

THE *Prairie Astronomer*

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JUNE 1985

STONEHENGE

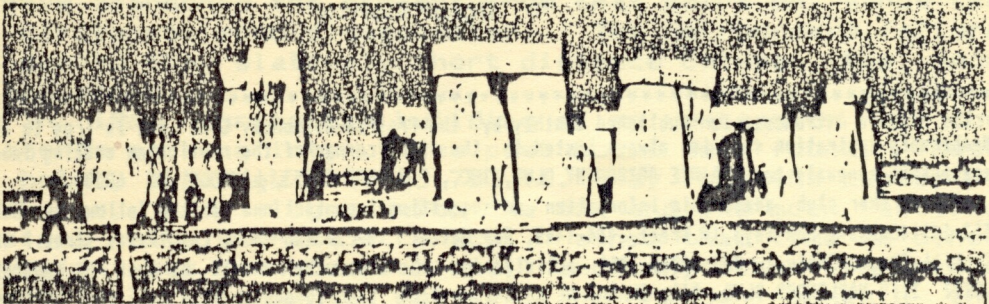
The Ancient Observatory

By Andy Corkill

Ancient man looked to the heavens inquisitively. He wondered how the gods made such beauty. Stones would be used to mark the positions of the rising and setting of these heavenly bodies. Large monuments were erected for the purpose of plotting and observing these events. Stonehenge is probably the most famous monument used in this way. Many people would call it an *Ancient Observatory*.

These "Ancient Observatories" served many purposes. The people in the area of Stonehenge were basically farmers, and they relied on some type of calendar to determine annual events. Stonehenge is believed to be aligned with the sun and moon. Back in these farmers' time events and time were kept by the moon; so many moons until the crops were harvested, so many nights before or after the full moon. However, the moon is inadequate in defining annual events, so the sun was incorporated. The astronomers may have tried to combine these two calendars, and it would have taken years of observation. Stonehenge served its purpose as an Ancient Observatory to make a calendar that these farmers could use.

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Presidents' Message

Well, this is a big month for me... this is the month I say goodbye to the single life and hello to that mystical world we called being married. Some of you may have seen my wife to be (Trish) at Astronomy Day or at the last meeting. Trish is a professional artist and works for an advertising agency here in Omaha, but she also helps me out with this newsletter layout and with some of the title slides you will soon be seeing in the Hyde slide/tape shows. She and I run a small graphics company out of our apartment which we someday hope to develop into an audio-visual production studio. I'm sure sometime this fall you will get a taste of some of our work at a club meeting.

We're going to a beautiful area in Wyoming for a week after the wedding, and besides shooting up 50 or 60 rolls of Ektachrome and Fujichrome, I hope to do a bit of dark sky observing with my little Celestron C-90 (now don't cringe...the little guy is very portable and you can see a few objects with it). All in all it should be a nice break from the retail business in Omaha. I might even finish off my Messier's so I can collect one of those new pins!

See you at the meeting...

John Lortz

The Prairie Astronomer is published monthly by the Prairie Astronomy Club and is free to all club members. Membership expiration date is always listed in the right corner of the newsletter mailing label. Address all membership renewals to: PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501.

For further club membership information or suggestions contact one of the following: John Lortz (Pres.) 572-1451(Omaha), Ron Veys (V.Pres) 464-1449, Bev Hetzel (Sec.) 435-7881, Lee Thomas (Tres.) 483-5639, or Andy Corkill (Prgm. Chair.) 488-1096. All articles for the newsletter should be sent to newsletter editor, JOHN LORTZ 3119 MAPLEWOOD BLVD. #41, OMAHA, NE 68134, no later than 10 days before each club meeting date.

Stonehenge continued...

The moon has been studied in detail at Stonehenge. In the causeway at the entrance to Stonehenge there are about 40 post holes (SEE FIG. 1) They appear to be arranged in six rows, concentric to the center of Stonehenge. This arrangement is similar to what would be observed if Ancient Astronomers planted posts aligned on successive mid-winter full moon risings. Some of the post holes appear to be missing and this could be due to bad weather during the observation time. Since there are six rows of these posts it would tend to indicated observations of over a hundred year period. From these observations it could have been possible to detect the 19 year Metonic cycle, in which the same phases of the moon are repeated on the same date of the year. These Ancient Astronomers may have possessed a lot more knowledge than we now think!

Stonehenge seemed to be keyed on the mid-winter moon rises (SEE FIG. 2) The Astronomers needed to become more familiar with the summer moon rises. The simplest way of achieving a more accurate record of the summer moon would be to construct a circle, and a circle was constructed consisting of 56 "Aubrey holes". These are a type of post-hole which were located in a circle of 284 ft. 6 in. in diameter. The way this circle was most likely constructed is that the places of winter moon setting and rising would be marked, and from these 4 positions (assuming the summer moon would behave in the same fashion), the other posts could be placed in position using simple geometry, which was available at that time. After at least nine years of summer moon observation it would become apparent to the Astronomers that their holes were wrong. The summer moon would fail to conform to the regular pattern of holes. The Astronomers may have abandoned the project from that point on, since the post circle was soon disassembled. The Astronomers failure was due to the relatively short distance between the moon and the earth.

In 1966 during the building of an extension of the Stonehenge parking lot, three post holes were found. These post holes, although located 783 ft. away from the center of stonehenge, are aligned with the sun and the moon setting positions with extreme accuracy. since that time no other excavation has been carried out, and many other important Astronomical alignments may still be hidden beneath the soil.

(continued on page 5...)

ATTENTION MESSIER AWARD HOLDERS...

The PAC Board of Directors has decided to go ahead with the presentation of Messier Award Pins to all club members who have received the award. What those members will be required to do is show anyone on the board proof that they have the award (proof = either a completed and signed observing book or the Messier Certificate).

If you would like to receive a pin for your efforts, try to bring your proof of completion to the next meeting. We hopefully will be presenting the award pins at the July meeting. Of course this is not just a one time event. From this point on, anyone who completes the Messier list will receive the pin along with the Astronomical Societys certificate.

THIS MONTH'S PROGRAM-----

The program for this months meeting will be provided by Doc Manthey and John Lortz. Dr. Manthey will have a video tape entitled "This and That and Astronomy Around Lincoln", and John will have demonstrate an interactive video disc of the space shuttle. (And of course there will be another outstanding door prize!) See you at the meeting!

Andy Corkill
Program Chairman

Stonehenge continued...

Along with extensive lunar observation, the sun was also studied. The Summer Solstice is marked by the heel stone. Months can even be observed by which set of stones the sun rises between. Whether or not the Ancient Astronomers figured out the metonic cycle, they kept a good annual calendar by the sun.

Many stones were set in place to create Stonehenge. Since then many stones have fallen, but enough still stand and the remnants of others can still be found to see that Stonehenge was an Ancient Observatory.

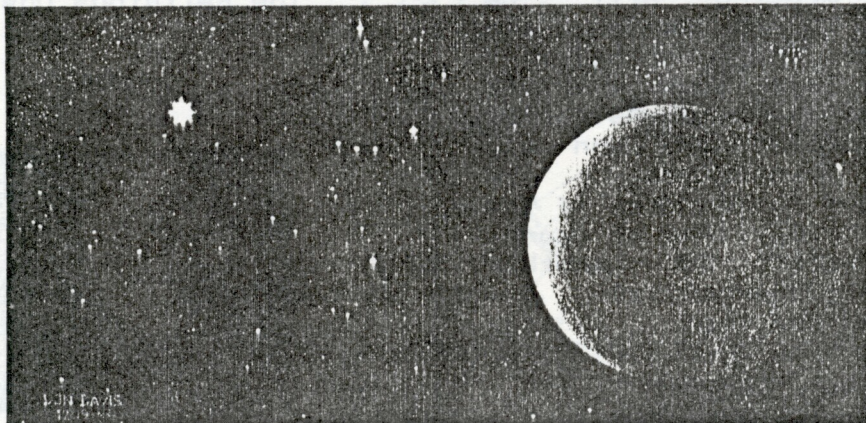
(NEXT MONTH: The final part of the Stonehenge Trilogy...

"Stonehenge,
The Religious Observatory"



JULY CALENDAR

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	!1	!2	!3	!4	!5 earth far-	!6
	!	! full moon	!	! crab neb	! thest from	!
	!	! 8:08	!	! 1st seen	! sun	!
	!	!	!	! 1054	! 94,760,000m	!
!7	!8	!9	!10	!11 moon far!	!12	!13
!	! Capricornid!	! last qtr.	!	! thest from	! PAC	!
!	! meteor sh.	! moon	!	! earth	! Star	!
!	! begins	! 20:49	!	! 251,194mi	! Party	!
!14	!15	!16	!17	!18	!19	!20
!	! Venus	!	! New	!	! PAC	! Apollo 11
!	! 3 deg Nth	!	! Moon	!	! Star	! on moon
!	! Aldebaran	!	! 19:56	!	! Party	! 1969
!21	!22	!23	!24	!25 moon cl	!26 Saturn	!27
!	!	!	! 1st qtr	! oset to	! 3 deg Nth	! Delta
!	!	!	! moon	! earth	! of moon	! Aquarid
!	!	!	! 19:39	! 229,687	!	! Meteor sh.
!28	!29	!30	!31	!	!	!
!	!	! PAC	! full	!	!	!
!	!	! Meeting	! moon	!	!	!
!	!	! 7:30pm	! 17:41	!	!	!



L.H. LAAS

OBSERVING CHAIRMAN'S REPORT

This month's star parties are on July 12th and 19th. A good starting object in the early summer sky is the small but bright planetary nebula NGC6543, located in Draco about five degrees east and one degree north of Xi Draconis. Visible in a three inch, this object appears as a small slightly elliptical spot of light showing a distinctive blue color when viewed with an eight inch. Also in Draco is the nearly edge-on spiral galaxy NGC5907 located 2 1/2 degrees south and just over one degree west of Iota. It shows as a small narrow streak of light in a six inch with an eight showing the slight nuclear bulge and dark lane. Just about a degree and a half to the south-west of NGC5907 is the bright spiral NGC5866, sometimes called M102 in the revised Messier list. It shows as a fat spindle of light with very pointed ends when viewed with at least a four inch.

For you globular cluster fans, M5 is one of the best objects in the summer sky. Binoculars should show it about half a degree north-west of 5 Serpentis as a small fuzzy spot with a brighter center. The view in an eight inch is glorious and this object can stand 200 to 500 power without losing much of its beauty.

by

David Knisley



In Scorpius about four degrees east and 1/2 degree south of Delta is the small but fairly bright globular M80. A good six or eight inch will show many of the cluster's stars but a 10 or 12 inch is needed for full resolution. A considerably easier globular is M4 located just over a degree west of Antares. It shows a multitude of stars in an eight inch with a noticeable concentration into a bar of stars near the central portions of the cluster.

For those of you who like double stars, try Nu Scorpii, a multiple star system that resembles Epsilon Lyrae. A six inch should show all four stars at high magnifications. Also interesting is the triple star Xi Scorpii which consists of a very close pair of bright yellow stars and a faint orange dwarf about 7 seconds of arc away.

DON'T FORGET!!!

THE JUNE PAC MEETING WILL BE HELD THIS TUESDAY NIGHT, JUNE 25TH AT 7:30PM WITHIN THE GRAND WALLS OF HYDE OBSERVATORY. WE WILL BE DISCUSSING (AMONG OTHER THINGS) THE UPCOMING ANNUAL STAR PARTY WHICH WILL BE HELD SOMETIME IN AUGUST. HOPE YOU CAN MAKE IT!

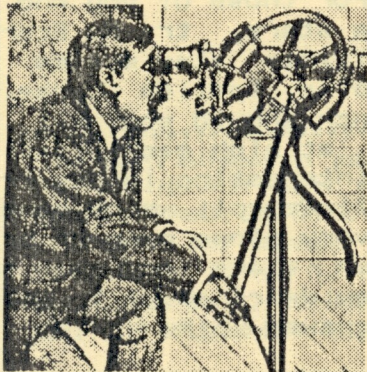
A CALL TO WRITERS!!!

We at the offices of the Prairie Astronomer would like to offer any young (or old) aspiring writer of astronomy related articles a chance to publish his/her work within the pages of this newsletter. It's a once in a lifetime chance that should not be passed up. All you need do is drop off (mail) your submission(s) to the Prairie Astronomer c/o John Lortz, 3119 Maplewood Blvd. #41, Omaha, NE, 68134. Hurry, our volume of submissions is such that you could be left out if you delay (fat chance!).

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