



The Star

Newsletter of the
Mount Cuba Astronomy Group

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Program Schedule:

Mount Cuba Astronomy Group

Programs are at 7:30 at
Mt. Cuba Astronomical Observatory 1610 Hillside Mill
Road, Greenville, DE unless indicated otherwise.

From the Comfortable Chair...

Hank Bouchelle, Ed.D. MCAG Co-Lead

November 13

***At The Brandywine Library**
1300 Foulk Road
Wilmington, DE 19803
(302) 477-3150

Please contact the library if you plan
to attend !!!!

Observing with telescopes
*An introduction to the fundamental tool of
astronomers.*

December 11
Stars and Constellations of Winter
Program and Holiday Party

January 8
Guides to the Sky

February 12
Binoculars in Astronomy

March 12
Mapping the Sky

April 9
Stars and Constellations of Spring

May 14
The Moon: Its Origin and Phases

June 11
Stars and Constellations of Spring

I am pleased to report that the MCAG is keeping to its goals, objectives, and promises. We have a group that is industrious, knowledgeable, and productive. Our outreach to students and teachers is paying off. A group of students attended our October meeting, and had a gratifying number of questions. Among our new members is Paul Stratton, who serves as our librarian. Our treasury has moved decidedly into the black, as funds have accrued from the MCAG Introduction to Astronomy course. A bonus is that six of the course participants are gifted teachers in their own right! I have made arrangements for future teacher participants to receive in-service credit for their participation.

I have taken over as director of education for the Mt. Cuba Astronomical Observatory, and have begun planning for a summer student astronomy camp. It is a rewarding opportunity.

A sad piece of news for who understand and appreciate the importance of astronomy and astronomy education is the passing of Dan Friel. His skills, accomplishments, and generosity bear no comment from me.

Phenomena with Hank Bouchelle

If you ask the average person the cause of lunar phases, the answer you are likely to hear is that it is because the Moon passes into Earth's shadow. You will find this almost invariably true, especially among Harvard graduates (as actual research has shown!) Indeed, it is frequently impossible to persuade an individual of the truth of the situation once he or she believes otherwise. Teachers know that this often makes teaching harder than one might expect.

As a casual observation may show, we notice the Moon most often at night. If one has never noticed the Moon in the daytime sky, this explanation may be unchallenged. However, a moment's thought might suggest that the Moon is in the sky half of the time, on average and all things being equal, except when the Moon is new, and there is no visible Moon at all.

Here are images that may begin to help reveal the nature of the phases. Both provide extraordinary but easily observable situations. These pictures show the Moon in the daytime sky. This has to be the case, since the sky is blue. They also demonstrate the cause of phases. One image shows a daytime Moon positioned with the top of a flagpole. The other shows the Moon posed with a rather ragged tennis ball situated on my neighbor's car.

The Moon revolves around Earth, so the angle between the Moon and Sun constantly change. What causes lunar phases is the (changing) angle between these two objects, and the lesson is clear: Any sphere held in the direction of the Moon in the daytime sky will share precisely the Moon's phase.

What is the lesson here? The cause of lunar phases is the angle between the Sun and Moon. It would not matter if the Moon were at the tips of our fingers or a million miles away.

For the first two weeks of November 2012, the Moon will be in the early daytime sky, and thus invites you to make, with your own sphere, this most interesting and revealing of observations.



Photo credit: Hank Bouchelle

October MCAAG Meeting



Students from DuPont High School's Astronomy Club responded with many questions to the presentation on Stars of Autumn.

Program host Hank Bouchelle provided information about the consequences of one of Earth's motions: Revolution. A planisphere shows the predictable change in the sky with the coming of autumn. While several constellations in the proximity of the Celestial North Pole (and Polaris, the North Star) remain in the night sky through the year, others change as Earth orbits the Sun. Among the autumn constellations are Pegasus and Andromeda. The latter constellation is home to the Andromeda Galaxy, in which hundreds of billions of stars compose an object that covers approximately the size of the Moon in our sky.



STARRY-EYED CHALLENGE

As we leave the balanced night and days behind and approach the long, clear and crisp nights of winter, we ponder this month's Challenge.

Q: Does the Earth have seasons at the North and South poles?

A: Yes. The difference between seasons at the Earth's poles is more one of light than of temperature. The Sun can be seen in the sky of the regions beyond the Arctic and Antarctic Circles for about 6 months of each year, and to be absent from the sky for the other 6 months. It is always cold at the poles, but it is colder in winter, than in summer.

Mt. Cuba Astronomy Group *Membership Form*

The Mt. Cuba Astronomy Group is a tax-exempt organization dedicated to astronomy education and public outreach. Benefits of membership include:

- Monthly newsletter that includes details about the Group's activities and much astronomical information
- Monthly programs on subjects and topics of astronomical interest
- Free or discounted subscriptions to astronomy-related publications
- Free registration for MCAG workshops and classes
- Mention Mt. Cuba Astronomy Group and receive a 5% discount at Manor Books in New Castle (<http://www.yelp.com/biz/manor-used-books-New Castle>)
- Dues are free until January 2013



Mail to:

Ms. Carolyn Stankiewicz
1001 Woodstream Dr.
Wilmington, DE 19810

Name _____

Name(s) (children, if any, and age): _____

E-mail address: _____

Home address: _____

Phone (optional): _____

Member's photo

New member Robert Stack sent this fine image our way. An Aurora from November 8, 2004. It's from a series of 8 second exposures he shot with a digital camera outside Centerville DE. The images, when viewed together, make for a interesting mini-video. Our thanks to Robert for his contribution. "The Star" will hopefully feature more of Robert's images and those of anyone else who would like to share their efforts.



"To see the earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold—brothers who know now they are truly brothers."

*Archibald MacLeish (1892–1982)
The New York Times, December 25, 1968
Contributed by Mary Anna Webb*