

SIMPLIFIED GAS ANALYSIS

By J. J. R. MACLEOD, M.B., TORONTO, CANADA

NO. II. BURETTE WITHOUT STOPCOCKS FOR GAS ANALYSIS

FOR purposes of teaching, as well as for occasional use in clinical practice, the usual types of gas burette are unsuitable because of the care and attention that has to be given them in order to prevent "freezing" of the stopcocks. Other objections to stopcocks are that they are liable to leak unless well ground, and they add considerably to the cost of the apparatus. The increasing necessity of gas analysis in medical diagnosis and in research makes it important that simple and reliable apparatus be available.* Such an apparatus can be constructed by using screw clips in place of stopcocks, provided some means be taken to adjust the gas pressure in the burette after the screw clips have been tightened. This can be accomplished by the use of the "pressure adjuster" described below.

Another difficulty which the inexperienced constantly meet with in using gas burettes of the usual pattern (Haldane's) is in preventing the strong alkaline solution from running up the narrow tubing which connects the burette and absorption bulbs. This accident delays the analysis, since all traces of the alkali must be removed from the burette and mercury before proceeding with the analysis, and moreover the alkali, if not removed, eats its way around the stopcock, and causes etching of the glass and "freezing." In the following apparatus this danger is guarded against by inserting a small bulb on the connecting tubing. The adjustment of the mercury—very little of which is required—is simplified by using a screw clip and pinchcock on the tubing connected with the leveling burette.

DESCRIPTION OF THE APPARATUS

The gas burette (*A*) is 10 c.c. capacity from the end of the oblique side tube (*F*) to the lowest graduation on the narrow portion. The uppermost graduation corresponds to 2.2 c.c. from the lowest, the distance between the two being divided into c.c. and 1/50th c.c. The bulb part of the stem to just above the 2.2 mark is surrounded by a water jacket. Above the side tube (*F*) the burette is continued into a narrow-bored tube (narrower than represented in the diagram), with two arms at right angles to each other. These are connected by thick walled pure-gum tubing, with the absorption bulbs (*C* and *D*) containing re-

*It is not suggested that the apparatus herein described should be employed by those accustomed to the use of the standard burettes or where expense is no object.