

*Positions of the Stations.*—For the purpose in view, the stations chosen for anchorage were far enough from shore to avoid the local influences found among the islands and shoals which are numerous on this coast within the 30-fathom line. The anchorages were made in all depths up to 100 fathoms.

The positions of the stations are shown on the accompanying Map; and at the head of each table the position is defined by a bearing and distance *from* some convenient landmark; so that a captain can readily plot these stations on his working chart, if desired for reference.

*Methods and Appliances.*—The surveying steamer *Gulnare* was employed in the investigations; and when anchored, it served as a fixed point from which to determine correctly the speed and direction of the set.

The strength of the current was determined from actual measurements of velocity by means of a current-meter registering electrically on board. A special method of suspension was devised to avoid error from the rolling of the steamer. When the rolling was considerable, an allowance was made by count, for the excess. The meter was placed at the standard depth of 18 feet (three fathoms) to be well below the keel of the surveying steamer. The measurement was thus free from any interference from the vessel itself, when lying more or less out of line with the direction of the set. With currents which are so deep, there is no appreciable change in strength from the surface to a moderate depth; and this measurement well represents the velocity as it affects a steamer of ordinary draught.

For the direction of the current, a float was used which was attached by a line from the stern. It was weighted till its surface was awash, to be unaffected by the wind. At night it was illuminated by a small electric light, operated from a battery.

The observations of velocity and direction were taken every half hour, day and night continuously. This is essential, as there are times when the two floods or ebbs in the course of the day are distinctly unequal in strength, owing to diurnal inequality in the rise and fall of the tide itself.

The methods and appliances used for the investigation of the under-current and for meteorological observations, need not here be noted.

*Observations obtained as a Basis for the Tables.*—The periods for which each station was occupied, and the total length of the observations obtained, are shown in the last Table appended. This serves to indicate the sound basis secured in the two seasons for the hourly tables and the time of slack water here published. The periods at each station were chosen, as far as practicable, at different stages of the lunar month, to ascertain the amount of variation with the changes in the moon's position. At two or three of the less important stations, notably Stations R and U, the observations are not as long as might be desired; yet the indications obtained are of sufficient value to be serviceable.

At the Lurcher shoal, observations were taken by the officers of the light-ship, day and night, throughout the season of 1904, from June 7 to September 30. These afforded a series of 232 comparisons for the time of slack water at that position.