

The High Desert Observer

The Bulletin of the Astronomical Society of Las Cruces

January, 2008

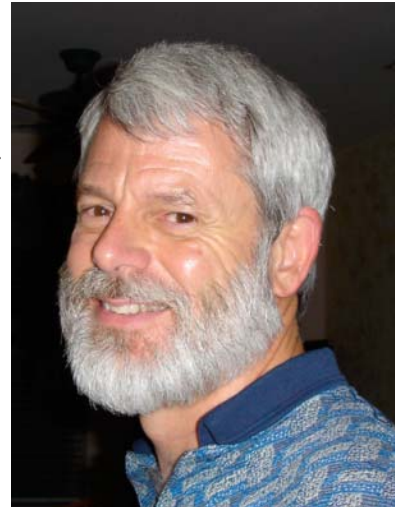
President's Message

A happy and productive New Year to everyone! Hopefully your holidays were very enjoyable and refreshing. Our Society is gearing up for another banner year of astronomical activities here in good ol' Las Cruces. I hope everyone is getting excited about the new challenges and opportunities facing us, like our Leasburg observatory. I plan for us to have a wide selection of interesting speakers and activities this year - more on that as things develop. Please note the membership survey included in this issue - it's your chance to get your two-bits in and influence the direction your club takes. If everyone will put some thought into their responses (and submit them!), it will be a truly useful tool for your officers in guiding the Society.

By the way, our first Board of Directors meeting was well attended and productive - thankfully we have many talented and industrious members 'cause there is plenty for everyone to do! We got off to a good start in one critical area - event publicity! With a sizeable *Sun-News* article and several other publications announcing our New Scope Users Clinic, we have started in the right direction in reaching the public. See a description of this event and some pictures elsewhere in this issue.

Related to that, communications both without and within our club look to be even better this year as George and Rich continue to make improvements to the *HDO* and website, respectively - please be as helpful as possible and contribute, for these are YOUR resources and the club will definitely benefit. Rich in particular is giving the website an "extreme make-over," so he deserves special kudos and support. Why, even Steve B. is perusing them now! ;~)

It appears to me that the excellence and enthusiasm of our industrious Imagers Group is spreading into other areas - that can only be good. I am especially glad to have Chuck Sterling step up to honcho our outreach efforts. He is one of our most consistent workers, and in the end that makes a huge difference. So let's see if we can all "enjoy ourselves and learn through sharing" as we take off this year. Clear skies, folks! - Nils Allen



Nils Allen

New Telescope Clinic a Big Success

From Nils Allen.... In a big turnaround from January 2007, we had a crowd of new scope owners at our latest Telescope Clinic at Veterans Memorial Park on January 5! Conditions were great and they came early and stayed late, with around 30 "newbies" requesting advice and assistance from our staff of experts. It was busy enough that several folks had to wait awhile to be seen by one of our "scope doctors." But thankfully we weren't aware of anyone who didn't get some help. Thanks go to our hard-working experts - Rich,

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Next Meeting

The next meeting will be held on Friday, January 25, 2008, at the usual place and time (DABCC, room 77, 7:30pm). Dr. Reta Beebe, Professor of Astronomy, NMSU, will be the speaker. She will discuss the structure of the National Academy of Science and its role in determining NASA's Solar System Exploration Program. Dr. Beebe's research has involved interpretation of data from the NASA Planetary Exploration program. She has worked on Voyager, Galileo, and Cassini data and used the Hubble Space Telescope for a Jupiter/Saturn observing program early in the mission, and was a member of the Shoemaker/Levy team at the Space Telescope Science Institute in 1994. Drs. Herb and Reta Beebe are long-time members and supporters of the ASLC.

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The Astro Tidbits Group (contact: Nils Allen) will meet prior to the meeting at 7pm. The Imagers Group (contact: Rich Richins) will meet prior to the February meeting. Anyone is welcome to attend these special interest group pre-meetings. Other events planned for January and early February include:

Dark Sky Observing at the Upham dark sky site, Saturday, February 2 and/or February 9, dusk

ASLC Moon Gaze, International Delights Cafe, Saturday, January 12

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

A Newbie's Journey into Light

By Kirby Benson

Having always been more interested in astrology than astronomy, metaphysics over physics, and art rather than arc, it was not only surprising to my wife but also to me when one day August of 2003 I announced, "I'm going to get a telescope and have a look at Mars." Thus began my involvement with astronomy. This did indeed seem strange to both of us since most of my adult life has been spent working in the fields of art and psychotherapy and I was required to take "bonehead" math my senior year of high school in order to graduate.

Well, that first 4.5 inch f/5 reflector telescope was not much to rave about and in fact, it was pretty lousy for viewing Mars since it looked like a slightly large star. However, in February of 2004 I replaced it with an Orange tube vintage 1970s C8 that I found on eBay and began the search for star clusters and the occasional nebula. I hauled it on camping trips and into the front yard a few times and then put it away for several months having other commitments that required lots of time and energy, often away from home.

Sometime in the late fall of 2005 I ran across a couple of internet articles discussing the use of Web Cams and Digital cameras for taking pictures of deep sky objects and the planets. This really caught my interest, since like most of us I had always been impressed with those beautiful deep sky images seen on telescope boxes and in magazines.

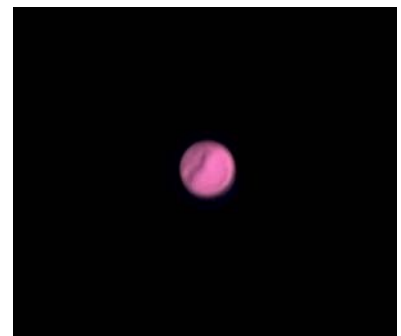


Image 1, Mars

After some research on the Web, I was ready to tackle this web cam thing. I charged downtown and >>

➤ purchased a Logitech QuickCam Pro 4000, tore it open, removed the IR filter and glued a film can onto the front of it so I could put it into my diagonal. Shown here is the product of all this industry - my first image, and of Mars no less. It was taken sometime in November of 2005.

Flushed with success and excited over my obvious mastery of web cam imaging, I decided to venture into the world of the digital camera. I owned an Olympus Digital 4000 that I used for photos of artwork to put in my portfolio. This would allow up to 15 seconds of exposure and should, in my mind, do pretty well with M42, the Great Orion Nebula. A camera adapter from Scopetronics was all I needed to capture this image with my Orange C8 in December of 2005.

I am sure all my friends enjoyed receiving this in an email and then perhaps wondering, "What is it?" I told my wife Judy that we should probably use this image for our Christmas cards. She firmly replied, "I don't think so."



Image 2, M42, Olympus

Well, finally realizing the limitations of only 15 seconds of exposure I decided it may be time to move up into the world of CCD cameras and rub shoulders with the big time Dudes and Dudettes of astrophotography.

Having seen the marvelous nebula and galaxy pictures on the Meade website, I figured the Meade DSI would be the camera for me. But being somewhat frugal by nature I blanched at the \$300 price tag. It wasn't until somewhat later that it began to percolate down into my tiny brain that this hobby is EXPENSIVE! However, I summoned up my courage and went in pursuit of the Meade Color DSI Camera I now thought would probably be the last piece of astrophotography equipment I would ever buy or need. Fortunately, a local friend who sells on eBay had a new one for sale that I purchased for a small reduction in price from full retail. I was now ready to get really serious about astronomy and imaging.

Once again, other responsibilities drew my attention away from astronomy. The Meade DSI went onto the shelf unopened and it wasn't until the end of 2006 that I pulled the old Orange C8 baby out of hiding, dusted off the DSI and started re-learning the little bit I had forgotten.

After about of week studying the Meade Envision software (which I still don't understand), I felt confident enough to capture M42, The Great Orion Nebula, around the first week of January 2007. I knew I was on the way to becoming an expert at image processing having accomplished the difficult task of stacking two 30 second exposures in order to produce this image.



Image 3, Orion, DSI

However, it was not long before I became dissatisfied with the Meade DSI as the amp glow from this camera was causing me all kinds of problems. I did not know at that time that this is a common problem with non-cooled cameras and thought perhaps I had a faulty CCD chip. With some web searching and research I found out un-cooled cameras are, well, un-cool and if I wanted to get really, really good at this, I would need a TEC cooled camera. ➤➤

➤ I was beginning to now feel like the frog that is being slowly boiled. I failed to fully realize (or did not want to fully realize) that I was spending LOTS of money on astronomy and imaging equipment with no end in sight. I was somewhat able to justify all these expenditures as being in the category of medical expenses. You know – good therapy to maintain mental acuity and avoid becoming depressed by being continually distracted through encounters with a never ending set of problems, confusing directions, frustrations, and challenges.

So what would a good TEC cooled camera look like? Well, it looked like an Orion Star Shoot Color with TEC. It was about this time that Orion stopped producing the camera and just as I was hot for one it became scarcer than hen's teeth. I did finally run one down at a dealer that had a few left. Also at this time I figured out that the old Orange C8 just wasn't up to the tasks I had in mind, so I began hunting around for the legendary Losmandy GM-8 with the Gemini system (this last item being necessary since I never have been able to understand the little dials and numbers signifying Right Ascension and Declination and how to make them work).

Well, I did find a nice used GM-8 and Gemini for sale and it came in about the same time as the Orion Star Shoot in early 2007. I also found a good, slightly used C8 OTA and also put that on the tab.

It was also about this time I decided it would be good to join the local astronomical society. I had met Nils Allen sometime earlier and heard his pitch for ASLC. Since Nils seemed like such a nice guy, I figured it couldn't be too scary to join the organization. I knew I would feel intimidated by so many experts, but also knew I needed to face my fears and besides I could always just nod and look knowledgeable. So far, it seems to be working.



After lots of trial runs in the house I finally got out in January and shot one of my first images with the Orion Star Shoot, C8, Losmandy GM-8 and the Gemini. This is NGC 2244 the star cluster and NGC 2237, The Rosette Nebula.

Image 4, NGC 2244 and NGC 2237

What? You don't recognize it?

At this point I had not yet comprehended the concept of mount guiding, although I had seen it mentioned on the internet, and was somewhat disappointed when many of my images turned out with oblong and streaked stars. I now had learned that I would need to limit my imaging time per frame down to 30 to 45 seconds if I didn't want stars that looked like those night time pictures of cars on a freeway. Although my mount had a polar scope, I found it difficult to use and understand all the little lines that were marked all over it. So, when and if I could find Polaris, I would put it in the center of the scope and hope for the best.

It really was time to attempt guiding since by now it was obvious I would need to learn to do it if I wanted to get beyond the 45-second limit. I found a new Stellarvue NightHawk 80mm refractor on eBay and bought it. I also found the necessary items to connect it to the top of my C8 and start guiding. By using the Nebulosity imaging software with the PHD guiding software I was all set to go.

I persevered, learned some very basic concepts concerning guiding with the help of Bob Long, who for some strange reason took pity on me, and by the end of February 2007 I was able to produce the two images of M101 and M51 shown on the next page.

The main issue I was now facing was the fact my two telescopes and cameras (the DSI for guiding and the Orion SS for imaging) created a weight problem. My mount was rated for 30 pounds and I was carrying about 32 pounds. Steve Barkes suggested I lower the mount as far as it would go and get some ➤➤



Image 5, M101



Image 6, M51

➤ anti-vibration pads for the feet. This I did and found it somewhat helpful but still not completely to my liking.

Also at this time I was finally able to break through my denial and fully realize that I would be spending all the money on astronomy and photography equipment that my wife and I had put aside for our old age and that we would probably need to cut back on food and other necessities in the near future. Feeling much freer and truly existential now that I had accepted my destiny I ordered a Vixen ED 103mm refractor to be shortly followed by a Vixen 80mm refractor that Vixen America was selling at a much reduced price to eliminate all their inventory.

This was a spiffy looking setup that lightened my mount load significantly and I knew it would impress everyone at the Texas Star Party (to know the true story of the Texas Star Party see the June 2007 *HDO*). Well, as everyone knows, the TSP came and wet, but I did learn some important things while hobnobbing with the ASLC Imaging Masters. One of those things was that it is possible to take stunning images with Digital Single Lens Reflex cameras and specifically the Canon 350D that has been modified to capture emission nebula such as the Pelican or North American Nebula. I was skeptical at first but Dave Dockery and Rich Richens assured me it would work. Jerry Graber, Steve Smith, and George Hatfield gave that a second and I was now convinced enough that I began to plan my strategy on how to persuade my wife this was something we could also use to take pictures of her pets.



Image 7, the North American Nebula

It arrived in early June and by now I had learned enough about guiding that I was able to get my first real picture of a nebula. This is the North American Nebula with 15 images at 5 minutes each and 8 dark frames. I was now using ImagesPlus software to image and stack and Photoshop to finish the processing.

Shortly after this image was taken, Bob Long began to help me understand how astronomy images are processed in Photoshop and as much as I loath it, I read parts of a couple of books on the subject. It also must be said that soon after I joined ASLC earlier in the year I began to post some of my attempts on the ASLC Imagers Yahoo! Group and was given lots of encouragement and suggestions on how to improve. I believe someone even said it would be helpful to take the lens cover off the telescope.

Bob and many others in ASLC also continue to attempt to help me understand arcane things such as image scale, matching the camera to the telescope, proper guiding speeds, and so forth. Not having a head for numbers very little of it sticks, but I do go back to the notes I take (when I can find them on a desk ➤➤

► piled high with bits and pieces of paper and bills for astronomy equipment) and continue to try and make sense out of all of it from time to time.

Continuing to work with the same equipment it was in late July I was able to produce this image of M8 and M20 with 12 frames at 300 seconds each along with 3 darks from the dark sky site at Blue Mesa.

Sometimes I would send a finished image to Bob Long for a review before posting it to the ASLC Imagers group on the web. He generally pointed out things that were not done well and it would be back to the drawing boards for more tedious hours of attempting to learn Photoshop processing techniques. There were often notations at the bottom of his emails that went something like, “How do you expect to gain a seat on the Galactic Council with a picture like this?”

Reveling under harsh criticism, I persevered with my Canon and in early November managed to produce this B 33 Horsehead image with 28 frames at 180 seconds each and 4 dark frames.

What I was being taught was that to be successful in capturing a good image it was important to not jump around and try to do several in one evening but rather image only one thing and if time allows (before you fall asleep, starve, or freeze to death) go for one other. In addition, it is best to run the camera as long as possible for each frame before noise sets in order to gather the most data. Unless, of course, the target will not allow overly long exposures before flooding out with bright pixels. I have discovered that gaining familiarity with the equipment is very important in order to gain some sense of what its limitations are.

I began to feel that by late 2007 I had gained enough experience that I could now begin to draw somewhat on my background as an artist and start thinking about basic design principles and aesthetic considerations such as cropping out parts that may upset the sense of asymmetrical balance. Or by moving the emphasis of the target to a more dramatic position in the composition by eliminating parts of a side or top or bottom. In addition, manipulating the framing of the DSO in the original view from the camera can give some measure of control over the final composition. It is hard to improve on nature but the human interface creates another dimension as we stand between nature and the experience of our interpretation of it. Some of these things can be done and attempted with the camera and some with the processing of the images.

There seems to be a fundamental set of expectations in the processing and display of deep sky images and the beginner is encouraged to learn the basic techniques in order for an image to be considered acceptable by the astronomy imaging community. It is critically important to learn these so called rules, but as with any form of art it is potentially possible to move way beyond the basics and bring elements of creativity to the process that transcend the boundaries that have been established. This implies risk and can challenge us to move past our preconceptions of what is right and wrong in astrophotography. ►►



Image 8, M20 and M8



Image 9, the Horse Head Nebula

➤ And last of all, here is M42 The Great Orion nebula that was done in early December of 2007. It is 35 frames at 120 seconds each combined with 30 frames of the trapezium at 30 seconds.



Image 10, M42, the Great Orion Nebula

This image includes some experimental sharpening techniques that Tony Gondola brought to my attention in order to bring out more detail that contributes to the overall clarity of the picture.

Since I began this journey into astronomy I have not yet given much consideration to the metaphysical, spiritual or the mythic of deep sky or close sky objects. Perhaps that will change and more of the invisible and spiritual dimensions of space will begin to reveal themselves as time unfolds. I do know that this pursuit is mind expanding in ways I cannot really put into words very well – experiencing the nature of the universe and the immensity of it all. By considering the dimensions of birth and death at the scale of the Universe and attempting to relate those to a personal experience on Earth challenges the mind to move beyond the limits of our sensory perceptions. It really is mind-boggling - isn't it?

Mars Image

By Bill Stein

The seeing was not too bad around 11pm on December 24. Visually, using my Celestron 14" SCT, I could see Sytris Major on Mars, using a ToUcam equipped with a Televue 2x Powermate Barlow (f/22) and Baader Planetarium Contrast Booster. The image shown here comes from a one-minute video series that was processed through RegiStax in automatic mode. In this image North is at the top and West is to the left. My wife, Susan, processed the image in Photoshop.



February Issue of the *HDO*

Articles for the February issue should be sent to me by Saturday, February 9. 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.

New Telescope Clinic, continued from Page 1

Chuck, Jerry M., Jerry G., Steve B, Steve H., Dave, and George (who came to take pictures and ended up working with customers!) - hope I didn't miss anyone! We fixed, cleaned, aligned, and demo'ed hardware; advised, distributed literature, and directed folks to our website, etc. I think we will have some new visitors at our upcoming activities, which is part of our goal for this event. A beautiful sunset wrapped up the afternoon, which is why no one stayed to do any observing (too cloudy). All in all a fine start for our public activities this year.

From Chuck Sterling... I arrived a bit early and was going to set up a simple EQ mount to demonstrate how it works. Never finished. People started arriving within a few minutes; the first question was, "Are you here to learn, or to teach?". And it never slowed down until about 5pm or so... I worked with one fellow with an inexpensive alt-az scope with three (!) eyepieces on a turret. Its potential is limited, but I felt that he would be able to get it set up and the finder scope aligned. That was apparently the main problem: He would get the finder on an object and see nothing in the eyepiece. We got it aimed at a light pole in the distance, focused it and then aimed the finder. I think he got the idea.

Another had an ETX-90 on an unusual German mount, and wanted some pointers on how to set things up so tracking would be relatively simple. He also had some questions about focal length, magnification with various eyepiece and Barlow combinations, field of view, and so forth. He took several notes. I think we will see him again, at least I certainly hope so. Some folks interested in a portable yet capable scope were watching and we chatted some about different types of scopes and mounts and how they each had their strong and weak points. An Orion catalog with folded pages was the end result. Perhaps we will see these folks again too.

A third had a Meade alt-ax GOTO scope with a 494 controller that seemed to be "glitching" in various ways. We did tighten up the gear trains and expounded on the benefit of cautious use of blue locktite, but the real test will be if he brings the scope to the moon gaze next weekend. If he does, we will try it with different controllers and see if it behaves like it should. Quite a day.



*January 5 New Telescope Clinic at Veterans Memorial Park
(photo from Chuck Sterling)*

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 ASLC 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.

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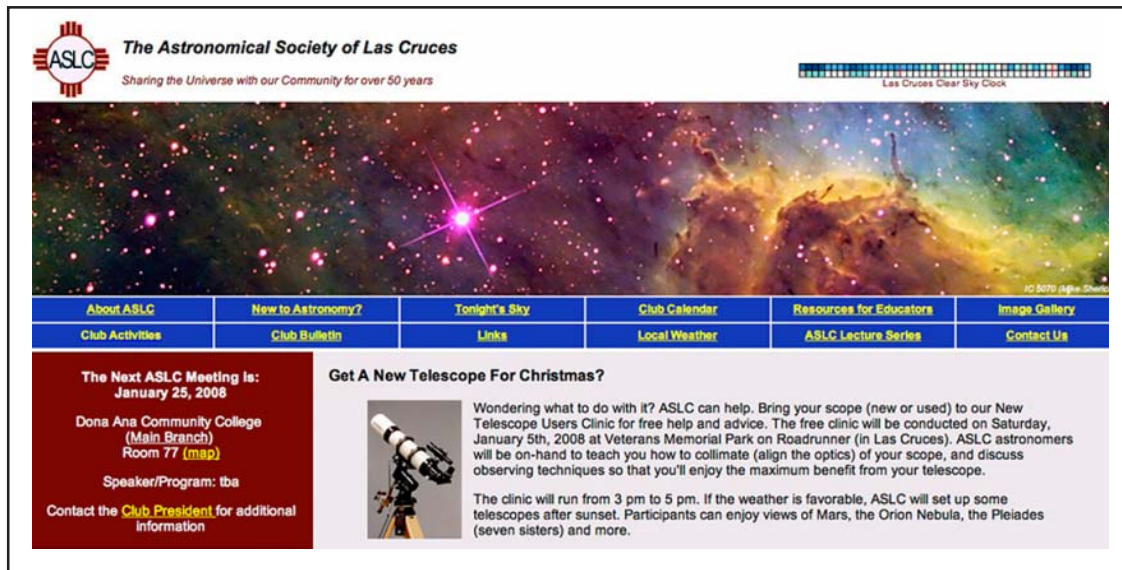
More Photos from the New Telescope Clinic



Photos from Steve Barkes and George Hatfield

Club Website Gets a Facelift

The ASLC-NM.org site is been completely reworked. The layout has been reworked and now includes really cool images by ASLC astronomers on every page. Many of the images are high-resolution narrow-band images taken by Mike Sherick. The site has more of an outreach feel to it with more complete buying and observing guides for visitors and beginning astronomers. However, there's also more there for the membership. There is still some work to be done and if the new website is not up when you take a look, try later in the month (<http://www.aslc-nm.org>). - Rich Richins (ASLC webslave)



ASLC Membership Survey

Your Opinion Counts! Just another useless survey? Nope! If you want the ASLC to improve and continue to prosper, please provide us some constructive inputs! Get your answers back to Nils (or another officer if necessary) soon, via email preferably (nils_a@comcast.net) or on paper if you must, but please let us know your thoughts Thanks for caring about your Society!

1. Regular Meetings:

- What do you like best about our meetings (special interest groups, visiting with others, the speakers, etc.)?
- What would you like to see or have more of at our regular meetings?
- If you don't attend regularly, what change(s) would encourage you to do so?
- Are there any particular areas of interest or speaker topics would you like to see presented in 2008?
- Currently we only have one real Special Interest Group that meets - the Imagers Group. What suggestions do you have for other groups that you would support?

2. Overall Activities and/or Programs:

- Can you describe an organized activity or program or two that you would like the ASLC to have or do? Possibilities are a mentoring program, a club equipment loaner plan, a youth activity/function, or field trips. Would you participate in it?
- Are you interested in having any other social-type event(s) other than our annual Christmas party? Your suggestion(s)?

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Photoshop Toolbox

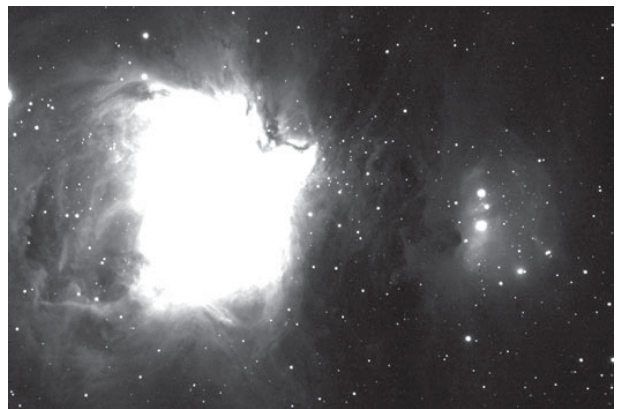
By Bob Long

Editors note... I'm hoping this will become a regular feature in the HDO. The idea is to present a Photoshop technique each month that would be useful to those processing astronomical images. This month Bob Long describes a very useful technique of getting around dynamic range problems. If you are interested in contributing a technique that you find useful, please let us know.

As most astro imagers know, your image sensor has a much greater dynamic range than your monitor does. As a result we are often faced with a choice between over exposed bright regions, or leaving the extended regions too dim to be seen. One method of combating this is to shoot two or more images of the same object with different exposure times, then layer them together in Photoshop. If however, your image has everything from an “unsaturated” bright core to the faint extended regions, you have another option.

The problem is to bring the full dynamic range of your data down to the 256 levels that your monitor can reproduce. The curves window in Photoshop does a great job doing a nonlinear histogram shift, allowing you to raise the output levels of the dim regions while leaving the brighter areas relatively unchanged. The major problem with this is that, to reveal the dimmest regions, histogram stretches often leave the image with a “flat” low contrast look.

Below are two views of the same Hydrogen Alpha image data of the Orion Nebula. The histogram of the unstretched and heavily stretched images shows the wide range of brightness levels present in the image.



By starting with the highly stretched image and working back to the unstretched image, using the procedure below, a final image showing the wide dynamic range can be made with much greater contrast than a simple histogram shift would normally produce.

1. Open image
2. Duplicate image (Image>Duplicate)
3. With the duplicate image, make any desired adjustments
4. On the original image select the area to be effected (lasso tool, select color range, etc.)
5. Expand selection (Select>Modify>Expand) (increase depends on the image, try 2 per mega-pixel) >>

- 6. Feather selected region by 1/2 of the expand (Select>Feather)
7. Save selection (Select>Save Selection), give it a name (I use 1, 2, 3, etc.)
8. Switch to duplicate
9. Load selection (Select>Load Selection) pick the right saved selection name
10. Copy the highlighted selection (Edit>Copy)
11. Switch back to the original
12. Paste the copied selection (Edit>Paste)
13. If the newly pasted region doesn't quite match, use curves while the region is highlighted (you can always highlight the region again by using (Select>Load selection)
14. Flatten the image (Layer>Flatten Image)

This final image shows the results of six iterations of this procedure.



The Minor Planets Section of ALPO and the *Minor Planet Bulletin*

By Fred Pilcher

The Minor Planets Section of the Association of Lunar and Planetary Observers (ALPO) was founded by Richard Hodgson in the year 1973, and I am proud to be a charter member and to have made a steady stream of contributions from the founding through the present. Rev. Hodgson established the *Minor Planet Bulletin* as the quarterly journal of the Minor Planets Section, and the two have been essentially two faces of the same entity. From the beginning the *Minor Planet Bulletin* has been indexed in the Astronomical ➤➤

➤ Abstracts and all of its research papers have been refereed to professional standards.

In 1980 Rev. Hodgson resigned as both the Recorder of the Minor Planets Section and publisher of the *Minor Planet Bulletin*. Richard P. Binzel stepped in to secure continued publication of the *Minor Planet Bulletin* as its editor. At that time I became the Recorder (now Coordinator) of the Minor Planets Section, Bob Werner became producer, and Derald D. Nye distributor. I remember corresponding with Richard Binzel in the 1970s when he was an enthusiastic teenage amateur. In the 1980s he obtained both his MS and PhD degrees in astronomy with thesis and dissertation, respectively, on photometry and lightcurve work in asteroids. He has remarked that he would have become a professional astronomer in any case, but that he would not have entered the field of physical studies of minor planets had it not been for his early activity with the Minor Planets Section. Dr. Binzel is now Professor of Earth and Planetary Sciences at MIT and a full member of the International Astronomical Union (IAU). He was one of seven members of the 2006 IAU Committee on Planetary Definition, and helped to conceive the idea of a dwarf planet massive enough for gravity to pull it into a near spherical shape but not the dominant object in its part of the solar system.

Dr. Binzel is a remarkably perceptive person and recognized by the late 1980s that new technology would enable amateur astronomers to become the dominant contributors to asteroid lightcurve research, and his own research has switched to spectrophotometry and the compositional properties of asteroids. Until the 1990s the *Minor Planet Bulletin* was a small publication of only a few pages each quarter. In the past 10 years it has grown very rapidly with the increase of asteroid lightcurve papers, mostly by amateurs, using CCD data acquisition and high speed computerized photometric measurements of the images.

Numerous recent papers by amateurs are just as good as the professional papers in the 1980s and earlier and in many cases include much more comprehensive data sets. The *Minor Planet Bulletin* of the Minor Planets Section of the ALPO is an outstanding example of amateur-professional collaboration.

I personally have read from cover to cover every issue ever printed of the *Minor Planet Bulletin*, and for thirty years every article on minor planet physical studies that I could find. Each year I have published two annual columns in the *Minor Planet Bulletin*, "MINOR PLANETS AT UNUSUALLY FAVORABLE ELONGATIONS IN (current year)" and "GENERAL REPORT OF MINOR PLANET OBSERVATIONS FOR THE YEAR (current year)." But it is only in the past year, after moving to the excellent climate of Las Cruces, and building an observatory designed from the concrete pad up for asteroid lightcurve work, that I have joined the growing community of authors of lightcurve papers. Recent issues of the *Minor Planet Bulletin* are now available on line, at <http://www.minorplanetobserver.com/mpb/default.htm>

I have two articles in the January - March issue of the *Minor Planet Bulletin*: Pilcher, F. (2008) "Period Determination for 294 Felicia." *Minor Planet Bul*; 35, 24-25; and Pilcher, F. (2008) "Minor Planets at Unusually Favorable Elongations in 2008." *Minor Planet Bul.* 35, 6-8.

THE MINOR PLANET BULLETIN

BULLETIN OF THE MINOR PLANETS SECTION OF THE ASSOCIATION OF LUNAR AND PLANETARY OBSERVERS

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ASTEROID LIGHTCURVE ANALYSIS AT THE OAKLEY OBSERVATORY - MAY 2007

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Photometric data for 16 asteroids were obtained at the Oakley Observatory May 19-22, 2007: 205 Marita, 313 Chaldana, 314 Rodalia, 438 Hecynia, 479 Cypria, 480 Concinia, 1584 Katerja, 1428 Mombasa, 1558 Jarzefski, 1910 Mikhailov, 2425 Shenzen, 3165 Mikawa, 5560 Amyia, (5854) 1992 UP, and (15317) 1993 HW 1.

Data were collected on a total of 16 main-belt asteroids over four nights in May 2007 from the Oakley Observatory on the campus of Rose-Hulman Institute of Technology, Terre Haute, Indiana. The data gave useful lightcurves and rotational periods for 15 asteroids. Of these 15 periods, eight confirm previously reported results, two periods disagreed or removed ambiguity from previously published periods, and five were completely new results. Three telescopes were used on all nights. Each telescope was a 14-inch Celestron optical tube assembly mounted on a Paramount ME. Each camera was a SBIG STL-1001E which used

a V filter at a scale pixel of 2.32 arcseconds per pixel. On one night, an additional 14-inch Celestron telescope with an Apogee AP-8 camera, operating unfiltered at a pixel scale of 2.00 arcseconds per pixel, was used. Four minute exposures were used for most of the data frames. Master flat and dark frames were generated in MaximDL, and then used in CCDSoft to calibrate the images. The magnitudes were measured using MPO Canopus. Due to the long exposures, the star subtraction option on MPO Canopus was often necessary.

Asteroids were selected based on their position in the sky one hour after sunset. Priority was given to asteroids without previously published lightcurves, but asteroids with well-known periods were also targeted with the hope that the new data would help with shape modeling and determining pole orientation.

To our knowledge, these are the first reported rotational periods for the following asteroids: 1558 Jarzefski, 1910 Mikhailov, 2425 Shenzen, 5560 Amyia, and (5854) 1992 UP. The results are summarized in the table below with individual lightcurve plots after the table. The results and lightcurves are presented without comment except when necessary.

205 Marita: Our results are consistent with the period of 9.637 h given by Harris and Warner (2007), but the 11:50 h period given by Behrend (2007) can't be ruled out.

313 Chaldana: The data are consistent with the period of 8.192 h given by Hainaut-Rouelle (1995) and Behrend (2007). However, due to hardware problems on two nights, we had insufficient

Number	Name	Dates May 2007	Exposure [s]	Data Points	Period [h]	Period Error [h]	App Error [mag]
205	Marita	19-22	120	68	9.74	±0.03	0.10
313	Chaldana	19-22	120	72	8.38	±0.01	0.10
314	Rodalia	19-22	240	98	20.169	±0.001	0.40
438	Hecynia	19-22	240	85	15.33	±0.04	0.35
479	Cypria	19-21	240	66	9.276	±0.001	0.15
480	Concinia	19-21	240	65	9.26	±0.02	0.12
1032	Fafuril	19-22	120	66	9.330	±0.001	0.15
1384	Katerja	19-21	240	65	9.26	±0.02	0.12
1428	Mombasa	19-22	240	96	31.12	±0.01	0.25
1558	Jarzefski	19-22	240	90	18.22	±0.06	0.40
1910	Mikhailov	19-22	240	81	8.88	±0.03	0.25
2425	Shenzen	19-22	240	131	14.715	±0.042	0.80
3165	Mikawa	19-22	240	88	5.100	±0.01	0.25
5560	Amyia	19-22	240	77	7.728	±0.001	0.50
5854	1992 UP	19-22	240	148	14.219	±0.001	1.00
15317	1993 HW1	19-22	240	83	2.600	±0.002	0.20

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Membership Survey, continued from page 10

- Would you support having a joint activity or event with the Alamogordo or El Paso clubs? What type - DSO, public outreach, social, etc.?

3. Communications:

- Do you have a computer and/or Internet access? Are you happy with how our newsletter (the *High Desert Observer*) is delivered now? Suggested changes? Of the two resources we have (the *HDO* and our website), which do you use and value most, and why? (saying that you enjoy and benefit from both is fine!)
- Any specific change(s) you would like to see in either to improve it? In the past few years have you contributed a significant article or input to either the *HDO* or website? Would you be willing to do that this year?

4. Club observatory:

- Do you intend to practically support or contribute to the creation of our new observatory up in Leasburg Dam State Park? Please indicate how?
- Do you intend to personally utilize this new resource when it is complete and ready?
- Will you personally support the public outreach function of this facility? Indicate the nature of your willingness to financially support the operational expenses of this facility - do you favor 1) a general dues increase? 2) facility usage fees? 3) other? What sort of amount - small, not so small, none?

Thanks for giving us your input!

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