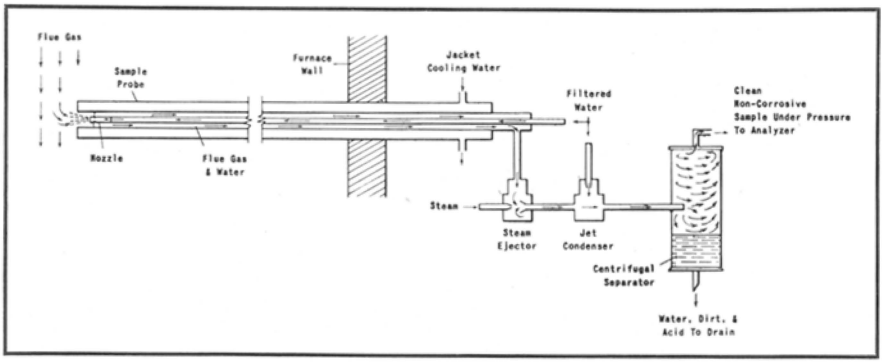
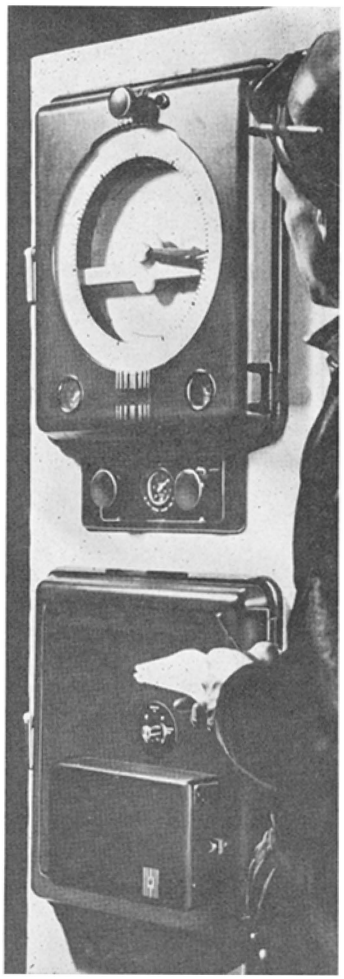
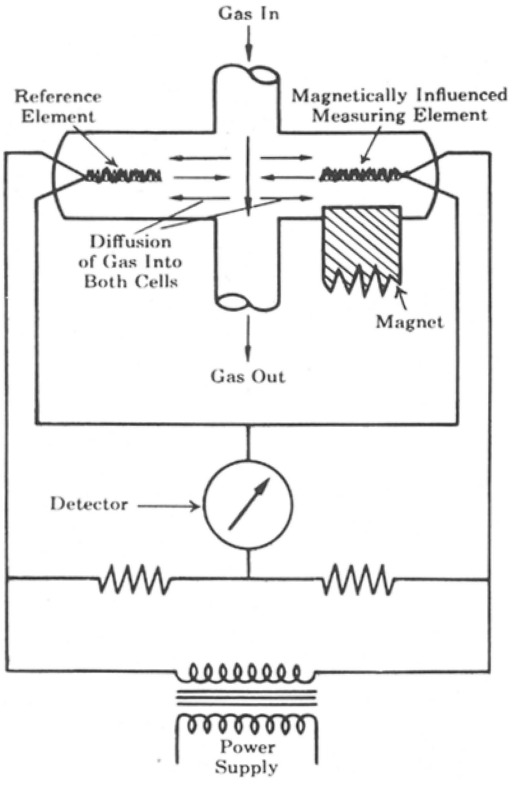


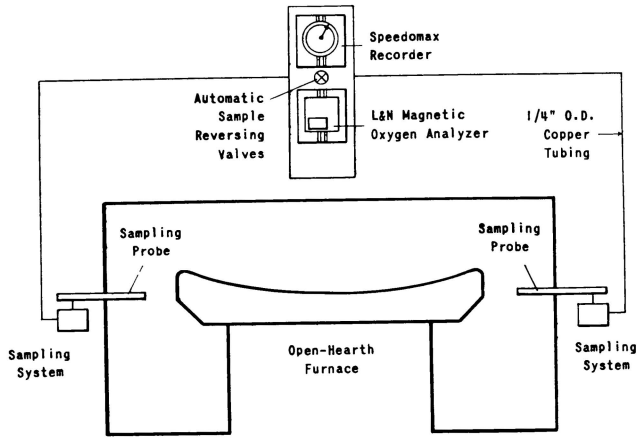
The gas sampling probe, mounted horizontally in the furnace downtake, is a water-jacketed assembly of concentric stainless steel pipes. Continuous washing of the open end prevents clogging by dirt and slag. A portion of the spray water is drawn back between the pipes and is separated out, along with dirt and acid, in a centrifugal separator.



Magnetic Analyzer Gives Better O_2 Samples From Open Hearths

A magnetic oxygen analyzer, developed by the Leeds & Northrup Co. of Philadelphia, promises to give continuous and automatic monitoring of O_2 in open hearth furnaces. Based on the strongly paramagnetic nature of oxygen, the analyzer eliminates auxiliary gas tanks, chemical reactions, and combustion. It is completely contained in the two units shown at the right. The sampling equipment, also designed by L&N, assures a thoroughly scrubbed, acid-free sample which keeps maintenance low by eliminating plugging and corrosion of the sample line.





Above—Schematic diagram showing arrangement of the oxygen analyzer system for open hearth furnaces.

Left—Schematic diagram of the analyzer. A hot wire is suspended in a magnetic field, and when paramagnetic oxygen passes through, a convection current is set up which cools the wire. The strength of this current, the temperature of the wire, and hence the resistance of the wire, all depend on the amount of O_2 passing through the field. This is measured and the device records directly in pct O_2. Other variables, such as changes in barometric or static pressure, are cancelled out by zeroing with the reference cell at the left.