



Fig. 3.

arm. Before the pump is removed, the vacuum is sealed by the use of a pinch clamp on the evacuating hose. Fig. 3 illustrates evacuated side arm flasks.

Steam may be used as an alternate method of evacuation. The advantage of this method is that it may be used in the field. In this case a side arm flask is not required. The flask is assembled and the stopper removed. A delivery hose from a steam generator is inserted in the flask and steam is allowed to replace the air. After a few minutes, the

steam hose is removed and the flask is immediately stoppered. Condensation of the steam renders the flask suitably evacuated.

If the experiment demands sterilization of the unit, it is sterilized after evacuation. The vacuum will not be lost by autoclaving for twenty minutes at 15 psi steam pressure. After sterilization, the unit should not be used until it returns to room temperature.

Suggestions for Maximum Efficiency

1. If the unit is to be used in sea water, galvanized metal should be used whenever possible.
2. The closed glass tube should be scored to increase its fragility, thus insuring breakage.
3. Rubber bands may be used to secure the closed glass tubes in the path of the messenger.
4. Five to ten pounds of lead ballast may be added to the bracket.

The sampler, as described above, has been tested and found to be functional in depths to 150 feet. This unit should be a useful but inexpensive tool for high school science projects and limited research in marine and aquatic science.

High School Student Journal

The *Sierra High School Science Journal*, available through Sol Taylor, Chairman, Science Department, Sierra High School, Whittier, California, 90605 is a journal of long standing and is written by high school students. Several back issues are available as well as current issues, and they may be obtained at 15¢ per copy from Mr. Taylor. The journals contain fairly sophisticated project reports.

Pollution Kills Animals

It is no secret that water pollution can result in massive fish kills, destroy aquatic habitat, and indicate potential human health hazards. But many people do not realize that certain kinds of pollution can kill aquatic animals, or animals using rivers, lakes and streams for drinking purposes. During 1966,

the Ohio Department of Natural Resources' Division of Wildlife field officers investigated 58 pollution cases which killed more than 794,900 animals. Greatest animal kill came from metal manufacturing sources (459,077), other manufacturing (112,068) and coal mining (106,522). Over 58,000 wild animals were killed in the "Buckeye State" last year from sewage pollution.

Teaching Materials

The Oregon Science Teacher, editor, Gene Doty, Hillsboro High School, Hillsboro, Oregon 97123, has a surplus of material developed for science teachers describing classroom demonstrations, science humor, metric system conversion, polarized light, and science calendars which are available at a small cost from the editor. All orders must have a ZIP code.