

highway extending 2,700 miles—or from Ottawa to Vancouver. The Canadian climate with its extremes of heat and cold presented a major problem in airfield maintenance. To ensure continuous 24-hour flying serviceability during the winter, special snow-handling equipment was devised and definite programs of snow compaction, removal, or a combination of the two, were organized.

Approximately 7,000 hangars, accommodation buildings and drill halls were designed and constructed, with all the requisite heat, water and sewage facilities, including central boiler stations, individual hot-air heaters, water-pumping stations, storage reservoirs and tanks, sewage treatment plants, and gasoline and oil storage tanks. On many sites it was also necessary to design an electric power system, using diesel, steam or gasoline generator plants. The strain that this program, which coincided with large-scale projects on behalf of the other Services, placed upon the manufacturing facilities of Canada often necessitated control and restriction of material. Frequently improvisation was necessary, especially in the early days of mushroom growth when, in many instances, "more ingenuity than engineering skill" was required from the mechanical and electrical engineering staff. Despite this, a high standard was set and maintained.

Equipment.—In problems of supply, as in those of construction engineering, the success of the B.C.A.T.P. owed much to the help received from qualified equipment officers of the R.A.F. who, in the early days of the Plan, occupied key positions at Air Force and Command Headquarters. The R.C.A.F. had few qualified equipment officers available at the outbreak of war and, until these could be reinforced by men with industrial experience drawn from civil life, the assistance received from the Air Ministry was invaluable.

The task of equipping the vast B.C.A.T.P. organization—tremendous even under normal conditions—was greatly complicated in the summer of 1940, when development was getting into its stride, by the inability of the United Kingdom to provide aircraft, engines and other material, which it had originally agreed to supply as its contribution to the cost of the Plan. Even when the menace of invasion had receded, the submarine campaign in the Atlantic at times made the flow of supplies from the United Kingdom uncertain. Spares for Battle and Anson aircraft and for Cheetah and Merlin engines were in especially short supply and for a time the training program suffered.

A further complication, when the Plan began, was the shortage or complete lack in Canada of every considerable item from complete aircraft down to the smallest detail of personal equipment. For example, the R.C.A.F. in September, 1939, had only 191 airframes and 267 engines suitable for training and many of these were obsolescent. Since much of the equipment necessary for the Plan had to be obtained from British and United States sources, R.C.A.F. liaison offices were established in the United Kingdom and the United States to handle supply matters and facilitate deliveries.

Through the Department of Munitions and Supply the manufacture in Canada of all possible types of equipment was undertaken with such energy and vigour that in the case of certain items, e.g., aircraft instruments and electrical equipment, production exceeded Canadian requirements and it was possible to provide quantities for the United Kingdom.

Plan requirements reached a peak in 1943 and then reduction began, presenting problems almost as complex as the earlier days of expansion. Future requirements