is a thick band of carbonaceous shale with small coal-seams. The rock is intensely crushed. A slip on the hillside above marks the spot where 26 ft. of much-crushed coal is stated to have been disclosed by the prospecting operations carried out some years ago. Not far away is the point where 7 ft. of hard anthracitic coal was discovered by the prospecting party.

Beyond the carbonaceous shale-band are layers of sandstone, grit, and conglomerate, with one or two small coal-seams. These beds strike 226°, and dip at 80° to the north-west. The height above sea-level by barometric observation is 600 ft. For some distance upstream conglomerate and breccia form the outcropping rocks, but no coal is visible.

The following analyses of the Fox River anthracite were made some years ago :—

	(1.) Per Cent.	(2.) Per Cent.
Fixed carbon	90·9	82·42
Volatile hydrocarbons	5·1	11·07
Water	0·8	0·23
Ash	3·2	6·28
	100·0	100·00
Total sulphur	Undetermined	0·56

It is stated that the prospecting party found an outcrop of anthracitic coal some distance to the south of the Fox River outcrops, in the valley of Henniker Stream. Loose coal has been found in Dilemma Creek, the south branch of the Fox River, and an outcrop of coal has been observed towards the head of its tributary, Fossil Creek.

(5.) *Porarari River Coal.*

From information supplied by Messrs. T. Thompson (Buller County Engineer), Low (Seddonville), and J. Parsons (Charleston), it appears that one or more thick seams of coal outcrop in the watershed of the Porarari River (also called Pareora and Pareroa), in the south-eastern part of the Brighton Survey District. The outcrops occur at elevations of 1,500 ft. to 3,000 ft. above sea-level.

(6.) *Extent of Coal-areas.*

There is a considerable area of lignite-bearing country around Charleston, and northward of that township, towards Cape Foulwind. A detailed geological survey is necessary in order to determine whether the coal extends eastward from Charleston towards the Paparoa Range under the limestone visible in that direction. The lignite is probably patchy, and therefore boring will in any case be needed in order to ascertain the exact area over which it occurs.

The Brighton lignite will probably be found at some depth under much of the limestone-covered country in the Fox River and Bullock Creek watersheds.

The various outcrops of bituminous coal and anthracite mentioned in former paragraphs are found in a narrow belt extending from the northern branch of the Fox River to the Porarari (Pareora). The coal-measures are denuded from the higher portions of the Paparoa Range (except perhaps in the upper Porarari watershed), but probably extend westward for some distance under the Miocene strata. The geological evidence shows that the bituminous coal-measures are at a considerable, perhaps great, depth, and die out against an ancient land-surface before reaching the coast. The western area, it may be mentioned, is separated by a great fault from the eastern area, in which outcrops are visible. This fault marks the western base of the Paparoa Mountains, and has a downthrow probably of thousands of feet to the west.

(7.) *Economic Value of Coal-areas.*

At Charleston the lignite is of much value for local consumption, and if the locality were connected with Westport by railway, it would, owing to the cheapness with which it can be mined, be able to compete to some extent with higher-grade coals as far afield as Wellington. Since, however, it will not stand exposure to the weather, its transport would be more expensive than that of bituminous coal; nor can it be said that the market likely to be developed justifies the building of a railway at the present time. Shipping the coal direct from Charleston in any quantity would necessitate the construction of an artificial harbour, so that this proposition need not be seriously considered.

Similar remarks to those of the last paragraph may be made concerning the Brighton lignite. This, though of somewhat better quality than the Charleston coal, and probably occurring over a large area, cannot be economically worked at the present time, except to supply the wants of the very small local population.

The narrow belt of coal-bearing country extending from the Fox River to Bullock Creek has practically no value. The seams of anthracitic and bituminous coal are for the most part crushed, are variable in composition, are extremely faulted, stand at high angles, and are remote from population. The coal in the Porarari watershed may have some future value: it cannot be said to have more than a trifling present value.

As regards the possible extension of the Fox River anthracite,* under the low country west of the Paparoa Range, this also may be considered of little or no present value. In the first place, the coal is not proved; in the second place, if present, it is deep; in the third place, before the coal could be utilized either a railway to Westport would have to be made, or an artificial harbour constructed at Brighton. The present value of a coalfield which cannot be worked for a number of years can be

* The anthracite probably passes into bituminous coal west of the main fault line.