

examination. The smaller fragments, which could not thus be picked out and examined separately, were searched for under high powers, and the presence or relative abundance of Coccospheres, Coccoliths, Rhabdoliths, and amorphous and other particles was noted.¹

Under the heading CARBONATE OF CALCIUM in the Tables, Chapter II., the general character of these organisms is indicated in two columns. In the first of these the Foraminifera are named, beginning with the pelagic Foraminifera, which make up the greater part of the carbonate of lime present in most deep-sea deposits. These organisms live on the surface of the ocean in vast numbers, and the dead shells accumulate at the bottom, forming, when in great abundance, the well-known Globigerina Ooze; the proportion which these make of the whole deposit is estimated after inspection, and the figures indicating this proportion are placed in brackets (). In like manner, the percentage of the shells of those Foraminifera which live at the bottom of the sea is estimated and placed beneath in the same column. In the second column the kind and percentage of other calcareous organisms present in the deposit are indicated in the same way.

In front of the two columns giving the names and estimated quantities of the different carbonate of lime organisms, is another smaller column under the general heading CARBONATE OF CALCIUM, which gives the total percentage of carbonate of calcium present in the deposit. This is obtained by a quantitative determination of the carbonic acid by attacking the sediment with dilute hydrochloric acid. What is considered as a fair representative sample of the deposit is taken, finely ground, and dried thoroughly in an air or water oven at a temperature (in the case of the air-oven) of 100°–110° C., and transferred to a sample tube. A portion, about 0.5 to 1 gramme, is weighed directly but quickly, and transferred to the large bulb of the carbonic acid apparatus (see Fig. 18).

This apparatus consists of a bulb (a) of about 3 ozs. (100 c.c.) capacity, an acid bulb (b), and a calcium chloride tube (c). The bulb is provided with two openings, one as ordinarily is the case, and another smaller one blown in the side of the neck. Into the larger opening is fitted an india-rubber stopper, through which passes the limb or delivery-tube of the acid bulb. This acid bulb is fitted with a ground stop-cock, and holds about half an ounce of dilute hydrochloric acid, 1 in 3. Into the smaller opening is fitted another india-rubber stopper, into which is fixed an upwardly-inclined calcium chloride tube, filled with fragments of fused calcium chloride, to dry the evolved carbonic acid gas. The calcium

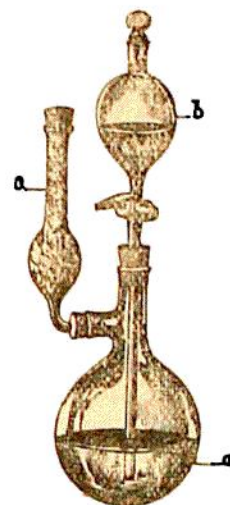


FIG. 18.—Carbonic Acid Apparatus.

¹ The minute organisms and amorphous calcareous matters here referred to are not, of course, included in the term "fine washings" (p. 23), which we use exclusively to indicate the finer portions of the deposit *after the removal of the carbonate of lime*.