

structure of agricultural materials and the complicated processes associated with the growth and development of plants and micro-organisms. Plant growth and the formation of plant constituents are studied under precisely controlled conditions, and the chemical processes taking place in the plants at different stages of growth are investigated by means of radioactive compounds.

Increased yields of commercially important products from cultures of micro-organisms are being examined. Work is under way on the production of lysine and other essential amino acids of importance in human and animal nutrition, on antifungal antibiotics, and on alkaloids of value to the pharmaceutical industry. Work is continuing on a strain of mushroom that shows promise for use in livestock feeding.

A new technique has been developed for determining the fatty acid composition of oils and fats. The new method provides plant breeders with a simple means of analyzing oil from only a few seeds, thus enabling them to compare the value of various oil-seed crops and to select those of most use to agriculture and industry. Faster, more accurate, and requiring only one-thousandth the size of sample of standard techniques, the new method could also be used in medical research, production control in industry, and other fields of fat and oil chemistry.

A mechanical foam breaker has been developed for the fermentation industry, and work is continuing on an attempt to separate starch and gluten from wheat flour to provide a gluten additive for low protein flours. A project designed to increase the strength of insulating boards without increasing their density is under way.

Administration.—Administration of the foregoing laboratories is organized as a Division of Administration and Awards, which exists only to serve the scientist. The five service units of this Division are: Awards and Committee Services (Awards, Committees, Publications, Research Journals); Administrative Services (General Services, Purchasing, Personnel); Information Services (Technical Information Service, Library, Public Relations Office, and Liaison Offices in Ottawa, Washington, D.C., and London, England); Plant Engineering Services; and Legal and Patent Services. The latter group works closely with Canadian Patents and Development Limited (see p. 137). An expert on economic research acts as special assistant to the Assistant Director, Information Services.

Section 2.—Research in the Atomic Field*

Attention is now focussed throughout the world on the transition of atomic energy from a large uranium mining operation in support of military uses to a more durable phase when a great proportion of the expanding annual construction of new electric generating plants will employ nuclear energy. In Canada uranium mining and export has reached a value of about \$300,000,000 a year, so the transition is acutely felt.

During the next ten years a large part of the relatively small uranium supply for nuclear power will be directed to the supporting inventory of nuclear fuel; beyond that the make-up to replace consumption is foreseen as rising to match and surpass the current world rate of production. By that time the atomic energy industry as a whole should be supported by the consumers of electric power but at present, in all countries and for a number of years to come, the young industry has the greater part of its costs furnished directly or indirectly through taxation. In an intermediate phase, capital advances made in anticipation of revenues from power consumers will be important.

Two government-owned Crown companies have the basic responsibilities for atomic energy in Canada; they are Eldorado Mining and Refining (1944) Limited, concerned with uranium supply, and Atomic Energy of Canada Limited (AECL) concerned with nuclear

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