

duced in our coal-mining operations, and the aggressive policy of President Roosevelt in seeking to throw light upon it and to correct the abuses into which we have largely unconsciously fallen, are to a great extent responsible for the present prospect of a development of coal briquetting, as an important industry in the United States. It may not be long before the governments of the States, under whose jurisdiction the matter comes, will enact legislation against the accumulation of slack and culm heaps or their useless destruction by burning, and prohibit this waste, as they have in some cases interdicted the waste of natural gas.

Legislation which would prohibit "shooting from the solid" at mines, when the slack coal is not a marketable product, and which would provide penalties for excessive use of powder, would have, as one result, a larger percentage of lump coal, and thus, in part at least, enable operators to assume the additional expense involved in the briquetting of such slack coal as is unavoidably produced.

There were eleven coal briquetting plants in the United States, each manufacturing briquets, during 1907. The location of these plants and the character of the fuel and binder used in the operations are as follows:

Arizona Copper Company, Clifton, Ariz.—This company uses bituminous coal, mined in New Mexico, with an asphaltic pitch made from California crude petroleum. The briquets weigh approximately 4 pounds each and are used under the boilers of the company's plant. The briquetting machine is of English design and is described in the United States Geological Survey Bulletin 316, published in 1907. The capacity of the machine is 24 tons in a day of ten hours.

Western Fuel Company, Oakland, Cal.—This plant, which is also described in Bulletin 316, operates on bituminous coal slack or screenings with asphaltic pitch, with proportions of 90 per cent. of coal and 10 per cent. of binder. The capacity of the machine is 60 tons in a day of ten hours. The operations of the company were begun in June, 1905. The briquets are cubical in shape, with rounded edges, and weigh approximately 10 ounces each. They are used principally for domestic purposes.

Pittsburg Coal Mining Company, Pittsburg Landing, Cal.—This plant was put into operation during the first six months of 1907, but was burned in July. It was operated upon screenings from the coal yards of San Francisco, using asphaltic pitch as a binder in the proportions of 92 per cent. of coal and 8 per cent. of pitch. The briquets are of semicylindrical pattern, weighing about 8 ounces each and are used principally for domestic purposes.

Indianapolis, Briquetting Company, Indianapolis, Ind.—This company began installing briquetting machinery in 1906 and commenced operations in November, 1907, using 92 per cent. bituminous coal slack and 8 per cent. of coal-tar pitch. The briquets are of cylindrical shape, weighing 5 ounces when intended for domestic purposes. Larger sized briquets can be made, if desired, the capacity of the machine depending upon the size of the briquets.

Semet-Solvay Company, Detroit, Mich.—The Briquetting plant of the Semet-Solvay Company, located at Delray, Mich., is operated in connection with the plant of the Semet-Solvay by-product coke ovens at that place and is intended primarily to make available for use the coke "breeze" produced at the ovens. As originally designed (early in 1905) this plant contained a Johnson (English) briquetting press, but the product, on account

of the large size of the briquets, was not found adapted to the market and a Mashek type of press was substituted. The new machine was started in August, 1907. Another machine, producing the eggette or ovoid-shaped briquet, has been purchased but has not been delivered. When the new machine is installed the plant will have a capacity of nearly 20 tons an hour. The present practice consists in using a mixture of 50 to 75 per cent. of bituminous coal slack and 50 to 25 per cent. of coke breeze. From 91 to 95 per cent. of this mixture is used with 9 to 5 per cent. of coal tar pitch. The briquets weigh about 2 ounces each.

Western Coalette Fuel Company, Kansas City, Mo.—This company is operating a Renfrow machine, the type of which, described in Bulletin 316, formed a part of the equipment of the Geological Survey coal-testing plant at St. Louis, Mo., subsequent to the exposition period and later at the Jamestown Exposition. The machine was installed in Kansas City in April, 1907, and is operating upon semi-anthracite slack from Arkansas and Oklahoma and bituminous coal slack from Kansas and Missouri, using coal-tar pitch as a binder in proportions of 94 per cent. of coal and 6 per cent. of binder. The briquets are cylindrical in shape with convex ends, weighing approximately 14 ounces. They are intended for household, locomotive, and stationary boiler use. The capacity of the machine, of which there was only one installed at the close of 1907, is 8 tons per hour. The operations during the year were largely of an experimental character and considerable construction work was carried on at the same time.

D. Grieme Coal Company, foot of West Forty-seventh Street, New York, N.Y.—This plant, among those described in Bulletin 316, was put into operation in October, 1907. The press is of Mashek design and makes a small, rectangular, convex briquet which is intended entirely for domestic purposes. They weigh approximately 2 ounces each. The coal used is anthracite No. 3 buckwheat and culm with coal-tar pitch as a binder, the proportions being 93 to 94 per cent. of coal and 6 to 7 per cent. of binder. The capacity of the machine is rated at 13 tons of briquets per hour.

The National Fuel Briquette Machinery Company, foot of Court Street, Brooklyn, N.Y.—This plant is also described in Bulletin 316, and consists of a Belgian type press manufacturing small eggettes which weigh less than 2 ounces each. It is operated on anthracite culm and coal-tar pitch with proportions of 95 per cent. of coal to 5 per cent. of pitch. The eggettes are intended primarily for household use, and the principal market is in the domestic trade of Brooklyn. They are also used to some extent for stationary boilers. The capacity of the machine is rated at 6 tons per hour.

The Scranton Anthracite Briquette Company, Dickson City, Pa.—This plant was the largest producer of briquets in the United States during 1907, although it was operated only seven months during the year. The plant is located adjacent to one of the Delaware, Lackawanna and Western mines, near Dickson City, and the briquets are used on the locomotives of that railroad. Anthracite culm is used exclusively with a patented binder of which coal-tar pitch is a principal ingredient. The company prefers not to publish the proportions of coal and pitch used. The briquets are of eggette pattern, weighing about 8 ounces each. During the year the company was engaged in enlarging its plant, and for this reason operations were carried on during only seven months of the year. When the extension work is com-