

PREFACE.

In the autumn of 1906 the Canadian Government through its Department of Mines—then the "Geological Survey of Canada"—undertook an extended study of the fuels of the Dominion; but inasmuch as the Government did not at that time possess suitable fuel testing laboratories, and a considerable amount of research work had already been done by the Mining Department of McGill University, the author was invited to undertake the larger investigation.

The main results of the above mentioned work have been published by the Mines Branch of the Department of Mines, under the title of "The Coals of Canada, An Economic Investigation—6 vols., Ottawa, 1912-13." This report presents, in great detail, a statement of the coal and lignite resources of the Dominion; a description of each of the important mines operating at the time; and the results of an extended series of experimental tests, on a semi-commercial scale, in coal washing, coking, steam-raising, and power gas producing. Each of these sections was prepared by a competent specialist, and contains a general discussion of its subject; a technical description of the tests made; a summary statement of the results of these tests; and an appendix giving full details of each experiment. The report, as a whole, then closes with a section devoted to the chemical methods employed, and their results.

In the above mentioned report attention was drawn to the fact that many coals oxidize rapidly in storage, and are liable to serious deterioration, or even destruction. Circumstances did not permit of an extended study of oxidation as a part of the original investigation; but the matter is especially important in Canada where climatic conditions necessitate the storage of large amounts of bituminous coal at central distribution points; and since the completion of the main report, the author and certain members of his staff have carried on a series of laboratory studies of the oxidation of coal at low temperatures. They have, moreover, made a study of the practical problem of coal storage, both at the mines and in Montreal, and also in other cities. These investigations have been by no means exhaustive, and no very novel conclusions have been drawn from them; but their results seem worthy of publication as a contribution to the literature of an important and difficult subject.

In addition to presenting reports on his own work, as above, the author has attempted in the present volume to bring together and summarize the more important writings of other investigators, and to present a somewhat extended discussion of the whole subject of the weathering of coal. He recognizes to the full the difficulty of his task and the impossibility of dealing adequately with it; but he hopes that his work will be of value to future students and investigators.