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For ponds, and small lakes of fresh water, the boat should always be of good beam, light draught, and small sail, on account of the frequency of puffs of winds from unexpected quarters from the neighboring hillsides. In fact, if there is any danger in sailing, it is upon these land-locked ponds or lakes, where more seamanship is often needed than on the larger bays and sounds of the ocean itself.

It is often useful to know how many geographical or nautical miles, which measure at the equator 6,086.4 feet in length, are contained in a degree of longitude at different latitudes; that is to say, a degree of longitude east or west of 89° N. latitude is only 1.05 nautical mile in length; and yet, in another sense, this 1.05 is 60 miles, or one degree in length.

EXAMPLE I.—Sailing along in the yacht "Firefly," from the top of the house on which I was standing, which brought my eyes to about 12 feet above the level of the sea, I observed seaward the head of a gaff-topsail that evidently belonged to a yacht of about ten tons, and was

therefore estimated to be about 45 feet from the level of the sea. How far were these vessels from each other?

EXAMPLE II.—Sailing towards the land, I mounted the shrouds of my yacht till my eye was about 16 feet above the level of the ocean, where I sighted the top of a known lighthouse that I was looking for, which the chart informed me was 145 feet above the level of the sea. Required the distance of the lighthouse.

Upon seeing the flash of a gun I counted 30 seconds by a watch before I heard the report. How far was the gun from me, supposing that sound moves at the rate of 1,142 feet per second?

The velocity of light is so great, that the seeing of any act done, even at the distance of a number of miles, is instantaneous. But by observation it is found that sound moves at the rate of 1,142 feet per second, or about one statute mile in 4.6 seconds: consequently the number of seconds elapsed between seeing the flash and hearing the report being divided by 4.6 will give the distance in statute miles.

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