

It's about time©

The next major step in aviation measurement came from the Greeks about 2500 years ago. The Greeks sought rules for the way number-ideas seemed to work. They applied a reasoning process to build on known facts to reach a conclusion. They knew it as deduction. Some flyers call it, albeit incorrectly, the origin of the term Dead Reckoning. Actually it is a deductive system of navigation. The first ship's time was kept with sand glass and the speed was determined by counting oar strokes during a sand glass sequence. Distance over water could be deduced by the number of strokes in a given time period.

A sailing ship's speed over a nautical a mile was, historically, measured by means of a knotted (knots) rope tied to a log. A sand filled timing glass would be used to measure the time from leaving the log dead (much as a dead man might appear) in the water (dead reckoning) and the number of evenly spaced knots passed along the rope. All of this would be recorded in the logbook.

I contend that dead reckoning is a not a corruption of deduced reckoning, the term derived from the navigational practice of starting from a point (Buoy) that was dead in the water. From this point the direction and time would be used to deduce location along the route as it crossed longitudinal lines.

Since the chronometer was yet to be invented, sailors had no way to determine longitude except by this dead reckoning. Within crude limits, speed and compass indications could be used to determine estimated distance and estimated longitude. Magellan in 1519 had access to charts, globe, theodolites, quadrants, compasses, magnetic needles, hour glasses, and timepieces. He was unable to determine exact longitude. By the 18th Century a chronometer (first weighed over 36 pounds) was used to get longitude. A chronometer differs from a clock or watch because it has a temperature adjustment for greater accuracy. Captain Cook in 1768 had three such clocks for his voyage. In 1779 he sailed with 4 chronometers and a nautical almanac which enabled him to determine longitude. The very first effort to make a calculator was financed by the British to make the making of the nautical almanac easier. The original design was completed in 1991 and found to work accurately. Interesting to speculate where the world would be had it been completed in the 1700s.

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