

mouth of the bottle, so that no air is included, and set the bottle and plate, inverted, on the shelf of the trough and draw out the glass plate, being careful to keep the mouth of the bottle under the water all the time. (If no proper trough is available, a basin or shallow box may be used, with an inch or two of water in it, the delivery tube being thrust under the mouth of the inverted bottle which is held in an inclined position for this purpose.) Gradually heat the oxygen mixture in the test-tube and collect two or three bottles full of the gas. After a bottle is filled with the gas, it may be removed from the trough, if the latter is small, by slipping a glass plate under it, and placing it upright, still covered, on the table. Unless the glass plate and bottle are ground so as to fit tightly, the gas must be used almost immediately.

As soon as all the gas required has been collected, withdraw the delivery tube from the water while still heating the test-tube; otherwise water will be sucked back and the test tube broken.

The fused mass in the test-tube may, after cooling, be removed by filling the tube with water and allowing it to stand for some time. The mixture obtained in this way is filtered. This is done by folding a circular piece of white blotting paper (filter paper) into quadrants and then opening it out into a cone, with three thicknesses on one side and one on the other. This cone is then placed in a glass funnel and moistened with water. The liquid to be filtered is then carefully poured on to the filter, as indicated by the figure. The manganese dioxide will be found unchanged on the filter. Potassium chloride may be crystallised out from what runs through by slowly boiling it down in an evaporating dish.

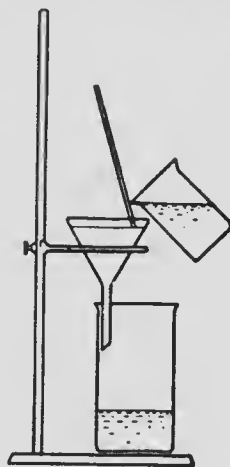


FIG. 4.

It is, of course, very important to know not only that potassium chlorate, on heating, yields oxygen and potassium chloride (the substance left behind in the test-tube with the manganese dioxide), but also exactly how much potassium chlorate yields how much oxygen and how much potassium chloride. Such experiments are rather too complicated to be attempted here, but they have been carried out over and over again, and it has been found that the proportions of the various substances are always exactly the same.