

The guys should be cleeted to the Ship's side on the first calm day, to prevent them chafing about in the wash of the Sea.

The reason why the Rudder is not required the whole length is, that the lower part of it, is of no use to the Ship for steering purposes, and it is only the upper part of it that is acted upon by the water, and which has been proved in cases where a Ship, having had the lower part of her Rudder broken off at the lower gudgeon, has been steered as well as if nothing had been amiss with it.

This can be easily accounted for, when we consider the immense pressure of the Ship on the water, and that as she advances, this water, being set free from under her, rushes up her run at an angle of about  $45^\circ$ , and must necessarily strike the upper part of her rudder with a force greater than the actual velocity which she is going through the water.

#### Making the Land.

This is generally a time of much anxiety, especially in tempestuous weather, when no observations have been recently obtained, because of the uncertainty in the Reckoning, in consequence of the Ship having been probably under the influence of Currents which generally prevail near the land, and great caution is therefore required in approaching it. When Soundings can be obtained they should never be neglected. (See Remarks on Sounding, at page 52.)

When the Reckoning is doubtful, the usual practice is to get into the parallel of Latitude of the place the Ship intends to make, and then steer true East or West, as the case may be, proceeding cautiously until the land is seen, but care must be taken that the Ship is not too far ahead of her reckoning before falling into its parallel; as in the case of making an island, for instance, laying West of the ship, she must be sure that she is to the Eastward of it before falling into its parallel. It is therefore safest, if there is no Chronometer on board, to keep well to the Eastward before falling into its parallel, and then to steer due West. She will make it ahead.

When a Ship is bound to a Port on a Coast which trends North and South, the Land should be made at some point to windward of it, and which has a high and bold shore; then by running down the Coast the Latitude by Observation will point out her Port of Destination.

When Observations for Latitude and the Chronometer can be depended on, they should be continued up to the latest period at which the land is expected to be seen, because of the currents or tides near the land, and which affect the Ship's Landfall. The Observations should be verified by sounding at least once, even when the weather is clear, and compared with that laid down on the large Chart of the Coast, at or near to the Ship's Position by Observation, the bearing and distance of any part of the Coast can then be ascertained, and a Course shaped accordingly. It is usual to make some prominent headland or lighthouse in the daytime, or some well known light by night. If the Navigator is a stranger to the Coast, he will naturally consult the Sailing Directions, so as to form some idea beforehand of its appearance, or the character of the lights he may expect to see, so that when the Land is seen he may compare it with the description given of it, and also its outline on the Chart. But to remove all doubt the Bearing of three Objects on Shore should be taken, and a cast of the Lead; then if those Bearings laid off on the Chart meet at a point as a common centre, and the Soundings also agree, there can be no farther doubt but that the Landfall is correct. This sometimes is a matter of much importance to a stranger in making the Land, because by mistaking the Land or a Light for some other on the same Coast, fatal errors have been often committed. It is therefore prudent to test it as above mentioned, before shaping a Course to any other part of the Coast.

A Ship on approaching a Coast in thick blowing weather, where shoals lay off some distance, would naturally keep sounding as she stood in, but by mistaking the Soundings so obtained for those outside of the Shoals when they were in fact those near the Beach, and in standing off has run aground on the inside of the Shoals. This is of frequent occurrence, and caused by an error in the Reckoning; and the only remedy to guard against such an accident is to keep the Lead going until the Ship has made an offing equal to the Distance at which the Shoals lay off from the Shore.

When a Ship is caught by thick weather in a narrow channel, between Shoals, and it is not considered prudent to anchor, she is put under easy sail, and tacked or wore round every hour or half hour, as the circumstances of the case require, until the weather clears up, and she can extricate herself.

#### Signs of Land.

There are some Signs whereby it may be known when a Ship is approaching Land—the most infallible is that of the change in the color of the Sea from a deep blue to a pea green, (a sure indication of being on Soundings,) and from that to a muddy color as she approaches the Coast, where tree-roots and other drift-wood may be met with floating about, and the coasting and fishing vessels of the country. The Bearing of the Land may also be known from the direction in which a flock of Sea-birds are seen flying at Sunset. Ducks, and other kinds of diving-birds, which do not fly far, are a sign of being near the land.

Land is seen at the greatest distance off at Sunrise or Sunset, before the vapors begin to collect around it, in the form of clouds, which frequently hide it from view in the daytime. It is called by seamen the *Loon* of the Land.