Of particular current interest is the organization of an international program of scientific work to be conducted during 1957 and 1958, known as the International Geophysical Year, which is designed to make a concentrated study of the physics of the earth and its atmosphere. This program and Canada's part in it is described in the following special article.

THE INTERNATIONAL GEOPHYSICAL YEAR*

Despite the fact that the earth is the only body in the universe which can be studied closely there is a great deal yet to be known about it. Man's position on the earth limits direct contact to a very thin layer on its surface and a thin layer in the lower atmosphere but knowledge of its structure and composition from the very hot centre to the outer limits of the atmosphere is requisite. To the geophysicist the earth is not solid firmament but a potent mass far from a condition of permanent stability. The crust folds and mountain ranges are formed then erode away by the action of a very dynamic atmosphere. Ice ages come and go and considerable masses of water are stored in the great glaciers and ice caps. Fortunately the more violent changes are slow in the life of man but the less violent such as earthquakes, storms in the atmosphere, and tides in the ocean are commonly experienced. Even these involve enormous energy changes.

Many of the things to be learned require synoptic or simultaneous measurements over the surface of the earth and these can be obtained only by international co-operation. The International Geophysical Year organization is merely an attempt by scientists to concentrate for a period of eighteen months starting July 1, 1957, on the type of measurements which, when taken at one epoch over all the world, can answer some of the questions about the structure and behaviour of the earth and its atmosphere.

For the sake of convenience and because of the natural division of geophysics into specialized studies, the program for the IGY is divided into fourteen disciplines:—

1. World days
2. Meteorology
3. Geomagnetism
4. Aurora and Air Glow
5. Ionosphere Physics
6. Solar Activity
7. Cosmic Rays
8. Latitudes and Longitudes
9. Glaciology
10. Oceanography
11. Rockets and Satellites
12. Seismology
13. Gravity
14. Radioactivity in the Earth's Atmosphere

World days is not correctly called a discipline but, since the selection of days on which special measurements are to be taken required an international sub-committee parallel to those on other subjects, it is rightfully listed as important. The reason for selecting world days is that certain important types of measurements particularly in the upper atmosphere are too expensive and too difficult to carry out on a continuous or regular schedule. For instance, a great deal is learned about the upper atmosphere by firing rockets into it or releasing large free balloons carrying instruments to measure such things as temperature, pressure, density, radiation, the state of electrical conductivity, and chemical composition. The data are telemetered to ground stations as the measurements are made because recovery of the equipment is often impossible. The concentration of such expensive experiments into specially selected intervals is part of the plan. Ordinary meteorological stations each day release two radiosonde balloons of a size that will usually reach a height of about 50,000 feet. During selected world meteorological intervals, four or six a day will be released and larger balloons will be used to reach perhaps double that height.

Two kinds of world days have been planned. Those that can be selected in advance include regular world days (four per lunar month), eclipses, periods of unusual meteor activity, and world meteorological intervals (periods of ten days each quarter). The second type cannot be selected in advance and will be called on short notice when unusual solar activity causes effects in the upper atmosphere of particular interest. In some cases

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