

to over 12 glaciers in the Arctic or Cordillera were carried out by Canadian or other groups. Great interest was provided by the Steele glacier of the Yukon, which in July 1966 underwent a sudden and unprecedented advance.

Meteorology includes not only the routine forecasting carried out principally by the Meteorological Branch of the Department of Transport (see pp. 63-64), but also research in special problems by the Branch and by at least 12 university groups. These problems include controlled experiments in weather modification, the mechanics of hail formation, and micrometeorology, which is the detailed investigation of meteorological conditions in regions of small extent.

Partly as a result of work by Canadian geophysicists on the nature of the ocean floor, which indicated that the major oceans of the world are spreading, the old theory of continental drift was revitalized and actively discussed by geophysicists throughout the world. It is recognized that there could be very significant consequences to the methods of locating economic minerals if the continents are drifting.

Astronomy.*—Modern astronomical research is based on observations secured with complex optical and radio telescopes. The major centres of this research in Canada have developed within the Federal Government and at a few universities. Research in optical astronomy began early in this century at the Dominion Observatory, Ottawa, and this was followed by the construction of larger telescopes at the Dominion Astrophysical Observatory, Victoria, and the David Dunlap Observatory of the University of Toronto. Other Canadian universities teaching astronomy include the University of Western Ontario, Queen's University, the University of Waterloo, the University of Saskatchewan, the University of British Columbia and Victoria University. Some of these universities have their own small observatories. A new observatory, commemorating the visit of Her Majesty Queen Elizabeth II to Canada in October 1964, is under construction on Mount Kobau in southern British Columbia. It will be equipped with a large reflecting telescope 150 inches in diameter, in addition to smaller telescopes, and will be a national observatory available to astronomers throughout the country. Completion of the large telescope is scheduled for about 1973.

Canada first entered the field of radio astronomy, the study of radio emissions from beyond the earth, in 1946 when the National Research Council began its study of solar radio waves. Radio astronomy has expanded rapidly and there are now radio telescopes operated by the University of Toronto, by Queen's University, by the Dominion Observatory near Pentticton, B.C., and by the National Research Council at a large observatory in Algonquin Park, Ont., where a steerable radio telescope 150 feet in diameter began observations in 1966. An 84-foot parabolic telescope and two large arrays of antennas are in operation at the Pentticton site.

Canadian astronomers are engaged in various specialized fields of research. In the study of the solar system the sun has been studied for many years by both optical and radio techniques with emphasis on solar flares and other phenomena which affect the environment of the earth. Solar eclipses in which the path of totality crosses Canada have been observed whenever possible. Only minor attention has been devoted to study of the planets but major efforts have gone into meteor research. Both photographic and radar equipment are employed in this work and the study of meteor spectra and radar echoes from meteor trails have been particular specialties. There is an increasing interest in the related field of meteorites and Canada has figured prominently in the study and interpretation of old craters caused by the impact of huge meteorites.

Stellar astronomy has been the largest single field of Canadian astronomy. One aspect of this is the accurate determination of the positions and motions of stars in the sky. The Dominion Observatory is continuing an active program of positional astronomy aided by new and highly specialized instruments. The large telescopes at Victoria and Toronto have been used primarily for spectroscopy, one of the major tools of astrophysics.

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