

*Cosmic Rays*, the seventh discipline, is interesting because the energetic particles known as cosmic rays come mostly from interstellar space but also in occasional bursts from the sun. They are deflected by the earth's magnetic field and apparently by clouds of conducting gas at distances from the earth probably within the range of the solar system.

*Latitude and Longitude* studies deal with the motions of the earth and its exact size and shape. The exact position of the Poles and the rate of rotation vary slightly and a study of these is important. New techniques for astronomical position-fixing make it possible to secure more accurate dimensions of the earth.

*Glaciology and Oceanography* deal with the great areas of water storage on the earth. The existence of glaciers and the currents in oceans have profound effects on climates. The balance between water storage in ice caps and glaciers and in the oceans is quite critical and a change in this balance is one of the important slowly varying physical features of the planet. The Canadian program in glaciology includes an expedition to northern Ellesmere Island where the ice cap will be studied, an expedition to the Salmon Glacier in British Columbia and a snow and ice survey as widely spread over Canada as is possible. Oceanographic stations at St. Andrews, N.B., and Nanaimo, B.C., will take part in international deep ocean current surveys in the Atlantic and Pacific.

Perhaps the most spectacular experiments during the IGY are those that will be carried out in *Rockets and Satellites*. The firing of these is really only a means of sending measuring instruments to the outer limits of the atmosphere so that more may be learned about the space surrounding this planet. Instruments will be carried to measure such phenomena as the composition of the residual gas and the nature of solar and other radiation. The organization required to fire rockets and to get satellites on stable orbits, then to receive the data from them by radio, is sufficiently involved to justify listing this as a separate discipline. Canada has no rocket or satellite program, but the United States is carrying out extensive rocket firing at Churchill, Man., and Canada's Defence Research Laboratories are co-operating with United States scientists in this work.

*Seismology and Gravity* are two disciplines that have been organized on an international scale for many years. They were included in the IGY plan largely because expeditions to the Antarctic and other remote points made it possible to add stations to the existing net. The Canadian seismological station at Resolute, N.W.T., which has been in operation since 1950, is considered one of the most important in the world.

*Radioactivity in the Earth's Atmosphere* was added officially as an IGY discipline in 1956. The natural radioactivity in the atmosphere has been known for many years but a world-wide survey has never been conducted. Added to the natural radioactivity there is radioactive dust carried in the atmosphere after each atomic explosion which will take years to fall out. Questions to be answered include: how much is there and at what height it is carried, what are the physical processes in its falling out, and how it is being brought down with precipitation.

Historically, this International Geophysical Year is the third co-operative effort of this sort. The first two (1882-83 and 1932-33) were International Polar Years. In the first, Canadian science, being very young, took little part though there were three expeditions into northern Canada—one British, one German and one American. In the second there were five Canadian stations in northern Canada and one established there by the United Kingdom.

The organization of the international program is handled by a committee formed by the International Council of Scientific Unions, having headquarters and an executive office at Uccle, Belgium. It is known as the Comité Spécial de l'Année Géophysique Internationale (CSAGI). The Committee, composed of representatives from seven International Scientific Unions, is supported by an Advisory Council for the IGY which meets with the Committee and has representatives from the various co-operating nations. The