

The Fuels and Stratigraphic Geology Division includes stratigraphic palaeontology, the geology of fuels (oil, natural gas and coal), subsurface geology, and research on coal. Its function is to establish the character, age, thickness and correlation of both exposed and concealed sedimentary formations and to map the distribution and structure of these formations with the object of determining the economic possibilities of prospective oil, gas and coal bearing areas of Canada.

The Petrological Sciences Division makes mineralogical, petrological, and isotopic studies of Canadian mineral deposits and associated rocks. Laboratories provide mineral identifications for the public, supply officers of the Survey with mineralogical and geochronological data, and permit research on the genesis of ores, fuels and rocks. Systematic mineral collections are maintained and mineral and rock collections are prepared for use by prospectors and educational institutions.

The Geophysics Division gathers, compiles and interprets geophysical data relating to the geology of Canada. Fundamental research is carried out in some phases of geophysical work.

*Mines Branch.*—Investigations undertaken in Branch laboratories cover a wide range of technical projects of importance to the advance of fundamental research; to the processing of ores, industrial minerals and fuels on a commercial scale; and to the theory and practice of physical metallurgy.

The Mineral Processing Division is concerned primarily with the development of economical methods of mineral dressing and with research toward the improvement of present processing techniques. It is equipped to conduct laboratory and pilot-plant studies involving a variety of procedures: crushing, grinding, gravity concentration, sink and float (heavy media) separation, magnetic and electrostatic concentration, amalgamation, cyanidation, flotation and roasting. Tests are conducted on both metallic and non-metallic minerals.

The Extraction Metallurgy Division seeks the development of better hydrometallurgical and pyrometallurgical processes for the treatment of ores and the solution to specific technical problems in this field. A substantial part of its efforts was recently devoted to ores of uranium, iron and other elements and to corrosion problems encountered in certain industrial and governmental projects. The Division accepts samples from operating mines or those under development.

The Mineral Sciences Division applies the principles of chemistry and physics to fundamental and long-term problems in the field of mineral technology and related aspects of metallurgy. It deals with ores, mineral and metal products, inorganic crystalline materials and radioactive substances. Its work ranges from relatively simple routine determinations to complex research problems requiring the most recent techniques and equipment.

The Fuels and Mining Practice Division studies the properties of fossil fuels in Canada to determine the most efficient means of utilizing fuel resources. Most of the work on coal is directed to investigations on the immediate problems of the industry and to engineering studies on the most efficient use of coal in combustion applications with particular reference to thermally generated electric power. Such investigations include work on the evaluation of cleaning performance and the beneficiation of coal fines that are difficult to market, the uses of coal in the metallurgical industries and the study of stress phenomena in mining. Research in petroleum is directed mainly to problems in the refining of heavy crudes and high-sulphur bitumens, and to the chemical evaluation of oils and bituminous substances for classification and genetic purposes.

The Physical Metallurgy Division aids the metal industries through the development of new alloys, new manufacturing techniques and new applications and in activities aimed toward improving present practices in metal fabrication. It also conducts fundamental research on the properties and behaviour of metals. The Division serves the Department of National Defence by extensive research and investigative work, concerned broadly