

region. It has afforded an enormous quantity, and some of the best varieties are said to be about worked out.

The other varieties of coal are *bituminous*. That is, they contain hydrocarbons partly of the nature of bitumen. But the term as a designation for a variety is restricted to the black coals occurring in the region east of the Rocky mountains, chiefly in the Palæozoic System. In structure they are distinctly stratified—sometimes with films of earthy matter between the laminæ. They are apt to break in flattish or thin fragments, and they possess an earthy or resinous luster. They burn with much bright flame which arises from the hydrocarbons expelled and ignited. These coals are the source of the illuminating gas of our cities.

From the typical bituminous coals we may separate the *Cannel Coals*. These have an earthy luster, a fine compact constitution, and are often thick bedded, with only obscure stratification within the bed. They burn freely and brightly when rich, and were used in the earliest manufacture of illuminating gas and kerosene, or “coal oil.” This manufacture had attained a prosperous stage of development when the discovery of the large supplies of petroleum caused its ruin. Cannel coal has no standard degree of purity. It consists of carbonaceous and aluminous particles mixed in varying proportions. It degenerates, on one hand, to a mere black shale, and on the other, attains a state in which it is almost free from earthy admixture.

Among the typical bituminous coals, we distinguish the *caking* and the *non-caking*. The former when ignited, seem to fry with an exudation of a fluid bitumen, which evolves much gas and hardens into a crust somewhat impervious to the air, and thus obstructing the draft. The latter burn freely, without an incrustation.

Besides the Palæozoic bituminous coals we find excellent Mesozoic bituminous coals. These are solid, but less valuable than the others; though they are a boon to many regions otherwise scantily supplied with fuel. Of this kind is the coal mined near Richmond, Virginia, and in the Deep river