

provide the necessary resources for a full-fledged space program comparable to those of the super powers (there are proponents of this approach within the European Space Conference);

(3) a group of countries could work out a joint approach to provide a framework for co-operation with the United States....

POSSIBILITIES FOR CANADA

All these developments have relevance for Canada and for the future of Canadian aerospace programs. Canada could well be in the very fortunate position of being able, if so desired, to adopt several parallel and complementary courses of action at the same time.

There would appear to be no obstacles to continuing with bilateral arrangements of the kind now existing with the United States (launches for scientific satellites such as *Alouette*; ground stations for "reading-out" earth resource satellites, launches for communications).

Moreover, a relatively modest expenditure of federal research and development funds could enable Canadian industry to participate in contracts for the development and production of sub-systems in the post-*Apollo* system — in effect a space shuttle production-sharing program. A Canadian research and development effort of this kind would presumably entitle Canada to access to the post-*Apollo* facilities when they come into being.

Significantly, the draft Convention now being considered for the future European Space Organization makes provision for associate membership for non-European countries. There is good reason to believe that under such an arrangement it would be possible to elect to participate in only those programs in which Canada had a real interest and that financial obligations would only arise with respect to those particular programs.

ASSOCIATION WITH EUROPE

The propositions of continuing bilateral relations with the United States and of research and development sharing need little explanation here. However, the case for seeking an association with the future European Space Organization calls for greater amplification on several points.

It is strongly suggested in *Foreign Policy for Canadians* that to ensure a continuing independent existence Canada should seek to develop counterbalancing influences to offset the dominant bilateral relations with the United States. Continued Canadian co-operation with the United States in various space activities is undoubtedly desirable and probably inevitable. For this very reason there is a real political need to look beyond the continental relations. Association with Europe offers such an opportunity and could be achieved, it is hoped, at a tolerable cost.

Most discussion of future space programs has

focused on the short and medium term. I feel that it is necessary to look forward to the 1980s and beyond to a period when space activities will almost certainly have become much more international in scope than today. The European Space Organization will probably show signs of developing in the direction of a broad-based international space institution. This desirable objective would be fostered if Canada (and Australia and Japan as two other likely candidates) should be associated with the Organization from the outset. A Canadian voice, if it is raised now among the Europeans, would probably have more influence in the process of evolving an international institution, than if Canada should later try to influence the United States on the strength of what would necessarily be a relatively very modest contribution to the overall NASA program.

A space shuttle production-sharing program could have demonstrable benefits for Canadian industry and could materially advance Canadian technological competence but it would lack much public visibility. Association with the European Organization could perhaps open the possibility of working among countries more of our size on some identifiable project such as the so-called "space-Tug" to be designed for inter-orbital travel within the post-*Apollo* system. Associate membership would, however, carry no commitment to do so, since it would rest entirely with Canada whether or not to join such programs.

Association with Europe could provide Canada with an *entrée* to commercial opportunities in Europe to employ the technological capacity which should be developed through the post-*Apollo* research and development arrangements with the United States. This would reinforce efforts now in the active planning stage to foster more intensive scientific and technological relations with Germany, as well as what has been set in train in Belgium.

TRAFFIC-CONTROL SATELLITE

Under proposals advanced in ICAO, arrangements are going forward for the development of a traffic-control satellite. Canada has a large stake at present in the management of the transatlantic air-traffic control system. Association with the European Space Organization would give Canada an option to participate from the outset in the research and development phase of the traffic-control satellite project. This would give important advantages later on when tackling the production, organization and management phases of the development of the system. The history of INTELSAT suggests that we should enter the arena early.

To sum up, association with the European Space Organization would offer both present and future political benefits as well as the option to participate in interesting and useful practical programs, and would not preclude beneficial arrangements with the United States....