

and a half below the Inangahua Junction the river breaks through a formation of cretaceous limestone, and has formed high cliffs on both its banks. The limestone forms on the southern side of the valley a sort of table-land between the Lower Inangahua and the Buller, below the junction. This at one time has received a deposit of river-shingle, probably by the action of the Buller before it had commenced to cut down the limestone part of the gorge. These gravels—what remains of them—are necessarily but a remnant of what they once were, and to some extent their removal has been effected along underground channels in the limestone. Some of these underground channels have been explored, and the concentrated gravels of the surface-wash found to be rich in gold—at least, gold-bearing to such an extent that a rush set in, and for a considerable time sub-alluvial workings were carried on in these underground channels. Below the limestone cliffs the valley opens out, and between the Limestone Range and the river lies the Big Swamp, extending to the junction of Coal Creek and Grainger's Point, where the river is again enclosed between the precipitous cliffs or steep slopes of a gorge. From the north the Mackley River joins the Buller opposite the middle of the Big Swamp. The Mackley flows in a transverse valley, which lies between the Mount Glasgow Range and the Lyell Mountains to the eastward. This transverse valley is continued across the Buller and along the course of Coal Creek on the south side of the main valley, the limestone hills between Coal Creek and the Inangahua forming one side of the transverse valley, the hills between the upper part of Coal Creek and the lower part of the Blackwater the other side of the valley. At Berlin's, for a short distance the hills on the south side of the gorge are low, and a greater breadth of alluvial gravel deposit occurs here than elsewhere in the middle and lower parts of the gorge, and it is here that the chief "diggings" in the Buller Gorge have been ever since the commencement of mining in the district. At Lovell's Point the river is again confined between precipitous rocks or steep banks, although some alluvial banks are formed between the latter point and the mouth of the Blackwater.

Between the Blackwater and Hawk's Crag, immediately beyond the crag and near the Twelve-mile, there are also small areas of gravel-formed alluvial banks on the south side of the river, and there is a like small area on the north bank of the river, opposite Powell's accomodation-house, at the Twelve-mile. These small areas of alluvial deposit, in favourable situations, and the bed of the river when low, are worked for gold. Below the Twelve-mile there is an area of gravel deposit at the junction of the Big Ohika; but the gravels of this have been brought down the Ohika, and, being mostly or wholly granite, they are either non-auriferous or have not been prospected for gold. Below this point the gorge is cut through granite mountains, and so steep are the slopes to the water's edge that few opportunities are afforded for the accumulation of shingle, even between high flood-mark and what the river marks when of medium volume.

From the Inangahua Junction to a few chains west of the Little Ohika, all the rocks on the south side of the Buller Gorge belong to different members of the Cretaceo-tertiary or Cretaceous formation. The higher beds are limestones and dark mudstone marls, often, but not always, underlain by the Cape Foulwind limestone, beneath which, associated with sandstones and shales, is the upper or brown-coal series. These coal-measures rest on the breccias of Grainger's Point, and they so rest with some appearance of unconformity. The breccias of Grainger's Point are amongst the lowest beds of the sequence, and in the lower beds are very obscure in their stratification. Towards the west they alternate with beds of sandstone and sandy shales, which are followed by pebbly conglomerates, which again are followed by sandstones, the whole forming a syncline the east side of which is repeated in Lovell's Bluff, between which and the Blackwater the beds form an anticline exposing as the lowest rocks of the series, light-grey, thin-bedded siliceous shales, much indurated, and having at places the general aspect of the Cobden limestone at Greymouth. These latter rocks are followed by the higher beds described, and they constitute the west wing of the anticline to within 300 yards of Hawk's Crag, where they are followed by the enormous development of breccias that continue without intermission and without material change in their characters till they are terminated along the west side of the Little Ohika Valley. These Hawk's Crag breccias extend six or seven miles up the Blackwater, and constitute, between that stream and the Little Ohika, perhaps, or, rather, without doubt, the most rugged and inaccessible country in the whole of the Paparoa district. The same rocks form exceedingly rough country east of Mount William Ridge to Hawk's Crag, and this part of the country is unexplored, its geology being explained and mapped from what is known of the Buller Gorge and that of the Waimangaroa Watershed.

*Lower Buller and Coast-line north to Waimangaroa.*—From the lower end of the Buller Gorge the outer slopes of the ranges are granite till, passing Mount Rochfort, the steep slope west from the plateau shows coal-measures, tilted to high angles and resting on the granites. The coal-measures here dip to the westward. Along the foot of the range high-level terraces extend from the Buller Gorge to Fairburn, and below these, gradually sloping to the coast-line, are the lower flat lands which may be regarded as partly due to the action of the river and partly as a littoral marine formation. Large areas of these lower plains are swampy, and devoid of forest, and are, hence, called "pakihi." The Waimangaroa crosses this coastal plain where it is about two miles wide, east of which the river-valley gradually narrows till it becomes a deep mountain gorge. Gold is found and worked on the beaches at the mouth of the river, and also along its banks from the point where the narrower part of the valley begins to the source of the river.

*Coastal Track, Lower Buller to the Fox River.*—From Cape Foulwind to the mouth of the Nile the coast (near the Cape) for the first two miles is bold, and formed of gneissic granite, followed inland and to the south by coal-bearing rocks. Towards the mouth of the Okari and Totara Rivers it is low and sandy. East to the Buller River and the slopes of the Paparoa Range the country north of the Totara River rises gradually, and forms a gently-sloping plain to the foot of the high terrace extending between the Buller and Totara Rivers. Along the butt of this terrace, from Bald Hill to the Shamrock Claim, lie the main gold-workings of Addison's Flat, although there are at