

STONEHENGE

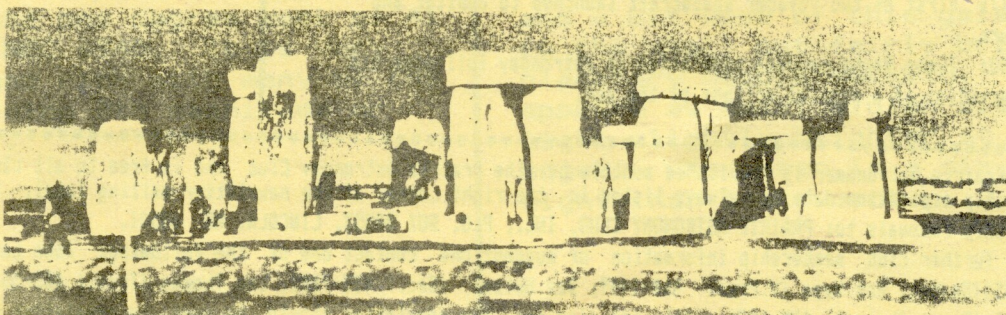
The Religious Observatory

By Andy Corkill

Stonehenge wasn't solely a religious monument or an Ancient Observatory as I stated in the last two articles. It was most likely a combination of the two. Most of the information in this article comes from a book entitled "Prehistoric Astronomy and Ritual" written by Aubrey Burl (along with some of my own thoughts about the truth of Stonehenge). This may not be the absolute final conclusion, but it seems to be the most logical and believable.

To understand the true meaning of Stonehenge, we have to first look at all of the other stone monuments and burial mounds in England and Ireland. A thousand years before Stonehenge was built, people were piling stones and building large tombs. Most of them were partially dug into the ground and had southerly entrances. They had large stone roofs, and many of the roofs had specially made cracks where sunlight or moonlight could shine to where the bodies were buried. Usually the only time the light would shine deep into the tomb would be during an important astronomical event, such as the summer solstice or midwinter sun, when the light would shine directly into the tomb. This signified a conjunction between the sky and the dead.

(continued page 3...)



AUGUST CALENDER

1. 1785: Caroline Herschel discovers her first of eight telescopic comets to become first woman to discover a telescopic comet.
- 2.
3. 1596: David Fabricius discovers the light variation of Mira.
- 4.
5. 1864: G.B. Donati makes first observation of a comet spectrum.
1930: Neil Armstrong, first astronaut to walk on the moon, is born.
6. 1181: Supernova is observed by Chinese and Japanese astronomers.
1961: Cosmonaut Gherman S. Titov in Vostok 2 becomes the first man to spend one full day in space.
7. 1959: US Explorer 6 takes first picture of earth from a satellite.
1976: US Viking 2 goes into Martian orbit after 11-month flight from earth.
8. 1579: Cornerstone is laid for Tycho Brahe's Uraniborg observatory.
1609: Venetian senate examines Galileo Galilei's telescope from San Marco tower.
9. PAC STAR PARTY AT EARL MOSER'S
10. 1945: Robert Goddard, father of American rocketry, dies.
1966: US Lunar Orbiter 1, transmitter of first picture of earth as seen from space, is launched.
11. 1877: Asaph Hall discovers Deimos, the outer satellite of Mars.
12. 1923: K. Reinmuth discovers the 1,000th asteroid and names it after Giuseppe Piazzi, discoverer of the first asteroid.
1960: US Echo 1, the first passive communications satellite, is launched.
13. 3114 BC: The Mayan "long count" calendar system begins.
1642: Christiaan Huygens discovers the Martian south polar cap.
14. 1966: United States achieves first lunar orbit with Lunar Orbiter
- 15.
- 16.
17. 1877: Asaph Hall discovers Phobos, the inner satellite of Mars.
ANNUAL PAC STAR PARTY...MEET AT HYDE OBS. AT 4PM FOR RIDE OUT.
18. 1868: Pierre Janssen discovers helium in the solar spectrum during a total eclipse.
19. 1646: John Flamsteed, the first Astronomer Royal, is born.
20. 1977: First of two Voyager spacecraft launched to Jupiter and Saturn.
21. 1560: Tycho Brahe becomes interested in astronomy following his observation of a partial eclipse of the sun.
- 22.
23. 1966: Lunar Orbiter 1 takes the first photograph of the earth as seen from the moon.
- 24.
25. 1822: William Herschel, discoverer of the planet Uranus, dies at age 85.
1981: Voyager 2 arrives at closest approach to Saturn and discovers rings to number in thousands.
- 26.
27. PAC MEETING, HYDE OBSERVATORY, 7:30PM
1962: US launches Mariner II, first planetary probe to Venus.
28. 1789: William Herschel discovers Enceladus, satellite of Saturn.
29. 1864: William Huggins discovers the chemical composition of the nebulae with a spectroscope.
30. 1983: Guy Bluford becomes first black US astronaut in space aboard space shuttle Challenger.
31. 1842: US Navel Observatory is authorized by an act of Congress.

(Calender courtesy of Compuserve's Naked Eye Astronomy SIG)

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Stonehenge continued...

In order for these people to keep the monuments in tune for their burials they had to know the motion of the sun and moon very precisely. This would mean extensive continued study of the sun and moon. In this sense these ancient people could be called astronomer-priests. They studied the sky in order to give people an enjoyable life after death.

In later stone circles, such as Stonehenge, the same alignments were found along with burial mounds. Even as long as three thousand years after the building of the first stone circle the stone monuments being built carried on the same traditions of alignment. The alignment of these stone circles was purely symbolic, and not scientific. Although it would have taken some scientific method to discover the cycle of the sun, it was for symbolic purposes. This is further supported by the fact that many families (during the time when Stonehenge was completed) built wood or stone circles. In these cases, alignment wasn't of great importance as you can witness from the actual sites, it was the symbolic importance that mattered to these people. They just didn't have the time the others did in setting it up.

There were also probably astronomer-priests who were more interested in the astronomical side of the stone circles. They may not have believed entirely in the religion the people practiced, and would have strove to learn as much as possible about why the sun and moon behaved as they did. When they died they knew they had advanced the knowledge of the sun and moon enough for the rest of the community to be buried symbolically.

Today we seem to forget about the people and philosophies that built these monuments. We correctly see the scientific and geometric sides to them, but we don't apply them to what those people believed. Stonehenge was most likely a religious observatory. I hope that now you have a better understanding of what Stonehenge may have been, but remember...your guess is as good as mine!

(The editor wishes to sincerely thank Andy for his fine 3-part essay on Stonehenge.)

NOTES FROM LEE

Deep Sky Magazine subscriptions are now coming due, and all must be renewed at the same time. The following members now subscribe to Deep Sky and need to bring their subscription fee to the next meeting -- Andy C., Norma C., Russ G., David K., and Ron V. -- plus, anyone else who would like to begin receiving Deep Sky should subscribe now as well. Thanks!

Falling Stars

Meteors are sometimes known as shooting stars or falling stars. They are fragments of stone and metal that sporadically enter the earth's atmosphere from any direction. These fragments are heated and vaporized by friction with the atmosphere to produce momentary, luminous trails which are visible to the naked eye. Meteor trails begin at an altitude of approximately sixty-five miles and end at an altitude of approximately fifty miles.

An observer can expect to see from five to ten sporadic meteors per hour under the best of conditions. This represents an earth wide number measuring in the millions and a mass of several tons.

Exceptionally large and bright meteors are called bolides or fireballs. Bolides will sometimes fragment with a loud explosion. If a sporadic meteor is large enough to survive the atmospheric friction and reach earth, it is called a meteorite.

On predictable dates during the year, meteors are seen to radiate with greatly increased frequency from a particular part of the sky. These meteor showers result from the passage of the earth through the orbit of a comet.

A comet gradually disintegrates and distributes debris throughout its orbit with each perihelion passage. When the earth intercepts the cometary debris, large numbers of meteors appear to come from a single radiant point in the sky.

The radiant point is a perspective effect. The meteor particles are really traveling through space near earth on parallel paths. As seen from the earth, meteor showers seem to diverge from a point in the same way railroad tracks and telephone poles seem to diverge from a point on the horizon.

Recurrent meteor showers are named after the constellation or bright star from which the meteors seem to radiate rather than the comet associated with the shower. The earth passes through the orbit of Halley's comet twice, once in May and once in October. The resulting May fifth meteor shower is called the Eta Aquarid shower because of the bright star near the radiant point. The October twenty-first meteor shower is called the Orionid shower after the constellation containing the radiant point.

The most predictable meteor shower is the August Perseid shower. Comet 1862 III left debris stretching almost fifty million miles in diameter. It takes the earth two weeks to pass through the comet's orbit. This results in a two week shower which reaches a maximum activity near August eleventh when meteors are seen at a possible frequency of one per minute. No meteorite falls are associated with meteor shower activities.

OBSERVING CHAIRMAN'S REPORT

There are two scheduled star parties in August. The dates are Friday, August 9th and the Annual Club Picnic on Saturday August 17th.

This month presents us with a nice variety of deep sky wonders from galaxies to globulars. A good starting point is the Ring Nebula in Lyra, located 2/3 of the way from gamma to beta. Although it can be seen in a relatively small telescope, its ring form isn't obvious in telescopes smaller than four inches. The central star is very difficult to see even in very large instruments. Also in Lyra is a fairly bright but little observed globular cluster, M56, located 2 1/3 degrees north and 2 1/2 degrees west of Alberio. It can be seen with a 3 inch aperture but an eight inch is required to see more than a handful of the clusters stars.

A good open cluster can be found in Vulpecula 2 degrees south and one degree east of 41 Cygni; NGC 6940. It is very large and rich with many of the stars being 8th magnitude or fainter.

by

David Knisley



For those of you who like challenges, I give you NGC6822 a irregular galaxy in Sagittarius. Yes, I said Sagittarius! It can be seen about 1 1/2 degrees north and 1/2 degree east of 55 Sagittarii as a bar shaped, very faint patch of haze when viewed in an 8 inch Newtonian at very low power. A 10 inch will, under good conditions, show a few of the brightest stars in this galaxy which lies at 1.7 million light years distant. About a degree north and a bit west of this galaxy is the small but fairly bright planetary nebula NGC6818. It appears as small bluish disk of light slightly brighter at the edges. When seen in a six or eight inch instrument.

Annual Star Party

August 17

The Prairie Astronomy Club's Annual Star Party will take place on Saturday, August 17th at our regular site, Wagon Trail Lake near Hickman. So that everyone will be able to find the party location, a caravan will leave from Hyde Observatory at 4pm and make its way out to the park. This year we will be having the picnic come stars or clouds and the club will be providing beverages. Everyone is asked to bring a pot-luck of some sort and your own plates and silverware. We have some events planned for the night out, so come prepared to have a good time...and don't forget to bring the family or friends.



AT THE NEXT MEETING...

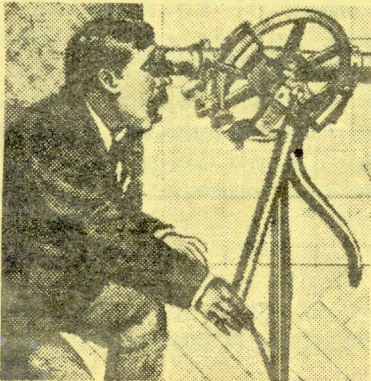
Jack Dunn is back from his excursion to Northern and Southern Ireland, and he's brought back some slides of astronomical objects that he saw while he was there. The name of the program is "Astronomy in Northern and Southern Ireland".

And if time permits, John Johnson has a tape he made of a program on Omaha's public radio station concerning Halley's Comet. Hope you can make it to the meeting!

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