

3rd. This condition renders the raw fuel unsatisfactory for domestic use, both on account of the cost of transporting the water and of its evaporation. The fuel is impure, falls to pieces if stored, and can only be utilized when freshly mined.

4th. An examination of Table 8 will indicate the relative positions of lignite as mined, briquettes of carbonized lignite, and anthracite, in the scale of heating values. When the other factors of operation, such as loss through grates, etc., are considered, it is safe to say that the heating value of the lignite as mined is increased 100% by carbonizing and briquetting.

5th. Raw lignites are briquetted commercially in Germany, but so far it has not been found possible to handle the lignites of North Dakota and Saskatchewan in this way, nor in view of the situation to-day is it advisable to do so even if it were possible.

6th. By carbonizing the lignite a coke or charcoal is obtained which briquettes readily, has a high heat value, and by-products such as tar, ammonium, sulphate, gas, etc., are recovered.

7th. Without consideration of the by-products the result has been to turn two (2) tons of poor fuel into one (1) ton of fuel approximating anthracite in caloric value with practically the same actual heating value in the domestic furnace as the two (2) original tons from which it was made.

8th. After carbonizing, briquetting can only take place through the agency of a binder for which coal-tar pitch and sulphite pitch have been successfully used. Sulphite pitch, a waste product from pulp mills, is available in immense quantities. The only purpose which it subserves at the present time is that of poisoning fish in the various waters near which pulp mills are situated.

9th. After carbonizing and briquetting, the fuel must be waterproofed. This is accomplished by a simple heat process resulting in the coking of the binder.

#### PRESENT STATE OF THE ART OF PRODUCING CARBONIZED LIGNITE BRIQUETTES.

The processes involved in the manufacture of carbonized lignite briquettes have all been carried to a stage beyond that of the laboratory. The next step forward involves commercial methods