

# MAPPING A NORTHERN LAND: OBTAINING THE HIGH ALTITUDE PHOTOGRAPHY REQUIRED FOR THE COMPLETION OF THE MAPPING OF CANADA BY THE USE OF WARTIME AIRCRAFT (1951-1963)

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*In 1947, when the Federal Government set the goal of completing the 4 Mile (1:250 000) mapping within 20 years, the timing was such that the need for much smaller scale photography than had been used hitherto for mapping, coincided with the availability of high altitude wartime aircraft and a pool of wartime pilots prepared to fly them. Aerial survey companies rose to the challenge and embarked on what became a 12-year Federal aerial photography program. This article covers the companies, aircraft, cameras, and hurdles that had to be overcome to provide mapping photography from 30 000-35 000 ft. in un-pressurized aircraft over an immense area that was both remote and poorly mapped at the time.*

*En 1947, lorsque le gouvernement fédéral s'est donné comme objectif de terminer la cartographie à 1/250 000 (4 Mile) dans les 20 années qui suivaient, le moment était tel que le besoin en photographies à beaucoup plus petite échelle que ce qui avait servi jusqu'à ce moment-là pour la cartographie coïncidait avec la disponibilité d'appareils de guerre à haute altitude et d'une réserve de pilotes de guerre prêts à les faire voler. Des compagnies de levés aériens ont relevé le défi et ont entrepris ce qui est devenu un programme fédéral de 12 ans de photographie aérienne. Le présent article couvre les compagnies, les aéronefs, les caméras aériennes et les obstacles qui ont dû être franchis pour offrir de la photographie cartographique à 30 000-35 000 pieds dans un aéronef non pressurisé au-dessus d'un espace immense à la fois éloigné de tout et mal cartographié à l'époque.*



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## 1. Introduction

An excellent book describing the mapping of Canada, entitled *Mapping a Northern Land: The survey of Canada 1947 to 1997* [McGrath and Sebert 1999] is on many bookshelves. Unfortunately, “mapping” in this book starts with the aerial photographs ready and waiting on the surveyor’s or mapmaker’s desk. Since the cartographic camera and aerial survey are an integral part of the photogrammetric mapping system, the story of the mapping of Canada actually starts with the acquisition of the required photography.

In 1947 there were no aircraft in Canada flying mapping photography at altitudes over 20 000 ft. above sea level (approx. 1:40 000 scale). The RCAF flew the photography for Federal mapping until approximately 1950 when they withdrew to permit the commercial industry to develop and also to get on with the Korean War. In order to achieve the Federal objective of completing the 4 Mile (1:250 000) maps of Canada in 20 years, it was imperative to look for a source of mapping photography at a much smaller scale (1:60 000 to 1: 70 000)

so as to reduce the total number of photographs needed. With the standard wide-angle, 9 in. x 9 in. cartographic camera, that meant the aircraft would be flying at altitudes of 30 000 to 35 000 feet.

The area requiring photography was both immense and largely remote from civilization, as is shown by the shaded area in Figure 1. It is the purpose of this article to provide some background to the achievement of the post-war aerial survey companies in making this small-scale photographic coverage a reality and which led to the first complete mapping of Canada.

## 2. The Players

The following companies rose to the challenge of supplying the Federal Government with the small-scale photography they required for the mapping program that had been proposed in 1947.