh District as well as the oldest in the entire country is the Coplay Cement Manufacturing Company. Under the name of Coplay Cement Co. it was incorporated in 1866. A small plant was erected and shipments made the same year. This was the first portland cement produced in the United States. The first mill and quarry were located along the Lehigh Valley Railroad in the north part of Coplay. This company has taken part in all the major developments of cement manufacture. David O. Saylor was president of the company and in general charge.