President’s Message

For this month’s column, I would like to talk about amateur astronomy and the science of astronomy. I have been an amateur astronomer for 39 years. My preexisting interest in astronomy crystallized at the 1968 Astronomical League Convention, when I first met other people interested in astronomy. I heard talks on various aspects such as occultations, variable stars, planetary observing and astrophotography. Since I was already interested in photography, astrophotography became my field.

I read books on the subject and developed my skills whenever I could get out and observe. The Chicago Astronomical Society also had an active grazing lunar occultation program in which I participated. At the time it was touted as a way to get more accurate lunar profile information for the Apollo program, and I could contribute to the Moon program with my observations.

Astrophotography and occultations were my two fields, one produced pictures that were impressive (for the technology in those days) and the other scientific data. I not only observed occultations, but wrote the first lunar profile plotting program (ACLPPP) and became secretary of IOTA, the International Occultation Timing Association.

More recently, I have been observing minor planets, getting their positions and reporting them to the Minor Planet Center to be combined with other observations from all over the world. I have now made over 10,000 astrometric observations, over 6,000 of those are of minor planets that may come “near” the Earth (NEOs or Near Earth Objects).

Which brings me to my point. There has been much discussion among minor planet observers about the new professional surveys that are going to start observing in the next year and how they would put amateurs out of business. This may be the case, but there are still plenty of other scientifically valuable activities that an amateur can do. For example, The Association of Lunar and Planetary Observers will help you learn to observe the planets, Sun and Moon. The professionals cannot dedicate the telescope time to keeping an eye on the planets, so it is up to us amateurs to do it. There are also variable stars, sunspot counts, searches for extra-solar system planets and more.

We amateur astronomers were the first astronomers, long before professionals existed. Unlike many other areas of science, where big money projects are the only places new knowledge can be discovered, astronomy still has a place for the amateur. A number of our older members are very active in the ALPO, observing the planets. We have some variable star observers, occultationists, and minor planet observers. They all take

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Next Meeting

The next meeting will be held on March 23 (fourth Friday of the month), 2007 at the usual place and time (DABCC, room 77, 7:30pm). The speaker this month will be Dr. Fred Pilcher who will speak on Asteroid Photometry. There are a number of amateur astronomers who measure the brightness of asteroids traveling through our solar system and plot their measurements against time to create light curves of various asteroids. Fred, who is a member of ASLC, will tell us, in a general way, how to make these measurements. He will also describe how to use this information to find the rotation period, shape, and orientation of the rotational pole of an asteroid. While this is a powerful technique, it does not yield a size for the asteroid, and Fred will tell us why this is the case. This should be an interesting talk on some of the science that is being done by amateur astronomers.

This Month's Observer

The Imagers Group (contact: Rich Richins) pre-meeting will meet this month at 7pm. The "Astro Tidbits" (Contact: Nils Allen) will meet again next month. Anyone is welcome to attend these special interest groups.

Other events planed for March include: Dark Sky Observing at the Upham dark sky site, Saturday, March 17 and 24 (see February meeting minutes and Steve Barkes article in this issue of the HDO), dusk

ASLC MoonGaze, International Delights Cafe, Saturday, March 31, dusk

Open house at the NMSU Clyde Tombaugh Observatory, Friday, March 16, 8pm

Please see the ASLC website for further information (http://www.aslc-nm.org)

Focal Reducers

Joe Zurlinden

A focal reducer is an optional accessory that is used to modify the effective focal length of a telescope; and there are a number of reasons the telescope user may want to do this. One reason would be to provide a larger field-of-view (FOV) than the basic telescope allows. The basic telescope refers to the telescope tube assembly with the optics that allows an image to be focused at the telescope focal plane where either an eyepiece or a type of detector is positioned. Another purpose for the focal reducer is to reduce the telescope FOV to a size more comparable with the smaller digital CCD detector. These vary in size, but most are still much smaller than photographic film. The discussion here will be limited to the use of focal reducers to a specific type of telescope.

One of the most popular types of telescopes now in use by amateurs is the Celestron and the Meade Schmidt-Cassegrain telescopes (SCT) that are available with various apertures. However, most have a focal ratio of 10. As you know this is simply the effective focal length divided by the diameter of the primary mirror. Most of my experience with these types of telescope is limited to what is a Celestron 8" SCT. When using this instrument with a 35mm film camera the quarter-phase Moon almost filled the film frame. One of the main advantages of using this type of telescope is the convenience of transporting and setup at almost any location desired.

Continued on page 3

Focal Reducers, continued from page 2

I am illustrating my discussion using the design of a Classical-Cassegrain type of telescope that is only slightly different from the Schmidt-Cassegrain. The F-numbers have the same meaning for all types of telescopes. Figure 1 shows an F/10 telescope and Figure 2 shows an F/4 telescope. Figure 3 shows the F/10 telescope with a lens just to the right of the primary mirror that changes the F/10 to an F/4 effective focal length. All three figures show rays entering the telescope from the left from the same three points at infinity. Notice that the focal plane in Figure 1 is larger than the focal plane in Figures 2 and 3. This illustrates the act that as the focal length increases, so does the size of the image for the same angular field-of-view (FOV). Figure 4 shows an expanded view the right side of Figure 3. The focal reducing lens may be in any position behind the telescope tube and not necessarily touching the primary mirror as shown in Figures 3 and 4.

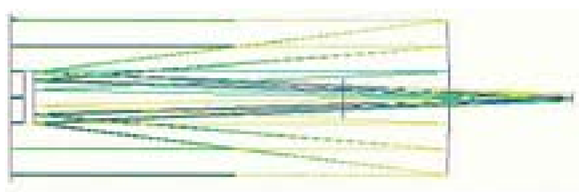

Figure 1. F/10 Classical-Cassegrain telescope

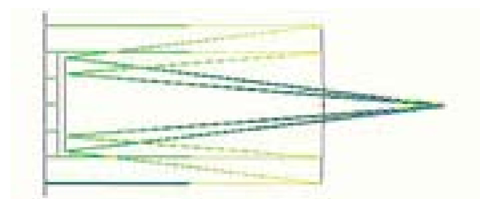

Figure 2. F/4 Classical-Cassegrain telescope

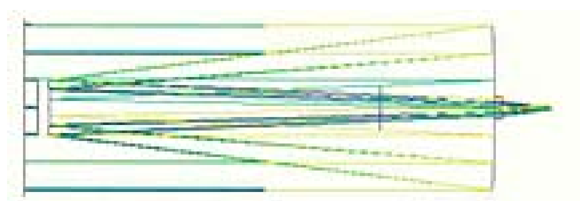

Figure 3. F/10 Classical-Cassegrain telescope with focal reducer lens (small rectangle touching back surface of primary mirror).

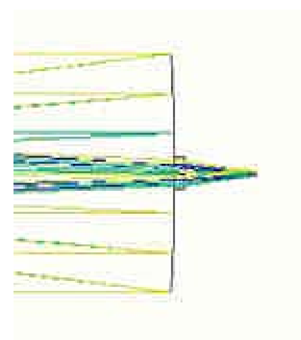

Figure 4. Expanded view of Fig. 3 showing the lens changing the direction of the rays.

The focus reducing lenses will consist of at least two elements for color correction. There may even be more elements if the lens reduces the focal length by a large factor, and therefore, the price will be greater accordingly. So the individual observer needs to determine his observing program in light of the cost. It might be more cost effective to invest in a rich-field telescope.

Now, some comments about the telescopes. When you compare Figures 1 and 2, you will notice that the secondary mirror is significantly larger in the F/4 telescope than the F/10. This is a design characteristic of Classical-Cassegrain telescopes. So using the F/10 telescope with a focal reducer appears to allow a greater amount of light to reach the focal plane; and, in astronomy, we need all the light that we can get. One must also consider that if the focal reducer is being used to observe a larger FOV, then the telescope tube has to have a sufficient diameter to allow for the larger FOV rays to enter the front end of the telescope. This is not

Continued on page 4

Focal Reducers, continued from page 3

a concern if one is using the focal reducer to image as much of the given FOV onto a smaller image sensor, as for example, going from film to a CCD type of imaging sensor. One way to calculate the FOV a particular size sensor will image is to use the "scale relation," which is simply:

$$\text{Scale} = \frac{206{,}265 \text{ arc sec}}{\text{effective focal length}}$$

The number 206,265 is the approximate number of arc seconds in a one-radian angle. The effective focal length can be in inches or millimeters or whatever units are convenient for the application. As an example, an F/10 Celestron 8 has an 80-inch focal length. If the sensor is a square, one inch on each side, the FOV that is imaged on it vertically (and horizontally) is about 2,578.3 arcsec. Since the Moon is about 1800 arcsec the total Moon could be imaged on this sensor with room to spare. Remember to do this calculation using the effective focal length with the focal reducer being used. So for the F/6.3 focal reducer on the Celestron 8 one would use an effective focal length of 6.3 x 8 inches (telescope aperture) = 50.4 inches. Also, if the CCD is rectangular, then the vertical FOV will be different than the horizontal FOV.

Focal reducer lens accessories are commercially available and details and prices can be found using the internet, as well as advertisements in the various astronomy magazines. One might find some good deals from such sources as ebay and the various star parties that take place around the country. I do not wish to list any specifics here. However, I have found a number of sources by merely doing a search on "focal reducers." If there are any questions, the best way to reach me is at work at 678-3482.

Variable Stars Part 2: What Are the Types of Variable Stars?

Bill Stein

At the simplest level, we may say that variable stars are stars that vary in brightness over long or short time periods, with variations in amplitude from a thousandth of a magnitude to as much as 20 magnitudes. We discover variable stars behaving periodically (with a single period or convolved multiple periods) with little or no irregularity in their light curves. Many are semi-periodic with some irregularity and periodicity, while others exhibit no periodicity and are completely irregular in their light curves. Depending on the type of variable star, we observe periods ranging from a fraction of a second to years. Because of this description, we may deduce that nearly all stars show variability to some extent, since all stars possess constantly changing physical properties affecting their brightness either periodically or irregularly. Even our Sun exhibits slightly irregular variability in brightness as it goes through the eleven-year sunspot cycle.

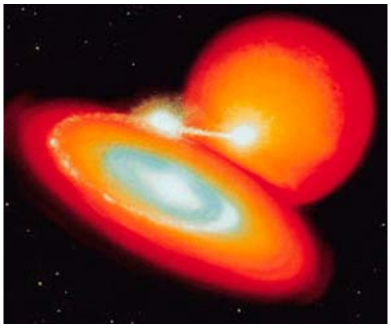

Illustration of a pre-nova binary star system (NASA)

Astronomers classify variable stars according to the main cause of their variation in brightness. Most generally, we group stellar brightness variations as either intrinsic or extrinsic. For intrinsic variables, we find that variability is caused by physical changes intrinsic to the star (e.g., radial or non-radial vibrations or pulsations; eruptions in the star). In the case of extrinsic variables, we observe changes that are external to the star (e.g., effects of stellar rotation; eclipsing binary stars, which cause apparent changes in brightness for the system).

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Variable Stars, continued from page 4

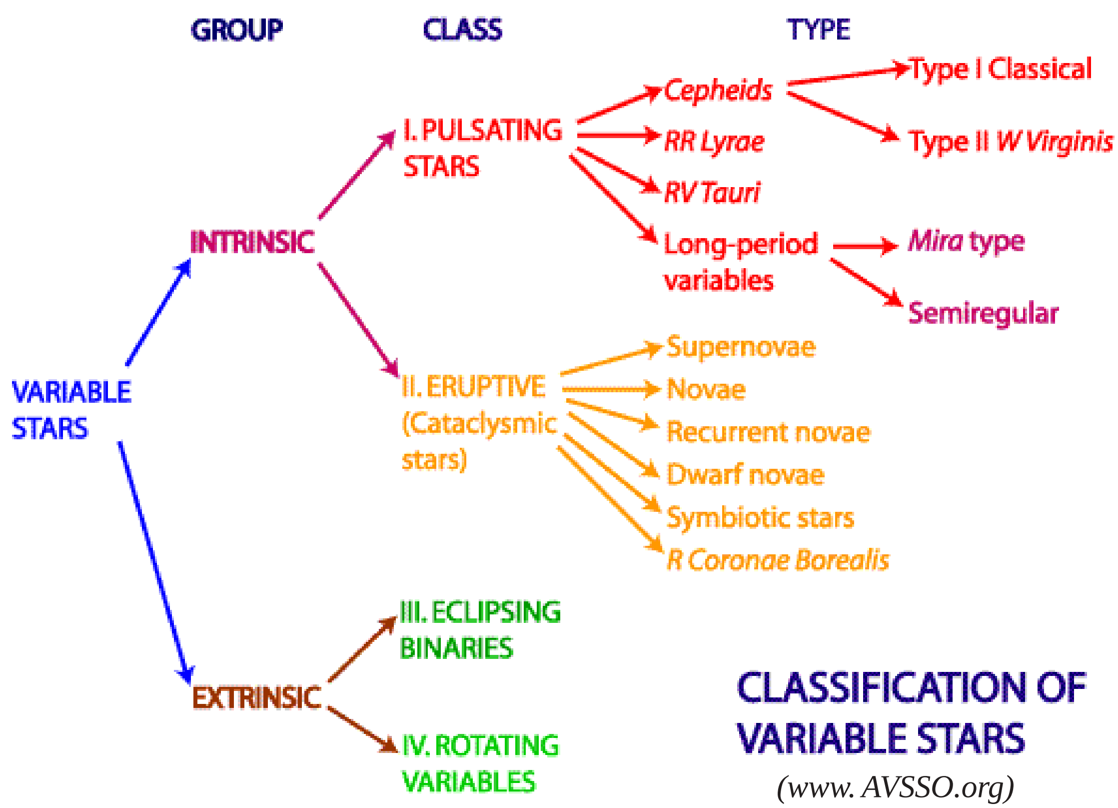
Astronomers further classify intrinsic variables as either pulsating or eruptive (cataclysmic) variables. Periodic expansion and contraction of the stellar surface layers cause the observed brightness variations of pulsating variables. These pulsations may be radial (in which case a star retains its spherical shape) or non-radial (resulting in periodic deviations from a spheroid). We further divide pulsating variables into different types according to their pulsation period, mass, and evolutionary status:

Cepheids: These stars have periods of 1-70 days with brightness variations from 0.1 to 2.0 magnitudes. Since Cepheids obey a strict period-luminosity relationship (higher luminosity Cepheids have longer periods), they are good distance indicators.

RR Lyrae: These stars have periods of 0.2-1.2 days with brightness variations from 0.3 to 2.0 magnitudes. These variables are white giants of spectral class A. We may use RR Lyrae as distance indicators too.

RV Tauri: These stars have periods of 30-150 days with brightness variations up to 3.0 magnitudes. The RV Tauri are yellow supergiants of spectral class G to K.

Long-Period Variables (LPV): The LPVs are either Mira types (giant red variables of spectral class M and have well-defined periods from 80 to 1,000 days and with brightness variations from 2.5 to 5.0 magnitudes) or semiregular (giants displaying 1.0-2.0 magnitude variations with long periodicity superimposed on intervals of irregular light variations of similar length to Mira periods). Z UMa is a semiregular example.



(www. AVSSO.org)

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Variable Stars, continued from page 5

The eruptive (cataclysmic) variables display variations in brightness caused by occasional violent eruptions as the result of complex nuclear processes either deep within the star or on the surface layers. The most common types of eruptive (cataclysmic) variables are:

Supernovae: These stars show sudden, dramatic and peak magnitude increases because of a catastrophic stellar explosion. They display no periodic amplitude variations. However, they reach peak brightness over 20+ magnitudes and show a slow decay in days and months. A recent example is SN 1987A

Novae: Close binary systems consisting of a sun-like star (main sequence star) and a white dwarf may lead to a nova outburst. In a matter of one to several hundred days, the novae increase in brightness by 7 to 16 magnitudes. After the outburst, the binary system fades slowly to its initial brightness over several years or decades. See V1500 Cyg.

Recurrent Novae: These objects are similar to novae in brightness and in rise and fall times. However, they exhibit two or more slightly smaller amplitude outbursts. An example is RZ Oph.

Dwarf Novae: These are close binary systems made up of a solar type star, a white dwarf and an accretion disk (dusty gaseous ring) surrounding the white dwarf. This accretion disk erupts every few weeks. Examples are U Gem, Z Cam and SU UMa.

Symbiotic Stars: These close binary systems consist of a red giant and a hot blue star, both embedded in nebulosity. They undergo nova-like outbursts, up to 3.0 peak magnitudes and are semi-periodic. An example is Z And.

R Coronae Borealis: These variables are rare, luminous, hydrogen-poor, carbon-rich stars that spend most of their time at maximum light, while occasionally fading as much as nine magnitudes at irregular intervals. During a few months to a year, they slowly recover to their maximum brightness.

Flare Stars: Also known as UV Ceti stars, these variables are intrinsically faint, cool, red main sequence stars. They undergo intense outbursts from localized areas on the surface and may increase in brightness by two or more magnitudes in seconds, followed by a decrease to normal minimum in about 10 to 20 minutes.

We classify extrinsic variables as either eclipsing binary or rotating variables.

Eclipsing Binary: These systems are stars whose orbital plane lies in or near to our line of sight. Consequently, we observe a variation in brightness when the components to eclipse one another periodically. The period of the eclipse can range form minutes to years. An historic eclipsing binary is Algol (Beta Per).

Rotating Variables: These rotating stars exhibit small changes in brightness that may be due to dark or bright spots or patches (similar to intense sunspot regions) on their stellar surfaces. Rotating variables are often in binary systems.

If you wish to see examples of light curves for many of these variable star types, go to

http://www.aavso.org/vstar/types.shtml

Much of the information in this article has come from both the AAVSO site and the Variable Stars for Student Research at: http://www.astro.utoronto.ca/~percy/

In the next article, we will look at a primary use of some pulsating variables.

The Astronomical Society of Las Cruces (ASLC) is dedicated to expanding members and public awareness and understanding of the wonders of the universe. ASLC holds frequent observing sessions and star parties, and provides opportunities to work on club and public educational projects. Members receive *The High Desert Observer*, our monthly newsletter, membership in the Astronomical League, including AL's quarterly *A.L. Reflector*. Club dues are $35 per year. Those opting to receive the ASLC newsletter electronically, receive a $5 membership discount. Send dues, payable to A.S.L.C. with an application form or a note to: Treasurer ASLC, PO Box 921, Las Cruces, NM 88004

ASLC members are entitled to a $10 discount on subscriptions to *Sky and Telescope* magazine. S&T subscribers MUST subscribe and renew through the Society Treasurer for the special club rate. To avoid a lapse in delivery, this must be done when S&T sends their reminder, 4 months in advance.

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Minutes, February 2007 Meeting

Call to Order: Bert Stevens, ASLC President, called the meeting to order at 7:35 pm. The minutes of the January general meeting were unanimously accepted by those present as published in the High Desert Observer (HDO), the ASLC newsletter.

Secretary's Report: There was not an additional secretary's report.

Treasurer's Report: There was an informal treasurer's report as follows: The liability insurance premium of $320 was paid, leaving approximately $2,100 in the checking account. Approximately $3500 remains in the Club savings account. The endowment CD has a current value in excess of $17,000.

Old Business: Bill Stein reported that the availability of the 16" Meade telescope from the NMSU Astronomy Department will be discussed with the Department Head and Dr. McNamara during the NMSU Spring Break period in March. He will report on the progress of those discussions at the March general meeting.

New Business: There was no new business.

Announcements: The following announcement was made:

Steve Barkes announced that the 2007 ASLC Messier Marathon will take place on two nights at the Upham DSO. The dates are 17 March when it will be difficult to observe all 110 objects between sunset and sunrise but an occultation of Pluto will occur, and 24 March when there will be a better chance to observe all 110 Messier objects. Additional details, suggested links and observing tips for the Marathon will be available via the aslc-nm.org web site and in an article in the next HDO.

A motion to adjourn the business portion of the meeting was entertained and passed by voice vote. The business meeting was adjourned at 7:45 pm.

General Announcements: The following announcements were made:

1) Rich Richins has been checked out on the 14" observatory at City of Rocks State Park. The park is looking for volunteers to assist in public presentation once or twice a year. This is an excellent resource for ASLC's public outreach efforts. Contact Rich for additional details and information.

2) Nominations for the Astronomical League's 2007 Young Astronomer Award will remain open until 15 March. Contact Janet Stevens for more information.

3) Jeff Johnson, not an ASLC member, has a 14" Meade available for sale. Additional information was available on the Publications/Information table in the back of the room.

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February meeting minutes, continued from page 7

Observations:

1) Mark Vincent gave a brief report on recent occultations he had observed in the Socorro and Clayton areas.

2) Bert Stevens announced that he had reported his 10,000th astrometric observation to the Minor Planet Center. These include minor planets, comets, and even distant spacecraft that the Center tracks so they are not confused with NEOs. He also observed and reported his first new asteroid of 2007.

Presentation: The Speaker for this month's meeting was Dr. Jon Holtzman. Dr. Holtzman is an associate professor in the NMSU Astronomy Department. His presentation was entitled, "The Accelerating Universe and the Sloan Digital Sky Survey Supernova Survey". In the last decade, astronomers have accumulated data that indicates that the expansion of the Universe has been accelerating. He reviewed some of the data that has led to this unexpected conclusion. In addition, he described an ongoing project using the Sloan Digital Sky Survey (SDSS) telescope at Apache Point Observatory that is contributing to this issue: a search for type Ia supernovae. He described the motivation for this project, techniques being used, and some preliminary results. This and other meeting presentations can be seen on the web at http://www.aics-research.com/lectures/aslcnm/.

Respectfully submitted by John McCullough, Secretary

4th Annual ASLC Messier Marathon

Steve Barkes

Every year during the new moon in March/April it becomes possible to observe all 110 of the Messier objects in a single evening. While it is possible to observe 70 or more on any given evening of the year, only during mid to late March and early April can you actually view all 110.

This year's marathon date is Saturday March 17. If the weather doesn't cooperate, we'll have a second opportunity on the March 24. One thing to note for this year, is that 110 will not be possible on the 17th. The ability to see all 110 objects in one evening is dependent on several different factors.

The first is the date of the new moon. As the marathon is typically run on a Saturday, the date of the new moon closest to that Saturday makes a difference. Ideally you need to be within 3 days of new moon to maximize your chances. The other major factor is where that new moon falls during the month of March. If it happens early in the month, as it does this year, the early objects will be easier, but the later objects may not rise until after sunrise has brightened up the sky to the point where they aren't visible. This usually means that M30, a small globular cluster in Capricorn can't be seen.

If the new moon occurs very late in the month, or in early April, the early objects have to be located in the glow of the setting sun, and typically you'll not be able to find M74 at the start. So for this year, the 17th means we'll not be able to see M30. On the 24th, we'll be at the delicate point where we can almost see M30 in the morning.

This is the fourth year we have run a Messier Marathon. The first year only 2 people, me and Joseph Mancilla stayed for the entire night. We both were able to observe 109 objects. Each year we have had more people who have lasted all night. Even if you don't intend to stay the entire night, I would encourage everyone to give the marathon a try.

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Messier Marithon, continued from page 8

The marathon is not a competition between individual observers, but is a personal competition with yourself. I would like to see everyone try and better their previous year's numbers. If you didn't participate last year, and you go out and observe ONE object this year, then you've improved on your numbers!! While that is an extreme example, and I would hope you can observe more than one object, I really would like to have as many people as possible participate in the event.

You'll find that everyone is excited about achieving a common goal, and we all are willing to help you out in finding those elusive objects. And it doesn't take a large telescope to run the marathon. Last Friday I was at Upham for a tune up for the Marathon. I brought out my Edmund Astroscan which is a 4.25" F/4 (432mm) scope. Using two eyepieces (a 12mm and 28mm RKE) between 7:30 and 11:30pm I was able to locate 50 Messier objects.

Even if you don't have a telescope you can run the marathon. How many can you find using your binoculars? Probably 70 is possible. Or maybe a naked eye marathon? You should be able to see a handful of objects without any optics at all.

And of course you don't need to stay the entire night. Set your own personal time limit, and see how many objects you can observe in that time. I did 50 in four hours, can you do 25? How many can you get in 3 hours? There is no shame in leaving early. It's all about participating!!

For those who are serious about running the entire marathon, there are 2 resources that I highly recommend. The first is "The Year-Round Messier Marathon Field Guide" written by Harvard Pennington. This book contains lots of information on preparing for the marathon, and detailed finder charts for each Messier object. The charts are geared towards someone who is using a Telrad finder on their scope, and shows the Telrad field of view in each chart.

The second resource is "The Observing Guide to the Messier Marathon: A Handbook and Atlas" by Don Machholtz. While similar to the Pennington book, this resource is geared more to those who run the marathon with an equatorially mounted telescope. Machholtz gives offsets in RA and Dec for each object that make it easy to navigate from one object, or from an easy-to-find star, to the next object.

Both of these books are available from Amazon, and you may want to pick them up to prepare for next year's marathon.

So come out and join us at Upham for the 4th Annual ASLC Messier Marathon on Saturday, March 17. Be there before sunset and stay as long as you like. I guarantee you'll have a great time, and enjoy the company of others sharing a common goal. If the weather doesn't cooperate, we'll try again on Saturday the 24th.

March close flyby of NEO asteroid 2006 VV2

Bob Long

Discovered on November 11, 2006 by LINEAR, asteroid 2006 VV2 will approach within 0.023AU or (8.8 Lunar distances) on March 31, 2007. This 1.5 km object is currently at Magnitude 16+, but will reach 10th magnitude at near approach.

Presently in Cepheus, 2006 VV2 has an angular motion of only 0.01 arc/sec per second. By March 26 when 2006 VV2 makes its closest approach to Polaris it will only have increased its angular speed to

Continued on page 10

Asteroid flyby, continued from page 9

0.02 arc/sec. Just two days later, however, when 2006 VV2 passes just 11 arc minutes from M81 (around 7:30pm), it's angular speed will be over 0.5 arc/sec per second.

At nearest encounter the asteroid will be in the constellation of Leo. Current predictions place greatest angular speed around 1:00am March 31. At that time it will be placed in a very favorable position in the sky (about 51 degrees above the western horizon). By 1:00am 2006 VV2 will be traveling a blazing 1 arc/sec per second (one degree per hour). Unfortunately the Moon, at 95%, will only be twenty-one degrees away.

Two days later it will pass into Hydra and slow to just over 0.5 arc/sec. 2006 VV2 will continue to slow till it enters Centaurus where it will fade beyond the limits of amateur equipment.

LINEAR GEODSS telescope at the White Sands Missile Range

If you plan to observe or image this asteroid especially in the last few days before near approach, you should check for current positions on line as the Earth's gravitational field may cause the asteroid to change course slightly.

Near Earth Objects – Dynamic Site: Use Observatory Code (448) - Desert Moon Observatory, Las Cruces, http://newton.dm.unipi.it/cgi-bin/neodys/neoibo?objects:2006VV2;obspred

The Lincoln Near Earth Asteroid Research (LINEAR) project is an MIT Lincoln Laboratory program funded by the United States Air Force and NASA. The goal of the LINEAR program is to demonstrate the application of technology originally developed for the surveillance of earth orbiting satellites, to the problem of detecting and cataloging Near Earth Asteroids (also referred to as Near Earth Objects, or NEOs) that threaten the Earth.

If you are interested in learning more about the LINEAR program, which is based in part at White Sands Missile Range, see http://www.ll.mit.edu/LINEAR/. The following was taken from that site. "The LINEAR program uses a pair of GEODSS telescopes at Lincoln Laboratory's Experimental Test Site (ETS) on the White Sands Missile Range in Socorro, NM. The telescopes are equipped with Lincoln Laboratory developed CCD electro-optical detectors and collected data is processed on site to generate observations. Observations are then sent to the main Lincoln Laboratory site on Hanscom, AFB in Lexington, MA where they are linked from night to night, checked, and sent to the Minor Planet Center (MPC). The MPC assigns designations to LINEAR's new discoveries of NEOs, comets, Unusual Objects, and main belt asteroids."

April Issue HDO

Articles for the April issue should be to me by Sunday, April 8. Material should be sent as email (gmhlcnm@msn.com) or as an attached Microsoft Word document. If you have any questions about submitting something to the HDO, please don't hesitate to contact me (532-5648 or via email). Thanks in advance! George Hatfield, Editor, ASLC Newsletter

President's Message, continued from page 1

advantage of our dark, clear New Mexico skies to add to our knowledge of the heavens.

If you are not already engaged in one of these activities, I urge you to consider joining us. Scientific knowledge that supports the great breakthroughs is built up one observation at a time, and we can use your help. If you are already contributing, I urge you to either write an article about it for the HDO (contact Editor George Hatfield) or give a talk about it to our membership at our regular meeting (contact Bill Stein).

None of this is meant to minimize the great efforts of our public observers and teachers who help spread the word about amateur astronomy and the ASLC. We all do our part to contribute to amateur astronomy and no area is less important than another. I thank all of you for your efforts on behalf of astronomy and the ASLC. Clear Skies! - Bert

Elmer Reese

Elmer Reese

As Mark Twain is reported to have said about a false report of his demise, the account of Elmer's death (October, 2006 HDO) happily "was greatly exaggerated." We recently received the following email. "I'm just sending you this email to inform you that the article about the death of Mr. Elmer Reese is happily incorrect. Mr. Reese is my step-grandfather, and is currently living with my parents Emily and Ken Oates in Houston, Texas. In February 2003 his wife (my grandmother) Margaret passed away. Perhaps this is the source of the confusion. I remember meeting Mr. Haas when I was eleven. He showed me the moon through his terrific telescope. Please relay to him our best wishes, and please let him know that Elmer is well, and enjoying time with his great-grandchildren. Margaret Weinberg, Southlake, Texas." Walter Haas

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