

is still required in the Upper Waikato and Thames Valleys, to the country around Mercury Bay and along between Opotiki and East Cape. Mr. Goldsmith has all but completed the latter extension. The part of Auckland District, between Waikato and Taranaki, known as the King Country, is not yet open to survey.

Hawke's Bay Provincial District.—A major triangulation on true meridian has also been completed in this district under Mr. Heale. The same remarks apply here, as to Auckland, with regard to the necessity of having the lengths of the sides of triangles reduced to two or three miles before the triangulation can be of much use in controlling the settlement and land transfer surveys.

Taranaki.—Only one true meridian is required for this Provincial District, and it had already been well established by Mr. Humphreys before the amalgamation of survey departments. It runs from Waitara through the forest about nine miles due east of Mount Egmont. Mr. Brooks and party were engaged running and cutting this line for several months, and only left off lately. It is the boundary of a series of survey districts, and has been carefully measured and marked for about 20 miles. It is the base line to which all surrounding surveys are referred. Incidentally the running of this line affords accurate information as to the topography of that part of the district. Mr. H. M. Skeet has been selecting hills and clearing sites on them, for the stations of the standard bearings, which are to be established further in the forest, and east from the meridian line. This is necessarily expensive and laborious work, but it is absolutely necessary if the native and settlement surveys are to be kept free from confusion.

Wellington Provincial District.—The surveys have hitherto been referred to three (3) magnetic meridians. From the very nature of the case, the relation subsisting between the bearings of these meridians is quite accidental, and not according to the true differences arising from convergence. It is not necessary to enquire into the circumstances which led to the adoption of these arbitrary meridians. But on the close of their triangulations, and the observation of true meridians at south end of Opaki Base, and at the Hutt, by Mr. Jackson, the data was available for the computation of the corrections necessary to bring all the bearings in accord with true meridian. These computations have been made in the most thorough manner, not only for the initial station of each triangulation, but for all the main stations as well.

It will be manifest, however, that if one part of the survey were plotted on true meridian and another on magnetic or arbitrary meridians, there could be no uniform system of plans and maps in the colony, unless the copy draftsmen apply corrections, and that simply means, where you have a number of officers, a never-failing source of error and omission.

These considerations determined that for the future, the surveys in this, as in other districts, should be on the true meridian. Accordingly Mr. Jackson's determination at south end of Opaki Base, was adopted as the true meridian of Wairarapa Circuit. My determination at Mount Cook was taken for Wellington Circuit, and Mr. Marchant's determination at Mount Stewart, for Wanganui Circuit.

In the northern part of this Provincial District, there is a large area as yet untriangulated, and of which the topography is very vaguely known. Mr. Marchant determined the true meridian for it at Tuhirangi, near Murimotu Plain. He also ran a line of bearings across country, from Wanganui Circuit to Hawke's Bay Circuit, and observed a few triangles. He will resume, if Natives permit, the extension of standard bearings northwards next season. In any triangulations which may be undertaken in this part of the country, it will be advisable to proceed from a measured base, and not from a side of a former triangulation, as the closures of Hawke's Bay and Wellington triangulations reveal differences of from $2\frac{1}{2}$ to 4 links per mile.

Nelson.—This Provincial District has been divided into six meridional circuits. Mr. Browning determined the true meridian for the Nelson and Grey circuits, and Mr. Marchant the Buller and Karamea circuits, and presently he is running a line of bearing between the initial stations of these two circuits. The Collingwood circuit will shortly be undertaken by Mr. Marchant, and the Amuri by Mr. Adams.

The extension of standard bearings up the Waimea Plain and on down the Buller, to meet a line from the Grey Valley and from Westport, is in hand and well forward, by Messrs. Sinclair and Thomson.

Standard chain-lengths have also been laid down at Nelson and Ahaura by Mr. Browning. The Nelson Provincial District has hitherto been utterly destitute of any reliable basis of survey. Triangulation should at once follow the lines of standard bearings.

Marlborough.—This Provincial District is all comprehended in one meridional circuit. I observed its true meridian at Goulter's Hill, near Renwick, in the beginning of April last. Mr. A. D. Wilson has since extended standard bearings from it along the Kaituna and Pelorus Valleys to the borders of Nelson district. He has also got the first stations selected and observed of lines to Upper Wairau, to Picton, and towards Awatere and the country further south. As regards starting and closing points for settlement or land transfer surveys, this district is in precisely the same state as Nelson.

Canterbury Provincial District has been divided into three (3) meridional circuits. Mount Pleasant comprehending all the country north of the Rakaia to the Hurunui. Gawler, the country between Rakaia and Rangitata. Timaru, all the country south of the Rangitata to the Waitaki.

Mr. Adams determined true meridian at Mount Pleasant in November last, and observed the true bearings of the lines of surrounding stations. By means of heliotrope signal, the true bearing of station on Mount Cass—35 miles distant—was observed, and from that station Mr. Kitson began the extension of standard lines throughout the circuit. He closed back on Mount Pleasant from the south and proved the accuracy of his work. Mr. Kitson's work also tested the minor triangulation over which it passed. In one district, discrepancies were brought to light, which necessitated a re-triangulation, now in progress.

The true meridians at Gawler Downs and at Mount Horrible, near Timaru, have also been observed by Mr. Adams for their respective circuits, and Mr. Wilkins ran lines of bearings between the two initial stations of these meridians, with extensions north of the Rakaia and south to Waimate, and connecting with the several minor triangulations passed over.