

A METHOD OF COLLECTING OXYGEN FROM PHOTOSYNTHESIS

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The author has used the following materials in this method of collecting oxygen from photosynthesis: a glass boiling flask with a capacity of 3 liters; an iron ringstand and rings for supporting the flask; a funnel of suitable size with a stopcock; a two-hole rubber stopper to fit the neck of the flask; a rubber delivery tube provided with a pinchcock clamp and a short piece of glass tubing with a small opening at the end of the tube, and connected with the stopper by a short piece of glass tubing inserted in one hole of the stopper; a 1000-watt electric lamp on a suitable mounting; a glass vial for collecting oxygen; a dish filled with water; a small quantity of potassium bicarbonate; a quantity of *Elodea* or other suitable water plant.

Procedure.—Prepare 4 liters of a 0.5 percent solution of potassium bicarbonate in distilled water. This is used to supply carbon dioxide to the plants. Support the flask with the ringstand and rings. Put a considerable quantity of the *Elodea* in the flask, and fill the flask with the bicarbonate solution. Insert the stopper in the neck of the flask, with

the stem of the funnel thrust through one hole of the stopper and extending well below the stopper, and the delivery tube connected to the stopper with a short piece of glass tubing which does not extend below the lower surface of the stopper. Fill the funnel with the bicarbonate solution. Put the end of the delivery tube under the surface of the water in the dish. Open the stopcock of the funnel and expel all of the air from the flask and delivery tube with the bicarbonate solution from the funnel. Keep the funnel nearly filled with the bicarbonate solution. Remove the air bubbles from the flask as completely as possible. Then close the delivery tube with the clamp, leaving the stopcock of the funnel open. Place the electric lamp as near the flask as possible without heating the flask and contents.

After considerable gas (mainly oxygen) has collected beneath the stopper in the neck of the flask, invert the vial filled with water over the end of the delivery tube in the water in the dish. Release the clamp and fill the vial with the gas. The gas collected may then be tested for oxygen.