to bear on the solution of research problems put before them. Members of committees give their time and effort to these special studies without charge and their assistance is a source of great strength to the Council.

Foundation Aspects.—Assisted research grants have been made by the Council since its inception in 1916. These awards are given to heads of university science departments to purchase needed equipment and to employ junior helpers, usually students. Aid of this kind has been of considerable assistance in enabling the universities to put into operation the excellent graduate schools that now exist in Canada. In 1956-57 more than $3,500,000 was provided out of Council funds for basic research at Canadian universities.

Scholarships and grants in aid of research are awarded annually by the National Research Council. Scholarships awarded in science and engineering include Bursaries and Studentships which have values of $800 and $1,200 respectively for the academic year, to which a summer supplement of $800 may be added. In addition, Special Scholarships valued at $2,000 a year and Postdoctorate Overseas Fellowships at $2,700 (single) and $3,500 (married) are offered. The Council also offers Graduate Medical Research Fellowships valued at from $2,000 to $5,000, depending upon academic qualifications and research experience. A limited number of Medical Research Associates are also appointed to research positions in the medical schools of Canadian universities. Graduate Dental Research Fellowships are also available. In 1956-57, 310 different awards were made, totalling $450,450.

Since 1948, the National Research Council has awarded Postdoctorate Fellowships, in open competition to Canadians and nationals of other countries, which are tenable in the Council's own laboratories. The diversity of training and experience brought to the laboratories by these keen young scientists has had such a stimulating effect on the research effort that the program has been further expanded in recent years; Fellowships are now tenable in science departments of Canadian universities and in the laboratories of other Federal Government Departments, such as Agriculture, Mines and Technical Surveys, and National Health and Welfare. Almost 200 of these awards are being held at the present time, mostly in the fields of chemistry, physics and biology.

Principal Activities in 1956-57*

The activities of each Division are described in outline only, with occasional brief examples. The work of the Atlantic and Prairie Regional Laboratories is treated separately at pp. 379-380.

Applied Biology.—Much of the work of this Division is undertaken in co-operation with industry or for Government agencies, although some fundamental work is done on the metabolism and chemical composition of living organisms.

Milder pulping agents have increased pulp yields by producing semi-chemical pulps which have a higher proportion of the hemicellulose material of the wood. Therefore the structure, properties and behaviour of the hemicelluloses of common pulpwoods are being examined so that the pulp and paper industry may more readily solve its manufacturing problems when using the new semi-chemical pulps. So far, the hemicelluloses of jack-pine, white spruce and beech wood have been studied.

Because blue-green algae have sometimes been implicated in deaths of cattle and other animals, different species and strains of algae have been examined. Two out of nine strains of a single species proved highly toxic; twelve other species or strains were non-toxic. The toxin appears to be produced inside the algal cells and must be released before it is fully effective. Environmental factors greatly affect both the production and release of the toxic material.

Other work concerns the liquid immersion freezing of poultry; the effects of freezing on the enzymes in milk; the lipoproteins of hen egg yolk; and the effects of different bacteria on casein, the principal protein in milk.

* Of particular current interest in the field of scientific research is the International Geophysical Year. Canada's part in the program is dealt with in detail at pp. 35-38.