FAT EXTRACTING APPARATUS.

T. O'Conor Sloane, Ph.D.

In many processes of analysis a continuously working apparatus for extraction with alcohol or ether is useful. The extraction of chinchona barks, for separation of the alkaloids may be instanced. In their analysis it is best to work upon large quantities, and a long treatment with the solvent is necessary. Any attempt to thoroughly extract a large quantity by percolation and decantation would be tedious and probably imperfect. A well arranged fat-extractor is particularly available for analysis of this type.

The cut, accompanying this, shows a very efficient and cheap form of fat extractor.

A represents a glass receptacle in which the substance weighed out for analysis is placed. It will be recognized as one of the pieces used in the apparatus for extraction of soils. The bottom may be closed by a piece of sponge, and broken glass placed on this to a depth of two or three centimetres. The substance to be extracted rests on the broken glass.

B represents a glass flask. The alcohol or other extracting fluid is boiled in it, and the vapor is condensed in the condenser shown above it.

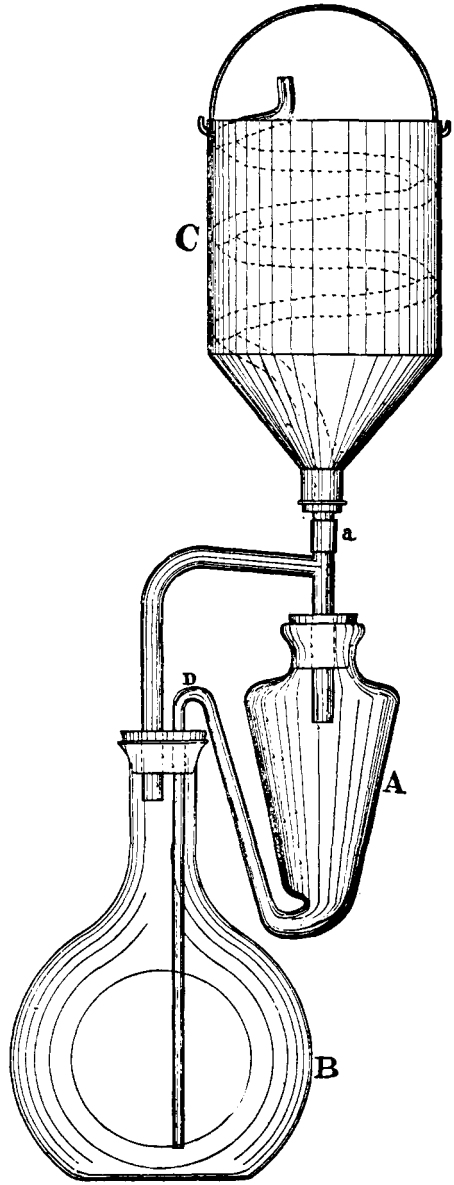
C is the condenser in question. It may be made with block tin pipe for the coil, as shown by the dotted lines, and a varnish can may serve for the case. If the varnish should be used, the bottom must be cut off, and the handle transferred from top to bottom as shown. The tin coil pipe passes through a perforated cork in the neck.

The other connections may be made of glass tubing, joined to the tin tube at *a* by a rubber tube.

The condenser is to be filled with water. While a continuous supply is desirable, it is not necessary, provided the condenser be large enough. In that case the water may be changed every hour, the warm water being syphoned off without dismounting the apparatus.

The operation is simple. The fluid in the flask *B* is boiled. Its vapor rises, condenses in the condenser *C*, and drops down into the receiver *A*. When sufficient has accumulated to rise above the bend *D* it syphons into the flask, and the fluid is rapidly drawn out of the receiver, until by the admission of air at the bottom of the receiver

the syphon is broken. A new accumulation of condensed fluid then takes place, which is soon syphoned off. Thus a continuous series



of rapid percolations is produced, exhausting the substance in a most effective manner.

With a boiling flask of a litre capacity, a receiver of four hundred c. c. capacity, and a condenser of five litres capacity, the extracting fluid being alcohol, the syphonings should follow each other at intervals of about twenty minutes.

The nearly horizontal portion of glass tube to the left of *A* should pitch downwards towards the receiver. This is very important, as otherwise the condensed fluid would partly run back into the flask.

Where alcohol or ether is used, a water bath should be employed to boil it.

All the tube connections should be as large as possible to insure rapidity of working.

ON BISULPHIDE OF CARBON.

By L. H. Friedburg, Ph. D.

Several years ago I published some notes on bisulphide of carbon* to which I shall add to day a few more observations. Then and there I showed how to clean the bisulphide by means of fuming nitric acid, and that the vapors of nitrous acid, of nitrogen dioxyde, of sulphurous acid, etc.,etc., were taken up and invariably retained by the bisulphide. Dry bisulphide of carbon serves as a very good conveyance for the reaction of such gases and vapors in a dry state on each other and on other substances. The only disagreeable feature in this regard is that carbon bisulphide in most cases also enters the reaction, forming very undesirable products, and sometimes, only such, sulphur containing, products are formed, in any notable quantity. The following reactions are the only three I wish to mention, as they may prove germs for further investigations.

1. Bisulphide of carbon charged with the vapors of nitrogen dioxyde and then mixed with pure benzol,forms amongst other products large,broad crystals of dinitro-benzol,melting at+86°C. These crystals are formed after standing a considerable time, and after the partial evaporation of the mixed liquids at summer heat.

2. I think that great interest is attached to the reaction of the aforesaid liquids in direct sunlight. The brown vapors begin to disappear without escaping from the narrow neck of the very large flask, in which such experiments take place, and in proportion as they disappear, small white crystals begin to cover the sides of the

* Berichte d.d. ch. Ges. VIII., 1616.