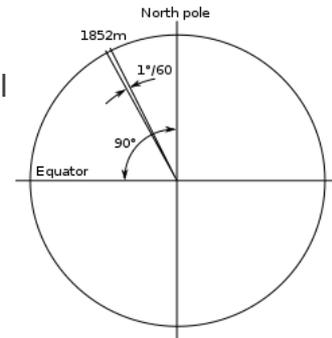


# Mind Your (Aviation) Language....

## What Knot? Mark Twain!

As aviators we are all familiar with keeping an eye on our airspeed – and that we measure airspeed in knots. Many will also know that a knot is 1 nautical mile per hour. And some will know that a nautical mile is one minute (one sixtieth) of a degree of latitude, or even 1,852 metres. But why do we use the word 'knot' and does it have any connection to knots in ropes?



Until the mid-19th century, vessel speed at sea was measured using a chip log. This consisted of a wooden panel, attached by line to a reel, and weighted on one edge to float perpendicularly to the water surface and thus present substantial resistance to the water moving around it. The chip log was cast over the stern of the moving vessel and the line allowed to pay



out. Knots placed at a distance of 47 feet 3 inches (14.4018 m) from each other, passed through a sailor's fingers, while another sailor used a 30-second sand-glass (28-second sand-glass is the currently accepted timing) to time the operation. The knot count would be reported and used in the sailing master's dead reckoning and navigation. This method gives a value for the knot of 20.25 in/s, or 1.85166 km/h. The difference from the modern definition is less than 0.02%.

And in both today's pilothouse and cockpit, the speed equal to one nautical mile an hour is still called a **knot**, and pilots still record details of the journey in the ship's **log** - terms that echo of the days when crewmembers got creative with a few simple materials and produced an essential and significant little gadget.

Knotted ropes were not only used for measuring speed: they were also used for measuring depth. The outstretched arms of a man from fingertip to fingertip was a typical way of measuring distance, and for the average man, the distance is around 6 feet, or one fathom (a word derived from Old English 'fæðm' meaning embracing/outstretched arms). Knots were tied in rope 6 feet apart, the rope was weighted and lowered over the edge of the boat to measure depth in fathoms. (We still use the phrase 'I can't fathom it out' meaning 'I can't get to the bottom of it / I

don't understand it'). A burial at sea, where the body is weighted to force it to the bottom, requires a minimum of six fathoms of water. This is the origin of the phrase 'to deep six' as meaning 'to discard, or dispose of'.

In the early United States, paddle steamers travelled up and down the Mississippi River but they needed at least two fathoms of water to navigate safely. This depth was constantly checked to make sure that at least two knots on the fathom rope were being marked. Old English had a masculine and a feminine word for two. The feminine was 'two' and the masculine was 'twain' as in 'never the twain shall meet'. On the Mississippi River in the 1800s, people still used the word 'twain' and when the depth of the water was checked to make sure that the rope marked the depth of two fathoms, the leadsman's cry was 'mark twain' – literally a mark of two fathoms. A young riverboat captain and budding writer named Samuel Clemens heard people call out 'mark twain' so much that he decided to use it as his pen name and of course we know Mark Twain as the author of many books such as the Adventures of Huckleberry Finn.

As an aside, in 1969, the United States Federal Aviation specified that distances were to be in nautical miles, and speeds in knots, rather than miles and miles per hour.

So, next time you're bragging about how many *knots* you can get in your aircraft, or you're simply writing up your flight in your *log* book, you'll know where these terms came from.....And how about reading (or re-reading) some adventures of Huckleberry Finn by **Mark Twain!**