NORTHERN LIGHTS

Published quarterly in September, December, March and June

NORTH CENTRAL REGION

Subscriptions
$2.50 per year

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Volume XV | September 1985 | Number 1

ASTROFEST 1985

ASTRO-PEST? ASTRO-SWAMP? ASTRO-FOG? Where were they this year? The weather, the insects and the observing were all enjoyable at this year's ASTROFEST. Hosted by hte Chicago Astronomical Society, the telescope fair and general astronomy meeting was again held at the 4H camp Shaw-waw-nas-see near Kankakee, Illinois, on September 13-15.

Highlights of the gathering included: first glimpses of Halley's Comet through the 20" and 17" Dobsonians (That faint little smudge??! Are you sure?); Bob Cox discussing "New Optical Designs for the Amateur"; Walter Scott Houston talking on his favorite "Astronomical Trivia."

Friday night started out hazy, but the Milky Way slowly materialized over the telescope field. Saturday was cloudy and threatening rain, but the clouds started to break after the dinner and discussion period. Those who perservered were treated to good observing after midnight.

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Roaming the Region

The booklet, "Mr. Halley's Comet," published by Sky and Telescope magazine, is being offered free for the asking by 3M. This booklet emphasizes information on photographing the comet. Send your request ofr your free copy to: Photo Color Systems Division, 3M Center, Bldg. 220-2S-05, St. Paul, MN 55144.

The Peoria Astronomical Society is renovating Northmoor Observatory, owned by the Peoria Park District and operated by Peoria A.S. The facility houses a 9" refractor and complements the Society's second observatory located in Jubilee College State Park.

Naperville Astronomical Association has spent the summer repairing its Glen D. Riley Observatory. Work there included residing the building and recoating the telescope mirrors.

Meteor Showers Associated with Halley's Comet

by Paul Martsching

(from the Newsletter of the Ames Area Amateur Astronomers)

A meteor shower occurs whenever the Earth passes through a narrow region where there is a lot of interplanetary dust. The duration of a shower may be from a few hours to a few weeks, depending on the width of the meteor stream. The dust particles in any particular stream all move along parallel paths, but to an observer on Earth, perspective makes all the meteor appear to diverge from a specific region of the sky called the radiant. Usually, the meteor shower is named after the constellation containing the radiant.

Most of the meteor showers now observed are produced by meteor streams associated with short period comets. Two of the showers, the January Quadrantids and the December Geminids, have no known parent comet. Usually, meteor streams are formed from many consecutive orbits of their parent comet over a long period of time.

Since a comet's nucleus is most active near perihelion, most of the dust will be ejected near the Sun. The dust particles will have an orbit similar to, but not identical with, the comet. Some particles will move ahead; others will lag behind. Eventually, these particles pass each other and make a loop approximating the orbit of the comet.

There are two meteor showers associated with Halley's Comet: the Eta Aquarids in May and the Orionids in October. The Eta Aquarids have a duration of three weeks and the Orionids have a duration of two weeks. Both have a constant hourly rate each year indicating the particles are well spread out and the showers are old.

The approximate date of maximum for the Eta Aquarids is May 4 and we reach that part of the orbit of Halley's Comet on May 8. The meteor stream has a smaller orbital eccentricity the Halley's Comet and the stream's period of 11 years is much less than the comet's 76 years. The two orbits are most nearly aligned after perihelion. The radiant is always low in the sky for northern observers.

Very old records indicate a spectacular shower in AD 530, a year when the comet came to perihelion. Otherwise, there appears to be little correlation of shower activity with the position of Halley's Comet. For the last 50 years, the peak has been around 30 meteors per hour.

The orbital period of the Orionid meteor shower is like the Eta Aquarid meteor stream -- much shorter than the orbital period of Halley's Comet. Unlike the Eta Aquarids, the orbit of the Orionids is most closely aligned with the comet before perihelion. There are only two records of outstanding numbers of meteors from this shower: AD 288 and 1651.

The Orionids are well placed for northern hemisphere observers. Often, there are several peaks during the two weeks of activity and the shower has multiple radiants. The peak hourly rate is about 25 and it occurs around October 20 to 24. In 1922 the shower was stronger than usual with as many as 50 per hour on October 21.

ASTROFEST (cont.)

Over 200 registrants were treated to a variety of telescope designs and innovative construction methods used in amateur telescopes. The field was ample proof of Bob Cox's contention that the trend in amateur equipment is "back to Newtonians." He further predicted that the next major improvement to surface will be eyepiece design -- and then proceeded to describe several designs whose performance will be almost incredible. Efforts to commercialize several are now underway -- at "reasonable prices."

"Scotty" Houston used much the same style that has made his "Deep Sky Wonders" column in Sky and Telescope so popular as he discussed matters of astronomical trivia he has gleaned through the years. A rather simple sounding question piqued the audience's attention and held them enthralled as Houston rambled on to the often surprising answer. His final question was left unanswered: Many amateur astronomers have "accidentally" discovered a comet while searching for something else. How many astronomers have accidentally found more than one comet?

The Calculating Astronomer

(from the Newsletter of the Ames Area Amateur Astronomers)

A man massing 75 kg. is standing exactly one meter from a woman massing 50 kg. What is their mutual "attraction," speaking gravitationally, and how does it compare to the gravitational attraction between the man and the Earth?

Answer on page 4.

Astronomy Classes

Several Societies in the Region sponsor astronomy classes for their members or the general public during the year. Those known to the editor are described briefly below.

The Popular Astronomy Club, Inc., Quad Cities area of Illinois/Iowa, will give a series of classes on "Beginning Astronomy and Halley's Comet." The four weekly sessions include topics of: Observing with Your Eyes, Observing with Binoculars, Observing with Telescopes, Halley's Comet, Observing with Cameras, Photographing Halley's Comet.

Naperville A.A. has completed a three session class for 4 to 6 graders in Darien, Illinois.

The Milwaukee A.S. is repeating their "Amateur Astronomer Series" for members. The classes have been expanded to include hands-on workshops and advanced topics. Topics include a guide to telescopes, collimation and cleaning, accessories, finding techniques, astrophotography and observing of the planets, comets and variable stars.

Members of the Minnesota A.S. will again teach a college lab-credit course at the University of Minnesota. "Astronomy Lab for the Amateur" introduces the students to the techniques of the professional astronomer, but scaled down to amateur proportions. Data is gathered in field exercises and later analyzed in the classroom. Among the subjects covered are objective prism spectroscopy, two color photography and color/magnitude diagrams, planetary and deep sky observing, double and variable star measurement and lunar crater drawing and measurement.

Networks, Watch Out!

(described by Paul Castle in the newsletter of the Popular Astronomy Club, Quad Cities.)

Mid-August is the time of the Perseid Meteor Shower and I thought this would be an exciting natural phenomenon for my two girls, age 11 and 7, to watch even though they would be up way past their bedtime.

We all enjoyed the spectacular display and got to bed in the early morning hours. About noon the next day the telephone rang and I answered. It was one of the little boys my youngest plays with.

"She's not up yet," I said.
"Not up? But it's 12:00!"
"Well, she was up 'till 2:00 last night."
"Up 'till 2:00!" he exclaimed, "What was she doing 'till 2:00?"
"Watching falling stars," I said.
"Yeh?" he said in an awed voice, "What channel?"

A Backyard Observatory - II

by Jim Fox (Minnesota A.S.)

The saga continues.

Having decided on a domed observatory, I began searching for a design that was either easy to build or readily available commercially. After flirting briefly with a double intersecting cylinder design, I decided that my peace of mind and my home insurer would be most easily assuaged with a proven commercial design. A further advantage surfaced when the time came to get a building permit: the commercial unit had all the required loading calculations.

Of the available suppliers I chose Ash Manufacturing in Plainfield, Illinois. The reason was simple enough, they were "close enough" that I could pick up the dome and save $1000 shipping and crating charges. More on that next time.

Calculating Astronomer -- answer

See inside for the question and try to work it out for yourself before you read this answer.

The governing equation is Newton's "Law of Gravitation":

$$F = G M m / r2$$

The gravitational attraction between the man and the woman is:

$$F = (6.67E-11\ Nm2/kg2) * (75\ kg) * (50\ kg) / (1.0\ m)2$$
$$= 2.5E-7\ Newtons$$

The gravitational attraction between the man and the Earth is:

$$F = (6.67E-11\ Nm2/kgP02PE) * (75\ kg) * (5.97E+24\ kg) / (6.37E+6\ m)2$$
$$= 736\ Newtons$$

The emotional attraction (if any) has to overcome a billionfold advantage of the Earth's gravitational attraction.

November 25 is Deadline for December Issue