



THE Prairie Astronomer

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MUSIC AND ASTRONOMY HAVE A LONG ASSOCIATION BY JOANNA CLAUSE, FROM COMPOSERVE'S NIA SECTION

Cycles are circles, never ending beginnings, continuings at endings, and givings at receivings. The astronomical cycles of day's end at night fall, and night's end at day break are the most familiar to us. We live by them, they regulate the cycles of our lives.

There are other astronomical cycles, longer cycles. We count time by the cycles of the moon (months) and the cycles of the sun (years). And there are more subtle astronomical cycles. One is now being completed in the summer constellations Ophiuchus and Capricornus.

Twenty-six centuries ago the Greek philosopher, Pythagoras, discovered that the pitch of a note depends on the length of the vibrating string that produces it. A harmony of sound was then achieved by the use of numerical ratios of the vibrating string length. A 2:1 ratio produced an octave, 3:2 a fifth, 4:3 a fourth. It was the beginning of music and science, the discovery of a successful relationship between sensation and mind, quality and quantity.

Thinking all things could be understood ultimately by numbers, Pythagoras looked to the sky. He found movement and numerical relationships again. Each planet was assigned a number based on its movement, and this movement caused a celestial sound. The numerical ratios of the numbers assigned to the movement of the different celestial wanderers produced a perfect heavenly harmony never to be achieved by strings, reeds or horns.

Ordinary humans did not hear this musical gift from the universe surrounding them. You had to be special. One of those special people was the seventeenth century German mathematician-astronomer-mystic, Johannes Kepler.

Kepler believed if you could look into the mind of God you would see mathematics. He was therefore not surprised to look into the universe and see numbers. He saw numbers in the velocities of the planets that produced the harmonies found pleasing to the ear in earthly music.

Kepler's harmonies also reflected a fundamental change in the view of the universe. Pythagoras' musical harmony was geocentric. It was based on measurements from an earth-centered universe. Kepler's harmony was heliocentric. It was based on measurements from a sun-centered universe.

A music of the planets became audible to everyone early in the twentieth century through the work of another mystic, the composer Gustav Holst. Holst's most popular work, "The Planets," was not based on mathematical considerations of the orbits or distances of the planets, but on themes corresponding to the astrological associations of the planets. Holst "sound painted" the planets to produce the first pieces of music to create the emotions now associated with "outer space."

The universe provided the inspiration to seek musical harmonies in the mathematics of its structure and dynamics, as well as the inspiration for musical "text painting" using sky phenomena. Think of the number of songs using sun, moon and star imagery that have lasted for decades. Songs like "You Are My Sunshine" (1940), "Shine On Harvest Moon" (1944) and "Star Dust" (1929), are classics.

There is music in the night sky, but it is not found in the celestial harmonies sought by Pythagoras and Kepler. The cycle has turned.

In 1977, two NASA Voyager spacecraft began a trip to the stars. And onboard, they carried an 87.5 minute recording of representative earth music, earth harmonies. Surprisingly few of the pieces contain astronomical references. The "stars" of this recording are the likes of Bach, Beethoven, Mozart and Chuck Berry.

Someday, near some far distant star, another people may discover a celestial harmony. The Voyager record may be their first proof of the existence of another life form in the universe. Music and number will combine.

A Note From Lee...

ATTENTION ASTRONOMY MAGAZINE SUBSCRIBERS !!! It is RENEWAL TIME. If you subscribe to Astronomy through the club, your subscription runs a calendar year, January through December, so you're up for renewal now.

FOR 1987, ASTRONOMY SUBSCRIPTIONS ARE \$14! Please note this change. If you have already paid Lee Thomas \$12.00 for your renewal, you'll need to kick in an additional 2 bucks. Sorry, but they raised the price for next year. Please bring your payment to this month's meeting so we can get them in.

TELESCOPE MAKING subscriptions are also up for renewal. The price is \$7.00 for a year. (Apparently Deep Sky is not up for renewal, because Astromedia didn't send a subscriber list. If you want to be on the safe side and renew anyway, we'll accept your money... \$7.00, and when the time comes, send it in). We will also accept NEW SUBSCRIPTIONS TO ANY OF THE ABOVE MAGAZINES FOR 1987.

Finally, "EXPLORING THE UNIVERSE" CALENDERS ARE HERE! People who ordered them can pick them up at the upcoming meeting.

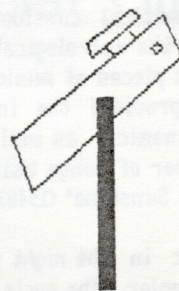
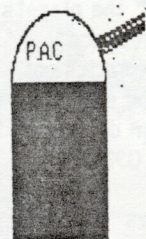
PRESIDENT'S MESSAGE...

At this month's meeting I will be asking for nominations to the various club offices. The elections will be held at the November meeting.

I am going to withdraw from the race for president this year. This is due to the fact that I may be moving out of town not long after the election takes place. It has been fun being PAC president this year, and the job was not really that difficult. So get your nominations ready for the next meeting.

As far as the proposed observing site that the PAC is interested in purchasing, we are still negotiating with the Firth CoOp. The negotiations may be completed by the upcoming meeting, but then again they may not.

Andy Corkill



The Prairie Astronomer is published monthly by The Prairie Astronomy Club Inc., and is free to all club members. Membership expiration date is listed on the mailing label. Membership dues are: Junior Members and Newsletter Only Subscribers... \$8.00/yr, Regular Members... \$22.00/yr, Family Membership... \$25.00/yr. Address all Membership renewals or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE. 68501. For other club information contact one of the following officers: Andy Corkill (Pres) 488-1096, Norma Coufal (V. Pres) 483-5685, John Lortz (Sec.) 390-9821 (Omaha), Lee Thomas (Treas.) 483-5639, Dan Neville (Prq. Ch.) 476-7772. All articles and comments should be sent to newsletter editor JOHN LORTZ 9255 CADY AVE. #14, OMAHA, NE. 68134 no later than 6 days before monthly club meetings.

THE NEXT STAR PARTIES ARE ON OCTOBER 31st AND NOVEMBER 28TH. The late fall sky has a nice assortment of open star clusters to offer the amateur. A good place to start is in Perseus where you will find NGC 1528, located just over a degree north-east of lambda Persei. It is a rather pretty group of 12 stars in a "U" formation with many other faint stars scattered through the field, making it a good target for those of you with six or eight inch instruments. Of course, most of you will take at least a quick look at the Pleiades and a few of you may even see the faint nebulosity that envelopes the cluster. A six inch rich field telescope should just show the nebula on the clearest of nights with an eight inch showing the fan of haze extending south from Merope.

I think my favorite open cluster in Auriga is M-37, located about 4.5 degrees south and 15 degrees west of the star Theta. It is a rich ball of fairly bright stars and could be a beautiful sight in almost any telescope. Near the center of Auriga are a nice trio of clusters. M-38 is nice grouping of bright stars with a "cross" like appearance when viewed with small instruments. Just south of M-38 is the smaller and fainter NGC 1907 which is a tiny but very rich group of stars. It and M-38 form a pair very much similar to M-35 and NGC 2158 in Gemini except that NGC 1907 is much easier to resolve than NGC 2158. The last member of the trio is M-36, a moderate sized cluster of fairly bright stars located about 5.5 degrees north and two degrees east of Beta. It is quite similar to M-38 except that it is somewhat more compact.

For those of you with eight or ten inch apertures, go try the faint but fairly large galaxy NGC 925, located just under two degrees east of gamma Trianguli. It is almost as big as the Crab Nebula and shows an egg shaped nuclear region along with other patchy detail in my ten inch. Another faint but interesting galaxy is NGC 672, located about two degrees south and one degree west of Alpha Trianguli. It shows up as a faint edge-on streak of light with a brighter nuclear region and a possible dark lane when viewed in a ten inch. A ten inch will also show a much fainter galaxy just to the south of NGC 672 which may be a tilted spiral of a diffuse elliptical galaxy. I would be interested to hear descriptions of these objects from those of you who manage to locate them!

OBSERVING CHAIRMAN'S REPORT

by David
Knisely



AT THE LAST MEETING....

The meeting started promptly at 7:31pm with 29 members present and 4 visitors. Lee Thomas announced the sale of the 1987 Wonders of the Universe calendars (\$4.00 each) and the 1987 RASC Handbooks (\$6.40 each). Payments must be made in advance of the order.

There was quite a bit of discussion concerning the proposed observing site purchase. The Firth CoOp had not yet replied to the PAC offer of \$150 per acre. Comments were made as to raising the offer if the Firth people wanted more money, but it was decided that \$200 would be our top offer. The club has already purchased liability insurance by means of an anonymous donation of \$250 (whoever it was, a very sincere thanks!). A meeting of the Observing Site committee would be held next Tuesday night to consider further action should the Firth Coop still not reply.

PAC members were reminded of the laser show to be presented by Jack Dunn at the Mueller

Planetarium on October 2nd. Jack reminded people to be there early so as not to be locked out.

Andy announced a public night at the Behlin Observatory on October 10th, starting at 7pm. There will be a slide presentation and visitors will be allowed to view the sky through the observatory's 30 inch telescope.

The program was presented by Dave Knisely who showed the membership some great programs and graphics on his personal computer. Dr. Manthey provided after-meeting refreshments.

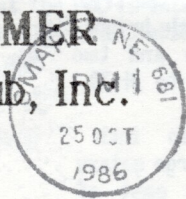
Editor's Note: For those of you with computers, a modem, and a subscription to CompuServe, Dave Knisely's monthly Observing Chairman's Reports and some of the book reviews from this newsletter will soon be appearing in the new Astronomy Special Interest Group Forum. Dave has kindly given me permission to upload his column to CompuServe. It should serve as another way to give the PAC some national recognition since amateurs from all over the world regularly sign on to CompuServe.

THE PRAIRIE ASTRONOMER

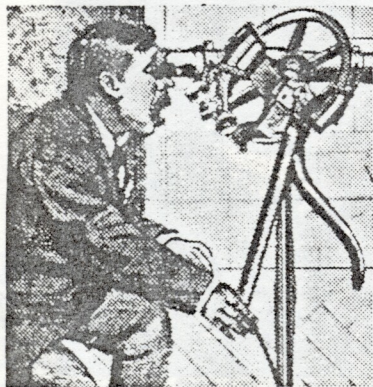
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Next Meeting October 28th
PAC Nominations to be held!!!