

south end that of the Anwai on the north, in the neighbourhood of Issele-Asaba, about twelve miles north-west Asaba, and has a width from north to south of two and a half to four miles. They are nearly horizontal, and are mainly exposed in the tributary streams of the Atakpo, for, so far as is known, the Anwai has no southern tributaries. In some places a portion of the lignite series, and with it some of the lignite itself, appears to have been eroded before the deposition of the Benin Sands which form the plateau, but except so far as this may be the case, the seams must underlie the whole plateau.

The outcrop which is intended to be first developed, and to which a road has been constructed from Asaba, lies in the Atakpo valley to the south of Okpanam and about six miles from the Niger. The main seam has a maximum thickness of 23 feet, but at other points it is only 18 feet thick. A bore close to the face of the workings gave a thickness of only 12 feet 9 inches, but there the coal appears to have been partly removed before the Benin Sands were laid down. Other seams occur lower and higher in the series.

The main seam can be mined without difficulty by means of open-face workings or adits. The area does not show evidence of much earth-movement, and the only faults which have been observed are of small importance.

To the south, in the Ibusa district, seams measuring 6 feet 4½ inches, and 5 feet 9 inches, occur in the bed of the Oboshi stream, but as the slope of the stream is small they would have to be developed by shafts.

The following are the results of analyses made at the Imperial Institute of the lignite from the neighbourhood of Okpanam:

SAMPLES FROM THE ATAKPO VALLEY, OKPANAM

	Average	Best	Consignment of 10 tons	The same dried to 10% of moisture
Volatile matter.....	44.86%	52.86%	42.36%	52.53%
Fixed carbon.....	20.48	33.28	25.84	32.04
Water.....	11.81	8.90	27.42	10.00
Ash.....	13.85	4.96	4.38	5.43
Sulphur.....	1.10	0.54	—	—
Calorific value, small calories.....	5,402	6,703	5,018	6,189
Evaporative power.....	10.06%	12.46%	9.37%	11.55%

The excessive amount of moisture in the consignment of ten tons is due to the fact that it had not been allowed to dry thoroughly in the air. If this were done the results would be better than the average.