

A Transparent Bucket with a detachable bottom for use with Ostenfeld and Jespersen's Standard Net for Plankton Collection.

By

R. S. Wimpenny, M. Sc.
Fisheries Laboratory, Lowestoft.

For the sake of uniformity and the mutual comparability of plankton net catches, the Plankton Committee of the International Council for the Exploration of the Sea at its meeting in October 1923 passed the following resolution:—

“It is recommended that the description of the standard net mentioned in the recommendations from 1921—1922 be published this year by the Bureau (cf. Rep. 1921 para. 1 and 1922 para. 2).” (1)

In the following August the specifications of such a net were published by OSTENFELD and JESPERSEN (2). The net described by these planktologists was recommended for vertical and horizontal use and has been utilised for the English plankton investigations since 1924.

While it has given every satisfaction as a vertical net, its use horizontally has suggested certain modifications. When the net is fishing horizontally near the surface and fitted in the way specified, it is noticed invariably that the terminal part of the net and the bucket bend downwards so as to be almost at right angles. The result of this bending is to constrict the end of the net and so reduce the filtering area and alter the fishing power. It was found impossible to avoid this at any speeds at which it was prudent to tow the nets. Adjustment of the bridles along the side of the net was also unsuccessful. The causes of this effect appear to be dual.

- (1) The presence of the 3 lines running from the mouth of the net and ending in a stout metal ring below the bucket.
- (2) The weight and construction of the metal bucket.

With regard to (1) it is suggested that when not being used as a closing-net these should be removed for horizontal hauls. In the case of the metal bucket and its clamps, it is felt that its total weight of 465 gms. indicates an unnecessarily robust construction.

Advantages to be desired in a bucket used on a tow-net which frequently yields a big catch are, facilities for inspecting the catch and, when many nets are used on one line and are required again immediately, some method of taking off the catch and refitting the buckets of the

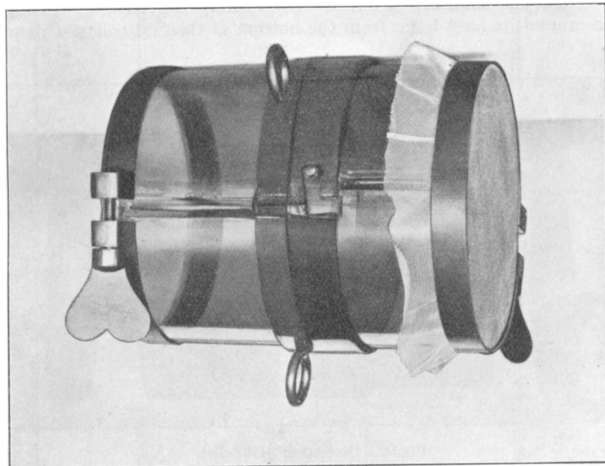


Fig. 1. Bucket with parts in position.

same nets in the least possible time. In an opaque bucket, as one cannot see the catch, great care has to be exercised in allowing the bucket to drain sufficiently, otherwise on undoing the bottom clamp, a large amount of fluid gushes out and may overflow the limits of the vessel into which it is being delivered. These operations of draining and preserving take up some time, especially if several nets are being dealt with at once, and it is desired to fish another string of nets in a deeper layer. In this case removable and interchangeable bottoms would be very desirable; for the catch from a net that has just fished may be taken off and dealt with later, whilst a spare bottom is rapidly fitted to the net and the latter is ready for use again immediately.

To fulfil these desiderata there has been made a transparent celluloid

bucket of the same dimensions as the bucket of the standard net, but with a removable bottom (figs. 1 and 2). The bucket has already been used and has proved very convenient.

A dimensional diagram is given in figure 3.

The device consists of two collars, the top one 7 cms. deep (*TH*) and the bottom one 5 cms. (*BH*). Both are made of celluloid 1 mm. thick. The bottom collar fits inside the top one, making a flush joint 1.5 cms. from the bottom edge of the top half. The top half consists of a collar of celluloid 5.5 cms. deep, having another ring of celluloid 2.5 cms. deep fixed around its base 1 cm. from the bottom of the first collar. This pro-

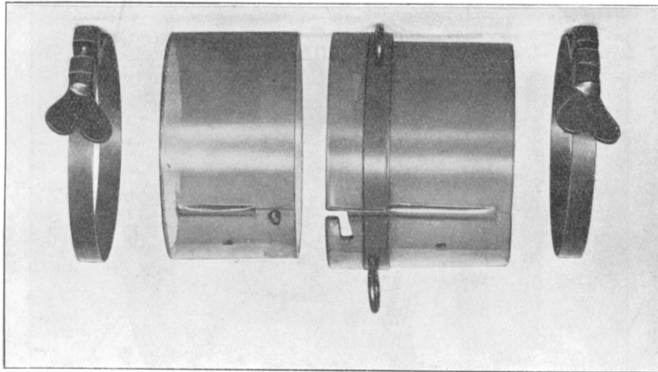


Fig. 2. Dissection of bucket.

vides 1.5 cms. of overlap into which the bottom half fits. At opposite sides of this piece of overlap there are cut two curved channels into which fit studs of brass on the outer surface of the bottom half. This forms two bayonet joints (*B.J.*) which allow the bottom half of the bucket to be pushed home and locked.

In the part of the top half forming a thickened belt owing to the two layers of celluloid, three rings 1.9 cms. in diameter are arranged at 120° to each other. They are set in the equatorial plane of the bucket rather than the longitudinal plane as in the original metal bucket. This facilitates the passage and attachment of the lines or bridles when used. They may be run easily through the rings, and attached at the point desired, or allowed to run free. The bucket is attached to the net by a thin brass clamp 9 mm. deep (*T.C.*) and tightened by a butterfly screw. A similar

clamp secures the silk over the bottom of the bucket. (B.C.) The total weight of the bucket and the clamps is 150 gms.

My thanks are due to Mr. J. O. BORLEY of this Laboratory for helpful suggestions and criticisms during the construction of this bucket and its precursors.

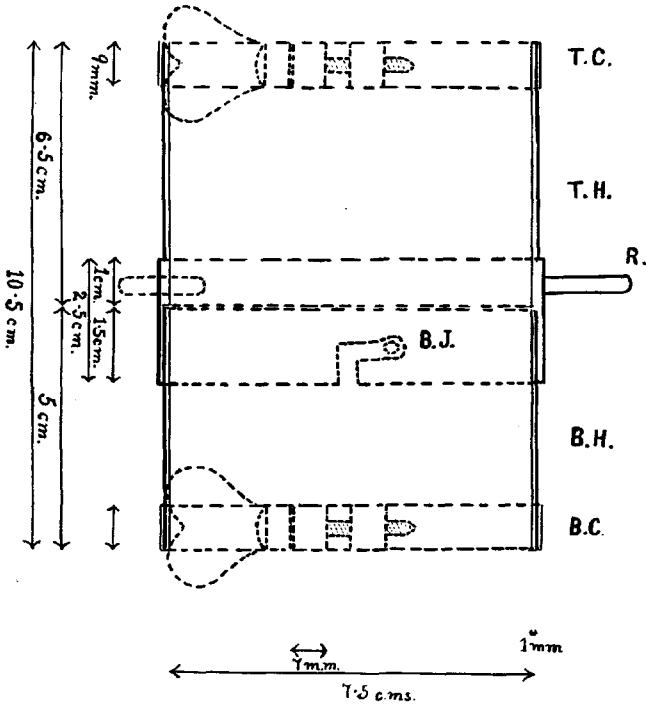


Fig. 3. Dimensional diagram of celluloid bucket. T.H. Top half. B.H. Bottom half. B.J. Bayonet joint. T.C. Top clamp. B.C. Bottom clamp. R. Ring for bridles.

References.

1. Rapports et Procès-Verbaux des Réunions. Conseil Permanent International pour l'Exploration de la Mer. (Octobre 1923.)
2. OSTENFELD, C. H., and JESPERSEN, P., Standard net for Plankton Collections. Publications de Circonsance No. 84. 1924.