

A Few Common Misconceptions in Historical Astronomy

By Barry D. Malpas – Special to the Williams-Grand Canyon News – 2014 September

Did Galileo Invent the Telescope?

Credit for the invention of the telescope is given to the Dutch lens maker Johann Lippershey (ca. 1570-1619) in the year 1608, who tried to market them as military devices to the Dutch Government. Galileo, hearing about the invention through his correspondences with other scientists in Europe, built his first telescope in one evening, during the fall of 1609. Galileo too recognized the military significance of the telescope, but he also comprehended its scientific importance, applying it to the Moon and planets, hence expanding humankind's understanding of the Universe. This use advanced astronomy as a modern science and provided its most important research instrument.

Has Polaris Always Been the North Star?

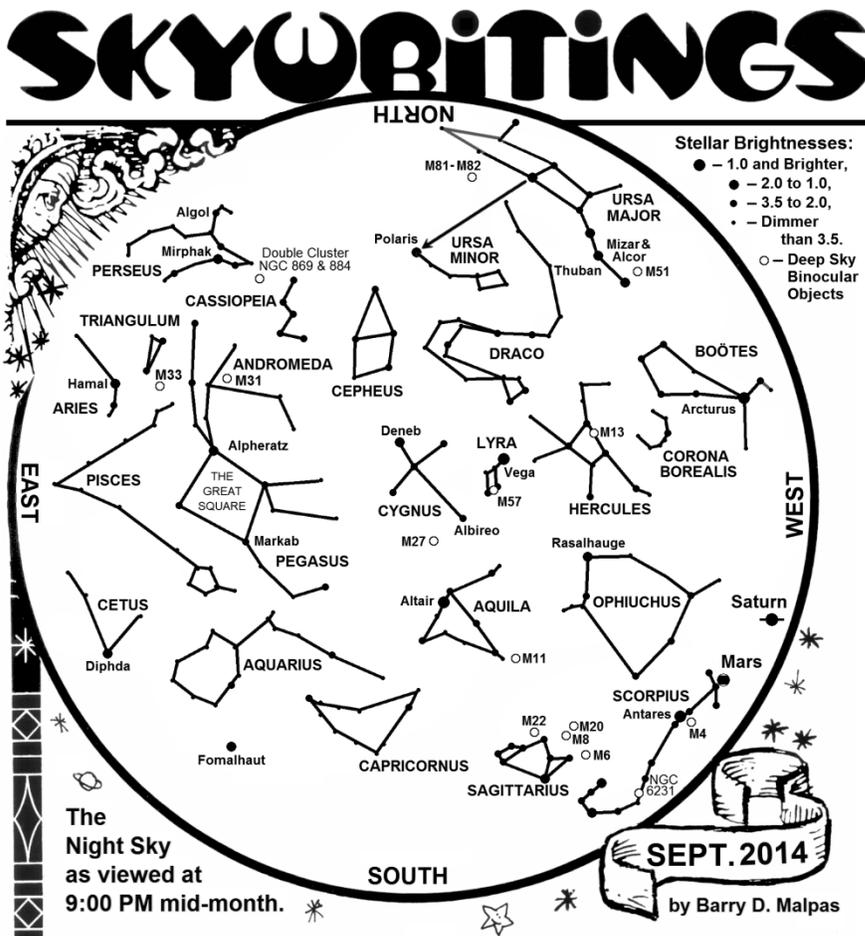
As the Earth spins on its axis like a giant top, it also slowly wobbles like one, completing one cycle in a period of about 26,000 years. This circular wobble is known as Precession, and is the movement of the direction in the sky to where the Earth's axis points. At present, it points very close to the star Polaris. However, 5,000 years ago when Stonehenge in England and the Great Pyramid at Giza, Egypt, were being constructed, the Earth's north polar axis pointed to Thuban, a star in the constellation Draco. About 12,000 years from now the axis will circle its way around towards the bright star Vega, in the constellation Lyra. (Note both Thuban and Vega on the sky chart.)

Was the Earth Considered Flat When Columbus Discovered the New World?

This misconception was generally true for the unschooled masses, but not so for anyone who had received an education. Columbus was well educated, and was familiar with Greek texts which spoke of a spherical Earth as well as its circumference. It was the Earth's circumference that was in disagreement among European scholars of the time. Columbus thought that the Earth was about 18,000 miles around, and that the East Indies were only about 3000 miles away. Despite this error, Columbus was a keen observer who had sailed widely and who had witnessed the changes in the sky from varying locations which were consistent with a spherical Earth. Convincing a superstitious crew that the Earth was round and they would not sail off the edge was the problem.

Was Newton Born the Same Year Galileo Died?

This is, unfortunately, one of the most promulgated mistakes in historical astronomy, and it continues to be copied from textbook to textbook, as well as on the Internet. When comparing historical dates, it is important to note that our modern calendar was adopted at varying times by different countries. The Gregorian



calendar was proclaimed by Pope Gregory XIII and took effect in 1582, and was then only adopted in Catholic countries. This calendar change resulted in Thursday, October 4, 1582, of the Julian calendar (its predecessor) being followed by Friday, October 15 in the new calendar. This change corrected for a 10 day inaccuracy the Julian calendar had accumulated since its institution in 325 at the Council of Nicaea. Britain and its colonies, including what is now the United States, did not convert to the Gregorian calendar until 1752, when Wednesday, September 2 in the Julian calendar preceded Thursday, September 14 in the Gregorian (by then a 11 day shift.)

Where the error lies: Newton was born on December 25, 1642, and Galileo died January 8, 1642. However, the former was still on the Julian calendar (Newton was British) and the latter was on the Gregorian calendar (Galileo was Italian.) Following is a table comparing the dates once they are converted to a common calendar.

Scientist	Julian Calendar	Gregorian Calendar
Galileo Galilei (died)	Dec. 29, 1641	Jan. 8, 1642
Isaac Newton (born)	Dec. 25, 1642	Jan. 4, 1643

If we use the Julian calendar, then the Galileo and Newton dates are 1641 and 1642, respectively. For the Gregorian case, the years are 1642 and 1643. One must always use the same ruler when measuring.