

## UTILIZATION OF OKLAHOMA COAL

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Coal has been important in Oklahoma since about 1872, when the first railroad used it for locomotive fuel; and its mining and utilization afford opportunities for the employment of practically all the sciences, including the social sciences. Early mining practices resulted in the accumulation of much slack, which was coked in beehive ovens. It is said that the coke was too weak for the metallurgy of iron, but was used for silver smelting in Mexico and in artificial gas plants in states farther north. Since about 1915 competition with oil and gas has made coal mining the "sick man" of the Southwest. Scientific principles have been sorely needed but little used, largely because neither miners nor operators realized their value. Whereas there should have been the closest of cooperation in developing more economical mining methods, improving the product, and providing a better social environment, each group tried to solve its own problems independently, and almost solely on a monetary basis. In so doing they almost ate each other up, like fish in a drying pond.

To make metallurgical coke in a modern by-product oven requires a raw charge which is nicely balanced in regard to several characteristics and it is a rare coal bed, indeed, that meets all the requirements; but blending coal from two or more sources, under scientific controls, has met the problem. The Oklahoma Geological Survey, working along this line in cooperation with the U. S. Bureau of Mines, has worked out a method of combining certain Oklahoma coals to produce such a suitable blend; and coal is now being supplied to coke ovens in Texas.

In consequence, it is anticipated that there will be increased activity; and the Oklahoma Geological Survey, in keeping with its character as a research service organization to the mineral industries of the State, has conducted a field study of the coals and related rocks in northern Le Flore County and in Haskell County, in cooperation with the U. S. Geological Survey. Reports on this work are in process of preparation and will be published by the Oklahoma Geological Survey. They will constitute an important addition to reports already published on the geology of the coal-producing areas of the State by the U. S. Geological Survey in 1937 and 1939 and by the Oklahoma Geological Survey in 1937.

Competition from oil and gas will probably diminish as time passes, and in the meantime it can be alleviated. For instance, semicoke is more suitable as a domestic fuel than coal and should be in demand wherever gas is unavailable, as it always will be to many people. Also, more careful mining, as well as beneficiation by washing and by sink-float methods, would result in a more acceptable product; and oiling, to reduce the dust nuisance, would still further improve its reputation. By application of scientific principles even the refuse from beneficiation can be made to yield valuable products, among which are alumina and aluminum, pig iron, and sulphur.

Oklahoma's reserves of coal are estimated at 55 billion tons, and the amount mined to date is negligible in comparison. Of all the fuel reserves of the United States, expressed in heat units, 98.7 per cent lie in coal; petroleum reserves represent 0.1 per cent; gas reserves, 0.1 per cent; and oil-shale reserves, 0.9 per cent. Although petroleum and natural-gas reserves are being exhausted much more rapidly than coal reserves, we do not anticipate the early or sudden extinction of the petroleum and natural-gas industry; but we do expect that as oil and natural gas become harder to find and more expensive to produce, companies already in the oil and gas business will augment their natural supplies from products synthesized from coal by applica-

tion of scientific principles, many of which are already known. Others are, no doubt, yet to be discovered.

As industrialization increases in Oklahoma, there will be many opportunities for the application of scientific principles to the mining and utilization of our coal; and it is in such mining and use of Oklahoma coal in Oklahoma that we are to derive the greatest benefit from this splendid and bountiful heritage.

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