

<i>Class</i>	<i>Group</i>	<i>Limits of Fixed Carbon (F.C.) and Calorific Value (B.T.U.) on Mineral Matter-Free Basis and Requisite Physical Properties.</i>
CLASS I—	Anthracitic Class—	
Group 1.....	Meta-Anthracite group.....	Dry F.C. 98 p.c. or more.
Group 2.....	Anthracite group.....	Dry F.C. 98 p.c. to 92 p.c.
Group 3.....	Semi-Anthracite group.....	Dry F.C. 92 p.c. to 86 p.c., non-agglomerating.
CLASS II—	Bituminous Class—	
Group 1.....	Low Volatile Bituminous group.....	Dry F.C. 86 p.c. to 78 p.c.
Group 2.....	Medium Volatile Bituminous group.....	Dry F.C. 78 p.c. to 69 p.c.
Group 3.....	High Volatile A Bituminous group.....	Dry F.C. less than 69 p.c. and moisture B.T.U. 14,000 or more.
Group 4.....	High Volatile B Bituminous group.....	Moist B.T.U. 14,000 to 13,000.
Group 5.....	High Volatile C Bituminous group.....	Moist B.T.U. 13,000 to 11,000 either agglomerating or non-weathering.
CLASS III—	Sub-bituminous Class—	
Group 1.....	Sub-bituminous A group.....	Moist B.T.U. 13,000 to 11,000 both weathering and non-agglomerating.
Group 2.....	Sub-bituminous B group.....	Moist B.T.U. 11,000 to 9,500.
Group 3.....	Sub-bituminous C group.....	Moist B.T.U. 9,500 to 8,300.
CLASS IV—	Lignitic Class—	
Group 1.....	Lignite group.....	Moist B.T.U. less than 8,300 (consolidated).
Group 2.....	Brown coal group.....	Moist B.T.U. less than 8,300 (unconsolidated).

This distribution of the various classes of coal of Canada and the United States is shown on the map facing this page.

The chief factors that have been operative in determining the rank or stage of metamorphism of a coal are geological age, and heat and pressure produced by mountain-building forces or by igneous intrusions. Age has doubtless played an important part in maturing the coal, but it does not appear to have been very effective in raising the rank of the coal as is evident from the fact that the oldest coals in Canada, those of Carboniferous age in Nova Scotia, estimated at 250,000,000 years old, have attained only to the rank of High Volatile A, B and C Bituminous coals which are the same as those reached by much younger coals in the outer Rocky Mountains Foothills belt of Tertiary Paleocene age that are estimated at about 30,000,000 years old. So, also the Lower Cretaceous deposits of the Onakawana field of northern Ontario, estimated at 150,000,000 years old, are still in the lignite or brown coal stage, whereas coals of this age in the Rocky Mountain Foothills have been raised to the ranks of Medium and Low Volatile Bituminous and even Anthracite. This increase in the rank of the western coals is due to pressure exerted by the overthrust of the Rocky Mountains as is clearly shown by the examination of the analysis of the coal samples obtained from mines located at varying distances from the Rocky Mountain front westward from the Saskatchewan border. These reveal a progressive increase in the rank of the coal from lignite at the Saskatchewan border through Sub-bituminous and Bituminous stages to reach the Anthracite rank in the vicinity of Banff. For the same reason the coals occurring in the same geological formation being mined at Redcliff and at Lethbridge are of different geological ranks, those at Redcliff being of Sub-bituminous C rank, and those at Lethbridge being of Bituminous High Volatile B rank.