

## APPENDIX No. 2.

## EXTRACTS FROM THE REPORTS OF CHIEF SURVEYORS IN CHARGE OF SETTLEMENT OPERATIONS IN DISTRICTS.

## AUCKLAND.

*Mean Degree of Precision attained in Surveys for the Period.*—Following the course pursued last year, I have obtained from the surveyors a list of their trigonometrical and chain closures, a copy of which is appended hereto. I would point out that the paucity of closures under the first heading is due to the adoption of the Ray trace system of breaking down from the major triangles, which very often does not show any closure unless another Ray trace is adjacent to it and forms one of the closing sides. The mean discrepancy is 0·62 links per mile. In the chain closures it is 1·49 links per mile.

*Major Triangulation.*—The past season has not shown so large an extension of this class of work as was anticipated, the cause being that, for political reasons, it has not been deemed advisable to extend into the King country very far, though every preparation had been made and the work commenced. Mr. Cussen extended a few large triangles down to Kawhia to connect the Government township there with the other surveys of the colony. Mr. Baber returned again to his unfinished work in Urewera, and succeeded in covering a good extent of country, notwithstanding the opposition of a section of the Natives of those parts; but he finally had to leave the work incomplete for another season. The country in which the work lay is one of the most difficult in the colony to survey, consisting as it does of a mass of high forest-clad mountains without tracks, and in which the supplies have to be taken on men's backs for many days' journey. The pressure of Native Land Court surveys in that part of the Auckland Court District lying within the Province of Wellington was taken advantage of to extend the major triangles south and south-west of Lake Taupo, a work which was satisfactorily performed by Messrs. Simms and W. Cussen, authorized surveyors. During its progress stations were placed both on Ngauruhoe (Tongariro) and Ruapehu, from which more satisfactory heights for both those mountains were obtained, the former coming out as 7,376 feet, the latter as 8,878 feet; but, as these heights have not been checked from independent triangulations, they should in the meantime be considered as approximations only. Two polygonal closures by these gentlemen show the very small differences of 0·13 links and 0·4 links per mile respectively.

*Minor Triangulation.*—The 308,473 acres under this heading have been executed by the various officers in breaking down from the major work incidental to the requirements of section and other surveys; most of it is computed on the Ray trace system.

*Topographical and Trigonometrical Survey.*—The large area of 1,072,793 acres returned as completed includes 657,000 acres of work by Mr. Cussen, the plans of which were not ready to be included in last year's return, though the work had been completed in the field. It also includes the area of major work by Mr. Baber this year. The country sketched by the latter gentleman was quite unknown prior to his survey; it therefore adds considerably to the local geography of the southern Urewera country, and fills up the blank space on the maps of that part. The sketch furnished by Messrs. Simms and Cussen of their major work is not included under this heading, for, although it gives a great deal of useful information relating to a country hitherto not depicted on the maps, the work was not intended to be so complete as our usual style of topographical map. It would be very desirable in the interests of the public if the vast amount of topographical information accumulated in the Survey Office could be rendered more accessible and useful by publication on the one-mile maps.

*Rural and Suburban Sections.*—An increase in area of about one-third above the "output" for last season is shown for this season, the cost per acre of the 112,084 acres surveyed being 1s. 3d. per acre nearly, or slightly below the cost of last year. It will be observed, however, that the cost is brought thus low by the introduction of two surveys only, namely, that by Mr. Spencer of 34,687 acres, and that by contractor Ellison of 27,000 acres, both the surveys being in open country, and the sections averaging very large sizes. Exclude these two and the cost per acre of the other surveys is very high, except in one case. The reason is the same as that to which repeated reference has been made in past reports, namely, the trouble and time expended in picking up the old surveys abutting on to the new ones. During the past year most of the surveyors have been almost exclusively engaged on sections contiguous to or surrounded by old work, involving twice and three times the amount of labour incidental to new work. The areas thus surveyed in addition to the applications do not appear in the return, and thus tend to make the work appear more costly than it really is. There is no hope of this class of survey decreasing in cost. On the contrary, it must become greater, until the whole country has been resurveyed. The inaccurate surveys of former days, with their inefficient method of ground-marking, are now the direct cause of retarding settlement, as their rectification and identification take up the time of the surveyors, which might be otherwise much more beneficially employed in laying out more of the lands applied for. The delay in attending to the wants of the public in the matter of preparing lands for sale has frequently been a ground of complaint of late. Unless the survey-staff be largely increased the surveys cannot be kept up to date whilst so much time has to be devoted to insuring that what is done does not encroach on former granted lands. During the season 5,681 acres, in forty-three sections, were surveyed by private surveyors, under the homestead clauses of the Act. About 7,558 acres, at a cost of £1,254, were resurveyed in order that grants might issue, the original plans having been burnt, or information on them wanting; whilst about £1,567 have been expended in marking on the ground boundaries of land granted many years ago, but previously undefined.

*Town Section Survey.*—During the season a town was laid out at Kawhia by Mr. Edgecumbe, another at Te Aroha by Mr. Cheal, and a portion of Rangiriri by Mr. Stevens, and another at