

*Mines Branch.*—The Mines Branch is primarily concerned with the technological problems of the mineral industry and maintains well-equipped ore testing, mineral dressing, fuel research, ceramic, radioactivity, industrial minerals and physical metallurgy laboratories to handle these problems.

The Mineral Dressing and Process Metallurgy Division assists new mining ventures by aid in determining the most efficient method of recovering metal contained in ore, assists mine operators in solving problems in milling practice, and develops new procedures to extend the use of mineral resources. Its laboratory facilities are utilized at various times by mining companies for working out some particular process, employing their own staff with the co-operation and guidance of the Division staff.

The Radioactivity Division is concerned with investigations of radioactive ores, in particular with the development and application of methods whereby marketable concentrates may be produced from individual uranium ores. The primary functions of the Division's technical services and laboratory facilities are to help bring new properties into production by determining methods suitable for treatment of particular ores and to encourage the search for uranium deposits. Extensive experimental and development work is conducted on the treatment of ores and products from the properties of the Crown-owned Eldorado Mining and Refining (1944) Limited.

The Industrial Minerals Division is concerned with matters relating to the development and processing of Canada's industrial minerals, including water used for industrial purposes and studies of ores of such alloying metals as cobalt, manganese, molybdenum, tungsten and chromium. To encourage and assist in the development of domestic resources, the Division makes field studies of deposits of industrial minerals, examines industrial processes utilizing them, and carries out research into methods of beneficiating minerals from deposits of marginal and sub-marginal quality to bring them up to the standards demanded by modern industry.

The Fuels Division is engaged in the study of the type, quality and uses of all fuels and of production methods, largely as a means of devising cheaper and more efficient methods of mining, preparation, processing and utilization of coals. Work in the field or in its laboratories includes, for example: the investigation of methods of mining, particularly of rock pressures in relation to the economic mining of coal at depth, and of coal preparation, as, for instance, the cleaning and utilization of the low grade finer sizes of bituminous coal which predominate in Canadian mining operations; the development of a coal-fired gas-turbine; investigations into the making of coke for foundry and other metallurgical uses and into the increased use of Canadian coal in domestic stokers; high-pressure hydrogenation tests on coal for the production of synthetic liquid fuel, and hydrogenation as applied to the refining of oil from bituminous sands of Alberta; and analyses of crude oils and natural-gas products.

There is much inter-relation of federal and provincial activities in regard to fuels. A current illustration of this is the establishment of a joint federal and Nova Scotia office and laboratory at Sydney, N.S., to investigate the nature and extent of the coal seams in Cape Breton; another concerns the pilot-plant project, recently terminated, for separating bitumen from Alberta bituminous sands by a method devised in the Mines Branch.