

cylinders should be filled with the water which was previously prepared with carbonic acid. Two of the graduated cylinders should be filled with 10 grams each of elodea sprigs. The other graduated cylinder will not contain sprigs.

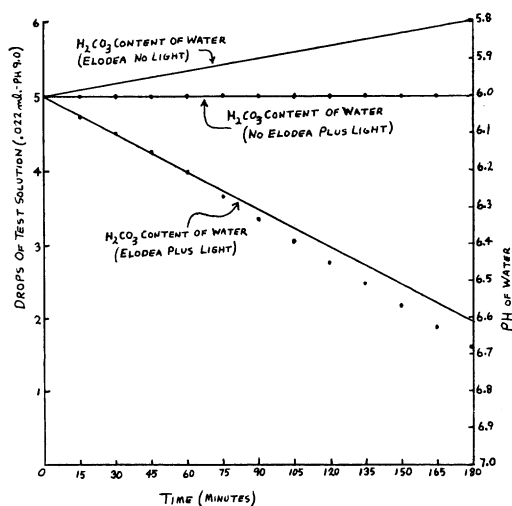
Immediately after completing the above mentioned steps in the experiment, two 40 watt desk lamps should be placed facing each other, one foot apart. Exactly between these lamps should be placed one graduated cylinder filled with 10 grams of elodea sprigs, and the other graduated cylinder without any elodea sprigs. The remaining cylinder containing sprigs should be placed in a dark place.

As light from the lamps shines through the leaves of elodea,  $\text{CO}_2$  is removed from the water. The  $\text{CO}_2$  is utilized during the dark reaction of photosynthesis which is taking place within the cells of elodea. As  $\text{CO}_2$  is taken out of the water, carbonic acid will convert to water and the pH of the surrounding water will be raised, (become less acidic).

As soon as the graduated cylinders are placed between the lamps, a pH reading should be taken of the water in each cylinder and 1 ml of water should be removed from each and placed into two separate test tubes. One ml of water should be removed from the graduated cylinder that was placed in a dark place, and placed in another test tube. Into each of these test tubes, add the appropriate number of drops of previously prepared test solution until each just turn pink. As the drops of test solution are added to each test tube, the carbonic acid in each will be neutralized by the OH ions in the test solution. As the pH of the water in each test tube is raised

to 7.00, the water will become pink. This occurs because phenolphthalein, which is also in the test solution, is a very sensitive pH indicator and turns pink at pH 7.00. When it takes more drops of test solution to turn the 1 ml of water in the test tube pink, there was more carbonic acid in the water originally.

At 15 minute intervals, pH readings should be taken and 1 ml of water from the graduated cylinders should be tested with drops of test solution. A record should be kept of the various pH readings and number of drops it takes to turn the water pink. The test tubes prepared during the first 15 minute interval should be saved to serve as a standard of comparison for the other test tubes in the experiment.



The graph expresses the results of this experiment. The actual number of drops to neutralize the water from each graduated cylinder is corrected to the  $\text{H}_2\text{CO}_3$  content per 100 ml  $\text{H}_2\text{O}$ . These corrected values were used to construct the graph.

### Canadian Science Teacher's Conference

For the first time, Toronto, Ontario will host the North East Regional Conference of the National Science Teachers' Association November 2-4, 1967. It will be held at Toronto's Inn on the Park. The conference will be the biggest of its kind ever held in Canada and will be the first international program held in Eastern Canada. Planning, which has taken nearly two years, will bring together American and Canadian teachers in

all fields of science from kindergarten to university, together with the largest gathering of supervisors ever assembled at a science convention on this continent. For further information write to the Conference Chairman, H. Dene Webber, Althouse College of Education, 1137 Western Road, London, Ontario, Canada, or to the Conference Vice-Chairman, W. E. Patrick Fleck, Thomson Collegiat Institute, 2470 Lawrence Avenue East, Scarborough, Ontario, Canada.