at Green Islets. The divisions (a) and (b) are at Green Islets of lesser thickness than in the western part. At Green Islets light-coloured or bluish marly strata form the highest member of the series. These rest on sandstones that in turn repose on the lowest member (c) (coarse breccia conglomerates), that at Green Islets form the more conspicuous development of the Cretaceo-tertiary series. At Gates's, the higher beds (a) and (b) do not exceed 300ft. to 400ft. in thickness, and the highest beds (a) form chalky limestones on the eastern headland; (b) are exposed in the middle and lower parts of the hill and cliff-face, the horizon of the coal being at the water-level. The beds (b), containing indications of coal but no actual coal-seams, extend east to beyond the mouth of the Coal Burn. Near the mouth of the Coal Burn the beds, a short distance above the coal horizon, consist of soft sandstones and shales, or marly shales, containing concretions often fossiliferous. Some of these fossiliferous concretions contain examples of a species of *Ostrea* of great size. The beds as seen at Gates's are nearly horizontal in position on the Coal Burn; they are inclined at high angles and dip to the south.

The calcareous higher beds are not again met with east of Preservation Inlet, but the beds (b), resting on (c), have a very considerable development between Gates's and the lower valley of the Wilson River, and thence across Macnamara Creek and Sealers' Creeks No. 2 and No. 1 to the shores of the inlet and the open coast-line between Puysegur Point and Coal Island. The section of these beds which may be studied along both banks of Sealers' No. 2 shows from the base of the series at first a dip at moderate angles to the west, which, seaward of where the track first crosses the creek, changes to the eastward, and thus a syncline is formed. This is followed by a roll in the beds which again changes the dip, and thus an anticline is formed, which arrangement of the strata again brings the coal-bearing horizon to the surface at a point about two-thirds down the valley of Sealers' Creek. A coal-seam showing a workable thickness of the anticline indicated, but this could on the left bank of Sealers' Creek, on the south-west slope of the anticline indicated, but this could not be rediscovered, and consequently it is mentioned here from report only. Lower down the creek and at its mouth the dip is again reversed, and indications of coal—but no actual coal-seams—are met with on the coast-line. Between Puysegur Point and the landing at Otago's Retreat the arrangement of the strata is similar to what has been just described, the lower south-western dip continuing till the beds (b) are seen resting on the breccia conglemerates of Observation Point. In the central anticline, the dips on the side of which are at low angles, coal-seams appear in

In the central anticline, the dips on the side of which are at low angles, coal-seams appear in the sea-cliffs outside the eastern entrance to the inlet. The coal is very irregular as regards thickness and apparent continuity, and is associated with considerable bodies of iron-ore, carbonate of iron, usually oxidized at the surface. At the entrance to the inlet, on the eastern headland, a seam of coal was discovered many years ago, and a drive was put in following the coal to the eastward; but these works have been long since abandoned, and, the locality being difficult of access at certain states of the tide, and the works having fallen in, no examination was made.

On Coal Island the section is everywhere practically the same as that which may be examined on the mainland. On the northern side of the island the breccia conglomerates interposed between the lower of these beds (b) and the slates are reduced to an inconsiderable thickness. At Gulches Head the coal series is well exposed along the shore between the inner promontory and the west side of the low grounds of the Neck. The great bulk of Chalky Island is formed of the higher beds of the series, but there being no opportunity of landing on this no examinations were made. At Gulches Head a seam of coal is exposed in the face of the cliff of the inner promontory at a height of 240ft. above the level of the sea. The thickness of the seam where exposed is about 3ft., and the coal appears a brown coal of good quality. Samples of this were collected, of which an analysis has since been made in the Colonial Laboratory. This is given below :—

- Analysis.									
"No. 3748 (2)Co	al from	Gulches	Head, P	reservatio	n Inlet—	Brown C	oal :		
Fixed carbon	•••		• • •			•••		46.26	
Hydro-carbon	•••	•••		•••	•••	•••	•••	32.88	
Water	•••	•••	•••	•••	•••	•••	•••	14.26	
$\operatorname{Ash}$	•••	•••	••••	••	•••	•••	•••	6.60	

## Evaporative power, 6.00lb.

A hard coherent coal of laminated structure and lustrous appearance, yielding a non-coherent coke and an ash of pale-red or buff colour.—WILLIAM SKEY, Analyst."

From the configuration of the hill in which this seam lies, the dip of the strata, &c., it is improbable that this seam extends over any very considerable area; certainly its extent must be limited to not more than half a mile square.

Another sample was taken from near the shore of the inlet about two miles further to the northeast from a leasehold held by J. Wilde, &c. This, on analysis, gave the following results :---

" Amalania

				Али	wysis.						
" No. 3748	(1):				-						
Fixed o	carbon	•••		•••	•••	•••	•••	• • •	52.89		
Hydro-	carbon	•••		•••	•••	•••	•••	•••	38.47		
Water	•••		•••	•••		•••			6.41		
$\mathbf{Ash}$		•••				•••		• • • •	2.23		
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Evaporative power, 6.80lb."

100.0