

quantity of coal, previously ground to pass through a 100 mesh sieve and dried in the usual way at 105-110° C. (220-230° F.) There is also put into the cartridge a chemical compound which is thoroughly mixed with the coal by shaking. The cartridge is then placed in a measured quantity of water in the insulated calorimeter can A, as shown in Fig. 2. The stirrer is set in motion, operated by a cord about the pulley P. After a constant temperature has been attained, ignition is effected by means of a short piece of hot wire dropped through stem of the cartridge.

Extraction of the heat is complete in from four to five minutes. The maximum reading is taken and the rise in temperature, multiplied by a simple factor, gives the heat in British thermal units per pound of coal.

By a slight modification of the apparatus ignition may also be effected by an electric fuse and where a proper current is available this method is preferred by some users. See Fig. 1.

Fig. 2 shows the relative position of parts. The can A is filled with two litres of water. The combustion takes place within the cartridge D. The resulting heat is imparted to the water. The rise in temperature is indicated by the finely graduated thermometer T.

A full account of this calorimeter can be found in the *Journal of the American Chemical Society*, Vol. 22, No. 10, Vol. 21, No. 2.

Appendix C

The instrument referred to as a dasymeter is made by Messrs. Siebert & Durr, Munich. It consists of a fine balance in an enclosed case, through which a current of the furnace gases is drawn. The arrangement is such that any change of density in the gases disturbs the balance, the degree of disturbance being registered on a graduated scale.

The technical analysis of flue gases is treated tolerably fully in Stillman's *Engineering Chemistry*, and numerous references may be found in the *Journal of the Society of Chemical Industry*.