Production of open hearth steel in 1909-1910, in long tons.

	Basic.	Acid.	Total.
1908	7,140,425	696,304	7,836,729
1909	13,417,472	1,076,464	14,493,936
1910	15,292,329	1,212,180	16,504,509

Imports.

Before August, 1909, fluorspar was imported into the United States duty free, and the full statistics of importation were not given before that date. Large quantities of gravel spar produced at a low cost from the tailings of lead mines and from the gob in abandoned mines in England have been shipped to this country as ballast at a very low freight rate. The material thus produced is high in silica and is almost entirely consumed by open hearth steel makers. Before 1909 spar from England competed with American fluorspar as far west as Pittsburg and practically fixed the market price at that point. In the Lehigh and Susquehanna valleys of Pennsylvania and other localities near the Atlantic seaboard English fluorspar can yet be advantageously purchased under present conditions, and large quantities are consumed annually in the open hearth steel furnaces. The imports of fluorspar entered for consumption into the United States in 1910 were 42,488 short tons, valued at $135,-152, as compared with 6,971 short tons, valued at $26,377, in 1909. The value assigned to the material in 1910 was $3.18 per ton, as compared with $3.78 in 1909.

Mining and Milling Developments.

Illinois.

The principal developments during 1910 were confined to the properties of the Fairview Fluorspar & Leadd Company at Fairview Landing, and the Rosiclare Lead and Fluorspar mines, at Rosiclare. At other properties there was some prospecting by drill and a little mining, but the greater part of the output came from the two companies named.

At the Fairview mine four shafts produced ore, including one mining the "blue" vein. The deepest shaft (or steep incline) was reported 503 feet deep in the spring of 1911 and the deepest working level was 475 feet below the surface. At this level considerable calcite is encountered, either mixed with spar or else constituting nearly the whole vein. The vein is irregular in width, ranging from pinches 18 inches wide to swellings 25 feet wide. The spar bodies exhibit irregular outlines within the vein, and range from a few feet to 22 feet in width. One of the largest bodies was encountered at the 400-foot level. A new shaft has recently been sung to a depth of about 320 feet, with levels at 100 feet, 235 feet, and 295 feet from the surface. The "blue" vein shaft was at that time reported to be down 120 feet and to show 4½ feet of ore at the bottom. An important production was stoped from this vein in 1910. The main workings of the Fairview and the Rosiclare companies are approaching one another and are believed to be on the same vein. The mill at Fairview has recently been improved and enlarged, particularly with reference to the facilities for the preliminary picking and the final jigging of the spar. The jigs are reported to consist of a 5-cell rougher, a 6-cell cleaner, and a 5-cell finisher. The capacity of the mill is reported at 200 to 250 tons of cleaned spar per 10-hour shift and the storage capacity at about 3,000 tons. Spar is loaded directly at the mill into standard-gauge cars, which are moved over a short line to the landing on Ohio River and towed on barges to the Illinois Central Railroad at Golconda.

At Rosiclare the mining method has been changed from underhand to overhead stoping. Only one shaft is operated here, and the lowest level was 235 feet below the surface in April, 1911. In July it was reported that the shaft had been sunk to 275 feet and was planned to be sunk to a depth of about 335 feet, where a new level will be established. Local pinching and swelling is characteristic of the vein, the width ranging from a few inches to 22 feet. In places the vein is found to carry almost entirely calcite, but there are large quantities of good ore still available above the lowest level, in both directions from the shaft. A new steel and concrete mill, entirely fireproof, has been built at Rosiclare, designed to reduce 500 tons of crude ore per day. The shaft has been reconstructed and consists of three compartments, two of which, for hoisting, are 5 feet 5 inches by 4 feet 4 inches, and one is a pump compartment, 5 feet 5 inches by 3 feet 8 inches. The mill consists of three large buildings. The sizing and sorting building, with the shaft at the south end, stands in the middle, with the power house and grinding building to the west and the concentrating building, or jig house, to the east. All the buildings are approximately 90 feet long. The middle building is 20 feet wide at the base, and the head frame stands 84 feet high. The two other buildings are 36 feet wide and stand 30 feet to the eaves. The alleys between the middle building and the two other buildings are 14 feet 6 inches wide.

From the mine the spar is hoisted to the top of the mill in steel cars having a capacity of one ton each. The spar is dumped on steel grizzlies having 2½-inch spaces. The grizzlies are inclined toward two 24-inch steel apron conveyers. From the oversize No. 1 lump spar is picked and thrown on the conveyers. The common spar not passing the grizzly is shoveled into a No. 5 gyratory crusher. The total capacity of the grizzlies is about 100 tons of material. The material passing the grizzly and the crusher feeds down into two 150-ton steel bins on the floor below. These bins feed into two shaking screens on the floor next below. These screens have steel frames 17 feet by 2 feet 9 inches, with bottoms of heavy wire with meshes about ½-inch by 1⅛ inches. The lump spar is delivered by the apron conveyer to a rotary drier 25 feet long by 36 inches in diameter, which is supplied with hot air from the top of the boilers. The ore falls from the drier on a "butterfly," which diverts the material as desired, either into a bin for No. 2 lump spar or through a drying tower into a No. 3 crusher. The No. 2 lump spar may be drawn directly from the bin, barreled, and shipped. The No. 1 spar passes through the No. 3 crusher, which feeds by gravity into a grinding mill. This mill discharges through a 30-mesh, 30-wire screen into a screw conveyer, which moves the ground spar to four storage bins. Each bin feeds into a barrel which stands on a packer. The barrels of ground spar weigh 550 to 610 pounds when filled. The capacity of this packing room is about 10 barrels per hour, or 30 tons a day.

From the shaking screens the undersize is carried by water through a 9-inch pipe to the jig house, and the oversize of the screens falls on a picking belt, on which 9 to 15 men may work. On this belt separation is made by hand of the larger fragments of lead and zinc ore, calcite, waste, and fluorspar. Lump spar can thus be picked, if desired, in order to increase the