

The Origin and Development of the Lone Star Iron and Steel Works

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One of the industries born in war which has prospered in the post war period is the Lone Star Iron and Steel Works, located near Daingerfield in east Texas. During World War II the United States government, in its desire to expand iron making facilities and disperse critical industries, spent approximately \$30,000,000 in constructing a blast furnace and a battery of coke ovens seven miles south of Daingerfield, Texas (1). The mill was not completed in time to contribute to the war effort, and it was sold, after the war, to a group of Texas citizens for approximately \$7,000,000. This Texas group was incorporated as The Lone Star Steel Company. In 1947 the first pig iron was produced. Since that time the plant has expanded to include, in addition to the blast furnace and coke ovens, a cast iron pipe mill, four open hearth furnaces, and a steel pipe mill. Additional plans for expansion are being formulated.

It is the purpose of this paper to analyze the economic-geographic factors which have favored the growth of an iron and steel industry at this location. In order to accomplish this end, it will be necessary to inventory the materials consumed, determine their accessibility, and account their relative costs. Present and potential markets will be studied to determine, with some degree of accuracy, the probable future of the industry.

RESOURCE BASE

The raw materials consumed by the Lone Star Steel Works are generally obtained relatively close to the plant. The iron ore is obtained within five miles of the mill, but it has the disadvantage of being the lowest quality iron ore utilized in the United States. Necessary beneficiation offsets the advantage of proximate location. Iron ore reserves are adequate to accommodate the needs of the plant for the foreseeable future.

The other major raw material, coal, is obtained from company owned mines in southern and southeastern Oklahoma. A rail or truck haul of about 150 miles from the mines delivers the coal to the mill. Again, however, there is a distinct handicap. The coal produced in Oklahoma does not produce a good quality coke; hence the smelting operation is handicapped.

Flux is hauled in by train or truck from north central Texas or southern Oklahoma. This land haul for the flux is expensive, but the flux is of excellent quality.

Other raw materials, such as ferroalloys, are obtained from widely dispersed points, but this is the case with the majority of the iron and steel producers. These minor raw materials, however, play little part in the localization of an iron and steel industry.

Other factors of significance in the resource base picture are water, scrap, land, and labor. Water is readily obtainable in large amounts from an artificial reservoir built on a nearby stream. The entire southwestern region can be drawn upon for scrap. Labor is approximately as productive as its northern counterpart, and it is much cheaper than that which is available in the northern industrial regions. There is much available cheap land for plant expansion adjacent to the plant.

Lone Star is a fairly high cost producer because of assembly costs and/or inferior quality raw materials. Other factors have tended to offset this disadvantage.

PRODUCTION AND MARKETING

Coke, pig iron, cast iron pipe, steel, and steel pipe are produced by the Lone Star Iron and Steel Works at the present time. All of the coke is consumed in the blast furnace or in the cast iron pipe mill. Chemical by-products associated with the coke production are sold to a chemical plant located about one mile from the ovens.

In 1952 the blast furnace was producing approximately 1,100 tons of pig iron per day, although the furnace has a rated capacity of 1,407 tons. Until the open hearth furnaces were added to the mill this year only about half of the pig iron was consumed in the cast iron pipe mill, and the remainder was sold to foundries or steel producers located elsewhere. At the present time all the pig iron is consumed at the Lone Star works. If the market for steel pipe is as large as anticipated it will be necessary to purchase large quantities of scrap for consumption in the open hearth furnaces.

Pipe produced at the mill finds a market in almost every state in the United States, but most of it is marketed in the six states of Texas, Oklahoma, Arkansas, Louisiana, New Mexico, and Arizona. Within this six state area Lone Star can undersell most other iron and steel pipe because of the transportation advantage, although at present it is estimated that they supply only about fifteen per cent of the pipe consumed in this area.

CONCLUSIONS

Although production costs for pig iron and steel are relatively high at Lone Star, the industry will probably continue a slow but steady growth due to its proximate location to mid-continent and gulf coast oil fields and expanding southwestern industries. Expansion of the industry has been, and will continue to be, largely due to adjacent markets.

LITERATURE CITED

1. FRANKLIN, JOHN. 1948. The Daingerfield iron and steel project. Texas Geog. Mag. 12:1-7.