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James Webb Telescope and Cristoforo Colombo

It is a moment in time of the remarkable James Webb telescope launch of December 26, 2021, targeting outer space a million miles away. Yet not all that far in Universe miles! It is worth looking back in our public Library collections for another exhilarating moment in time (besides the early 19th century Lewis and Clark Expedition of previous articles), when even the learned few knew so, so much less about the Universe than now. In the 15th century, knowledge was largely restricted to Earth, distances of thousands of miles at most, and much of what was supposedly earthly scientific knowledge was wrong anyway.

Nicolaus Copernicus had yet to make the mathematical case in the mid 16th century for heliocentricity. Galileo's empirical landmark use of a primitive telescope trained on Jupiter and its four major moons, giving verification to Copernicus's correctness, came after that century turned. Each, by the way, faced strong headwinds from aggressive naysayers, not unlike what we see in more "modern" times with scientific breakouts: think Darwin preeminently and immunology. That worked against Copernicus, a canon of the church, for getting published until he was already on his deathbed, and Galileo seems to have gotten published only with some wile.

By the 15th century, there was literature about the shape of the Earth beyond the commonplace perception of it being flat, which was only as the unaided eye might imagine it on land, although otherwise at sea. Christopher Columbus knew that. Among other more learned sources, he probably drew from physician, astronomer, mapmaker, and mathematician Paolo Toscanelli of Florence, as well as Ptolemy and Marco Polo. Even so, Columbus reckoned the distance from the Canaries in the Atlantic to Japan to be only 2400 nautical miles, an understatement of 8200 miles. But he was not by title a scientist, rather a practical sea explorer. He may have chosen to imagine a more optimistic journey so as to favor his own proposal to kings to find a shorter route to riches in Cipango, as modern Japan was then known.

He also reckoned on land along the way, an otherwise mythical island named Antilia, so recorded from the legendary voyages of Saint Brendan, an Irish monk of the sixth century. It does not matter now that Columbus' literature search generated less than accurate data. What does matter is that he thought out a bold venture just as is the James Webb telescope launch of our time. If not for those unforeseen island "obstacles" in the Caribbean Sea, Columbus could well have reckoned the size of the Earth more accurately. He may have established the number of miles in a nautical degree, then only guessed. It was not, as popularly espoused in our century, a matter of proving the sphericity of Earth. Again, that was known to the learned.

I always love to read books that put modern science and technology in perspective in respect to what was known centuries before, and you may too. Here are a few to consider: (1) Morison, Samuel Eliot, "Admiral of the Ocean Sea, A Life of Christopher Columbus" (1942); "The European Discovery of America, The Northern Voyages" (1971); and "The European Discovery of America, The Southern Voyages, 1492-1616"

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(1974); (2) Sobel, Dava, “A More Perfect Heaven: How Copernicus Revolutionized the Cosmos” (2011); and (3) Drake, Stillman, “Galileo at Work” (1978).

Samuel Eliot Morison is an important writer. I’ll tell you a little more about him in a follow-up article.

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