Line $A'B'$ gives the desired length of the traverse Ab, as parallel lines intercepting parallel lines are equal. From the point O draw lines through road corners and the several angles of the traverse represented by points 1, 2, 3, etc. The end points of the adjusted traverse are represented by points A' and B'. To locate other points on the adjusted traverse, begin at either end A' or B', and through them draw $A'1'$ parallel to $A1$, $B'5'$ parallel to $B5$, $5'4'$ parallel to 5-4, etc. Point 2, any point on the traverse, may be located directly on the adjusted traverse by paralleling the direction of $A2$ through point A' to the line $O2$, the intersection $2'$ being the desired point. Because of the successively similar triangles constructed, the same proportional reduction of distance is carried through for each segment as was applied to the end length of the traverse.

If the traverse is too short by any distance Bb' draw a line through point b' parallel to the line OA to intersect line OB extended at point B'' and proceed as before. A'' and B'' represent the ends and $1''$, $2''$, etc., the intermediate points of the adjusted traverse.

In the actual use of the similar triangles method, it is not necessary to draw the whole lines from the point O. A segment of each line, through points of the traverse slightly longer than will be necessary for the enlargement or reduction, will suffice. By fastening tracing paper over the traverse, the construction lines and the adjustment can be made directly on the tracing paper and so be ready without further effort for transfer to the final field sheet. With only a moderately large error to be adjusted, it will be found that a careful adjustment of the intermediate road corners or principal points on the traverse line will suffice. The segments of traverse between such points can then be adjusted into place without appreciable error by shifting a tracing of the original traverse line.

The similar triangles method of enlargement or reduction is applicable to plats of other than traverse lines.

A METHOD OF OBTAINING CURRENT OBSERVATIONS FROM A SHIP IN DEEP WATER WITHOUT ANCHORING

by

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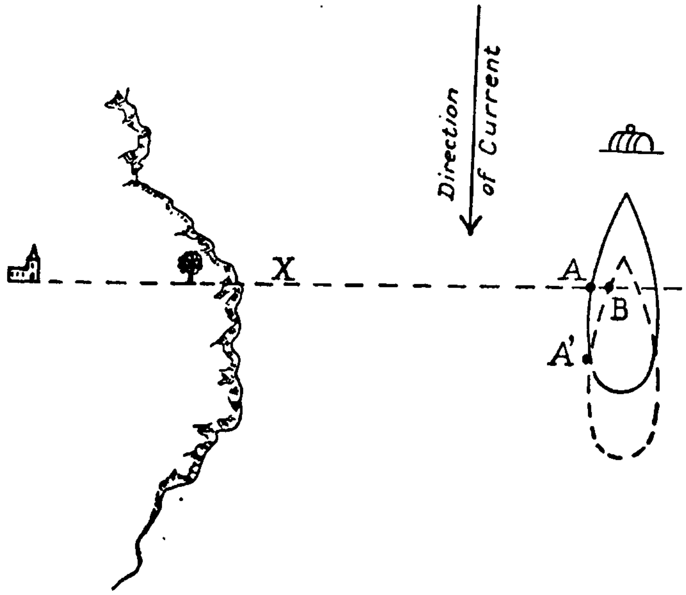
Shortly after the termination of the Great War, whilst in command of H.M.S. *Merlin*, I received instructions to carry out a series of surface and sub-surface current observations in deep water off a coast where the current ran with considerable velocity, with resulting heavy swirls and rips. The ship was at first anchored with the deep water anchoring gear but having to veer a considerable amount of cable it was found that she yawed about too much to enable accurate observations to be obtained. The following method was therefore eventually adopted with success.

A buoy was moored at as short a stay as possible and the bow of the ship kept as close to it as possible, regulating the revolutions of the engine as necessary and keeping as steady a course as possible under the circumstances. The EKMAN current meter was used and when the first messenger was released natural beam transit marks ashore were observed from some position on the upper deck. On releasing the second messenger, the distance it was found necessary to move forward or aft from the first position to bring the transit marks in line again was measured, and this distance was respectively added to or subtracted from the total distance recorded by the current meter during the observation.



Thus, in the annexed figure, at the commencement of the observations the ship was in the position shown by the firm line and the transit line AX was observed from the point A.

At the end of the observation the ship had dropped astern to the position shown by the dotted line and the point A had therefore moved to A^1; it was necessary to move to point B to bring the transit marks in line again and the distance A^1B had therefore to be added to the total distance recorded by the current meter. (Any movements of the ship ahead or astern during the course of the observations would counteract one another and so would not have to be taken into consideration).

After a little experience it was found that the ship could be kept fairly steady both as regards her distance from the buoy and the direction of her head; the distance A^1B was consequently small and it is claimed that the final results of the observations were much more accurate than if they had been obtained from the ship at anchor.

A SIMPLE DEVICE TO PROVIDE AGAINST POSSIBLE SWINGING OF THE LEAD IN SHIP SOUNDING.

By means of the device shown on the annexed figure, the damage which sometimes occurs at the moment of hauling in the lead during ship sounding operations may be avoided.

After each sounding, owing to the considerable speed at which the electric winch hauls in the lead, it happens that the latter, diverted towards the stern by the headway of the ship, leaves the surface of the water more or less abruptly. And if the sounding chains are in even a slightly raised position, the lead at the moment of leaving the