

it is impossible to run a ship directly on the Great Circle course; but by changing the course at every 5 or 6 degrees of longitude, a very close approximation to it, can be effected. There are but six cases in Great Circle Sailing, and two of these require no calculation whatever, for the first case is sailing due east or west on the equator so that the difference of longitude is the shortest distance; in like manner when a ship sails due north or south, her difference of latitude is the shortest distance which is the second case; so that four cases only require calculation—and these are as follow:—

1st. Case—When the place of departure and that of destination are on the same parallel of latitude N. or S. but differing in longitude.

2nd Case—When one of the places is on the equator in a given longitude, the other N. or S. of it, in a different longitude.

3rd Case—When the places are on different sides of the equator and on different meridians.

4th Case—When both places are on the same side of the equator, having different latitudes and longitudes. This last case is the most important, an example is here given.

Required the Great Circle Course and distance, (the ship changing her course at every five degrees of longitude) from St. John's lat. $47^{\circ} 34'$ N. long. $52^{\circ} 38'$ W. to Galway, lat. $53^{\circ} 17'$ N. long. $8^{\circ} 51'$ W. the calculations are tabulated as follows:—

ST. JOHN'S.	No.	COURSES	DIST.	LAT.	LONG.	
	1	N. $61^{\circ} 45'$ E.	48	$47^{\circ} 57'$	$51^{\circ} 35'$ W.	
	2	" 62. 32 "	220	49. 31	46. 35	
	3	" 66. 17 "	207	50. 48	41. 35	
	4	" 70. 8 "	197	51. 49	36. 35	
	5	" 74. 2 "	189	52. 35	31. 35	
	6	" 77. 59 "	187	53. 7	26. 35	
	7	" 81. 58 "	180	53. 25	21. 35	
	8	" 85. 59 "	178	53. 32	16. 35	
	9	S. 85. 59 "	178	53. 25	11. 35	
	10	" 83. 47 "	98	53. 17	8. 51	GALWAY.