

## APPENDIX No. 4.

REPORT upon RECONNAISSANCE SURVEY of PART of WEST COAST between CASCADE PLATEAU and JACKSON'S RIVER on the North, and LAKE MCKERROW and HOLLYFORD VALLEY on the South.

*Procedure.*—The survey north and east of line AB in blue, as shown on tracing marked (A) in red, attached hereto, is the result of two explorations in the southern district, the first undertaken in February, 1883, and the second in February and March, 1884. The principal object in view—apart from the desire to get a good topographical map of the district—was to ascertain whether it was possible to get a practicable line for extension of main road to Martin's Bay Settlement and so a connection with Lake Wakatipu District, Otago. The surveys south and west of line AB in blue, and shown on said tracing, are the work of Otago surveyors. Avoiding all details, the main features of the two explorations referred to were as follow: In February, 1883, I left Jackson's Bay, travelling inland across Stafford River, &c., to the Twin Rocks on Cascade Plateau, thence into Cascade Valley and up Cascade River. From Mount Richards Range the north head of Big Bay, as I thought, with the sea beyond it, was plainly visible: a low saddle—altitude between 1,500ft. and 1,600ft.—with high ranges on both sides, leading into the Awarua River, the course of the river into Big Bay almost a straight run west (magnetic), which coincided exactly with the old Canterbury map. I descended the Olivine Range, forded the Cascade River, and crossed the saddle and travelled down the Awarua. Three days' journey brought me to the sea, and I then discovered that the river I had been following to its mouth was the Gorge River, and not the Awarua, and that Mount Richards was nearly five miles out of position on our old maps. Unable then to spend the time necessary in completing the survey, I travelled along the coast to Barn Bay, and from thence in an open boat (22ft. long) back to Jackson's Bay. On the 16th February, 1884, the measurement of the Cascade Plateau base-line being then completed, I descended into Cascade Valley and started on my second journey south, travelling along the sea-coast to Gorge River, up that river and Jerry River. From point marked (D), above S.C. 2290 (survey camp, altitude 2290ft.), the course of the Awarua, as I thought, with the old map again before me, could be clearly seen for about five miles. To the south side of "The Knoll" the main branch as shown on said map appeared to join it, and both, turning sharp round into the low gap between the Knoll and the foot of Skipper's Range, evidently continued in a westerly direction straight for Big Bay. I descended this supposed Awarua River and travelled down to the Knoll, when I found that, instead of running westerly, the course of it was south-south-east. The mystery had to be cleared up, but, having only a day's provisions left, I could not follow the river, but retraced my steps to camp marked S.C. 180, and the day following worked along the foot of McKenzie Range to Big Bay. On that day's journey I at last found the mysterious Awarua River, a stream less than half the size given on the map, and its source, instead of three or four miles to the east of Red-hill, as many miles to the west of it. From Big Bay I travelled along the coast line to Martin's Bay, thence across Lake McKerrow up Hollyford and Pyke's Creek (I suppose called a creek in irony, for it carries a large body of water, and is unfordable for either man or beast between the Lake and the Hollyford) to Lake Alabaster and to ranges east of it. I returned *via* Martin's Bay along the sea-coast to mouth of Cascade, thence up that river and Martyr's River across a low saddle into Jackson's River, and down that river and Arawata River to Jackson's Bay.

*Topographical Work.*—The rivers have been rough-traversed, and the ranges—Olivine Range, Gorge River Plateau, Red-hill Range, and part of Humboldt Range—have been explored, and the others adjoining fixed from them. The only basis obtainable for determining positions inland was the coast-line, with its many bluffs and headlands, and on the correctness of this coast traverse, which, as far as I am aware, was a piece of contract work carried out under the Provincial Government (Canterbury), some years before the gold discovery on the West Coast was made, depends the correctness of the whole work. The principal points made use of are: Cascade Point, mouth of Cascade River, mouth of Hope River, Sand-rock Point, Long-ridge Point, and the north and south heads of Big Bay. The way in which the bearings fell in when plotting the work, with the coast-line as a basis, shows plainly that there is an error of about a mile and a half in the coast traverse between Big Bay and Cascade Head. Where it is, and whether cumulative or confined to one or more spots, I could not say. Going into particulars would unduly extend this report; suffice it to say that at questionable points I meant the results derived from different observations to coast-line features, and so carried the work down to point M, abreast Lake Alabaster. I had hoped to be able to "tie on" to some trig. stations on the Otago ranges, but found that impossible, as none of them have been planted on the tops of the ranges. They are all fixed on the slopes either in the bush or just at the beginning of the open land. This was done, I presume, for the purpose of enabling the surveyor to fix points commanding the settlement surveys in the valley of the Hollyford and about Lake McKerrow. I should have asked Mr. Arthur to direct that a station or two be planted and trigonometrically fixed on the top of both Skipper's Range and Humboldt Range, while the survey was in hand. It would have greatly facilitated the connection of Westland and Otago triangulation, but this did not occur to me at the time. Returning to point M, the bearing from it to the junction of the Pyke and Hollyford and to Trig. Y—the position of which, however, I could only guess at from description received at Martin's Bay from one of Mr. Wilmott's survey labourers—falls in fairly well; but the intersections of the bearings to the principal mountains, notably the Tutoko and Mitre Peaks and Mount Christina (I am not quite sure that the one I took to be Mount Christina is really Christina), throw that point a mile to the north-west of where shown on tracing. The topography of the inland features is altogether wrong on the old maps; indeed, it is little better than a guess at what the inland country might be when simply looking at it from the sea-coast. Almost every one of them a few miles from the sea-coast is not only not approximately right, but radically