only slight traces of carbon dioxide and was obtained from Layng and Crum[2] of the chemistry department of the University of Illinois. It consists of a 35 per cent. aqueous solution of zinc sulphate to which 14 grams of concentrated sulphuric acid are added per liter of solution.

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A SIMPLIFIED PLANKTON BUCKET

MANY users of the old fashioned naturalist's plankton net who may object to its crudeness or who have employed the commoner expedient of tying a glass bottle into a silk net, will appreciate a simple device which serves the same end much more efficiently. There are a number of elaborate plankton buckets described which serve various purposes but none of these are quite simple or inexpensive enough for the ordinary biological teacher or investigator who purposes only a qualitative collection for classroom demonstration or technical use.

The writer uses, both for class work and for his own investigations, conical fine silk nets of number twelve and twenty grade, and a plankton bucket of his own design. While not especially new in principle, the bucket is simpler and more inexpensive than any he has seen or used before. It may be constructed by almost any one. The bucket is made up of four parts: First, there is an inverted and truncated cone with a fairly long threaded tube attached to the truncated end, secondly, there is another cone exactly like the first one but without the tube, which fits closely over the other of the two cones. A threaded ring which screws on the tube of the first cone is the third part. The first cone is dropped *into* the net and its tube is arranged to project below, outside the net. The second cone is then fitted to the first from the *outside* of the net with the silk between the two. The two cones are now clamped together and held tightly by the threaded ring; they lock the device to the apex of the net. The fourth part of the apparatus is the bucket, a simple cylinder closed at one end and threaded at the other to fit the tube of the inner of the two cones. The cylinder is of uniform diameter and may or may not have a flange at its threaded end to give weight to the apparatus. The cylinder is screwed to the tube and the bucket is ready for use at once. All parts are constructed of brass.

The net arranged as above may be used exactly as other rigs, but one needs only to unscrew the cylinder to release the catch, and pour the collected plankton into a bottle for preservation or observation while alive. The writer finds the apparatus a very valuable adjunct to his laboratory classes in which a number of plant and animal plankton organisms lend much interest to the ordinary class routine. In collecting material for investigation the contents of the cylinder may be put directly into fixing reagents in the field and carried home in the best condition.

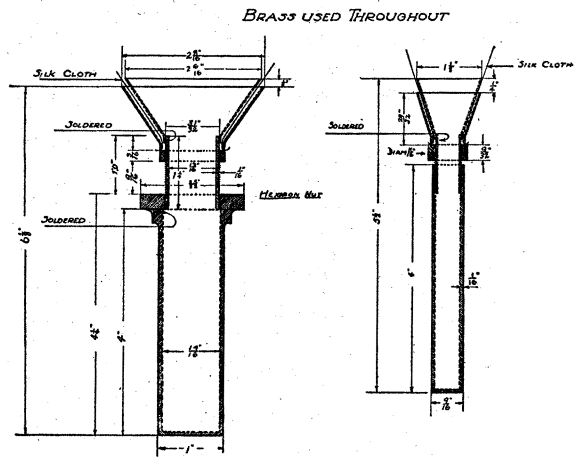

FIG. 1

The whole apparatus is heavy enough to sink easily without extra weights, but does not weigh enough to tear the wet net and it lacks the cumbersomeness of the more elaborate deep-sea apparatus. The diagrams illustrate the dimensions and form of two rigs used by the writer (Fig. 1). Others may be used of course to fit different nets and purposes.

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SPECIAL ARTICLES

OBSERVATIONS ON HEATING HAY IN THE FLOODED REGIONS OF NORTHERN VERMONT

MANY interesting reports of the devastations wrought by the recent floods in Vermont and Massachusetts have been written. Little mention has been made, however, of the effect of the floods upon the tons of feeding stuffs stored on the farms for winter use. The agricultural pursuits of the farmers in the valleys of the Vermont rivers have been confined largely to dairying, most of the flat valley land being used for hay production. In New England the length and severity of the winter season make it imperative that the farmer be well supplied with hay for his stock.

[2]Layng, T. E., and S. A. Crum, "On Examination of Methods of Gas Analysis." Unpublished paper, University of Illinois.