Medical Research.*—The chief function of the Medical Research Division, which marked its tenth anniversary in 1956, is to make grants and to award fellowships in the field of medicine. For the year 1957-58, 151 grants totalling over $500,000 were made to individual investigators in Canadian hospitals and universities. Twenty-one Graduate Medical Research Fellowships were awarded for the same year to enable medical graduates to obtain further training in fundamental research.

In addition to seven consolidated grants, 145 grants-in-aid of research to the amount of $652,056 were awarded in 1955. Forty-one of these grants were for new projects. Medical research was initiated and stimulated by 22 grants given to 20 investigators who had not been supported previously by the Division. More than 170 reports on work thus supported were reviewed.

A new category of Medical Research Associate has been created. The candidate, who must have a doctorate—though not necessarily in medicine—is nominated by a university which must undertake to place him on the faculty and provide adequate facilities for his work. His teaching duties must be limited and he may expect to retain his appointment indefinitely, subject to the satisfaction of the Council and of the university. Six appointments to this new category have been made.

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, such as the storage of several varieties of potatoes, drying of rockweed, deposition of pitch from sulphite pulp mills in the Atlantic Provinces, and the manufacture of iron and steel. The explanation of deposition of pitch in pulp mills still remains doubtful and requires further study.

The manufacture of steel is a problem in the Atlantic region because high-phosphate ore from Newfoundland is being smelted by means of a high-sulphur coal from Cape Breton. Technical problems are many and are being attacked through studies on oxidation of carbon in steel; factors affecting the equilibria of various constituents, especially phosphorus, between molten iron and slag; and the nature and behaviour of the gases encountered in making steel. The resulting basic slag is high in both phosphorus and calcium and should therefore have a potential use as fertilizer. The main technical problem here is a cheap method of breaking up the slag.

Isinglass has been extracted from cod swim bladders and prepared in a highly purified state; it differs only slightly from similar material from mammalian connective tissues. A systematic survey of the chemical composition of peat from the larger bogs in the Atlantic Provinces is almost finished. This will permit the construction of profiles for various bogs and furnish a sound basis for estimating the resources available. The nature of slime in the 'white' water of pulp mills has been established; it is caused by the growth of numerous fungi associated with symbiotic bacteria. Commercial inhibitors were highly effective.

Prairie Regional Laboratory.—The applied work of the Laboratory is designed to promote and expand the use of agricultural products of the prairie region. Fundamental work includes studies on the properties and reactions of starches, sugars, proteins, fats and oils, and other plant constituents; on the physiology and biochemistry of living plants and of micro-organisms; and on the development of fermentations using a wide variety of nutrients.

Work on producing building boards from straw is now largely of an advisory nature. A local firm is currently building a $3,000,000 plant in Saskatoon to produce fibreboard and hard board. Another successful investigation has resulted in the devising of a sedimentation method for classifying elevator dusts which is more accurate than the screening methods previously used. A new antifungal antibiotic has been isolated and found effective in large dilution against growth of yeasts, smuts and rust spores. Progress is being made in producing commercially important ergot alkaloids by cultivating ergot fungus in synthetic media.

* *See* also pp. 386-388.