

(3) All fences, buildings, roads, railways and other improvements, together with all survey monuments found.

(4) All areas of bush land with notes as to the probable cost of clearing, if such areas are suitable for agriculture. If not suitable for agriculture and if vacant crown lands, data should be shown which would indicate the possible use such areas could be put to, or if they would be better held as forest reserves.

(5) The name of the occupant of each parcel of land and the name of the owner. Where parcels of patented land are found vacant particular care should be taken to obtain full information, including the probable value of the land and improvements.

#### Of Value to Government

The latter information would, in my opinion, be very valuable in the hands of the government. If a way could not be found to force the cultivation of the land, the government might purchase it and sell it over to an incoming settler, or arrange the purchase for him. The government would be in a position to give the settler trustworthy information and take the deal out of the hands of unscrupulous real estate agents. The province of Nova Scotia appointed a commission in 1912 to purchase vacant lands, improve them and resell them to bona fide settlers. If a policy such as this could be inaugurated the Dominion Government would regain control of the lands and where necessary to properly plan the development of the district the land might be resubdivided.

I think the time has come when the government of this country can no longer afford to leave the incoming settler entirely to his own resources and his own discretion in the choosing of land. The best of information should be at his disposal and he should have the help of capable and trustworthy government officials. It should also be noted that the survey I have suggested would show the exact amount of good land in each parcel, the class of soil and the crops it is suitable for. This would be the very best of information to give the banks in order to secure credit for the prospective settler. Care should be taken that land shown to be worthless by the survey should be held as crown lands, and no chance given to a settler to take it up and waste his time and money trying to farm it.

#### Roads, Drainage and Irrigation

The uses to which a topographical survey as above outlined could be put would be many and varied. Better roads, drainage and irrigation schemes could be laid out on paper and afterwards surveyed on the ground. The system of subdivision as far as it remains under government control, or in so far as government control could be secured, might be modified where necessary to provide for the future development and settlement of the land. If deemed advisable, provision could be made for rural villages or community centres.

To revert to the details of survey, I believe that the most efficient organization for such would be to have a surveyor in charge of two or three plane-table parties and one level party to run secondary levels through the district to be mapped. An efficient plane-table party consists of a topographer, an assistant and two rod-men. The assistant would record all data in connection with traverse or station readings, so as to check the plotting in case of failure to close, would read the vertical angles and by means of a stadia slide rule compute the elevations and the corrections to the horizontal, where necessary. The rod-men, when properly trained, would sketch buildings and improvements and gather a lot of information which would save the topographer trips away from the table.

My idea in arranging several parties under one surveyor in charge is to allow the chief freedom to gain all the general information possible and to plan future developments on the field sheets and report fully on his proposals. I believe the field is the place to plan and with one competent man planning from the surveys of several parties the cost would be reduced as low as possible. It has been contended that plane-table surveys are complicated, but I have not found them so, and I think one of the principal reasons is that the work is graphical and with the ground laid out in front of you it is difficult to make a mistake which does not show up immediately so that it can be corrected.

#### Previous Uses of Plane Table

In the last analysis, however, the question as to whether topographic surveys should be undertaken or not may be decided from a cost standpoint. It should be demonstrated that they are worth the cost involved and this can only be done by actual work, as there are few surveys in Canada which bear any resemblance to the surveys I have proposed. Narrow strips of topography along the International Boundary have been taken with the plane table and most of it has been done on the scale proposed. On the Ottawa water supply surveys, with which I was connected, the proposed pipe line route was mapped with the plane table on a 1 to 2,000 scale and the engineers supplied with tracings from which the paper location was made, a profile drawn and the estimates made. The drainage area of approximately 150 square miles was mapped on the 1 to 10,000 scale with the contours on the higher timber-covered hills drawn from photo-topographical surveys. On the large scale pipe line maps as high as 80 acres were covered in a day showing a great amount of detail. The average was probably about 50 acres. This, however, does not give any information as to the cost in the west as the character of the country was such that it was much harder to map than the west would be, and the scale was so large that much more ground detail could be shown than on the scale I propose, and there were a great many improvements to show. The Canadian Pacific Railway used the plane-table extensively on their irrigation surveys in Alberta.

The Paving and Mastic Co., Ltd., has been incorporated with an Ontario charter; head office, Toronto. Authorized capital, \$40,000.

The Department of the Interior, through its Natural Resources Intelligence Branch, has prepared and is distributing a new illustrated report on the Peace River District, based on investigations made by an official of that branch during 1917. The publication contains interesting information with regard to climate, soil, agriculture, minerals, game, water powers, transportation and education. A map of the district showing general topography accompanies the report.

James, Loudon & Hertzberg, consulting engineers, Toronto, are preparing plans for a storage warehouse to be built on Yonge St., North Toronto. The building will be L-shaped, 50 ft. wide by 215 ft. total length. It will be mill construction, one story and basement, but provision is being made for the addition of more floors at a later date. The building will be owned by a contracting firm, so it will probably be built by the owners.

For some weeks past the United States government has been operating, through the post office department, an air mail service from New York to Philadelphia, and from Philadelphia to Washington. The mail so carried is charged with postage at the rate of 16 cents for the first ounce or fraction thereof and six cents for each additional ounce or fraction thereof, of which ten cents is for special delivery service. Such mail consists of matter of the first-class including parcels not exceeding 30 inches in length and width combined. The postage on aeroplane mail must be fully prepaid in special aeroplane stamps or ordinary postage stamps.