

implements of war. Fortunately, before the War, work had already started on the production of air-navigation charts for the Trans-Canada air-route between Moncton and Vancouver and, while this set comprised only six charts, many technical and printing problems had been solved in their production. As a result, the Map Service was not unprepared to meet the war demand and emergency issues of strategic areas were issued without delay.

As new air-training schools were opened, the distribution of air-navigation charts and accessory plotting sheets rapidly increased. These charts were designed to meet all the varied demands for air-navigation purposes, including defence patrols of the coasts, convoy work and other operational flights of the Royal Canadian Air Force. Three main types of charts were required: (1) planning charts used for laying off the main courses for proposed extended flights; (2) pilotage charts required for visual contact flying; and (3) plotting charts—skeleton charts used for plotting 'plane positions as obtained by astronomical sights or radio bearings and for laying down courses flown by dead-reckoning when no dependence is placed on recognizing features of the earth's surface.

The standard pilotage chart consists of an 8-miles-to-1-inch topographic base map with an overprint in red showing the special information required by the air-pilot. These maps, numbering 221 by the end of the War, cover the whole of Canada, including the Arctic Islands, Labrador, Newfoundland and overlap into United States and Alaska territory, an area, all-told, of about 5,330,000 square miles. From 10,000 to 20,000 each were required annually. Keeping the air maps in line with advances in aeronautical defence and with expansions in the Air Training Plan, necessitated their revision as often as three times a year.

Of almost equal importance to the British Commonwealth Air Training Plan were the charts of the Plotting Series required for air-navigation without visual ground contact. Whereas Pilotage Charts, above referred to, were used for navigating over land and the immediate marginal sea, plotting charts were required for both oceanic and continental flights. The North American Plotting Series, produced by the Map Service, was an integral part of the standardized British system of mapping designed for world coverage within the limitations of Mercator's projection to a scale of 1 to 1,000,000 (about 16 miles to 1 inch) at latitude 56°. Of the 93 published sheets which constitute the North American Series, 90 were compiled, drawn and printed by the Map Service, the others being produced directly from copies supplied. One of the plotting charts which was used extensively in training was supplied in quantities of 190,000 a year.

While the air-charts were standardized to the greatest possible extent, many special strategic charts were required to be produced for the Royal Canadian Air Force and other organizations. For air-training, certain of Britain's air-navigation charts, secret target maps to assist in the training of bombing crews, and other special sheets were reproduced and printed. Many large wall charts and special strategic charts on various projections and covering vast air-patrol and combat areas were produced. For the Aircraft Detection Corps, special maps were constructed for plotting and reporting the positions and courses of unidentified 'planes which proved to be alien.

Important air-navigation publications during the War were the Pilot Handbooks for Eastern and Western Canada. These informative volumes, corresponding somewhat to the well-known "Pilots and Sailing Directions" in the marine naviga-