had to be calculated carefully and surplus stocks disposed of. Aircraft and engines retained for future needs were placed in stored reserve, while surplus stocks were allotted to special storage for disposal by the War Assets Corporation.

Aeronautical Engineering.—In September, 1939, the R.C.A.F. had only 24 aeronautical engineering officers and about 1,000 technical non-commissioned officers and skilled tradesmen. These were augmented by 12 experienced R.A.F. officers and a considerable number of professional engineers and technicians recruited from civilian life. Upon these men fell the initial burden of getting the Plan airborne and maintaining the aircraft in serviceable condition, despite lack of spare parts, tools, and ground equipment.

The spare parts situation became critical in the late summer of 1940 when the *Luftwaffe* 'blitzed' Britain's industrial centres, and U-boats began to prey upon Atlantic convoys. Steps were taken to start manufacture of tools and spare parts in Canada, but in the interval, before these supplies came into production, engineering officers were forced to use many ingenious devices to maintain aircraft serviceability. Fortunately their initiative and resourcefulness did not fail.

In 1943, the peak year of the Plan, aircraft flew 7,000,000 hours, setting a record of 677,000 hours in the month of July. Despite the pressure which was placed upon the maintenance staffs, immediate aircraft serviceability averaged 77 p.c. throughout the year. For 48-hour serviceability the annual average was over 86 p.c. In 1944, when the situation had eased with gradual reduction of the Plan, serviceability figures continued their steady rise to an average of 87 p.c. in the fourth quarter of the year.

The Battle aircraft used in B. and G. Schools in the early period of the B.C.A.T.P. presented many maintenance problems to the engineering staffs, as did the conversion of Bolingbroke aircraft for gunnery training purposes. Other difficulties were encountered with the Cornell and its Ranger engine. Coupé tops, cockpit heating, blind-flying instruments and night-flying equipment had to be engineered, and the engine modified to remove certain faults.

To facilitate rapid production of aircraft in Canada, the design and development engineers of the R.C.A.F. re-designed equipment to suit local manufacturing facilities. For example, five types of the Anson Twin-Engined Trainer were developed for different engines and to incorporate various modifications.

All types of aircraft had to be adapted for operation in Canadian winter weather. Considerable investigation and development were necessary for each individual type, to devise oil dilution, cabin heating, and carburettor, windscreen and propeller de-icing equipment.

Other problems claiming the attention of the aeronautical engineers, in collaboration with manufacturers, were the development of compressed-wood propeller blades, the Hoover controllable-pitch hub, porous chrome plating for worn cylinder barrels, centrifugally cast cylinders, and rubber subtsitutes, such as synthetic aircraft tires, fuel lines and electrical cable. R.C.A.F. engineers also designed a cartridge type of practice bomb, cheaper and technically better than the acid-filled model.

R.C.A.F. repair depots played an important part in the Plan in salvaging aircraft. In 1943 about 990 damaged aircraft were salvaged, many from isolated locations. Repair and overhaul was done by civilian contractors with the repair depots assisting when the demand exceeded their capacity. When the Plan began,