

Observations.

The solubility of silica has been determined in water and in hydrochloric and sulfuric acids. The solubility is definite and depends on the temperature and concentration.

With gelatinous silica, equilibrium is reached in a few hours, or at most a few days. With ignited silica, equilibrium cannot be attained in days or weeks.

The solubility of gelatinous silica is the same, no matter how the gel is prepared. The true solubility of ignited silica is probably the same as that of gelatinous silica, but as saturation is not reached in any short period of time, the apparent solubility is somewhat less than that of gelatinous silica.

MADISON, WIS.

NOTE.

A Magnetic Gas Circulator.—The accompanying drawing shows a gas circulator which has been successfully used with the Porter and Ralston apparatus for determining the rate of oxidation of coal.¹ This work has been discontinued but the circulator may be used in other situations so is now described.

In studying the oxidation of coal it was desired to measure the volume of gas absorbed by the coal when in oxygen at 0.2 atmospheric pressure and nearly saturated with water vapor. Circulation of the gas was used to prevent condensation of the water vapor on the coal as the oxygen was absorbed.

When in operation, a column of mercury passed down the inclined glass tube, pushing the gas ahead of it and thus causing the circulation. As soon as the mercury had passed the length of the inclined tube, another column of mercury was started. The mercury was moved by the reciprocating iron piston acting in the glass cylinder. Pump-fashion valves were arranged as shown. The piston in turn was reciprocated by the two electromagnets. Current for these was passed alternately through each by a mechanical switch, not shown. The piston was reciprocated 15 to 20 times per minute. Coils were of No. 18 wire; 5 amperes at about 5 volts were required to operate the circulator. The apparatus was used 7 to 8 hours at a time and for a period of several months, without trouble or adjustments of any kind being necessary.

The advantage of this circulator lay in its being hermetically sealed from communication with the outside. The apparatus was thus free from the influence of external pressure changes which might effect the gas measurements. Also the volume of gas in the essential parts of the circulator

¹ H. C. Porter and O. C. Ralston, Bureau of Mines, *Tech. Paper 65* (1914).

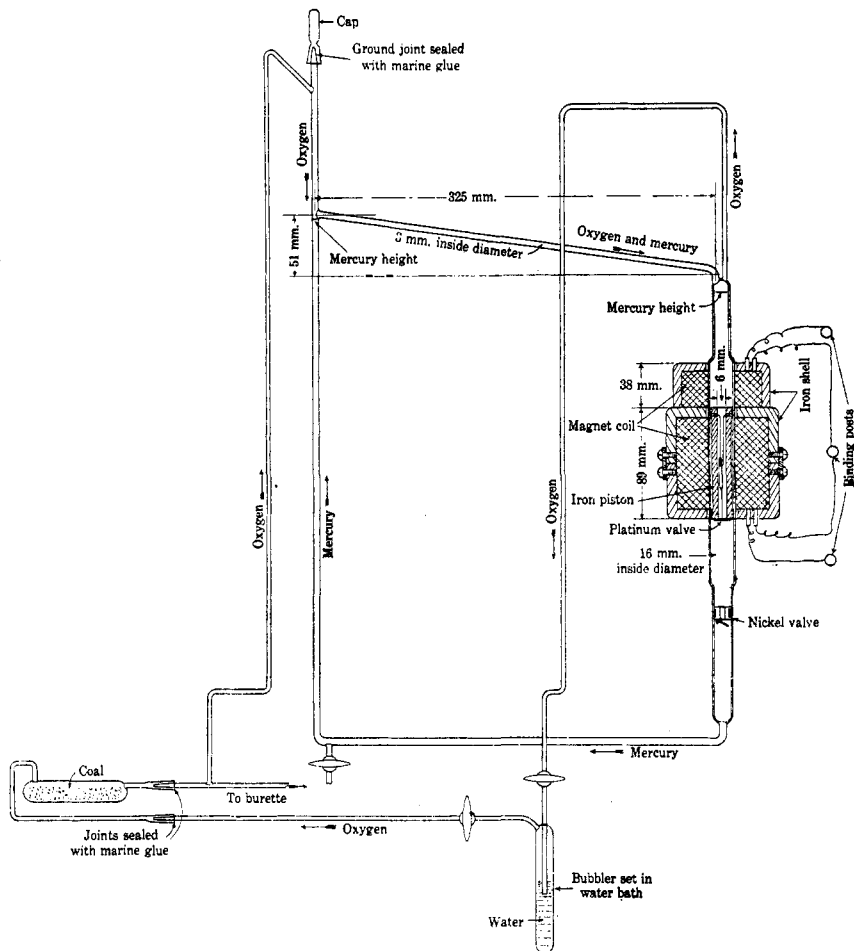


Fig. 1.

mechanism was small so that temperature variations had small effect on the data.

S. H. KATZ.

FUEL EFFICIENCY LABORATORY, BUREAU OF MINES,
PITTSBURGH, PA.

CORRECTIONS.

Through an unfortunate oversight we neglected, in our paper "Heats of Dilution, etc.," in the October number of THIS JOURNAL, to make acknowledgment of a grant from the C. M. Warren fund of the American Academy of Arts and Sciences. The grant was made to E. W. Washburn.

D. A. MACINNES.

J. M. BRAHAM.

On page 2376 line 10 from the top the last word should be "periodate" instead of "permanganate."