

balloons carrying scientific experiments to investigate the earth's upper atmosphere. Associated ground-based instruments are available to study the aurora borealis by photographic and spectro-photometric methods. The Branch also operates the satellite tracking and data reception station near St. John's in Newfoundland and the Great Whale Geophysical Station at Poste-de-la-Baleine in Quebec.

The Branch is generally responsible for the implementation of the sounding rocket program, providing the vehicles and incorporating the scientific experiments into suitable payloads, with associated telemetry and other devices; this work is carried out mainly by industrial contracts. The work of the Branch also includes the reduction of flight data to provide vehicle trajectory and attitude information to experimenters, and the provision, from the telemetered information recorded on magnetic tape, of data required by individual scientists in any form desired.

Atlantic Regional Laboratory.—The Atlantic Regional Laboratory is engaged in practical and fundamental studies in chemistry and biology, which are related to the resources and industries of the Atlantic Provinces. Such studies include investigations of: the biochemistry and physiology of marine algae, fungi, bacteria, lichens, mosses and higher plants; the chemistry of naturally occurring organic compounds; and the physical chemistry of inorganic compounds at high temperatures. A major objective is to develop varieties of seaweeds with enhanced commercial value and to investigate the growth and cultivation of seaweeds and other marine algae. Surveys are being made to reveal new sources of seaweeds. An applied project on toxic microfungi in pastures is being carried out in collaboration with the Canada Department of Agriculture at Nappan, N.S. Fundamental studies on inorganic reactions at high temperatures are expected to give information of value to the steel and glass-making industries. Research in organic reactions includes work on methods of synthesis which may eventually have industrial value. Some of the work in biochemistry and physiology is related to medicinally important compounds such as antibiotics and drugs that affect mental processes.

The Laboratory has a close working relationship with Dalhousie University at Halifax, under which arrangement students acceptable to the University's Faculty of Graduate Studies may carry out research in the Laboratory under the direction of Laboratory staff members holding unpaid appointments in the Faculty. The immediate aim of this arrangement is to expand the facilities for graduate studies in the Atlantic region; the long-term objective is to help create a strong scientific background conducive to large-scale development by industry.

Prairie Regional Laboratory.—One of the aims of the Prairie Regional Laboratory is to develop wider uses for crops grown on the prairies by determining potential uses of crops now in production and by encouraging the production of new crops to meet specific needs. The Laboratory program is carried out by five sections: the physiology and biochemistry of fungi section, physiology and biochemistry of bacteria, plant biochemistry, chemistry of natural products, and the engineering and process development section. Research is therefore carried out on the properties and reactions of plant components, and on the biological, chemical and engineering processes for turning them into other compounds. The development of oil-seed crops as alternatives to seed crops has received considerable attention.

For some time, the Laboratory has studied major plant constituents such as carbohydrates, protein, starch, lignin and fibres. An example of this work is the definition of the chemical structure of several polysaccharides found in cereal grains and important in baking, milling and fermentation technology. Attention is also being given to minor plant constituents, such as phenols, flavonoids and terpenes, which are known to have fungicidal and germicidal properties. A laboratory has been set up for the systematic study of extracts from local plants and shrubs.

Developments from the Laboratory attracting commercial interest are: the production of feed supplements by direct use of microorganisms, and specific essential amino acids