OBSERVATIONS

A MONTHLY PUBLICATION OF THE
CHESTER COUNTY ASTRONOMICAL SOCIETY

★President: Edwin Lurcott ★Vice President: Emil Volcheck
★Treasurer: Pete LaFrance ★Secretary: William O'Hara

DECEMBER 1996
(VOLUME 4, NO. 12)

CCAS December Meeting

DATE: **Tuesday December 10, 1996**
TIME: **6:15 p.m. EST**
PLACE: **Spitz, Inc.**
LOCATION: U.S. Route 1
Chadds Ford, PA (see maps)

Note the change in time and place !!!!
Our Program Chair, Kathy Bucynski, has arranged for the Society to receive a one-hour tour of Spitz. Many people are probably not aware that this company, which designs and manufactures planetariums, is located in Chadds Ford. This should be an interesting event. After the tour, we will descend on a nearby restaurant for a light repast and our business meeting. Pete LaFrance will do a constellation presentation after that. A map is included.

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December CCAS Observing Session

The next observing session will be held on Friday December 13, with a cloud date of Saturday December 14. It will be held at the Brandywine Valley Association (a map is included). At the observing sessions, there will be help available to set up and use your telescopes. All members are invited whether they have a telescope or not. Telescope owners are always glad to share the view through their 'scope. Remember to dress warmly, because you don't move around a lot when stargazing, so you can get cold real fast. Dress like you're going to see a football game at the Vet in January.

Future Observing Sessions

January 10, 1997 (or Jan. 11)
February 7, 1997 (or Feb. 8)
March 7, 1997 (or Mar. 8)
April 4, 1997 (or Apr. 5)
May 2, 1997 (or May 3)

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Happy Holidays !!

The Editorial Staff of *Observations* wishes a happy, safe, and clear-skied holiday season to all members of the Society.

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Celebrate the Winter Solstice

The solstice occurs at 9:06 a.m. EST on December 21. This is when the Sun reaches the southernmost point in its apparent movement through our sky, and begins moving back northward. It is the shortest day of the year, and the longest night of the year. That makes it, of course, the lovers' favorite night of the year, and the astronomers' favorite night of the year (so if you're married and it's clear, well, God be with you...) But that's true only in the Northern Hemisphere. Down under, it's the first day of summer, and the shortest night of the year.

The Brandywine Valley Association will be holding a Winter Solstice Party on Friday December 20, consisting of a winter hike led by Myrick Center Guides, a potluck dinner, and a story after dinner by Annie Hawkins. If skies are clear, there will be a star gazers' walk after dinner. It starts at 5:00 p.m., with dinner at 6:00. Cost is $3.00 for members, $4.00 for non-members. RSVP at 610-793-1090.

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Upcoming Meeting Programs

January: Chuck Shorten is arranging for us to use the University's Computer Lab to see some astronomy & space resources on the Internet

February: Frank Angelini will talk to us about CCD astronomy; that is, using a digital camera on a telescope, connected to a PC, to take astronomy pictures.

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December's Skies

Moon Phases

Last Quarter	12/03
New Moon	12/10
First Quarter	12/17
Full Moon	12/24

The Planets

Mercury will be visible, but tricky to find, in the evening sky from about Dec. 10 to Dec. 25. Best night: Dec. 15. Look for it as soon as you can see Jupiter; it will be below and to the right of Jupiter, about 7° away. Binoculars will make it easier to find.

Venus is in the morning sky again this month, rising before the Sun, but gets closer to the Sun each day this month. On the morning of December 8 early risers can see Venus in close conjunction with a very thin crescent Moon. The two will be about 1° apart!

Mars is now rising around midnight, and will be above the horizon by 11 p.m. by Dec. 31. It is now moving closer to Earth, and getting visibly brighter each month. By the end of the month, it will be worth while to start checking out Mars each night, as we head toward opposition in March (opposition is when Mars and Earth are closest together in space).

Jupiter is easily found right after darkness falls in the evening, appearing as a very bright star in the southwest. It's now too low for detailed telescopic observations, but is a good jumping off point for finding Comet Hale-Bopp or Mercury.

Neptune is about one binocular field east of brighter Jupiter. Alas, it too is getting too low for good viewing.

Uranus is in Capricornus. It is about one binocular field east of fainter Neptune, and likewise not in a good position for viewing.

Saturn is visible after sunset, looking like a bright star in the southern sky. It's the brightest star in that part of the sky, and the best planet for viewing this month. Its ring system is tilted about 3° toward us.

Pluto is lost in the Sun's glare this month.

Geminid Meteor Shower: December 12-13

The Geminid meteor shower will peak around noon our time on Friday December 13, but the peak of this shower is somewhat irregular, and hence hard to predict. Since New Moon is on Dec. 10, there won't be much moonlight to "drown out" fainter meteors. And, for once, a meteor shower coincides with a CCAS Observing Session. Pray for clear skies! You can expect as many as 100 meteors per hour, which are usually slower moving than those in other showers, and bright yellow in color. You can start watching for Geminids as early as 10 p.m. EST, as the shower's radiant point in Gemini, near Castor, will be high in the east already.

Space Exploration Notes

Historical Notes for December

In 1960, the first Mercury capsule is launched on its first test flight (unoccupied).

In 1962, the U.S. spacecraft Mariner 2 is the first craft from Earth to fly by another planet (Venus).

In 1965, the U.S. Gemini 7 mission sets a new duration record for manned spaceflight, two weeks in Earth orbit.

In 1968, Apollo 8 makes the first manned lunar orbital mission.

In 1970, the Soviets' Venera 7 spacecraft makes the first soft landing on Venus.

In 1971, the Soviets' Mars 3 makes the first soft landing on Mars. Mysteriously it fell silent just 30 seconds after landing. The most likely explanation is that its parachutes did not detach upon landing, and the gusty Martian winds caught the `chutes, toppling the spacecraft and dragging it across the surface.

In 1972, on the Apollo 17 mission, astronaut Eugene Cernan becomes the last human (to date) to walk on the Moon.

In 1973, Pioneer 10 flies past Jupiter.

In 1974, Pioneer 11 flies past Jupiter.

In 1979, the European Space Agency launches its first Ariane rocket, putting a satellite into Earth orbit.

In 1984, Vega 1 and Vega 2 are launched to study both Venus and Halley's Comet.

Mars Mission Updates

Mars Global Surveyor

This spacecraft, designed to orbit Mars and survey the planet from above, launched successfully from Cape Canaveral on November 7. Now it is on the way to Mars.

Mars96

A sad story. The Russians launched Mars96 on schedule on November 16, but the fourth stage of the booster failed to ignite. As a result, the spacecraft, with instruments aboard from 12 other countries, re-entered the Earth's atmosphere and burned up over the Pacific Ocean.

Mars Pathfinder (& Sojourner)

The spacecraft are scheduled for launch on December 2. Pathfinder will land on Mars on July 4, 1997, open up, and then the little rover Sojourner will roll out and drive around the landing area.

Send your name to Saturn!

As part of the Cassini orbiter mission to Saturn, scheduled to launch late next year, NASA has a program to send signatures on the spacecraft. All you have to do is send a plain postcard (you can buy pre-stamped ones at the Post Office) to the address below, with your signature on the non-address side. You can put more than one signature on one card; you don't have to send a separate card for each signature. Volunteers from the Planetary Society will scan the signatures and digitize them. The signatures will be placed on 2 CD-ROM disks, which will then be secured onboard the spacecraft. Any cards received after January 1, 1997 will NOT be included, so hurry and send your card this week! Address:

Cassini Program
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109-8099

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December Star Story

In the December sky, wedged in between Andromeda to the north, Perseus to the east, Aries of the southeast, and Pisces to the south and west is the little constellation Triangulum. While it is famous among astronomers for the presence of the great pinwheel galaxy M33 (a great spiral seen face-on), it is not a very bright or large constellation. You might think it is a modern creation, but it is really one of the older constellations in the sky. Most cultures have assigned some meaning to it based on its triangular shape. Richard Allen notes that at one time, by including some other stars, the ancients drew it as an equilateral triangle. Now, it is a more modest scalene triangle.

The Greeks called it Delta or Deltotum, due to its similarity to the Greek letter delta (Δ). Egyptians connected it with the Nile River delta. The island of Sicily is also triangular in shape, and so this constellation has been called Sicilia. Pious Christians in the 16th century said it represented the Holy Trinity. Others said it was the Miter of Saint Peter. The ancient Hebrews called it Shalish, after a musical instrument, triangular in shape with three strings, that is mentioned in I Samuel, 18:6. The Chinese included these stars with Gamma (γ) Andromedae and some other nearby stars into a figure they called Heaven's Great General, Tsien Ta Tseang. This last, of course, is the only interpretation of Triangulum I found that did not see it as a triangle.

Clear Skies!

References:

Star Names: Their Lore and Meaning, by Richard Allen
Skywatching, by David Levy

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"Cold-hearted orb that rules the night, removes the colors from our sight..."

from "Days of Future Passed", by The Moody Blues

We're talking about the Moon, of course. Stargazers tend to avoid it, especially the Full Moon, because its cold bright light also robs the skies of many of its best sights. Many of those fainter targets we like to explore, such as nebula, galaxies, etc., can disappear from sight, washed out by all that light. Yet we all look at the Moon, even if we don't often mention it. That's because as Earth's nearest neighbor in space, the Moon reveals a wealth of detail to even the smallest telescope, even to a pair of binoculars. The bigger the `scope, and the higher the magnification, the more awesome the sight becomes.

How many of us know our way around the Moon? Can you find the Sea of Tranquillity? "Here men from the planet Earth first set foot upon the Moon. We came in peace for all mankind." (plaque on the leg of the lunar lander, Apollo 11, July 1969) We really should all know where the Sea of Tranquillity is.

Start off learning with the eastern half of the Moon. This is the part of the Moon you can see at First Quarter. If you go out right after sunset on Dec. 17, you'll see the Moon high in the south. East on the Moon will be to the right (west for you here on the Earth). If you look with binoculars, you will see the terminator, the line separating the light from the dark, running right down the middle of the Moon. Here the rising Sun casts long shadows on the Moon, and this is where you will see the greatest detail (because of the greater contrast). Whatever night you look, look along the terminator for the best sights.

You will also see three prominent dark patches, that actually seem to almost run together, running from about the middle-right side (as you look at it on 12/17 with binoculars), at an angle up toward the middle top. Note that the southern part of the Moon is all cratered, with no seas evident. So to remember where north is on the Moon, remember that. "No seas in the south, even though both words start with s." Now in that line of three seas, the furthest south is the Sea of Fertility (Mare Fecunditatis). The middle one is the Sea of Tranquillity (Mare Tranquillitatis). The northern one is the Sea of Serenity (Mare Serenitatis). If you noticed a circular sea off to the right (east) of Tranquillitatis, that's the Sea of Crises (Mare Crisium). Going back to Tranquillitatis, you may notice that at the south-western edge of the sea it almost forms a right angle. It was in this corner, along the "bottom", or southern, edge that the Apollo 11 astronauts established Tranquillity Base. Now you know where it is. No, you can't see the lander, not even with a humungous telescope. But now you know the area where it is, and can astound your astronomically-challenged friends with this knowledge.

So learn your way around the Moon by starting with the seas as landmarks, and go from there. Before you know it, you'll qualify for a Lunar Observing Certificate from the Astronomical League's Lunar Club. Above all, have fun!

References:

Atlas of the Moon, by Antonin Rukl

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Join the Fight against Light Pollution

Consider joining the International Dark-Sky Association. This 10 year old organization is dedicated to working to promoting better outside lighting everywhere, lighting that will reduce energy wastage, truly enhance security, and restore the stars to our sky. Run by volunteers, your dues go to producing a quarterly newsletter, and to the costs of maintaining a library of information that can be used by members in light control efforts. For more info, you can check out their Web page at http://www.darksky.org

Annual dues are $20.00 for an individual (more if you can afford an additional contribution). The IDA is an IRS-registered non-profit organization, so donations (but not dues) are tax-deductible. Checks can be made out to IDA, Inc., and sent to:

International Dark-Sky Association

3545 North Stewart

Tucson, AZ 85716

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Contributing to *Observations*

Contributions of articles relating to astronomy and space exploration are always welcome. If you have a computer, and an Internet connection, you can attach the file to an email message and send it to the editor at **skywalkr@voicenet.com**

Or mail the contribution, typed or handwritten, to:

Jim Anderson
1086 King Road Apt. I-312
Malvern, PA 19355

The deadline for receiving contributions is the 27th of the preceding month.

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Membership Renewals

Check the date printed on the address label of this issue of *Observations*. If you are due to renew, you may send your renewal check made out to our Treasurer, Pete LaFrance. Mail to:

Pete LaFrance
413 Church Rd.
Avondale, PA 19311

Sky & Telescope Magazine Group Rates!

Subscriptions to this excellent periodical are available through the CCAS at $27 per year, about half the newsstand price, and also cheaper than individual subscriptions! Make out a check to the Chester County Astronomical Society, note that it's for *Sky & Telescope*, and mail to Pete LaFrance. Or you can bring it to the next Society meeting and give it to Pete there.

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CCAS Membership Information

The present membership rates are as follows:

REGULAR MEMBER
(18 years or older) $20/year
SENIOR MEMBER
(65 years or older) $10/year
STUDENT MEMBER
(full-time college student) .... $ 5/year
JUNIOR MEMBER
(under 18 years old) .....$ 5/year
FAMILY MEMBER
(husband, wife & children) ....$ 30/year

For further information on membership or society activities you may call:

President:	Edwin Lurcott	(610) 436-0387
Vice Pres:	Emil Volcheck	(610) 388-1581
Treasurer:	Pete LaFrance	(610) 268-2616
Secretary:	William O'Hara	(610) 696-1422
Program:	Kathy Buczynski	(610) 436-0821
Public Rel:	Kathy Cseke	(610) 644-9543
Obs Chm:	Mike Tucker	(610) 584-8236
Newsletter:	Jim Anderson	(610) 993-0261

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