CCXXIV. AN APPARATUS FOR DISTILLATION.

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AN excellent means of distilling water and concentrated acids is afforded by the apparatus shown in the accompanying diagram.

The apparatus is constructed of pyrex glass throughout. A two-litre flat-bottomed flask, having a neck provided with a ground glass joint of standard size, is fitted with a still head of the pattern shown. Part of the latter is sloped in such a way as to ensure return to the flask of any spray which might possibly pass the trap. In actual practice, however, water, hydrochloric and nitric acids boil so evenly and gently in the large flask that there seems no possibility of any spray reaching the distillate. The other end of the still head slips into the condenser, and the cowl, which is part of the still head, is a protection against dust. No ground glass joint is necessary at this point, and this gives "flexibility" to the apparatus, so that the only support required is the tripod to carry the flask and a retort stand to hold the condenser. This "flexibility" also enables the apparatus to be assembled or dismantled in a few seconds without risk of fracture.

Fig. 1.

The condenser contains six bulbs. The upper two constrictions between the bulbs should be wide enough to allow the insertion of the tube of the still head to the distance shown, but the lower constrictions should be somewhat narrower to ensure the efficient condensation of the distillate. There is no tendency for the vapour to pass upwards. The product of the distillation may conveniently be collected in litre pyrex flasks of the form illustrated, and these should be provided with standard size external fitting caps as shown.

The apparatus herein described has been in use for a considerable time, being mainly employed for the distillation of water to be used for the preparation of colloidal gold solutions suitable for Lange tests, and has given excellent results with the minimum of trouble. The apparatus is also well suited for the preparation of nitric acid free from chlorides or metals, and the acid may be distilled as easily as water. Another use for the apparatus is the distillation of strong hydrochloric acid for the preparation of standard solutions [Peters & Van Slyke, 1932]. This excellent method of preparing standard acid of high accuracy is not widely used because of the difficulty of distilling such strong acids as 20 % hydrochloric. With the above apparatus, however, the preparation of standard acid is facilitated.

The apparatus may be purchased from R. B. Turner and Co., 9-11 Eagle Street, London, W.C. 1, or from Quickfit and Quartz Co. Ltd., Albemarle Street, London, W. 1.

REFERENCE.

Peters & Van Slyke (1932). Quantitative clinical Chemistry. Vol. II, p. 26.