

Supply—National Defence

protecting the heavily populated areas of both Canada and the United States. The United States air force are now engaged in establishing their portion of the over-all system stretching from the Atlantic to the Pacific, with interlocking stations. While some changes in quantities have occurred as the system has developed, the first units will soon be operational.

The cost factor in so far as Canada is concerned with regard to the Bomarc program has already been demonstrated. As the result of a cost-sharing agreement with the United States, improvements to the Canadian air defence system—and this includes additional radar sites, gap fillers for the Pinetree system, Bomarc missiles and the SAGE electronic control equipment—amount to some \$125 million, of which \$20 million is for the Bomarc. This represents Canada's share in the new program, the United States sharing the total cost of the program on an approximate two thirds, one third basis. This compares, as hon. members know, to the estimated cost of \$750 million if the Arrow program had been continued until that aircraft was in operation. We are getting comparable defence for considerably less money.

Improvements to the air defence of Canada which have been announced include SAGE, one of whose functions is to provide instructions automatically to the Bomarc missiles and to the interceptors, be those interceptors R.C.A.F. or United States aircraft; the modification of existing radar stations to make them part of the SAGE complex; seven new heavy radar stations and a number of gap filler stations to be added to the Pinetree line. These increase materially the effectiveness of our defences. Each of the seven new heavy radars will be manned by R.C.A.F. personnel. Construction will get under way shortly at Moosonee, Ontario, and Chibougamau, Quebec. Preliminary investigations are being carried out for five western radars. When completed each station will be manned by approximately 250 R.C.A.F. and civilian personnel.

It might be of interest to hon. members to know that since the decision was made that Canada would adopt SAGE, the first unit has begun successful operation in the northeastern United States. The version of the system to be installed in Canada will be a later development; its electronic computers will make use of transistors rather than the less efficient and bulkier vacuum tubes. In order to "harden" the SAGE centres, the Canadian unit will be constructed underground.

The major threat to Canada from the sea continues to be the submarine. The Royal

Canadian Navy and the maritime command of the R.C.A.F. are being organized, equipped and developed so that in close co-operation they can cope with the primary task of locating and destroying submarines. Since there is at present no means of destroying a missile once it has been launched, it is most desirable that missile-carrying submarines be kept as far from our shores as possible so that targets ashore are beyond the range of the submarine's weapons. Our ships and marine aircraft are designed and equipped for this purpose.

On each coast a maritime commander has been established who exercises unified operational control over R.C.N. and R.C.A.F. forces in his area of responsibility and maintains direct liaison with adjacent NATO and national commanders.

To improve our anti-submarine capability and to simplify logistic and training problems, the navy has transferred all the new St. Laurent class escorts to the west coast, while the Restigouche class escorts will be stationed in the Atlantic command. Of the original seven Restigouche class escorts, five are now in commission and the remaining two, *Columbia* and *Chaudiere*, will be commissioned by the end of this year. These ships, together with the Argus aircraft of the R.C.A.F. maritime command, form an effective hunter-killer anti-submarine team whose effectiveness increases as new and more advanced equipment is introduced.

To replace world war II escorts a construction program for six repeat Restigouche escorts has been commenced. Work has already started on the first of these ships, a second will be laid down this month and the remainder will follow at approximately three month intervals.

Another aspect of the defence of Canada is the survival role to be carried out by all regular and reserve forces not directly involved in operational duties in the event of war. With the advent of the ICBM we do not pretend that we can ensure a complete defence of North America. Therefore the government feels that it is prudent to give more thought and consideration to the passive measures of defence which may have to be adopted should our efforts fail to prevent war. With this in mind the regular and reserve forces have been organized for survival operations. All defence forces which are not actively engaged in repelling the attack will be trained and ready to take active measures to assist survival.

An order in council known as the civil defence order, 1959, has been approved by the governor in council and tabled in the House of Commons. This order has given the