

importance. And experience gained in the development of the necessary equipment, and in its operation, will keep Canada abreast of one of the most promising fields of rapidly expanding high technology.

Consequently, this paper is addressed to the need for surveillance over Canadian territory and the approaches to it, the means by which this might be achieved, the benefits that it would bring, and the role that should be played by the Canadian Armed Forces.

The subject has immense scope. Surveillance incorporates high technology, the most advanced in the world today and being advanced further at an extraordinary pace. In order to comprehend what is possible now, and what is expected to be possible a few years hence, it is necessary to understand the major features of modern sensor technology and the capabilities and limitations of earth satellites, as well as those of the more familiar aircraft and ground stations. Fortunately, although the precise designs of the most advanced sensors and vehicles are protected by military and commercial secrecy, the principles and general physical characteristics are readily understandable. The principal objective of this paper is to outline the most important and relevant technical features of the sensors and vehicles that could be available in the future for the various applications of surveillance over Canada.

Before responsible recommendations can be made regarding major decisions for Canadian policy and programmes it will be necessary to know not only what is technically possible, but also how much of it Canada needs, how much it would cost, what benefits would accrue to the nation beyond those conferred directly by good surveillance, and what would be the likely international implications. After this will come questions such as whether to carry out the programme nationally or in cooperation with other countries, how much of the equipment should be developed and built in Canada and how much bought abroad, and what would be the implications for the future of science and engineering in Canada. Apportionment of the tasks among government and industry, and among the departments of the Canadian government will have to be determined.