A Modified Kipp Generator.—The diagram, Fig. 1, shows a gas generator which can be used to take the place of a Kipp. Especially adapted to individual student use in qualitative analysis, it ensures a ready supply of hydrogen sulfide gas at any moment.

Three gas bottles (ordinary gas collecting bottles will do just as well) are connected as shown. The reservoir bottle, *a*, which is free to move, contains a three hole stopper. A thistle-tube is inserted in one hole, a bent glass tube extending almost to the top of the bottle in the other hole, while through the third hole is inserted a short piece of glass tubing, *d*. A rubber tube (about 6 mm. bore) has one end attached at *d* and the other to the glass tube at *e* of the bottle *b*. Tube *f* extends almost to the bottom of the bottle *b*, and to the top of the stopper of bottle *c*. The other hole of the generating bottle *c* contains a piece of bent glass tubing closed by a pinch-cock, as shown.

The stopper of bottle *c* is removed, carrying with it the stopper of bottle *b*. Bottle *c* is then filled with the necessary material and the stopper inserted. The other stopper is then inserted in bottle *b*. The clamp is then attached as shown.

The reservoir bottle is filled with the proper strength of acid by means of the thistle-tube. Opening the pinchcock forces acid up into the generating bottle, while closing the pinchcock drives acid automatically back into reservoir bottle. Since the upper end of tube *f* is level with the

FIG 2

FIG 3

stopper, no acid remains in bottle *c*. To empty the generator of spent acid, detach bottle *b*, pour out the contents, replace the bottle and fill again.

Fig. 2 shows another type of reservoir bottle while Fig. 3 shows still another form. The use of gas bottles with openings in them can be substituted.

The unique advantages of this generator are:

1. Slight possibility of large pieces of material getting into the reservoir bottle and rapidly diluting the strength of the acid.
2. Rapid change as a generator for one gas to that of another by adding proper materials.
3. A regulating pressure device by sliding the reservoir bottle up and down the iron rod.
4. And finally, it is quickly constructed, portable, cheap and its capacity can be readily increased.

THEODORE COHEN.