Mapping experiments carried out under the auspices of the International Society of Photogrammetry were directed by the Photogrammetric Research Section. The airborne-controlled method of aerial triangulation developed by the Section has been studied over hilly terrain and found to be both accurate and efficient even under such difficult conditions. Investigation of radar profiles was extended to high altitudes—of from 25,000 to 30,000 feet. Non-topographical photogrammetry is being advanced by the design of distortion-free lenses for short-distance photography.

In connection with X-rays and nuclear radiations, new instruments have been developed which have eliminated the difficulties of interpretation encountered when output measurements of Cobalt-60 Beam Therapy Units are made with commercial instruments.

Pure Physics.—Investigation is under way on cosmic rays, solid state physics, spectroscopy, X-ray diffraction and theoretical physics. Although the findings on various fundamental problems do not have immediate application, they advance the frontiers of knowledge and supply the basis for further progress in the applied fields.

Four cosmic ray stations have been set up to operate throughout the International Geophysical Year which started July 1957—at Resolute in the Arctic, at Churchill, Man., at Ottawa, Ont., and a new laboratory on top of Sulphur Mountain near Banff, Alta.

A recent highlight in connection with low temperature and solid state physics was the international conference on Electron Transport in Metals and Solids, sponsored by the International Union of Pure and Applied Physics and held at the National Research Council Building. The proceedings were published as a special issue of the *Canadian Journal of Physics.*

Investigation of the spectra of simple molecules continues to form the major portion of the work on spectroscopy, but a start has also been made on studies of atomic spectra.

Programs of crystallographic calculations, devised for the electronic computer FERUT, are now in routine use and are being made available to other X-ray crystallographic laboratories in Canada. Additional powder patterns have been included in the standard file and a number of samples have been examined by the X-ray diffraction powder method for other laboratories. An improved calculation of the electrostatic correction for white dwarf stars has been made with the help of the method of Bohm and Pines for the collective motion of electrons in metals.

Building Research.—Recent field work has included: co-operation in Western Canada with oil companies and others in a pioneer study of access over muskeg; studies of transformer noise which often distinguishes electrical substations, a problem that has been solved in close association with The Hydro-Electric Power Commission of Ontario; housing studies in association with Central Mortgage and Housing Corporation, which the Division continues to serve as research wing for technical housing problems. Laboratory investigations have been made recently on double windows and, to develop economical standard roof-truss design, on wooden roof trusses for small houses. A chimney laboratory has been placed in operation.

The technical and secretarial work for the National Building Code is carried out by the Division for the Associate Committee on the National Building Code. A short version of the main Code has been published in pocket-book form and more than 7,000 copies have so far been distributed. A French translation of the main Code is now available.

Jointly with the Trans-Canada Highway Division of the Federal Department of Public Works, a start has been made on avalanche research and prevention in the Rocky Mountains; in co-operation with the Alberta Department of Public Works, the Division helped in the acoustical design of the two new auditoria that have been built in Calgary and Edmonton; problems of winter construction have been studied in close association with the National Committee established for that purpose; basic studies on soil mechanics and on snow and ice are in progress.