

is usually taken at Greenwich Observatory, London.

Places whose latitudes and longitudes are established, not only have their positions fixed relatively to each other, but their locations become known relatively to the whole earth. Accordingly maps based upon such determinations can readily be extended or incorporated into more general maps.

Important improvements have been made within a few years by American astronomers in the use of the electric telegraph in these measurements, so that the accuracy of the determinations does not, as formerly, depend upon the exact running of chronometers, carried from the initial point to the place whose difference of longitude is to be determined. The differences of longitude between many points in Canada and the United States, measured from Greenwich Observatory, and from one point to another, have been precisely determined by the use of the telegraph and chronograph in connection with transit observations of stars, so that we are enabled to correct previous maps based upon less accurate determinations.

#### BAYFIELD'S CHARTS.

The most extensive connected surveys in the Dominion are incorporated in the excellent series of charts by Admiral H. W. Bayfield, published by the British Admiralty. These charts form the most convenient available basis for the construction of maps of the territory contiguous to the water areas which they cover, giving accurate contours of the coast, with its bays, inlets and islands. They also serve to fix the relative positions of adjacent surveys of townships otherwise detached from each other.

#### NATIONAL BOUNDARY SURVEY.

For laying down the boundaries of Ontario and Quebec, the accurate maps of surveys made under the Treaty of Washington of 1842 were followed. The portion of the National boundary then surveyed extends from the River St. Lawrence at St. Regis, a few miles below Cornwall, nearly on the forty-fifth parallel of north latitude to the north-east corner of the State of Vermont, dividing the States of New York and Vermont from the Province of Quebec. From this point the surveyed boundary extends north-easterly, easterly and southerly to a monument at the source of the St. Croix River. With this river it separates the States of New Hampshire and Maine from the Provinces of Quebec and New Brunswick. These surveys were made by Colonel Robinson of the Royal Engineers and Colonel Graham of the United States Topographical Engineers.

Some time after the completion of the surveys, the stations upon it whose longitude had been determined by the Commission were connected by a careful triangulation with

those of the United States. A small discrepancy of some minutes of time was found between the determinations of the two surveys, the Coast Survey being referred to the bridge Observatory in Massachusetts. The longitude of this place relative to the Observatory had been determined more carefully than that of any other place in the American Continent, by frequent comparisons between the two surveys.

It happens, rather curiously, that the graphic determinations made since the opening of the Atlantic Cable agree almost with the longitudes as fixed by the Line Commission. This result, which may be regarded rather as accidental, indicates a superiority of instrument and care in using them on the part of the Commission, the original discrepancy being too small to be attributed to such causes.

#### GEOLOGICAL SURVEY MAPS.

In carrying out the Geological Survey of Canada, it was found necessary to have the want of good topographical maps, sections whose geology was to be determined, by making original maps as occasion required. This has been done over considerable areas in a very careful manner, by compiling such surveys as were available, but by actually surveying many lakes, streams and other topographical features of the country. The Reports of the Geological Survey contain maps which have been found very useful in compiling the present Atlas, more particularly the map of the Western part of the Province of Quebec compiled and drawn by Robert Barlow, draughtsman of the Survey.

#### COUNTY MAPS.

Separate County maps of nearly every county in the Province of Ontario, and several in the Province of Quebec, have been published from time to time, and many of them contain valuable information not otherwise available.

Maps of the following counties have been prepared and published by or under the direction of Mr. Walling, from original surveys of the concessions and lots in the Counties of Halifax, Picton, Colchester, Cumberland, Hants, Annapolis, Digby and Yarmouth,—Nova Scotia; counties of Westmoreland, Albert, Kings and St. Johns,—New Brunswick; counties of Wolfe, Compston, Richmond, Stanstead, Shefford, Brome, Missisquoi, Rouville and Iberville, with the independent township of Sherbrooke,—Quebec; and counties of Addington, Lennox, Frontenac, Leeds, Grenville, Lanark, Renfrew, Carleton, Russell, Prescott, Stormont, Dundas, and Glengary,—Ontario. These maps gave not only townships, roads and concessions, but farms, residences and names of owners.

Similar maps have been made of many of the Western Provinces by Geo. C. Tremaine, John Ellis & Co., surveyors.

#### MATERIALS FURNISHED BY OFFICERS.

We gratefully acknowledge the assistance received from various Government Officers in Ontario and Quebec in the way of furnishing materials needed for preparing the Atlas. JOHN DEWE, Esq., General Post Office Inspector of the Dominion, has furnished a very large amount of information relating to locations of Post Offices in the Provinces of Ontario, Quebec, Manitoba and British Columbia, by marking them upon a set of maps furnished to him for that purpose. Mr. E. F. King, Division P. O. Inspector of the Montreal Division, has also taken a great interest in the work, which he has most ably manifested by laborious personal exertions in verifying the locations of lost maps, and in carefully examining and correcting the Gazetteer part of the work referred to the Province of Quebec. Mr. W. W.ppard, Mr. M. Sweetnam and Mr. G. G. Division P. O. Inspectors of the Toronto and London Divisions, have also furnished valuable information to their respective districts.

E. Taché, Esq., Assistant Commissioner of the Crown Land Department, we feel under deep obligation. Mr. Taché has exhibited a most friendly disposition towards the undertaking, and has been unsparing in kindly acts of assistance and courtesy. He has generously made use of his own excellent map of the Province of Quebec which appears on the present Atlas. It occupies three double pages of the Atlas and is lettered in French, which is very convenient for the large number of persons of the Province who speak French.

Mr. Taché is now engaged upon a larger and more extensive map of the same kind, a completion of whose execution will confer a great benefit upon the Province and the Dominion.

In allowing us access to the archives of the Crown Land Department, Mr. Taché has been the benefit of his thorough knowledge of them, and has selected from the numerous collections of the office such maps and surveys as were most reliable and useful to correct the errors in previously published materials.

In preparing the map of the City of Montreal, a great deal has been made, by the kind assistance of its author, of the map published in 1854 by John Johnston, C. E., now Chief Draftsman of the Dominion Lands Office. This map has been extended to include the principal suburban villages, with their recently laid out streets, and the new railroads