A new Colour Comparator.

By

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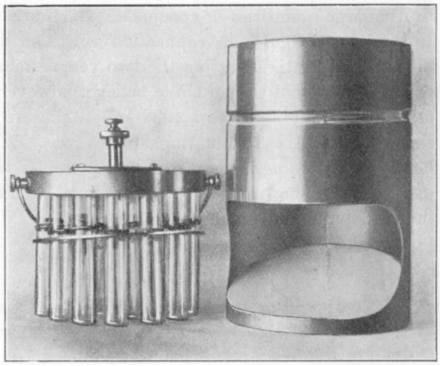
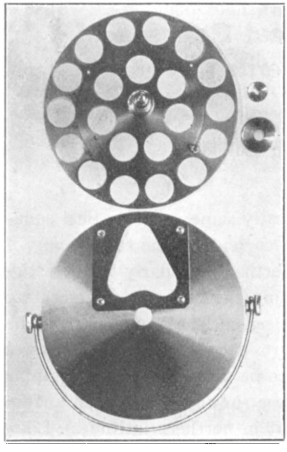
The usual implement for comparing colorimetric samples is a long rack with holes for a number of glass tubes, every other place being occupied by the tubes containing the standard solutions. Now this long rack is very bulky and entails the use of some other stand to receive the samples not actually under comparison, and to find the right interval one has to try the sample tube in different positions. This means some unnecessary loss of time, and time as well as space is generally scarce at sea.

In order to save both to some extent I have had made the simple contrivance illustrated here. It consists essentially of a brass box (12 × 18 cm.) the under part of which has a large opening to admit the light which is reflected upwards from an inclined pane of milk glass. The glass tubes used are the common flatbottomed type 15 × 100 mm. Each of them is provided with a rubber string band which is so placed that there will be room for 10 ccm. below (or another desired quantity). The glass tubes are placed in the holes of the plate, hanging on the rubber bands. The plate consists of two parts which can be moved by turning the head of the stem which comes up through the lid. If the head is slightly



pressed down at the same time, only the inner portion, carrying the standards moves, if it is slightly raised, both parts will move.

The lid is secured to the box by two screws which also serve as supports for the handle (this for convenient stowing away when not in use).



The hole in the lid will admit of the inspection of two standards and one sample (or two samples if the plate with the triangular hole is removed). One has first to bring the sample in position by turning the head and lifting it slightly, and then bring the proper two standards into position when pressing the head. The outer ring carrying the samples will then remain in position because the ring presses against its conical support at the edge. The holes are distinguished by numerals embossed in convenient positions. In the example used on board the "Johan Hjort" for p_H determinations, the seven inner holes are numbered 3 to 9 to correspond directly to the numbers of the standard borax-boric acid solutions employed, the outer row of 14 holes 1 to 14 corresponding to the numbers of the reversing water bottles in use. A duplicate, for comparing samples mixed with the Harvey nitrate reagent, has the same numbering on the outer ring, but 1 to 7 on the inner. (It has been found that this way of comparing the nitrate samples is superior in more than one respect to the use of a colorimeter, and much quicker).

It is as a rule not necessary to remove the lid when the apparatus is to be used. The tubes to receive the samples are picked out and filled from the water bottles one by one through the hole in the lid. A clean rubber stopper, kept for the purpose in a small glass bottle, should be used when mixing the sample with the indicator. When all the samples are put in their respective places, the stoppers closing the standard tubes are removed and these will remain uncovered only the very few minutes required for inspecting the samples.

The Comparator is made by the firm Bergen Nautik, Bergen.