

# 2007 November Trestleboard



Have a Happy Thanksgiving

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## ASTRONOMY : The Seventh Liberal Art by John C. McMullen

As we read and study our ritual we come across in the Fellow craft degree, the three, five and seven steps. The seven steps are said to allude which to the seven Sabbatical years, the seven years of famine, the seven years in building the temple, the seven golden candlesticks, the seven wonders of the world, seven wise men of the east , the seven planets, and the seven liberal arts and sciences. Of the seven liberal arts and sciences are grammar, rhetoric, logic, arithmetic, geometry, music and astronomy. I would like to talk about astronomy for a moment and show how this science has evolved and how it is interconnected to many other sciences. We know that astronomy is the study of the heavens. When one begins to study heavenly bodies one finds that the uses of many different sciences come into play. Topology for one deals with the study of the geometric properties of a body. We would use topology to study and map out the surface of the body we are studying. We would use geometry to calculate the size of the body, its mass and geometric proportions. Chemistry comes into play when use spectroscopy to break down the body's light rays and thereby giving us an idea of its chemical make-up. Geometry as well as trigonometry is the basis for calculating the orbit and velocity of the body in question.

Astronomy as we know it now is quite a different art then it was so many years ago when our forefathers and our Grand Masters were here. Back in olden times before telescope and radio telescope, astronomy took place in a simpler form. The mere looking up into the night sky and charting the stars was not the exact science that we know now. To fully appreciate the skies as seen by the ancients we need to feel the emotional climate in which our ancestors lived. Many of us live in bright, light-polluted cities, and spend much of our time indoors at night, it is difficult for us to fully appreciate the majesty of the night sky, and the important role it played in ancient times. We need to try to remember the rush of emotions we felt the first time we looked at a dark night sky, and clearly saw the Milky Way crossing the sky amidst a sea of countless stars. While crude by modern standards, the measurements of ancient astronomers were often of impressive precision in their description of planetary motions, and in the measurement of risings and settings of constellations.

Back in the days of Galileo people believed that the sun and planets but the entire universe revolved around earth.

Our modern view of astronomy in which the Earth rotates on its axis and revolves around the sun evolved during a time called the scientific revolution. This was in the 16th and 17th centuries (1500's and 1600's), and followed the Renaissance (1275-1475 AD). This period in time provides a transition between the medieval and the modern world. In the Mid 16th Century (mid-1500's) there were 2 models to describe the structure of the universe. The geocentric and heliocentric theories were those two. The geocentric model placed earth at the center of the universe. The heliocentric model placed the sun in the center of the universe as a stationary object with the universe rotating around it. Both were good models because they accounted for all observations of the movement of the sun and the moon, and the planets, and the stars, they were good predictors of future positions of celestial bodies; models were verifiable and they were simple. The geocentric model probably originated with the Greeks or Egyptians prior to 300 BC. It was summarized by Ptolemy (about 100 - 200 AD), a Greek philosopher who studied in Egypt.

Quality of observations was fairly poor, but the model worked fairly well. With more precise observations, it did not hold up; many corrections had to be added and it did not explain some things, such as changes in brightness of planets. Aristotle had a strong influence, and his teachings carried great weight. He promoted the geocentric model. Tycho Brach was another astronomer who lived from 1546-1601. In trying to decide between the geocentric and heliocentric models, Tycho was disappointed with the predictive capability of both models. Much of the reason was the crudeness of the available instruments. Tycho felt that he needed better instruments to make more accurate measurements. He hoped that better observations would allow him to choose between the models. He was still unable to choose between the geocentric and heliocentric model. He had his own model with the Earth at the center, orbited by the sun and the moon, with planets orbiting the sun. He never worked out the mathematical details, and his model was never accepted. The Ptolemaic "Earth-centered" model survived for almost 1300 years.

Aristarchus of Samos, a Greek about 310-230 BC, had a heliocentric model. He proposed that all of the planets, including Earth revolved around the Sun, and that the Earth rotates on its axis once a day. His ideas did not gain widespread acceptance during his lifetime. This sun-centered model was later revived by Nicholaus Copernicus, a Polish cleric (1473-1543) around 1500. He was dissatisfied with the complexity

of the geocentric model. Copernicus was the first to determine the relative distances of planets from the sun. Arguments against the geocentric model were so forceful that he came under fire from the Catholic Church and was forced to give a public denial of the heliocentric/Copernican system, and was placed under house arrest for the last 10 years of his life. He was not pardoned by the Church until 1992. By the time of Issac Newton who was a prominent English scholar, mathematician and physicist, the scientific world had accepted the heliocentric model. Newton Studied the heavens but in a much different light. He used physics to explain the motions of the heavenly bodies. Through his three laws of motion we have much of what describes how gravity affects the movements of the heavenly bodies.

Modern Astronomers have an incredible wealth of history to draw on. They still use the science of geometry, physics, trigonometry, spectroscopy and topology, among others in their study of astronomy. However their work is made much easier by the use of incredibly powerful telescopes. These telescopes are thousands of times larger and more powerful than those made use of by our ancient brethren. They have computers and powerful computer programs to help them with their calculations. With these powerful tools they delve into the hidden mysteries of the heavens and as they solve one great question they find a hundred others to take its place.

## COUNSELING

by William "Ray" Fischer

Most of us who went to coaches and not counselors learned very little about the three degrees in Masonry. We may know the degrees but not the history, we know the words but not the essence, we know the symbols but not the purpose of them. This is why we have counselors, and this is why we should talk to them, even now. More important, this is why we have five minute educational short talks. Coaches, though well intended, have not the training nor the references needed to help the new brother learn the craft or answer the questions asked of them. Coaches have a place in Masonry. Counselors are not always available when a brother needs help. Coaches add the fellowship of brothers helping brothers, this is especially helpful in that it shows the new mason, that we are here and ready to help. A good counselor has the knowledge to teach the new brother about the many parts of Masonry. If they do not have an answer to a question, they have the means to find it. They put forth an effort to answer all questions asked by any brother. In this way they are responsible for spreading more light to more brothers than any other person. The more counselors we have the more knowledge we can spread.

## ***This Month in History- November***

- 2 Peter the Great becomes Emperor of Russia (1721)
- 3 First Opium War between China and Britain begins. (1839)
- 3 Clarence Birdseye marketed frozen peas (1952)
4. Abraham Lincoln married Mary Todd (1842)
- 6 Abraham Lincoln elected President of the United States (1860)
- 7 Cartoonist Thomas Nast depicts Republican party as an elephant in a cartoon in Harper's Weekly. (1874)
- 8 Montana became the 41st State (1889)
- 8 President Franklin D. Roosevelt forms the Civil Works Administration to help create jobs for millions of workers unemployed during the Great Depression. (1933)
- 9 Giant Pandas are discovered in China (1927)
- 10 Direct dial telephone service is first available coast to coast. (1951)
- 10 Sesame Street premiered on PBS television (1969)
- 10 The Edmund Fitzgerald and it's entire crew is lost during a storm on Lake Superior. (1975)
- 11 Forty one Pilgrims aboard the Mayflower sign a compact calling for a "body Politick" just off the Massachusetts coast. (1620)
- 12 The space shuttle Columbia was launched for the 2and time. This was the first time a space vehicle was used more than once. (1981)
- 13 The Holland Tunnel under the Hudson River opens to the public, connecting New York City and New Jersey. (1927)
- 13 The minimum draft age was lowered from 21 to 18 (1942)
- 14 The first streetcar went into operation (1832)
- 14 Yale University goes Co-ed. (1968)
- 15 The Continental Congress approves the Articles of Confederation. (1777)
- 19 Abraham Lincoln delivered the Gettysburg Address. (1863)
- 20 Ford quit making the unpopular Edsel (1959)
- 22 President John F. Kennedy, the youngest person to become a U.S. president, is assassinated in Dallas ,Texas as his motorcade travelled through the city. (1963)
- 23 A patent is issued for the horseshoe manufacturing machine. (1835)
- 24 Charles Darwin publishes his theory on evolution "On the Origin of the Species", sparking great controversy. (1859)
- 26 The first lion was exhibited in America (1716)
- 28 The "Grande Ole Opry "debuts on radio. (1925)
- 30 The United Stated and Great Britain sign a peace treaty in Paris, formally ending the Revolutionary War. (1782)