

(No. 4) consists of hornblende andesites and tuffs, forming the "hard country" of the miner; the second (No. 5) of decomposed andesites and tuffs, forming the soft or "kindly country" of the miner, and often locally termed "sandstone"; the third (No. 6) of hard tuffs, andesite-breccias, and agglomerates, made up principally of ejected volcanic fragments with occasional pieces of the underlying sedimentary slates. These slates, near the Thames, only outcrop over a small area at Rocky Point, near Tararu, though they doubtless form the rock-foundation of the whole Cape Colville peninsula, as they outcrop at various localities.

Leaving the slate outcrop at Rocky Point, and coming along the coast southerly towards the Thames, the rocks as far as Kurunui Creek consist of the third class (No. 6 on Mr. Park's map), which have seldom, if ever, been found to contain auriferous reefs.

From Kurunui to Karaka Creek—about a mile—occur the andesites and tuffs (overlying, and younger than No. 6) which are described under Nos. 4 and 5 on Mr. Park's map, and contain the gold-bearing reefs. These evidently extend southward under the newer sedimentary deposits which form the surface from Karaka Creek to Hape Creek, a further distance of about three-quarters of a mile. Near Hape Creek breccias reappear—whether No. 6 or not is uncertain; but there clearly exists between Kurunui and Hape Creeks an area, nearly two miles wide, occupied by Nos. 4 and 5, which, from the surface to various depths, have been proved to be traversed by auriferous-quartz reefs, and the deepest extent of which has not yet been ascertained, while the portion concealed by the newer sedimentary rocks is practically unprospected—*i.e.*, from about Karaka Creek to Hape Creek.

There is thus a basin or channel in No. 6 occupied by the auriferous andesites and tuffs (Nos. 4 and 5), the northern margin of which is represented by the outcrop of the non-auriferous breccias (No. 6) rising from beneath near the Kurunui Creek. The auriferous rocks occupying this basin also appear to shallow out upward in an easterly direction, and to deepen westerly or seaward, while their southern margin is so far undetermined, being obscured by Post-tertiary deposits. The auriferous-quartz reefs and veins traversing Nos. 4 and 5 form a wide belt having a general direction north of east and south of west. The quartz veins nearest to the north margin gave out, as regards gold, at comparatively shallow depths; but each succeeding reef or stockwork of veins southward has proved gold-bearing to a greater and greater depth.

This dip of the floor of the gold-bearing rocks has been noted as amounting to 462ft. in 37 chains by those conversant with the workings.

Mr. Park's cross-section shows, from the Kurunui to the Karaka Creek, over thirty notable reefs and veins, apart from the network or stockwork of veins occurring between them in many places, such as the Shotover ground, &c.

It is noticeable that of these principal reefs all to the northward of a point between the Saxon and Queen of Beauty shafts underlie northward, while southward of that point the majority of the reefs show a southerly inclination.

I observed, however, nothing in the structure of the rocks to account for this, which may, after all, be a coincidence, though suggestive at first glance of a "saddle" formation on a large scale.

The rocks of this basin have been subjected to at least two great dislocating movements. The great Moanatairi fault or slide has caused a downward slip of a large portion of the rocks towards the sea and the line of the fault is clearly traceable on the ground by the physical configuration of the country, and by the actual attrition-marks on its exposed wall-surfaces, while it is also distinct in such tunnels or drives as have reached or cut through it underground.

The vertical displacement caused by the fault has been estimated at from 300ft. to 600ft., but whatever it be, by so much lower are the rocks and their contained quartz-reefs on the coast side of the fault than their equivalents on the inland side. Another fault known as the "Collarbone" acts in a similar manner, but curves round and meets the Moanatairi fault to the south-west near Karaka Creek, and whether the two intersect and continue in independent courses or coalesce in one is as yet undetermined.

In some of the underground workings near and extending in the direction of the coast-line there has been struck what has been termed the "Beach slide"; but it is questionable whether this is really a fault or only the ancient coastward slope of the rocks when the land was more elevated, since banked up with recent accumulations.

Owing to the nature of the ground it was considered unsafe to explore further seaward beyond this assumed fault, but, if it really be one, it implies the existence beneath the gulf of a considerable section of rock, the down-thrown continuation and equivalent of the present exposed portion between the Moanatairi fault and the coast-line, in which the richest reefs and veins have hitherto been found.

Going up the Waitotahi Creek and crossing the Moanatairi fault, the junction of two great reefs is met with—the southern known as the Waitotahi, the northern as the Golden Age.

The latter reef in the Fame and Fortune Mine is 30ft. in thickness in places, and, though auriferous, has not been much worked, the "droppers" or branch veins on either side yielding the principal gold. This reef is regarded by some as the continuation of the main reef formerly worked in the Caledonia ground with such exceptionally rich results.

Dixon's reef is about the most northerly line on the field, except some detached workings of small extent to the northward, near the Tararu Creek, and is accompanied on the hanging-wall side by one of the hard undecomposed andesite bands. This reef has been worked to as much as 10ft. in thickness, and, where joined by the Sons of Freedom line, was very rich.

The Orlando Mine is on a reef known variously as the Orlando, Bendigo, and Reuben Parr; a tunnel here follows a strong well-defined reef bearing north-north-east and nearly vertical, with leaders coming into it. It has not here been worked underfoot, though stoped at deeper levels to the south-west. It is expected in this tunnel to meet the gold-shoot worked by the old Bendigo Company some distance ahead.