

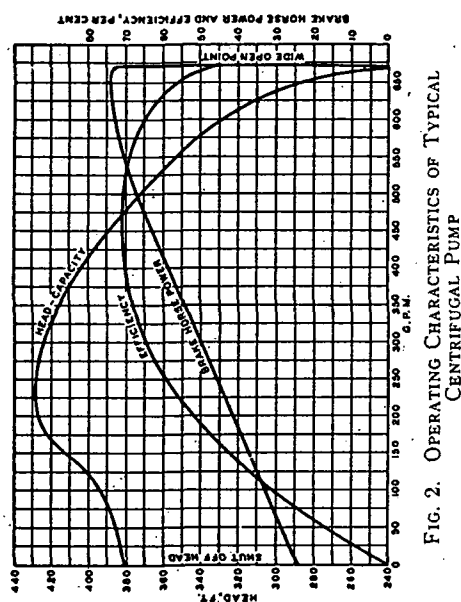


FIG. 2. OPERATING CHARACTERISTICS OF TYPICAL CENTRIFUGAL PUMP

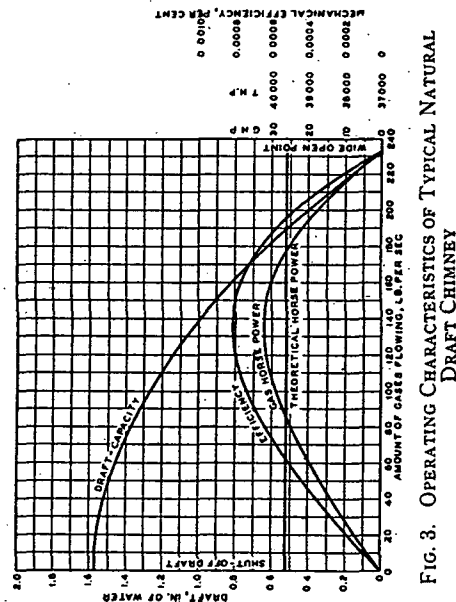


FIG. 3. OPERATING CHARACTERISTICS OF TYPICAL NATURAL DRAFT CHIMNEY

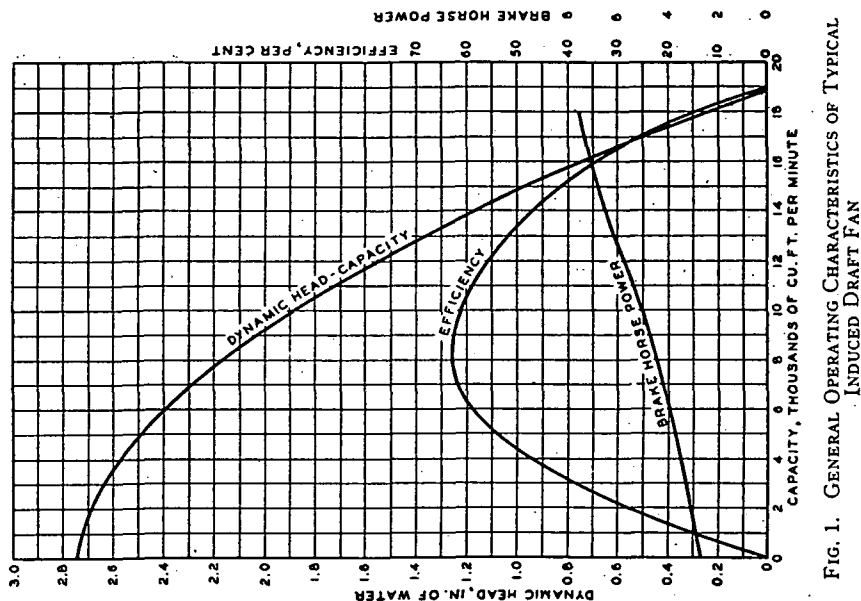


FIG. 1. GENERAL OPERATING CHARACTERISTICS OF TYPICAL INDUCED DRAFT FAN

- T_o = absolute temperature of atmosphere, degrees Fahrenheit.
 T_c = absolute temperature of chimney gases, degrees Fahrenheit.
 W = amount of gases generated in the combustion chamber of the boiler and passing through the chimney, pounds per second.
 f = coefficient of friction.
 L = length of friction duct of the chimney, feet.
 D = minimum diameter of chimney, feet.

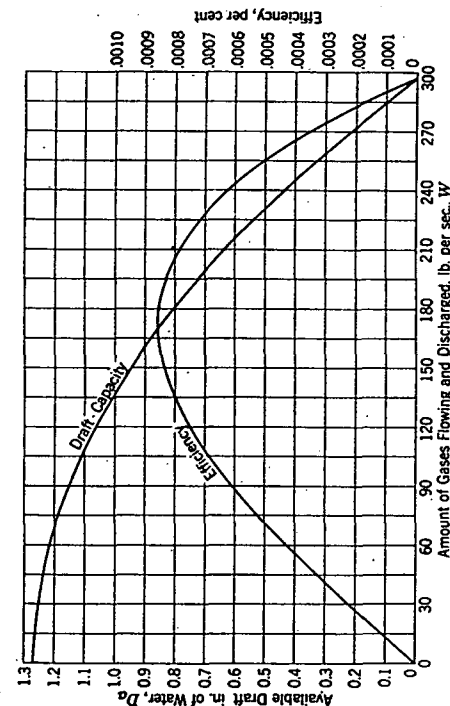


FIG. 4. TYPICAL SET OF OPERATING CHARACTERISTICS OF A NATURAL DRAFT CHIMNEY

The first term of the right hand expression of Equation 1 represents the theoretical draft intensity and the second term, the loss due to friction.

Example 1. Determine the available draft of a natural draft chimney 200 ft in height and 10 ft in diameter operating under the following conditions: atmospheric temperature, 62 F; chimney gas temperature, 500 F; sea level atmospheric pressure, $B_o = 29.92$ in. of mercury; atmospheric and chimney gas density, 0.0863 and 0.09, respectively; coefficient of friction, 0.016; length of friction duct, 200 ft; and discharging 100 lb of gases per second.