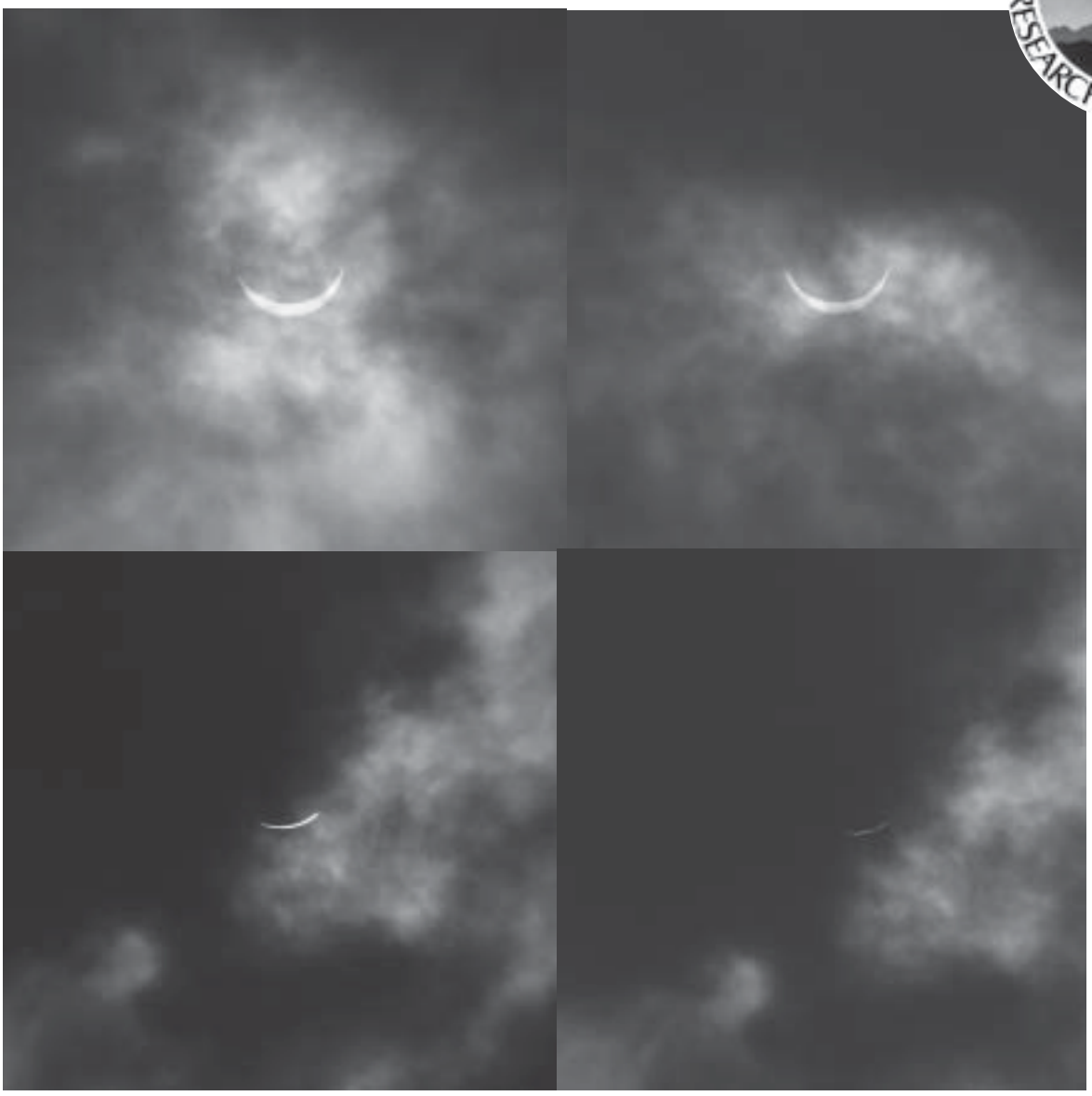
FALL 2009
VOLUME 32, NO. 3

MIRA NEWSLETTER



Almost...

The moon and the clouds race to obscure the sun in these photos from China by Dr. Bruce Weaver. **See The Eclipse of 2009, p. 3.**

Contents

Calendar of Events

Sunday, December 13, 4-8pm MIRA Holiday Potluck at the Hamming Astronomy Center. The program will include observing from the Weaver Student Observatory, weather permitting.

Q&A

This feature is inspired by the questions we have received over the years from interested readers. If you have a question about an astronomical topic, please send it to us.

In this issue, we are pleased to present two questions--Ed.

Sue French, the "Deep-Sky Wonders" columnist of *Sky & Telescope* magazine, writes,

Dr. Shane,

Are you the person for whom the planetary nebula Shane 1 (PN G013.3+32.7) is named?

The paper "Radial Velocities of Planetary Nebulae" by Mayall, Nicholas U. and Bidelman, William P. (1955PASP...67..335M) mentions a W. Shane as making observations of the radial velocities of planetary nebulae with the nebular spectrograph of the Crossley reflector.

Clear skies,
Sue French

Dr. Whitney Shane replies,

Dear Ms. French,

The answer to your first question is no. The answer to your second (implied) question is yes. But let me elaborate, if I may.

The planetary nebula to which you refer would have been named for my father, C. Donald Shane. In the 1950s he was occupied, together with C.A. Wirtanen, with the taking of the first epoch plates for the Lick proper motion survey. As nothing further could be done on the survey itself until the second epoch observations were started, he was anxious that this rather extensive collection of material be put to some immediate use. Wirtanen scanned the plates as soon as possible, searching for anything of interest, but particularly for comets and fast-moving minor planets. He found a considerable number of both. Both observers then devoted much time and effort in counting the galaxies on the whole collection of plates. Although the plates, taken for astrometric use, were less than ideal for this purpose, the results represented a significant advance in our understanding of the structure of the universe. While examining the plates, Shane noted that he could easily identify objects which he initially took to be planetary nebulae. However, it soon became clear that most of these were very red stars which had been supplied with planetary-looking halos by the chromatic aberration in the twenty-inch lens. Nevertheless, some of these objects turned out to be real planetary nebulae, of which at least one was hitherto undiscovered. The object to which you refer was one, perhaps the only one, of these.

Although I had nothing to do with the discovery of the planetary named Shane 1 (or Sn 1), I am indeed the W. Shane referred to by Mayall and Bidelman. The 1950s are now some time behind us, so my recollection of exactly what I was doing is rather vague. I know that I spent some time working with Nick Mayall, making various observations with his nebular spectrograph on the Crossley reflector. Although Mayall's main interest was galaxies, he also included other faint objects, such as planetary nebulae, in his observing program. He characteristically did not forget to credit all those who made any contribution to his work, however slight. My recollection is that my work with Mayall was limited to observing, and that I was not involved in the analysis of the data, or even the measurement of the plates.

I hope that this adequately answers your question and that you may find some entertainment in the additional gossip.

Best wishes,
W. Whitney Shane

Learn more about Shane 1 in Sue's "Deep-Sky Wonders" column in the June 2010 Sky & Telescope*--Ed.*

Dennis Renault wrote:

On Friday evening, August 28th, 2009, at roughly 7:55PM, my wife and I were outdoors in Monterey and I saw a very impressive comet or meteor suddenly appear in the SE sky above the coastal mountains and travel SSW and out of sight.

It had a huge ball at the front of it and a pretty long tail.

Am I the only person to see this thing? So far, I can't find any other witnesses or even a newspaper account. Perhaps it's all too common (except to my eyes).

So, my question is, was this unusual for size or visible length of time? Does it count for anything at all?

Having witnessed meteor showers from atop Fremont Peak, I'd give this a definite 1 on a scale of 1 to 10.

Thank you for any information you may have on this incident.

Dennis Renault
Monterey, CA

Hi Dennis,

First a bit of nomenclature: meteors are the bright streaks of light you see when a meteoroid hits the earth's atmosphere. Since they are going 10 to 100 times the speed of a bullet, the friction with the air vaporizes them very quickly. A bright meteor is typically caused by a bit of rock about the size of a grain of sand.

Comets, on the other hand, are large chunks of dirty ices, 10s of kilometers across that orbit the sun. As they approach the sun (say, by the orbit of Mars or so), the ices start to evaporate (or, more accurately, sublimate) quickly enough that a tail of incandescent gases is visible. These tails, while extremely tenuous (less gas than an excellent vacuum on earth), are huge...sometimes even stretching between the orbits of planets.

So, what you saw was a meteor. It turns out that we have a picture window that faces south and my wife saw the same meteor. Lots of fun and a stroke of luck to be looking at the right time in the right direction.

It is only special because you don't get to see one every day (or every year, for that matter). In the early days of the earth, had we been around, we would have seen meteors like this all the time as the earth and other planets were sweeping up all the debris left over from the creation of the solar system. Now it is a notable event.

I'm glad you got a chance to see it.

Sincerely,
Wm. Bruce Weaver

The Eclipse of 2009

by Dr. Wm. Bruce Weaver

When nature schedules outstanding total solar eclipses every few years, MIRA often organizes an expedition to revel in one of astronomy's most spectacular shows. The 22 July 2009 eclipse was the longest totality of this century. An added bonus was that it would pass through India and China on its way to the southeastern Pacific. It had the potential to be the solar eclipse viewed by the most people ever.

There was one apparent concern: summer is the rainy season in this part of the world. However, enough Friends of MIRA expressed interest that we decided to join a group from Colorado with whom we had enjoyed an excellent eclipse in the Mediterranean a few years earlier.

Then the recession hit. The nearly 300 people of the parent tour shrank to fewer than 90 and the size of the MIRA group dropped to three hardy souls.

As predicted by two of our summer high school interns who visit China regularly, it was hot. How hot? We were in Shanghai on its second hottest day in history!

The night before the eclipse, satellite images and weather predictions showed a major storm was headed our way. In a few hours in the middle of the night, our guides were able to rent buses with (Asian-style) bathrooms and at 2 am three buses set off gamely to the west to attempt to drive through the storm to its back side. We almost made it.

Hundreds of miles from our starting point, partial phases right up to the start of totality and just after totality were visible through breaks in the clouds, but totality itself was totally clouded out. The evening news showed hopeful residents along the eclipse path under umbrellas peering through the rain in search of the event.

The consolation prize was a great trip through China and, for some, an extension to the mysterious and very high altitude world of Tibet. Well, I guess we'll have to wait for the 2017 total eclipse that will pass just south of Portland--a near repeat of the February 1979 eclipse that was successfully viewed by many of the MIRA faithful.

Summer 2009 at MIRA

Bruce Weaver, Gene Barnes, and William Thompson (*l. to r.)* journeyed to China in hopes of seeing the total eclipse of 22 July.

Intern Jenny Lei displays the A lens of MIRA's echelle spectrograph, under construction at the Hamming Astronomy Center (above). Below, she completes a relational database of some 1,062 stars in the Pelican Nebula observed over the past several years by Arthur Babcock. In September she began her studies in mechanical engineering at UC Santa Barbara.

Intern Victor Zarate confers with Whitney Shane on the photometry of stars in the fields of gravitational lenses (above left). At the end of the summer, he presented his results at a symposium organized by Hartnell College (below left), where Victor is enrolled in his second year.

MIRA's youngest intern ever, ninth-grader Cindy Chu, learns about the Bright Star Catalog with Dr. Bruce Weaver in the Oliver Observing Station control room. After an end-of-summer visit to China, Cindy resumed her studies at Santa Catalina School.

In August. MIRA welcomed the Mexico City team playing in the Bronco World Series. Tami Huntley and Bruce Weaver prepared a dinner of carne asada, after which Arthur Babcock and intern Victor Zarate showed the young men some celestial sights in the Weaver Student Observatory. Fueled by Tami's and Bruce's good cooking, Mexico City went on to defeat Monterey, 16-7!

Intern Thomas Bohn in the Astronomer's Quarters of the Oliver Observing Station. Thomas completed an important element of MIRA's ongoing project on emission-line stars in the Pelican Nebula. After a visit to Japan (see photo at right), he is now completing his senior year at York School.

Our Far-Flung Correspondents

Thomas poses with the MIRA *Newsletter* in Takasaki City, Japan, during the O-bon festival. Thomas reports that "O-bon" means "festival of the dead," and that the festival is an occasion for family reunions, dancing, and eating. The group behind Thomas and to his left are transporting a *mikoshi*, or small shrine.

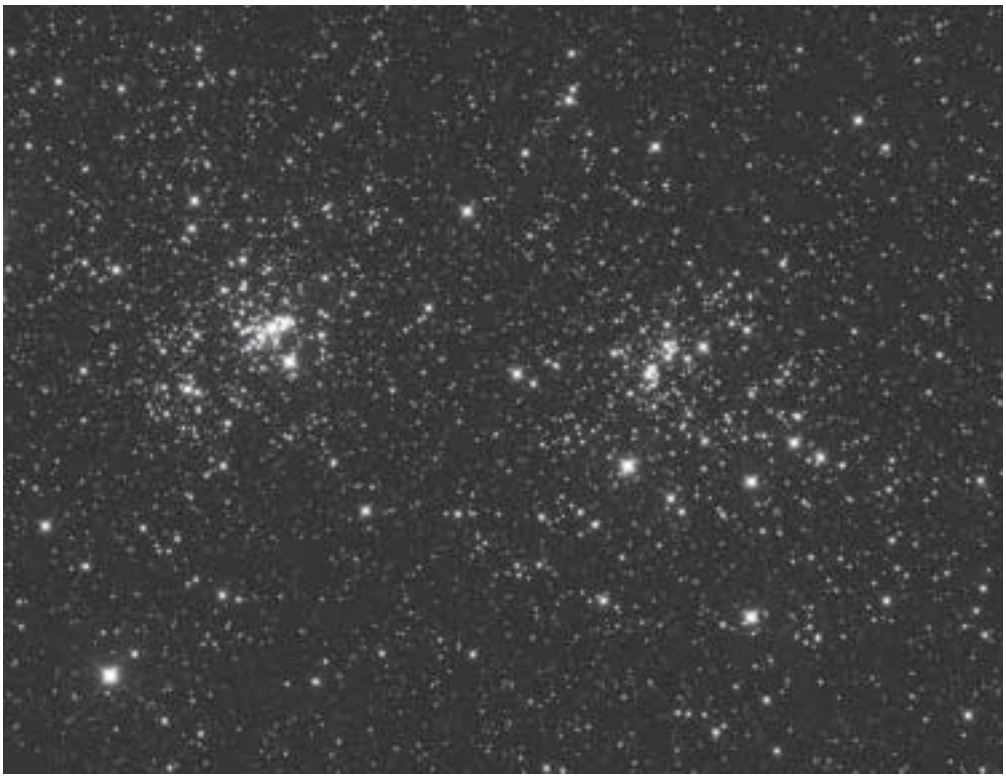
The Fall Sky

by Rod Norden

While the fall skies appear more devoid of bright stars than those of the summer, there are many special objects to look for, especially in the apparently empty southeastern sky near Fomalhaut. Daylight Saving Time finally ends giving us longer and earlier nights. We still have the Summer Triangle overhead and in the west to remind us to use the last warm nights of the year before our winter clouds arrive.

Fixed Stars

For naked eye observers, please note that the Milky Way spans the sky symmetrically from east to west in the northern sky during the month of November. The Pleiades are rising in the east reminding us that winter is coming. A great object for beginners is the Double Cluster in Perseus (NGC 869/884) which looks great in smaller telescopes with lower magnification. Look for the fuzzy "star" just to the east of the "W" of Cassiopeia high in the northern sky and you will be rewarded with a great view.



The Double Cluster in Perseus, NGC 869/884.

The fall sky is dominated by the Square of Pegasus and its associated constellations. Pegasus contains one of my favorite globular clusters, M15, near Enif, the nose of the winged horse. This is a very dense globular which seems to look good at all apertures. The outer stars appear as faint diamonds in smaller telescopes, and as the aperture grows, more and more stars of the core are resolved. It is spectacular in the larger amateur reflectors which have become much more common lately at star parties. It should look very good in the C-14 at MIRA's Weaver Student Observatory. M15 is one of the few globular clusters that contain a planetary nebula, Pease 1. At 14th magnitude, it is difficult in all but the largest telescopes we may be able to use, but I have seen it easily in an 18" reflector using an OIII nebular filter by holding the filter (carefully) between my fingers and moving the filter in and out of the light path between the eyepiece and my eye. The stars in the cluster appear to fade when the filter is in place, but the planetary nebula retains its brightness.

One additional benefit of the Milky Way's position across the northern sky is that the South Galactic Pole is exposed to us to the east of Fomalhaut. The most commonly viewed object in this area is the large galaxy NGC 253 in Sculptor. The galaxy can be detected in most small telescopes, but really shows mottling in 10" and larger reflectors. It belongs to the Sculptor Cluster, which is the closest galactic cluster to us outside our Local Group at 13 million light years away. A much less well known object is the globular cluster NGC 288, only one degree from the South Galactic Pole. It is a very open and loose globular, just about the opposite of M15 above.

Planets

Mercury is very well placed for morning observation

during late October, and comes into position for evening observation in December.

Venus is a morning object moving ever closer to the sun becoming invisible by December.

Earth has its shortest day, latest sunrise and earliest sunset on different days in late December. The differences are due to the fact that we use mean solar time and not the actual local solar time. The Winter Solstice occurs at 9:47 AM PST (17:47 UT) on 21 December.

Mars moves through the Beehive Cluster centered on 1 November and appears earlier each evening and grows to 12.7" in diameter in late December as it heads for one of its distant oppositions on 29 January 2010.

Jupiter transits the meridian (directly south) near sunset in December, and gradually approaches the sun as the year progresses. There are two opportunities to see Jupiter in the daytime this fall. It is four degrees south of the first quarter moon on 23 November and 4 degrees south of the crescent moon again on 21 December. On the evening of 19 December, it passes 0.6 degrees south of Neptune.

Saturn becomes visible in Virgo in the morning sky far enough from the sun for telescopic observation by mid-November. The ring inclination increases to 4.9 degrees by the end of the year. The ring plane crossing occurred on 4 September when the planet was less than 12 degrees from the sun and invisible.

Uranus was at opposition on 17 September near the Pisces-Aquarius border at magnitude 5.7. A telescope shows its bluish-green disk, 3.7" in diameter. It will remain visible in binoculars and telescopes the rest of the year.

M15 in Pegasus. NOAO/AURA/NSF

Neptune was at opposition on 17 August in Capricornus at 8th magnitude, remaining visible in binoculars and small telescopes the rest of the year as it moves closer to the sun the rest of the year.

Pluto (our dwarf planet) is moving ever closer to the sun this fall at 14th magnitude in Sagittarius, and is in conjunction with the sun on 24 December.

Meteor Showers

The three major fall showers are all unaffected by the moon this year! The 21 October Orionids, 17 November Leonids, and the 13 December Geminids have maxima that occur near new moon. This should give us a good opportunity to view them all this year. There are also predictions for various Leonid swarms on 17 November (especially at 7:30UT), so keep an eye out for elevated numbers this year.

Comets

There is just one reasonably bright comet predicted in the fall sky this year. Comet C/2006 W3 (Christensen) spends the fall in Aquila at 8th magnitude and fades to 9th magnitude in Sagittarius through the rest of the year. It seems we will have to wait for a discovery to change this situation.

Eclipses

There will be a partial eclipse of the moon on 31 December visible from Alaska and the far East, but not for us here in California.

Friends of MIRA Membership

I would like to become a Friend of MIRA and receive the quarterly MIRA Newsletter.
Enclosed is my membership donation of $_____
In addition, I am making a special contribution of _____

$2500 Associates Circle	$100 Sponsor
$1000 Associate	$50 Family
$500 Patron	$35 Member
$250 Sustaining	$15 Student

MIRA *welcomes corporate and business members. Contributions are tax deductible as allowed by law.*

Name_____

Address_____

City, State, Zip_____

Phone/e-mail_____

Staff

Gordon Jones, Chair, Board of Directors
Dr. Wm. Bruce Weaver, Astronomer & Director
Tami Huntley, Administrator
Dr. Arthur Babcock, Astronomer
Bill Bishop, Volunteer Systems Administrator
Dr. Craig Chester, Astronomer
Dr. Martin Cohen, Astronomer
Donna Dulo, Docent
Dr. James Eagle, Docent
Steve Evans, Volunteer
Brian Jacobson, Docent
Gary Love, Physicist
Jim Neeland, Volunteer Systems Administrator
Claas Shane, Librarian
Dr. Whitney Shane, Astronomer & Charles Hitchcock Adams Fellow
Dr. Russell Walker, Astronomer

The MIRA Board of Directors

Gordon Jones, Chairman
Dr. Wm. Bruce Weaver, President
Patti Compton, Secretary
Laura Zehm, Treasurer
Homer Bosserman
Dr. Craig Chester
Ron Gaasch
Gary Love

* * *

The Monterey Institute for Research in Astronomy owns and operates the Oliver Observing Station under permit from the U.S. Dept. of Agriculture-Forest Service.

* * *

The Monterey Institute for Research in Astronomy owns and operates the Richard W. Hamming Astronomy Center and the Ralph Knox Shops through an arrangement with the U.S. Dept. of Education.

Visit our Web site and *Field Trips to the Stars:*
www.mira.org
E-mail us at mira@mira.org

Monterey Institute for Research in Astronomy
200 Eighth Street
Marina, CA 93933

(831) 883-1000
(fax) (831) 883-1031
www.mira.org

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 16
MARINA, CA 93933

RETURN SERVICE
REQUESTED