



Happy 400th!

by Doug Brown , FPOA President

The revolutionary cause gained a powerful ally 400 years ago. That was the year Galileo Galilei fashioned a 3x telescope, quickly to be followed by more powerful ones, which he soon turned to the heavens. Inability to reconcile his observed orbits of the “Galilean” moons of Jupiter with the teachings of Aristotelean Cosmology triggered a series of events that would literally “change the world order” by placing the sun—no longer the earth—in the center of the solar system, and proceed to revolutionize our understanding of the universe. This was the Copernican revolution.

FPOA’s mission, which today would be called astronomical outreach or public education, had a distinctly different flavor in Galileo’s time. Fortunately, when we give a public program at the Peak, or talk with our friends and neighbors about astronomy, we no longer run the risk of being branded heretics by the Pope, or forced to recant by the Roman Inquisition...

So, without fear of life or limb, join with thousands of other amateurs and professionals during the International Year of Astronomy in bringing the wonders of the heavens to the public. Perhaps you could give a presentation on “400 Years of the Telescope”, or how observations of the Galilean moons affected our understanding of the heavens, or even help kids build a Galilean telescope at the Star-B-Que. Get involved and help spread the word.

If you’d like to help with a public program, contact Ron Dammann at schedule@fpoa.net.

FPOA Programs 2009

Saturday Evening Programs

May	2, 16, 23, 30
June	13, 20, 27
July	18, 25
Aug	15, 22, 29
Sept	12, 19, 26
Oct	10, 17, 24

Solar Programs

May	23
June	20
July	25
Aug	22
Sept	19
Oct	17

Special Programs

July	25	24th Annual Star-B-Q
Aug	22	Members Appreciation Night

Board Meetings

May	23
June	20
July	25
Aug	22
Sept	19
Oct	17
Nov	14

Please check <http://www.fpoa.net/schedule-2009> for changes or updates to this schedule.

Observing Seyfert Galaxies at the Peak

by Patrick Donnelly

In the constellation Cetus there is an object that may be the most interesting of all the Messier Objects. Near the star δ -Ceti, the galaxy M77 is found (8.9 mag - RA 02h 42m 40.2s DEC -00 00' 48"). M77 is a Seyfert Galaxy, which means it has a very active galactic nucleus. Seyfert Galaxies are named after Carl Keenan Seyfert, an astronomer who first identified this class of galaxies in 1943. M77 is located approximately 60 million light-years from the Earth, and it may be the most distant of the Messier Objects. The light you see tonight from M77 left the galaxy only about 5 million years after the dinosaurs became extinct on the earth.

M77 is so interesting because of its appearance in the telescope. Located at the center of the galaxy is a very bright star-like core. The core is much brighter than the surrounding areas of the galaxy. The core is much brighter because of a massive black hole that is gobbling up matter at a fantastic rate. Our Milky Way Galaxy and the Andromeda Galaxy both have black holes at their centre, but the black hole at the center of M77 is several thousand times larger than either of these. Because of the large black hole at the centre of M77, it is classified as an object similar to Quasi-stellar Objects (quasars), and it probably represents an intermediate type object between normal galaxies (e.g. the Milky Way Andromeda galaxy, M51, etc.) and the quasi-stellar objects (e.g. 3C273, etc) themselves.

M77 is not the only Seyfert Galaxy easily visible from the Peak. NGC 3077 and M106 are both classified as "Active Galactic Nuclei" type galaxies, but in spite of its bright nucleus NGC 3077 is not classified as a Seyfert Galaxy. NGC 3077 is located on the celestial sphere about as far from M81 as M82 is from M81 but in the opposite direction. M106 is located on the other side of the bowl of the Big Dipper from M81 and at about the same distance from the bowl's centre. NGC 3077 is located about 12 million light years from the Earth, and M106 is about 25 million light years from the earth. This means that M106 is probably the closest Seyfert Galaxy to the earth.

Continued on page 3



Peter's Meteorites

by Mark Levine

On Feb. 28, 2009, Peter Jenniskens, meteor astronomer at NASA Ames Research Center and the SETI Institute Mountain View, Calif., found his first 2008TC3 meteorite, which broke into two pieces when it landed. "It was an incredible feeling," Jenniskens said, "I realized that I was the first person to lay eyes on these rocks from space, laying there in the sand much the same as the day they fell on the ground."

Many of you may have seen this photograph on the NASA website with the above caption. This is the first time an actual impact of an asteroid with earth had been predicted; moreover, its debris was a rare ureilite achondrite meteorite of a type which has never been physically studied before in a lab. Dr. Jenniskens is working to set up three ground sites to monitor the flashes of meteoroids as they enter the atmosphere in order to locate by triangulation the comets that spawned them, and one of those sites is the Fremont Peak Observatory, itself.

Watch for a more explanatory article by Dr. Jenniskens about this meteor orbit survey and FPOA's connection to it in the Observer soon.

Star-B-Que Preview

by Doug Brown

This year's Star-B-Que and annual meeting will be July 25th. We are fortunate to have Brian Day (NASA Ames) as our guest speaker this year. Brian will describe the LCROSS (Lunar Crater Observing and Sensing Satellite) mission and how you can participate in any of a number of aspects of the observing campaign to collect data before, when, and after the mission's impactor hits in October.

We aim to build on the success of last year's Star-B-Que, keeping the same level of organization and high quality prizes as last year, while tightening up the awards and raffle schedules.

So, be sure to mark 7/25 on your calendar and start planning your astronomical-gastronomical entry now!

Productive Spring Work Party

from our Fremont Peak Bureau

A small—yet energetic—crew of volunteers turned out for a very productive spring work party in late April. Together they knocked off a list of 17 tasks, several of them taking most of the day. It really does take considerable effort to keep the observatory functional, safe and clean. Kudos and thanks to Chris Angelos, Chai Heng, Ron Dammann, Loren Dynneson, and Dave Samuels and Doug Brown!

Conversion to Digital Slides

from our roving reporter

Many thanks to Rob Hawley who kindly took the initiative to convert our entire collection of 35mm slides to digital format. Rob converted nearly 500 slides, about 35 GB of data. Truly a cosmic effort. This resource will soon be available to FPOA presenters and members. Thank you Rob!

Seyfert Galaxies (continued)

All three of the objects are visible with a good quality 6" telescope in a somewhat light polluted area. However, if one wishes to see the bright galactic centres, the Challenger Telescope is the instrument of choice. All three of these objects are easy targets for the Challenger Telescope. Through the Challenger M77 has a very distinct, bright, point-like centre. The other two objects have bright centres too but not as distinct as M77. M77 is best viewed in the late autumn, and NGC 3077 & M106 are spring and summer objects. If one wishes to see an intermediate object between a normal galaxy and a quasar, these three galaxies will surely suffice.

Challenger Telescope Certification Class

By Ron Dammann

FPOA members who would like to become Certified to use the Challenger 30" telescope should contact Ron Dammann at schedule@fpoa.net and provide a number of Saturday afternoons in July and August that they would be available for a 3 hour training class. Classes will be scheduled to provide training to groups of four to six members at a time.

Pat's Trivia Questions

By Patrick Donnelly

Get tuned up for the Star-B-Que Trivia Contest

1. I am presently living in South Carolina. In 2009, the summer solstice for me occurs on a different day than for someone at Fremont Peak Observatory. (True or False)
2. What interesting astronomical alignment change took place between the summer solstices of 1989 and 1990?
3. The latest sunset at Fremont Peak will occur after July 1 in 2009. (True or False)

Answers on page 4

Creative Observatory Operations

from our Fremont Peak Bureau

One of the inspiring things about FPOA members is the creativity and pioneering spirit they bring to telescope design, observing, and astrophotography. However, when those attributes are applied to operating the observatory in a novel manner, we have repeatedly seen consequences ranging from inconvenience due to misplaced equipment, to expensive damage due to human error, weather, mice, and excessive wear. We've learned from those experiences during our two decades of operation, developing a number of best practices and operational procedures.

The observatory shutdown checklist, which used to hang near the observing room light switch, has now been thoroughly revamped to incorporate much of this accumulated learning. When you start to shut down, remove the updated one it from its new rack on the wall between the east meeting room door and the Geochron and carry it around as you check items off. The tasks are arranged in a logical flow that works its way from the observing room, through the meeting room and out the door. Photos of correct stowage positions are included.

Trivia Answers *from page 3*

1. True. In 2009 the Summer Solstice occurs at 1:46 AM, June 21st, in SC and at 10:46 PM, June 20th, in CA.
2. In late 1989, the point of the Summer Solstice on the celestial sphere moved from Gemini to Taurus due to the Earth's precession.
3. False. While latest sunset in CA may fall between June 27 and July 2, this year the latest sunset is June 28th.

EMAIL DELIVERY OF THE OBSERVER

Dear FPOA Members,
We have been delivering notification of the Observer via email for the past several issues. This obviously saves the Association postal expenses, and assures the quickest delivery to you. However, several of you no longer have valid email addresses, due to ISP changes, moves, etc. If you would like to continue to receive, or begin to receive, notification of the Observer via email, please send your current email address to schedule@fpoa.net

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