

mittee of the Canterbury Association, and that the carrying out of the latter devolved originally on Captain Joseph Thomas. The radical principle of the land regulations was what is termed "free selection before survey," and this extended over 1,000,000 acres of territory. The minimum purchase permitted was fifty acres; but on the dissolution of the Association, and the resumption of the powers over the land by the Crown (in 1856), the minimum purchase was fixed at twenty acres, while the area of selection was extended thirteen times, which largely added to the strain on the department and the resources of the Government in supporting the cost in administering to so dispersive and minute calls. I may here add that with the policy or impolicy of free selection the surveyor has nothing to do. Should it be the law of the land, it is his duty to support its successful working; but as it is his duty, so also is he bound to make known the professional difficulties thereof. That other countries have felt these difficulties is obvious to any one who has studied the question; and colonizing Governments have sought rapid modes of survey to gain an advance on actual settlement, and so obviate that very state of matters of which Canterbury now complains. This brings me to some of the difficulties of "free selection" that have been pointed out to me, not with the view in the remotest degree of depreciating its value, but to make plain my suggestions for meeting these difficulties in a manner creditable to the department. As after 1856 applications for land could be as low as twenty acres, I am informed that, with these minute pieces to survey in all directions, besides the most distracting labour of attending, the difficulties were enhanced by the onus of interpretation of the very loose written descriptions attached to them being laid on the surveyor. He thus in the field had the somewhat invidious duty of carrying out the purchaser's meaning by his own interpretation. Then again, on spurs, in valleys, and along streams of meandering courses, he had to adjust frontages at right angles, where no angles could be had of such description. In the course of time, as application after application was received, and the country thus gradually filled up, the whole face of it became a mass of survey and unsurvey; parts marked and parts left out. And as the roads, valleys, streams, and spurs had irregular and non-conforming courses, so likewise the sections took directions in all points of the compass, assuming a variety of directions most perplexing to follow. The regulations being such, the survey officers could not be responsible for this.

Some of the maps shown to me exhibit a medley of intricacies, the unravelling of which will call for the services of the most persevering and talented officers.

But if, under the regulations, inflowing small settlers have brought about these difficulties, there were counter operations of pioneers already in possession by lease or license which did likewise. These operations go under the local name of "gridironing"—that is, a licensee applies for twenty acres in many different parts, always leaving eighteen or nineteen acres interval. He thus secures close upon double the country that he cares about purchasing, and the intervals he runs little risk of losing, as these, by the law, when applied for must be put up to auction. But besides "gridironing," what is colonially called "spotting" on the part of the runholder, in his natural anxiety to preserve his interest against the inflowing colonists, goes on to a large extent. This process would be best described by supposing that the gridiron itself had been broken into a hundred pieces, the bits strewed at random over the ground: then you would see what would appear to be a mass of quadrilaterals utterly without design; yet the design is found to be most efficacious when we comprehend the purpose thereof.

Of these gridiron land-purchase operations (being according to law), I hope I may not be thought to speak disparagingly; they are only a portion of that strategy which prevents one class from demolishing the fortunes of another class who had gone in advance; but as they affect "survey," the subject on which I have to report, to mention them is unavoidable. It will be admitted they retard and complicate settlement survey. This is my object in stating them.

It will thus be admitted that in Canterbury Province there have been circumstances apart from the survey that have retarded, if not prejudicially affected, its correctness.

The next question that arises then is, does the Canterbury Association survey come within the limits of an approved system? The answer to this question must be, No; for leaving out of the discussion the original standard triangular operations, which have been admitted to be inferior, and in a state unfit for re-establishment, the actual section survey has no mathematical guidance or test. At the same time it must be unfair to condemn all that has been done. Where the applications have been large, and the sectional survey plain or uniform, I anticipate that the survey will be found to be essentially correct, and of which no revision will be necessary, for in these cases, supposing the triangulation to be tolerably well done, honest and well-executed traverse work between stations is of itself accurate, even though mathematical test be not applied throughout or at "closing." From the cursory inspection I have been able to make, I am of opinion that it will only be in the areas of small settlements, where the holdings are extremely intricate, that revision is absolutely called for. I would indicate the Lake Ellesmere, Little River, Akaroa, Rangiora Districts, and especially Banks Peninsula, as some of those areas that require resurvey; but such a work ought not to be undertaken hurriedly. Each district should be carefully scrutinized by the local officers, when the deficiently surveyed districts should be indicated, and set apart either for official resurvey or resurvey under specification by competent and trustworthy contractors. The Crown grant and land transfer operations should be delayed. In every case the surveyors should be instructed, after proper authority has been obtained, to delineate the boundaries as found on the ground, and in no case should he attempt correction or alteration, such a responsibility belonging to the Legislature or Courts of law.

To estimate the cost of this now I find to be impossible, but I respectfully suggest that it would be advisable to set apart specially for this purpose a sum of not less than £25,000 beyond the annual vote for survey, which sum should be kept and used for these revisions.

Before leaving Christchurch I recommended the following to the local authorities, and which was acted on, viz., that a qualified officer, competent to undertake standard operations, be at once appointed, and under whose direction either major triangulation or meridional circuit might be initiated, after which he would proceed to other provinces. The cost of major triangulation for the whole province will be about £16,000, consuming about fourteen years for one party, or seven years for two parties;