

No well-defined seam was indicated at the place whence sample No. 1 was taken, but surrounding the locality there is a considerable area of coal-bearing rocks, and within this seams of greater regularity may occur.

(c.) *Coarse Breccia conglomerates*.—These beds have a large development in the district, and may be also are of some importance as gold-producing to the more recent alluviums of the river and creek valleys and the littoral sands of the sea-coast. Between Green Islets and the mouth of the Kiwi Burn, these beds form high cliffs on the coast-line, which renders travelling this part, except in fine weather and at low tide, difficult to most, and to some persons impossible. Granite is the prevailing rock constituting these breccia conglomerates on this part of the coast-line as far to the westward as Gates's and the ridge between that place and the lower Wilson River. East of the Kiwi mouth, the coarser beds are interstratified with shales and gritty sandstones, containing coarse plant-impressions and thin streaks of coal. At the base of the series is a remarkable formation of what appears as a brecciated granite, which naturally seems at first sight to belong to the granite development upon which it rests. But more careful investigation showed that it in reality consisted of granite material, which had been broken up by the action of the weather and gravitated down a steep slope, thus accumulating as a comparatively thick but local deposit at the foot of the height whence it was derived. All the fragments are small, showing that the granite must have decomposed sufficiently *in situ*, so as to allow of it being easily broken up into fields of coarse granite sand, prior to this accumulating in its present position at the base of the Cretaceo-tertiary series and its being again recemented into a hard rock. This peculiar rock was not observed at any other place than on the shore-line immediately east of the mouth of the Kiwi Burn. The breccia-conglomerates do not apparently extend far inland from the coast-line between the Kiwi Burn and Green Islets; but the surface of this part is broken and so thickly covered at the higher levels with stunted yellow-pine, that the exact boundary could not be determined except by a greater expenditure of labour and longer time than the importance of the work would warrant.

Between the mouth of the Kiwi and the Gold Burn there are none of these rocks on the coast-line; but half-way between the latter and the Coal Burn the breccias again appear, heralded by a very coarse, stony beach, the material of which has been derived from the destruction of the breccia-conglomerates. The lower beds, where first seen, strike south and dip to the west at very high angles; and, owing to their unequal hardness, the erosion of them by the sea while cutting back the mass of the beds yet leaves the harder parts standing out far into the tide. Before reaching the mouth of the Coal Burn the beds have passed to the landward side of the shore-line, and abreast of Gates's the lower beds crop out on the spurs one and a half to two miles inland. Here, however, their considerable thickness, in spite of a moderately high dip to the southward, enables them to reach forward to the shore at the head of Gates's Harbour. Towards the Wilson River they thin out, till at the foot of the gorge, two miles below the Golden Site Claim, their thickness is greatly reduced, and the granite, having to a great extent disappeared, the composition of the deposit is mainly a sandstone gravel; and no longer are the beds to be characterised as a breccia.

On the saddle leading from the Wilson Valley into that of Macnamara Creek the beds retain the character of conglomerates, but have a considerably increased thickness. Retaining still the character of conglomerates, the thickness of the beds continues to increase as they are followed from Macnamara Creek into the valley of the upper part of Sealers' No. 2; and, without any alteration of their character, other than the coarseness of the material, the beds are continued northward across Sealers' Creek No. 1 to the shore of Preservation Inlet, at Observation Point, where they are of coarser grain and have again a large proportion of the material composed of granite. The beds pass across the strait to the eastern side of Coal Island, crossing which they again thin out, and almost disappear from the series on the northern shore. As well-rolled conglomerates, the beds are strongly represented at Gulches Head, where, as high cliffs, they are seen resting on the granite that forms the western part of the outer promontory. On the west side of South Port they are developed as a moderately-coarse breccia conglomerate, that contains examples of an igneous crystalline rock not elsewhere met with in the district, except as stray pieces on the beach on the Preservation Inlet side of the Neck. The breccia-conglomerate on Steep-to Island must be considered a modern slope-deposit consolidated, and consequently cannot be dealt with in this place. It has already been referred to.

These beds (the beds *c* of the Cretaceo-tertiary series) are of the age of the quartz-drifts and breccia conglomerates that lie at the base of the coal-bearing series over Southland and Interior and Eastern Otago. It has been shown that the beds of this age are auriferous over large areas in Otago and Southland, and it was naturally to be expected they might prove auriferous in the district under examination. So far as could be gathered, no one has obtained a paying prospect from these beds in this western district; yet, it were easy to show that to some extent they are gold-bearing, and have contributed gold to some parts of the coastward region over which neither glacier-drifts nor sea-terraces have extended, and which yet yield waterworn gold differing in character from that which, newly-liberated from reefs in the Silurian rocks, is of a raggedy character and largely consists of specimens. It is in Macnamara's Creek, and the upper parts of Sealers' Creeks Nos. 1 and 2, that these beds are most likely to yield appreciable quantities of gold, as in these places they are well rolled and of a considerable thickness.

#### IV.—SILURIAN.

(a.) *Sandstones and Graphitic Shales and Mudstones, Cherts, Carbon-slates, and Mica-schists*.—The general distribution of these beds has already been described. They extend north-west and south-east from the mouth of Kiwi Burn to the northern limit of the district examined, and constitute a belt of country the maximum breadth of which is about five miles. The strikes and dips at various parts show that generally the lower beds resting on the granite are nearly vertical,