THE MINERAL RESOURCES OF THE REGION ABOUT LASALLE

G. A. Buzzard, Magnolia, Illinois

The LaSalle Region, as used in this paper, includes an area which, in regard to certain mineral resources, extends some distance beyond the city of LaSalle. This is particularly true with regard to coal.

The mineral operations of the region under discussion are grouped in five classes:

1. Coal Mining.
2. Zinc Smelting.
3. Cement Manufacturing.
4. Sand and glass manufacturing.
5. Brick and Tile manufacturing (Clay products).

1. *Coal Mining.*

LaSalle is located near the northern margin of the coal field called by the state geological department, The Northern Illinois Coal Field (Bull. 16). It extends from LaSalle and Cherry, Bureau Co., on the north, to Roanoke, Woodford Co., on the south; from Streator on the east, to a line extending from Seatonville, Bureau Co., through Granville, Putnam Co., and Toluca, Marshall Co., on the west. LaSalle and Bureau are the two leading counties in the field in producing coal. The coal mining industry in LaSalle County is centered principally in two sections, one district being in and near LaSalle, and the other in and around Streator. There are at present five shaft coal mines in LaSalle and Peru; the Streator district for many years, however, was the leading coal producing area for the Northern Illinois field.

The first coal shaft was sunk in LaSalle in 1855 or 1856, at the time when the Illinois Central Railroad was being built in the city. The building of this railroad of course gave impetus to coal mining and numerous shafts were sunk in and near the city. LaSalle County led all the counties of the state in coal production in the years 1881, 1882 and 1887, though the amount of coal produced was only 624,900; 2,365,000, and 1,125,235 tons respectively for those years. Accurate statistics are not available prior to that date. This leadership in coal produc-

tion resulted rather from the fact that the counties that are now the leaders in production had not started mining, rather than from the fact that LaSalle County produced so much. The greatest amount of coal produced in the whole Northern Illinois Field was in 1913, when 4,697,000 tons were mined. This seems rather insignificant when compared with the 12,723,000 tons produced by Franklin County alone in 1921. In that year (1921) the Northern Field produced 2,041,000 tons and LaSalle County produced 614,000 tons. However, in the period from 1881 to 1921, the Northern Field produced a total of more than 118,000,000 tons, and this furnished fuel for developing a rather highly diversified and quite extensive industrial area.

As stated above, the immediate vicinity of LaSalle was a pioneer in coal mining on a commercial scale in the state. The relatively small production of coal in the field compared with that in other fields farther south in the state is due largely to the fact that the coal veins in the Northern Field are thin veins, averaging only 3 ft. 8 inches, whereas in the fields farther south the veins vary from 5 to 10 feet or more in thickness, averaging 6 to 8 feet in many mines. It is much cheaper to mine coal from veins of this thickness than from thin veins; therefore the industry has shifted very largely to those newer and more profitable fields. The mines near LaSalle do not now supply enough coal to furnish the industrial plants so that coal from the fields farther south in the state are shipped into the region.

2. *Zinc Smelting.*

There are two large zinc smelting plants located in LaSalle and Peru, and another at Depue, eleven miles west of LaSalle. The Matthiesen-Hegeler Company was the first to establish a zinc smelting plant in the city. This was in 1858, a date nearly contemporaneous with the sinking of the first coal shaft in the region. The zinc ore was brought from the mines in southwestern Wisconsin or northwestern Illinois in the early years of the smelting industry in the region. As LaSalle is located on the northern edge of the Illinois Coal fields, it was the first place where the zinc ore, being shipped east or south,

would meet the coal. As it requires about two and one half tons of coal to smelt one ton of the ore it was found cheaper to haul the ore to the coal than to haul the coal to the ore.

In recent years the ore for these smelters has been brought largely from the zinc mines in southwestern Missouri. Since the ore from that region would meet the coal, say of southern Illinois, more conveniently than at LaSalle it seems only reasonable that smelting in those fields will sometime displace the industry at LaSalle. The matter of an early start in the industry and the convenient location with regard to a market for the product are the advantages that still retain the industry in its present condition of prosperity. Of the ten zinc smelters in the state in 1920, only three, the ones mentioned above, are located in the north half of the state. The others are in coal mining centers farther south. The plants in the LaSalle region were located there as a response to the local coal supply.

3. *Cement Manufacturing.*

Of the five cement plants listed in the directory of Mineral Operators in Illinois in 1920, four are located in or within five miles of the city of LaSalle. A plant for the manufacture of hydraulic cement is located at Utica, five miles above LaSalle; two Portland cement plants are located at Oglesby, just across the river from LaSalle, and one Portland cement plant is located in LaSalle.

The conditions for the manufacturing of cement are particularly favorable in the vicinity of LaSalle. Here are found the coal, the clay and the limestone, located in the order named, above the others. The clay and the limestone are the necessary raw materials for the making of the cement, and it is an advantage to have the coal in close proximity to the other materials. From Bailey's Falls on the Big Vermilion river to the mouth of that river, the LaSalle limestone is exposed at the surface. Directly beneath it lie soft carboniferous clays, and still lower are seams of excellent coal. Portland cement is made from limestone and clay, which are ground, mixed in certain proportions and fired. In this industry, as in smelting, more fuel than raw material is

required. All these materials are bulky, so the industry can be carried on profitably only where limestone, clay and coal are found intimately associated. Near the river the limestone underlies a thin covering of earth, which can be stripped off with ease. The limestone has an average thickness of 24 feet and is underlain by 16 feet of clay. The coal is mined by shafts adjoining the plants, though it has been found necessary to import some coal from other fields in the more recent years.

The plants in LaSalle and Oglesby employ about 1800 men, and produce more than 10,000,000 barrels of cement annually. The marvelous development of the industry has built the city of Portland or Oglesby, and stimulated the growth of LaSalle and Peru, for many of the men employed in the two plants in Oglesby live in Peru and LaSalle. This industry is much newer than the zinc smelting industry, and is still expanding extensively.

4. *Sand Products—Glass Manufacturing.*

Sand for many uses is mined at many places along the Illinois river, particularly in the vicinity of Ottawa. Glass manufacturing has become a great industry, first at Ottawa, and later at Streator. Much sand is mined cheaply at Ottawa by hydraulic methods. The glass sand industry has become important locally because, first, the St. Peter sandstone is soft, of even texture, and may be worked with ease, in many places with pick and shovel; second, the sand is of the highest quality for the manufacturing of glass, being almost pure silica and free from loam; third, with one exception this is the only outcrop of this sandstone in the state which is used commercially; fourth, the sandstone occurs in bluffs that are along the railroad lines in the Illinois valley, and is loaded directly from the pits into the cars. The glass manufacturing industry in Ottawa has decreased in importance in recent years, due to the difficulty of getting good fuel. In Streator, however, which has many coal shafts working, this industry is of great importance. Two plants which specialize in the manufacture of milk bottles and a plant which manufactures plate glass and skylight glass employ a total of about 1,800 men in that city. The statement was made by a superintendent of a glass factory in

Streator to the effect that the Streator companies produce 3,000,000 square feet of rolled plate glass annually, and that they furnish 80% of the skylight glass for the loop district in Chicago.

The location in proximity to the coal, the excellent glass sand near by, and the location of the city on excellent lines of transportation to Chicago are reasons for locating successfully the glass manufacturing plants in Streator.

5. *Clay Products—Brick and Tile.*

Plants for the manufacture of clay products, ranging from common drain tile to paving brick, pressed brick and fire brick, are found in numerous places in LaSalle County, Streator and Oglesby being the centers for more of these plants than other cities, though LaSalle has three plants. The plants in Streator are the largest in the region, have their own coal shafts on their premises, and make a variety of products, such as paving brick, fire brick or tile, as conditions warrant, each plant tending to specialize in one of the products. The favorable location with regard to a fuel supply, with access to an excellent fire clay, and the excellent transportation facilities to Chicago are the factors most largely responsible for the development of the brick and tile manufacturing industries of the region.

In 1920, LaSalle County was credited by the Illinois Mineral Operators' Directory, with having 67 different producers of mineral products. Cook County alone of the other counties of the state equalled this number. Of these 67 producers, 21 are located within a radius of five miles of the city of LaSalle. It is doubtful if a similar area anywhere in the state can equal the area near LaSalle in variety of products and the value of the minerals produced.