

THE COAL RESOURCES OF THE WORLD

Hydrogen.....	45.9%
Methane.....	26.2
Other hydrocarbons.....	6.6
Carbon monoxide.....	13.3
Oxygen }	7.9
Nitrogen }	

Burnt under standard conditions it gave a luminous flame with an illuminating power of about 19 candles.

Lignite is also stated to occur at a number of points in the Benin City district. The only sample that has yet been obtained is from Ohe, which is situated about 6° 15' N. and 5° 55' E. It differs from typical Nigerian lignite in showing distinct marks of woody structure.

On the whole, the lignite of Southern Nigeria compares very favourably with the lignites of Europe. On exposure to air it rapidly dries, so that the amount of moisture it contains when mined does not seriously affect its availability as a fuel. The large percentage of volatile matter which it contains in common with other lignites, causes it to burn more rapidly than Welsh steam coal, and to produce more flame, so that if it is to be used for raising steam the method of stoking must be modified, or the fire-box must be enlarged so that the long flame may have its full effect. The amount of volatile constituents also causes it to disintegrate in the fire-box, and the fine material is apt to be carried away if forced draught is employed. These difficulties can be surmounted, but the best method of employing the lignite appears to be to convert it into briquettes by first grinding it to powder and then subjecting it to high pressure. This process has long been in use in Germany and a sample of the Nigerian lignite was accordingly sent there for briquetting trials. Hard, black, lustrous briquettes were produced, which were found to be easy to handle and clean in firing, and they gave a good pressure of steam.

The following analytical results of average Okpanam lignite and of the briquettes manufactured from it, are given for comparison:

	Original Lignite	Briquettes
Volatile matter.....	42.36%	53.80%
Fixed carbon.....	25.89	33.35
Water.....	27.42	7.14
Ash.....	4.38	5.71
Sulphur.....	0.47	0.67
Calorific value, small calories.....	5,018	6,522
Evaporative power.....	9.37%	12.17%

Up to the present, prospecting has not been carried out in sufficient detail for a reliable estimate to be formed of the amount of lignite available. It must,