

the valley of the Brown Grey has, in like manner, circumscribed the former area of the shingle-beds now confined to the higher level of the Bog Saddle. Towards the source of the Maruia River the rocks of the Spencer Mountains consist of sandstones and slates of Carboniferous age. Appearing from beneath these, and forming the mountains between the Alfred and the upper part of the river and stretching north-east towards the sources of the Glenroy and Matakītaki Rivers, there is a continuation of the schist rocks, described as lying to the south-east of the granite belt in the Grey Valley. On the plain opposite the junction of the Alfred there is an isolated mountain of marble, or crystalline limestone, and the same calcareous beds stretch north-east along the right bank of the Alfred River.

This limestone appears to rest upon gneissic granite. Granite rock towards the source of the Glenroy has but a limited development; but, on the left side of the valley, it forms the mountains to and round the sources of the Inangahua River and the Victoria and Brunner Mountains, stretching along the west side of the Maruia Valley to the Buller Gorge above the Lyell Township. From the Alfred junction to the junction of the Warbeck, seven miles below Walker's Homestead, a distance of twenty-one miles the Upper Maruia Plains stretch, principally, at first, on the west bank of the river as far as the Home Station, and finally, for the last seven miles, the greatest breadth of level land is on the east bank of the river. Generally, these plains are open lands, grass-covered, with a species of tussock; but large areas are covered with a stunted manuka scrub, the area covered by which is said during late years to have been greatly increased.

The soil of these plains, that embrace a total of about 22,000 acres, is at some places of fair quality, but the bulk of it is very poor, and all vegetation, owing to the severity of the climate, is at a standstill from the middle of April to the middle or end of October. A little above the junction of the Warbeck, a line of moraine hills stretches across the valley from the east slopes of the Victoria Mountains on the west side, to the hills bounding the opposite side of the valley, which forms the water-parting between this part of the Maruia and the Glenroy Valley. This line of terminal moraine is well marked, and explains the character of the terraces along the upper valley of the river to the Alfred junction. This part of the valley, on the disappearance of the glacier that once filled it, was for a long period a lake, which was gradually filled with shingle to the level of the highest terrace or moraine, and subsequently, by the action of the river, the deposits accumulated in this manner were cut down to form the lower terraces and bottom flats along the margin of the river.

Between Station Creek and the Warbeck the mountains on the east side of the valley are mainly composed of Cretaceous strata, consisting of conglomerates and sandstones, constituting the lower part of the coal-bearing series. Below the Warbeck, gneissic granite appears on both sides of the valley; and, from the Upper Warbeck, this rock constitutes a range of mountains on the right bank of the river to within twelve miles of its junction with the Buller. The lower part of the valley is, for the most part, narrow, deep, and gorgy, the only extent of level land being on the left bank, from twelve to fifteen miles above the confluence with the Buller. About eight miles above the junction, the granite or gneiss gives place to coal-measures belonging to the Cretaceous or Cretaceous-tertiary series. These form the mountains on the right bank, and, crossing the river to the westward, extend some distance in that direction amongst the granite peaks of the Brunner Mountains.

The Matakītaki, like the Maruia, takes its rise in the Spencer Mountains, and for the first fifteen miles flows in a northerly course through or across a succession of sandstone and shale, schist, or granite mountains, as has been shown the Maruia does. Below the point indicated, the Matakītaki has a west course for about twelve miles. This part of its course is across granite and coal-measures, while there are also considerable developments of superficial gravels that are of importance, they being auriferous. Below the junction of the Glenroy, the Matakītaki resumes its north and south course, and flows along the west side of its valley to its junction with the Buller. On both sides of this lower part of the Matakītaki Valley the rocks are of Cretaceous or Cretaceous-tertiary age, and consist of limestones, marly strata, and beds of sandstone or quartz conglomerates and shales, with coal-seams of greater or lesser thickness and value. The lower terrace lands and the bed and immediate banks of the river show the presence of a shingle largely derived from the harder rocks towards the source of the river; but also, in a great measure from beds of conglomerate occurring as part of the Cretaceous formation. This conglomerate, it has been ascertained, is gold-bearing to such an extent that it becomes of great importance in considering the immediate whence of the gold found in the Matakītaki and Mangles Rivers, and also, to some extent, that found in the Maruia and its tributaries.

*Glenroy River.*—This takes its rise between and near the sources of the Maruia and the Matakītaki, and flows north-west and north to its junction with the Matakītaki. Its source is in schist, its middle course in the conglomerates and sandstones of the coal-bearing series, and its lower course for about two miles through granite, and finally for a short distance across coal-measures to its junction with the Matakītaki. All the gold-workings in this part of the Buller Watershed are, with the exception of those on the Alfred, either upon a granite bottom or upon different members of the Cretaceous formation; and it is a remarkable fact that generally, except on the Alfred River, to the eastward of the Cretaceous formation, no payable gold has been found.

*Upper Buller to the Inangahua Junction.*—This part of the district includes the narrow valley of the Buller below the Maruia, including Lyell Creek, and New Creek areas, and the river valley below the latter to the Inangahua Junction. The gorge above the Lyell passes through frequent alternations of granite and comparatively unaltered rocks. Near the junction of the Newton River a rib of Cretaceous-tertiary limestone and associated marly beds are deeply involved as vertical strata between granite. The same thing happens between the bridge over the Buller, one and a half miles below Lyell, and the lower part of New Creek, where a representative development of the Cape Foulwind limestone, underlain by coal-measures, occurs, standing at very high angles between the auriferous slates of New Creek and the granite of the lower part of Lyell Creek. Below the bridge