

Pre-production engineering, tooling and qualification testing of the *Sparrow II* missile, which was initiated in 1957 to enable the production of this missile for the *Arrow* aircraft, continued during the first nine months of the year. However, all contracts related to this program were terminated on Sept. 23, 1958, following the Government's decision to cancel the requirement. A number of engineering study contracts were awarded to provide useful work for a nucleus of the engineers who had been employed on the *Sparrow* projects until new programs could be introduced.

**Electronics.**—In the field of ground electronics, the major item during 1958 was the initiation of the Pinetree radar line improvement program in both the Royal Canadian Air Force and the United States Air Force sectors. This consisted of tooling and pre-production engineering work on the new search and height-finding radars to be installed at existing Pinetree sites. A contract was placed for a new air defence communications system in eastern Ontario and southern Quebec. Work on this involved engineering and manufacturing of necessary equipment and planning for the later introduction of semi-automation into the air defence electronic ground environment.

Ground maintenance and airborne repair and overhaul contracts, together with orders for the necessary spares support, constituted a major part of the contracting activity in the electronics program. During the year, contracts were placed for the complete operational maintenance of the Mid-Canada early warning radar line, for over-all maintenance of the Pinetree line, and for a large volume of spares and repair and overhaul work.

Production continued on the provision of ultra high frequency (UHF) equipment, which included the introduction of one-kilowatt amplifiers at selected Royal Canadian Air Force sites. In the field of electronic equipment for military vehicles, arrangements were made for the acquisition of data necessary for the manufacture in Canada of a new transistorized multi-channel radio communication set. The requirement for ships was primarily in the field of anti-submarine warfare equipment and was made up of a wide variety of items rather than any special major program. The largest single item was the continued production of sonobuoys.

Airborne electronic equipment continued its rapid growth in capabilities and complexities. A significant occurrence in the airborne field was the termination of the integrated electronic system (*Astra*) for the *Arrow* aircraft and the *Sparrow II* missile. To assist in sustaining the fire control and missile engineering complex in Canada, engineers were engaged in a number of study projects for the Department of National Defence. Contracts were also placed for the production in Canada of flight simulators and general purpose instruments and procedure trainers. Programs were introduced for ultra high frequency communication and selective identification equipment in all aircraft.

**Shipbuilding.**—The first two ships of the second group of seven destroyer escorts known as the Restigouche class were commissioned in 1958, the other five being scheduled for completion in 1959 (see p. 1158). A third group of destroyer escorts, a repeat of the Restigouche class, was approved. Allocation to shipyards of the six ships of this group was authorized, and construction of the lead ship started in 1958. Contracts were also placed for machinery and other key items of supply for this program.

The last vessel in the frigate conversion program and two auxiliary vessels (work boats) were completed early in 1958. Sixty-eight small boats were under construction during the year, varying in size from 27-foot motor sea boats to 14-foot dinghies; 50 of these small craft were completed. Authority was received and procurement negotiations begun for the construction of an acoustic calibration barge for the Defence Research Board. A substantial number of Canadian-manufactured torpedoes were delivered during the year.

**Weapons and Ammunition.**—Production of the second order of 105mm howitzers for the Canadian Army was virtually completed in 1958 and manufacture of a third order was initiated. Production continued on long-term spares and fire control instruments for Army howitzers. Manufacture of the 7.62mm C-1 (FN) rifle was maintained and