

A radar display for visual correlation of radar returns with the flight-planned position of civilian aircraft was made. The aircraft type, altitude, and track designation are shown as a group of letters and numbers moving across the radar presentation in accordance with flight-plan data. A weather radar was installed at Penhold, Alta. This instrument has a 100-mile range and a special antenna and camera-recording system for analysis of potential hail storm centres.

Upper atmosphere research centred around meteor and aurora studies—two of the disciplines of the IGY. A meteor observatory was opened at Springhill, Ont., containing continuously operating meteor radar equipment. Auroral radar units are in continuous operation at four stations, and special 35mm. auroral cameras at nine stations photograph the entire sky once every minute.

The antenna program included work on radar scanners and search antennas, and on navigation and communication antennas. Studies are under way in the fields of electron physics and solid state physics.

An electronic detector of flaws in paper was installed and operated successfully in a paper mill. Work in medical electronics has included the development of electronic and electromechanical ground detectors to detect insulation failures in hospital operating rooms; development of a control system to maintain a predetermined blood pressure in the artificial heart-lung apparatus now commonly used in heart surgery; and a transistorized blood pressure monitor.

**Medical Research.\***—The chief function of the Division of Medical Research is to make grants and award fellowships in the field of medicine. For the year 1958-59 nine non-recurring equipment grants and 168 grants-in-aid of research totalling over \$766,000 were made to further medical studies in Canadian hospitals and universities. One hundred and twenty-nine grants amounting to \$567,210 were for basic medical investigations (anatomy, bacteriology, biochemistry, pathology, pharmacology, and physiology), and 39 awards in the amount of \$199,261 were in support of clinical studies. Twenty-three awards were to applicants who had not been supported in the previous year.

Twenty-one Graduate Medical Research Fellowships ranging in value from \$3,000 to \$5,000 were awarded to enable medical graduates to obtain further training in fundamental research.

Eight Medical Research Associates were appointed to Canadian universities. Candidates for these awards are holders of doctorate degrees—not necessarily in medicine—nominated by universities which provide them with faculty appointments and research facilities. Medical Research Associates have limited teaching duties, ensuring adequate time for research, and appointments may be retained indefinitely subject to the satisfaction of the Council and the university.

**Atlantic Regional Laboratory.**—The Atlantic Regional Laboratory studies the preservation and use of food products and some of the problems encountered by secondary industries in the area.

Problems involved in the commercial manufacture of iron and steel are under investigation. Special slip-cast magnesia crucibles have been developed which resist penetration by molten alloys and slags at 1,500° C. This permits study of the kinetics and equilibria of high temperature reactions without serious interference from the container. Attempts are being made to measure the activity of ferrous oxide in molten slags, and of oxygen in steel; analysis of commercial open-hearth slags and measurement of the rate of oxidation of carbon in steel are under way.

A systematic survey of Maritime peat bogs has been completed and their resources of wax, lignin, gums and hemicellulose as potential sources of chemical compounds have been established. The chemical composition of Maritime coast sea water has been examined, complementary to earlier studies on commonly occurring seaweeds of the area.

\* See also pp. 384-385.