XLVIII. NOTE ON AN EFFICIENT GAS SCRUBBER.

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THE scrubber described and illustrated below is particularly suitable for the analysis of a volatile substance which is based on volatilising the compound and trapping it in a suitable liquid. The author has used the scrubber with advantage in the method of estimating small amounts of alcohol in body fluids as described by Cannan and Sulzer, and also in the estimation of urea in blood by Van Slyke's method. Doubtless it could be used for other similar methods.

The efficiency of the scrubber depends upon the incorporation of one of the well-known glass filter plates made by the famous Schott firm of Jena. All the gas or mixture of gases and vapours has to pass through the pores of the plate and must thus emerge as tiny bubbles (see Fig. 1). Not only is it necessary to get efficient contact between the trapping liquid and the gas mixture, but there must also be an efficient circulation of the former through the inside of the bubbler above the plate. The ideal method of effecting this is to have a small tube through the centre of the porous plate coming up from the bottom of the bubbler. Messrs Schott kindly made some of these to the writer's design some eighteen months ago. One of them is illustrated in Fig. 1, which shows not only the bubbler but also the holder and a ground-on glass container for the trapping liquid. Two of these containers are ground to the same holder and so can be used alternatively to save time. The mixture of gases is drawn through the apparatus in the direction indicated by the arrows. The upward motion of the bubbles above the porous glass plate results in liquid being sucked up through the small centre tube which pierces the plate.

It will be noted that the upper end of the bubbler tube above the plate is just turned down again. This stops splashing and gives another washing (were any necessary) if the level of this turned down end just touches the liquid; this can easily be adjusted if the same volume of a standard liquid is used in the container each time. The advantages of this small piece of apparatus, as illustrated, may be summed up as follows.

1. Thoroughly efficient scrubbing.
2. Thorough circulation of the trapping liquid.
3. Prevention of splashing of the latter up and through the exit tube.
4. It is made entirely of glass. There is thus no possibility of the liquid coming into contact with oxidisable material such as rubber.

5. It can be easily washed out at the end of an experiment, the plate itself and the inlet tube being readily flushed out by connecting the end *A* to a distilled water supply giving a pound or two of pressure.

6. Its relative cheapness—the whole apparatus¹, including an extra container and the outside vaporising tube (which is not shown in the illustration) costing about 45s.

Fig. 1.

¹ Made for me by the Scientific Glass Blowing Company of 12 Wright Street, Oxford Road, Manchester, who keep a stock of these Jena bubblers made to my design.