

Matthew Fontaine Maury was born in 1806 in Fredericksburg, Virginia and entered the U.S. Navy as a Midshipman. He remained in the Navy and studied navigation. He was appointed to the United States Naval Observatory in Washington, DC. The cellar was filled with logbooks and he realized they contained valuable data on the world's oceans. He created a data sheet to be filled in by Navy ships and commercial sailing ships recording longitude and latitude data and nautical data. Data collected on a "Log Abstract" that would be sent to the Naval Observatory. Thousands of *Abstracts* followed and the database soon had thousands more observations.

"Log Abstract" of Ship Garrick - From New York to Liverpool 1854

Abstract Log of the Ship Garrick, Captain R.W. Foster															
Date.	Hour	LATITUDE.	LONGITUDE.	CURRENTS		BAROMETER		THERM'T.		FORM AND DIRECTION OF CLOUDS.	*PROP OF SKY CLEAR.	HOURS OF FOG A. RAIN B. SNOW C. HAIL D.	MAGNETIC VARIATION OBSERVED.	WINDS.	
				Direction	Rate	Height	Ther. Air	Water	Direction.					Rate.	
May 11		N. J.													
	4														
	9	N.	W.			29 $\frac{52\frac{1}{2}}{100}$	58	50		Cr. Cim. N.E.	Hazy	3.30. AM.		S. by E.	Under full sail
Noon	12	39° 45'	69° 00'	S.W.S	30					Cum. str. N. & N.W.	Greater part of firmament				
	3														
	8														
	4														
	9														

The first edition of *Winds and Currents of the North Atlantic* was first published in 1851 and updated editions followed. Maury joined the American Association for the Advancement of Science and presented his research/data at its annual convention..

Maury's biographer Chester Hearn writes, "By 1854 he had accumulated more than a million observations in the prevailing directions of and velocities of the ocean's winds & currents." Maury divided the world's oceans into squares that are 5 degrees of latitude (north – south) and 5 degrees of longitude (east – west). Within the square the data points are organized by the 16 "Compass Points" and 12 months of the year.

Each compass point (n = 16) has a slice of the Pilot Chart for 5 degrees of latitude and 5 degrees of longitude. Each slice, which represents the direction of the wind, has the 12 months of the year and each of those is the data for that month of the year. For each square there are 192 data points: compass direction and month of the year.

A square of the North Atlantic includes the Long Island Sound, the Rhode Island coast (where Newport is), Cape Cod, the Massachusetts, New Hampshire and Maine coasts. Within this square usually the wind blows from the Southwest direction in the summer and not the east. The number of data points in the SW slice is 255 vs 45 from the east. Sailing ships, especially square-rigged historical sailing ships, sail best with the wind from the stern. Sailing along the coast of the United States, the fastest course is going to the NE with wind from the stern – SW. Conversely sailing to the SW requires a boat to 'tack,' sailing back and forth into the wind.

Using the squares across the North Atlantic from New York to Liverpool or Liverpool to New York, Maury plotted the course to steer that would have favorable wind on the stern for each month of the year. Sailing from Liverpool in February the courses are W.S.W and West and weather "Fair" around 50% of the time. Sailing from New York to Liverpool the courses are E. with the "Fair" winds from the S.W. 70 or 80% of the time from the stern. The data points – Observations-- total 1,020 from Europe to New York and 1,072 for New York to Liverpool.

Following Maury's routes saved days and weeks in a voyage. The shipping companies saved significant costs and lavished praise on Maury and the Naval Observatory. Lloyds of London, who provided ships with insurance based on the number of days in a voyage, saved thousands of pounds each year. The company insisted that each ship the company insured had a copy of Maury's *Winds & Currents* for the ship's navigator to use.