however, considerably exceed two hundred million tons, and further investigation may disclose much larger reserves.

SUBBITUMINOUS COAL

Subbituminous coal occurs in Southern Nigeria, outcropping in the steep eastern scarp of a plateau which slopes on the west gently down to the Niger, some forty-five miles distant. This scarp strikes northward in longitude 7° 22′ to 35′, from latitude 5° 50′ nearly to latitude 7° near Okwoga, where it dies out. Along it a nearly horizontal freshwater series, consisting of sands, carbonaceous shales, mudstones and coal, is exposed by the eastern flowing streams that have cut back into the scarp. These strata are covered unconformably by a thickness of over 200 feet of Benin Sands, and pass downwards into estuarine rocks. The fossils have not yet been determined, and the age of the series is still uncertain, but it is not improbably late Cretaceous. Some of the coal resembles that of the coal-bearing strata of eastern Australia, which are usually considered to be of Jurassic age, but may perhaps be Triassic.

The coal-seams have been mainly studied, in the first place by Mr. Kitson and Mr. Thiele and afterwards by Mr. A. D. Lumb and Mr. Martin Whitworth, of the Southern Nigerian Mineral Survey, in the neighbourhood of Udi (latitude 6° 12′ N.), where they were first found, and thence northward to near Nike (latitude 6° 27′ N.).

Five seams of black bituminous coal occur on the Ofam river near Udi, and analysis of these in the Scientific and Technical Department of the Imperial Institute gave the following results:

	No. 1*a*	No. 1*b*	No. 2	No. 3	No. 3	No. 4	No. 5
Thickness of seam	3 ft. 7½ in. (specimen taken from only 2 ft. 6 in. of this)	3 ft. 4 in.	2 ft. 2 in.	2 ft. 4 in. Sample *a*	Sample *b*	2 ft. 0 in.	1 ft. 11 in.
Volatile matter	32.66%	36.56%	40.41%	40.78%	38.34%	33.82%	46.98%
Fixed carbon	43.63	45.32	45.63	39.57	48.20	42.30	43.53
Water	6.92	5.65	6.20	5.13	5.01	5.46	4.15
Ash	16.79	12.47	7.76	14.52	8.45	18.42	5.34
Sulphur	0.87	0.62	1.45	1.28	1.16	0.74	1.61
Calorific value, small calories	5,892	6,437	6,979	6,453	6,913	5,976	7,456
Evaporative power	11.00	12.01	13.03	12.04	12.90	11.15	13.92

The coal has been traced northward in the valleys of the Nyama (Nyaba), Azata, Olawba, Ekulu and Iyoku and their tributaries. In the Nyama valley