Desert Skies

Tucson Amateur Astronomy Association

Volume XLVII, Number 5 May, 2001

Telescopes For Telethon

Calendar of Events

BEGINNERS LECTURE: May 4, 6:30 pm at the Steward Observatory Auditorium – Room N210. This month's topic is *2MASS Sky Survey* by Alfredo Garcia.

GENERAL MEETING: May 4, 7:30 pm at the Steward Observatory Auditorium - Room N210. Topic is *Near-Earth Objects (NEOs): The Threat & The Remedy* by Greg Peisert.

BOARD OF DIRECTORS MEETING: Monday, May 14, 7:00 pm at Steward Observatory Conference room N305.

STAR PARTIES AND EVENTS:

- May 5 - Grace Community Covenant Church
- May 9 - TIMPA LR planning subcommittee meeting
- May 10 – Lyons Elementary School Star Party
- May 11 - Accelerated Learning Center Star Party
- May 12 - Sonoran Desert Homeschoolers S.P.
- May 12 - TAAA TIMPA Star Party
- May 18 - Valencia Middle School Star Party
- May 19 - Desert Museum Public Star Party

Newsletter Schedule: Deadline for articles: Monday, May 14. Printing: Monday, May 21. Folding Party: Tuesday, May 22. Mailing: Wednesday, May23. The newsletter is scheduled to be in the mail at least one week prior to the following month's General Meeting.

Cover: David and Wendee Levy signing star certificates at the Telescopes for Telethon Public Star Party

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TAAA Mission Statement:

We are a resource for anyone interested in astronomy. It is our mission to nurture a person's natural curiosity about the night sky. By giving people a knowledge and understanding of astronomy, we enhance their enjoyment of the solar system and beyond. Through our public activities and school evening observing sessions, we bring astronomy to persons of all ages. Our regular meetings and observing sessions offer members a forum to meet others with similar interests and experiences and to learn from one another.

Annual Membership in the TAAA:

Regular membership	$ 23
Senior membership (over 60)	$ 21
Student membership	$ 15
Add for Family membership	$ 5
Add for Astronomical League (optional)	$ 3
Add for contribution to Southern Arizona Section of I.D.A. (optional)	$ 3 (recommended minimum)
Add for Sky & Telescope Magazine Subscription	$ 29.95
Add for Astronomy Magazine Subscription	$ 29

Rates for membership are given above. Family Membership includes two adults plus minor children. Members may subscribe to **Sky & Telescope** or **Astronomy** magazine (or both) at the time of membership renewal, saving substantially over the regular subscription rates. To assure we understand what you are paying for, please identify which class of membership and what options you want. Send one check made payable to *TAAA* to cover membership dues, magazine subscription(s) and any contributions to:

Tucson Amateur Astronomy Association
P.O. BOX 41254
Tucson, AZ 85717

Four Easy Steps to Membership Renewal:

1. Pay your dues 2-3 months early. Your month of membership expiration is listed on your newsletter mailing label.
2. Find your membership class and its rate. Add the Family Membership rate to this, if applicable.
3. If you desire membership in the Astronomical League or magazine subscription (s) or wish to make a donation, add the appropriate amounts to your membership rate. If a magazine subscription renewal is desired, include the magazine renewal notice, if possible. Be sure to identify which options you are paying for.
4. Write one check, payable to *TAAA*, and send it to the address given above.

- Call the Treasurer if you have any problems.
- Send address changes to the above address.

Desert Skies Publishing Guidelines:
All articles, announcements, news, etc. must be submitted by the newsletter deadline noted above. Materials received after that date will appear in the next issue. All submissions are retained by the editor unless prior arrangements are made. Partial page article submissions should be submitted in Word compatible files via e-mail or on a floppy disk. Full page articles, artwork, and photos should be camera ready. We will not publish slanderous or libelous material! Send articles, announcements, etc. to:

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President's Message

Finally! They say the third time is the charm and it was. The third annual Telescopes for Telethon Public Star Party held on Friday, 3/30, at Sabino Canyon was extremely successful. The weather was fantastic and the public showed up in droves. As if the evening triumph was not enough, those who stayed late were treated to the most spectacular auroral display. This activity was a perfect example of how the amateur astronomy community, amateurs together with our local astronomy shops, worked side by side to support a worthwhile charity. Many thanks to those who volunteered. See the article and photos in the ***Club News*** section.

April was a fun month for the TAAA. The Kitt Peak Star-b-cue on 4/14 was a great success. The weather was terrific and everyone thoroughly enjoyed the activity. See the article and photos in the ***Club News*** section. A recap of the TAAA Annual Picnic at Vega-Bray Observatory in Benson on 4/21 will be presented in the June newsletter.

The TIMPA Project continues to move forward. For the fourth straight month, the work party to transfer the observatory support structure from Kitt Peak to TIMPA was postponed due to hazardous road conditions up on the mountain. But, like last month, volunteers went to the TIMPA Site to install the steel reinforcing bar in the footer trench for the big observatory in preparation for pouring concrete. The TIMPA Long Range Planning Sub-committee developed a nifty site layout incorporating everything that the club might want at TIMPA in the future. See the articles in the ***TIMPA Site News*** section.

As I approach the end of my tenure as president, I am very interested in finding volunteers for the last three positions that we have been seeking to fill over the last several months. The three very important tasks needing volunteers are: Holiday Party Coordinator, Beginners Lecture Coordinator and Newsletter Folding/Mailing Coordinator. Please consider helping the club. It is important to fill these three remaining positions before the new officers take office on June 1. See the article in the ***Club News*** section.

John Kalas

Meeting Information

Beginner's Lecture

2MASS Sky Survey by Alfredo Garcia

Nearly 30 years have passed since the last large-area near-infrared survey of the sky was carried out. The Two Micron Sky Survey (TMSS, 1969) scanned 70% of the sky and detected ~5,700 celestial sources of infrared radiation. Since that time, there has been a revolution in the development of infrared detector technology. New, large format, sensitive array detectors can now detect astronomical objects over 100 million times fainter than those detected in the TMSS.

The Two Micron All Sky Survey (2MASS) project is designed to close the gap between our current technical capability and our knowledge of the near-infrared sky. In addition to providing a context for the interpretation of results obtained at infrared and other wavelengths, 2MASS will provide direct answers to immediate questions on the large-scale structure of the Milky Way and the Local Universe.

Alfredo Garcia will present this non-technical overview of the 2MASS Project and emphasize the results of the survey to date. Alfredo Garcia has been an amateur astronomer for over 39 years. A native of Texas, he now lives in Tucson and has been a TAAA member for about 4 years. In 1999, he retired from the air force after 25 years of service. He currently works at Raytheon. He holds a BS in Physics and an MS in Business Management.

Main Lecture

Near-Earth Objects (NEOs): The Threat & The Remedy by Greg Peisert

It is a strange and disquieting notion that one could be sitting quietly enjoying a sunny day, sipping tea or a lemonade at a sidewalk cafe, and at any time, an invader from space, with virtually no warning, could shatter our little portion of the world...or worse. Even a relatively small rock, 200 meters in diameter, minuscule really, on a cosmic scale, could plunge into our atmosphere completely without warning. It might never reach the ground, crushed by the aerodynamic pressure of its entry, but that would make little difference to those unfortunate enough to be anywhere near. Such an object would flatten a major city and everything around for a thousand square miles with over a thousand times the energy released in the atomic bomb that was dropped on Hiroshima. Worse, it could land in the ocean. Not only could it happen; it will. It is simply a matter of when, not if.

Our speaker for this lecture is Mr. Greg Peisert, who is visiting Tucson from Ohio. He has been involved in amateur astronomy since the age of 12, completing his first hand-ground and polished six-inch telescope at the age of 13. Mr. Peisert has degrees in Aero and Astronautical Engineering and has extensive research experience with the Air Force Research Laboratory (AFRL). He is a successful entrepreneur managing a rapidly growing information technology company, and for the past five years has been a trustee and treasurer of the Miami Valley Astronomical Society (MVAS), a 140-member society based in Dayton, OH (www.mvas.org). Mr. Peisert is also one of the founders and is Managing Director of the Near Earth Object Search Society (NEOSS, www.neoss.org), a non-profit charitable scientific and educational organization committed to

Meeting Information (cont.)

raising public awareness and funding to support leading private professional and amateur initiatives to find and track all NEOs down to 150 meters in diameter, filling in the gaps in the associated search and follow-up as needed.

Club News

Election of TAAA Officers

By John Kalas

Annually, the May monthly meeting has special importance because it is when the club elects its next officers. At the April meeting, TAAA Member David Acklam offered to become a candidate for the previously open position of Vice-President. Due to the fact that David's name was not published in the April Newsletter (to meet the constitutional requirement of publicizing the slate of officers at least 30 before the elections, his name will not be preprinted on the voting ballot distributed at the May meeting. Instead, he will be considered a write-in candidate and members present will be asked to write his name on the ballot as the vice presidential candidate. The current slate of candidates is as follows:

President – Andrew Cooper
Vice President – David Acklam
Treasurer – Terri Lappin
Secretary – Jane Tongate
Members-at-Large (3)
Steve Peterson
Bill Lofquist
Robert Callanan
John Sosville

Additional nominations from the floor will be solicited at the May meeting prior to the election. Please support your club by attending the May meeting and voting for the next officers of the TAAA.

May Meeting Refreshment Coordinator Needed

Our dedicated Refreshment Coordinators, Mark and Susan Chambers, will be enjoying a well-deserved vacation during the May meeting and will not be able to bring the refreshments. We need a temporary (one month) volunteer to handle this worthy task which includes the purchase, set-up and clean up of the refreshment items; drinks and snacks. The club reimburses for the expense. Please consider helping with this task. Contact John Kalas at 620-6502 for volunteering.

June Meeting is Members Night

By John Kalas

In keeping with our tradition of setting aside every 4th club meeting for members, the June TAAA Monthly Meeting will be a Members Night. There will not be a main lecturer that month, but instead, starting at 7:30 pm, members will make short 15 to 20 minute astronomy-related presentations about projects they have been working on, topics of interest or astrophotos they may have taken. In preparation for the activity, there will be a sign-up sheet at the May meeting for members to request presentation time.

NOTE June Meeting - To Be Held in LPL Lecture Hall

The Steward Observatory Lecture Hall is slated for an upgrade next month with new projectors being installed. We have been asked to relocate our June 1st meeting since there is a possibility that the work will not be completed by the first of the month. We have arranged to use the lecture hall at the Lunar and Planetary Lab for this Members Night meeting. The LPL lecture hall is equipped with slide projectors and a computer image display. If your presentation requires other equipment, please contact Roger Tanner at rtanner@lpl.arizona.edu.

Member News

We welcome the most recent members who have joined the TAAA: John and Margaret Bianchi, Leslie "Pez" Owen, Anna Panka, Jeff Sandstrom, and Vernon B Watwood. Glad to have you join! If you haven't already, be sure to pick up a new members pack at a meeting. Hope you'll make it to our star parties or meetings so we can all get to know you.

Support Your Club

The following responsibilities are still in need of volunteers. Please consider helping the club out by offering to support the tasks. Descriptions of the tasks are as follows:

1. Holiday Party Coordinator – The responsibilities are as follows: locate restaurant for party which includes checking out new facilities in person, act as contact person between restaurant and TAAA, choose menu/decorations/etc, set ticket price (with board approval), print tickets, sell tickets, arrange for door prizes, coordinate the evening presentations, arrange for AV equipment, make name tags for attendees, give final count to restaurant. Many of these jobs are usually delegated to others.
2. Beginners Lecture Coordinator - Solicit presentations of basic astronomy topics from members or outside resources, schedule presentations, ensure that presenters submit titles and brief explanation of the talk to newsletter editor.
3. Newsletter Folding/Mailing Coordinator - Secure news-

letter copy from the editor, paste up the copy, deliver copy to copy person, schedule folding parties, secure mailing labels from treasurer, attend folding parties, coordinate folding and labeling of newsletters, and take newsletters to post office.

Astrophoto SIG Dinner

Thursday, 3 May, 7pm
China Rose, Rosemont/Speedway

The astrophoto special interest group will again meet the night before the May meeting. With warmer weather here and a little clear sky, I hope some of you have had the chance to get out and try taking some photos. We use these dinner opportunities to both show off our efforts and to learn from our mistakes, so show us what you've got!

Last month Steve Peterson was able to borrow a very excellent video projector from where he works and with it hooked up to a laptop was able to show some great images he had scanned. Roger Tanner used the same setup to show some of his CCD images too. It was great to see some of these electronic images for the first time at the SIG dinner and Steve hopes to be able to borrow the projector on a regular basis.

With our clearest time of the year approaching, I would like to have more hands-on activities under dark skies. Let me know what your suggestions might be, but in the meantime, I'd like to offer some demonstrations of using the ST-4 auto guider to guide telescopes. My setup will be working on my 11" Newtonian at Empire on the Saturdays of 12 and 19 May. Hope to see you out there!

Telescopes for Telethon Review

Photos and text by John Kalas

What do you get when you add hundreds of visitors, about 45 telescopes with enthusiastic operators, David and Wendee Levy, a fantastic location like Sabino Canyon and finally, a super evening weather-wise? Give up? How about a $1900 donation to the Muscular Dystrophy Association. The outstanding cooperation and support from the Levy's, the Sabino Canyon Recreation Area staff, the TAAA, Starizona, Sky Works, Stellar Vision, the Flandrau Planetarium, the Planetary Sciences Institute and Coronado Instruments resulted in the kind of event that we all knew was possible. Thanks so much to all who participated.

The activity got started at about 2:30 pm in the afternoon with an impressive array of telescopes set up for solar viewing. Dean Koenig of Starizona had two refractors in operation; one with a sunspot filter and one with a Coronado Instruments H-Alpha filter. Frank Lopez from Stellar Vision had another Coronado Instruments H-Alpha telescope working and TAAA Member, Randy Quiroz, ran his 8" SCT with a sunspot filter. TAAA Members, George Barber and myself, had our scopes equipped with sunspot filters, as well. from Flandrau, shared his knowledge of the Sun with the visitors as they arrived and departed from the tram tours.

As the sun set, the telescope volunteers set up an impressive array of instruments in preparation for the evening viewing. The telescopes filled the tram loop and extended several hundred feet down the tram road toward the canyon. A terrific crowd of visitors responded to the television, radio and newspaper publicity and poured into the telescope field. David and Wendee Levy signed certificates allowing donors to unofficially rename a star of their choice. The telescope operators assisted the public in

identifying the star and also signed the certificates. It was a fun way to have the visitors interact with the volunteers. The MDA, represented by Marguerite Brown, had several national MDA officers present for the event. The TAAA volunteers were joined by a large group from Sky Works who were coordinated by Steve and Sharon Koerber. Frank Lopez of Stellar Vision pulled his mobile observatory into the parking lot loop and Dean Koenig of Stari-

Club News (cont.)

zona brought out his huge 7" A/P refractor to support the evening observing. And, to top it off, set up a nifty computer system with projector and sound system to show a variety of astronomy-related information to the visitors all night long.

The crowds thinned out by about 10:00 pm and many volunteers took down their equipment and headed home with the satisfaction of having contributed to a perfect activity. But wait, the show wasn't over yet. Even before the event started winding down, everyone noticed a strange red glow in the sky just above the Catalinas to the north. I remember someone saying that they thought it might be an aurora, but it wasn't very impressive. That was soon to change. At around 11:00 pm, when the last few volunteers were packing up, the northern sky exploded with an incredible auroral display. It was so sudden, that people began yelling out in their excitement. The previously unimpressive red glow over the mountaintops started stretching higher and higher into the sky. As the red glow grew, shafts of white light shot up from behind the mountains and reached as high as the red aurora. By 11:30 pm, the red glow was visible to the zenith and a full 180 degrees wide from due east to due west. The shafts of white light appeared and then disappeared at many positions in the aurora. The folks standing there watching this fantastic sight were dead tired and really wanted to go home, but were entranced by the event and could not leave. Since we were required to leave by midnight, the last few volunteers begrudgingly finished loading up their stuff as they watched the unusual sight before leaving. What an unbelievable ending to a successful and worthwhile activity.

A Telescopes for Telethon Thank-You

From David & Wendee Levy

To the members of the TAAA and T4T Volunteers,
A BIG THANK-YOU!!!!!!

Words cannot describe how much David and I appreciate all the efforts the club put into making the Annual Telescopes for Telethon fundraiser the success that it was. Third Time's the charm and this year everything came together. Mother Nature and Sabino Canyon bent over backwards to support the project, the media advertised the event beautifully, and we had hundreds of people come out to support MDA!

David said that the excitement in the air was so infectious that T4T 2001 was by far the best star party he has ever been to (That includes all the big ones like TSP). There were telescope operators representing Sky Works, Stellar Vision, Starizona, LPL, PSI, and the largest group from the TAAA. Without everyone pulling together as a team, we never could have done so well.

Congratulations! The official total for the evening was $1900!

Thank you,
Wendee & David Levy

P.S. Those of you who stayed a little longer at the Canyon got to see Mother Nature's ultimate reward for a job well done - the Aurora Borealis!

A Reward for the T4T Volunteers

By John Kalas

All of the volunteers who attended the Telescopes for Telethon activity should have received an invitation from David and Wendee Levy to celebrate the success of the event with a star party at their home in May. If you plan on attending, please RSVP to the Levy's so they can have an idea of how many will be coming. If you volunteered but did not receive an invitation, contact John Kalas at 620-6502 or jckalas@aol.com.

Kitt Peak Picnic Report

By Andrew Cooper

Good food and dark skies awaited those who climbed the mountain for the Kitt Peak Picnic. This special event is arranged so that club members can go enjoy the skies that are usually the exclusive domain of the professionals. Fears of a chilly, or even snowy, night were dispelled by a

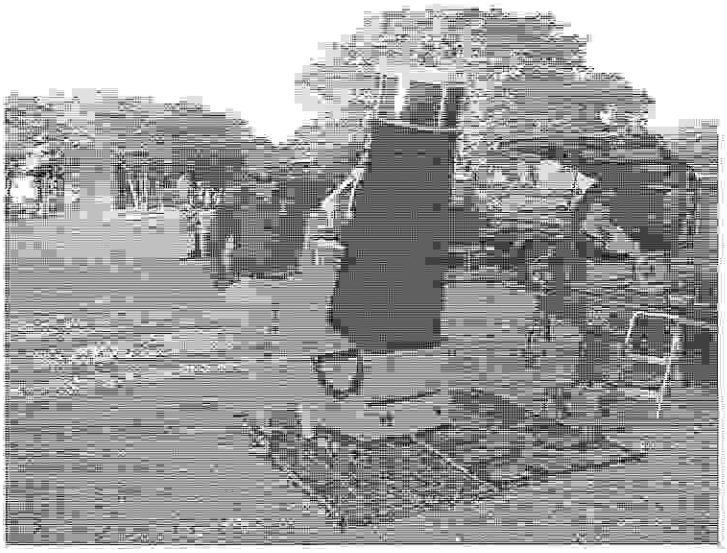
beautiful night that was only moderately cool and quite pleasant. Quite a difference from the snow covered picnic ground that was the result of the previous week's storm.

A picnic ground full of scopes waited for the sun to set. Several new members attended for their first star party, good choice! Not a cloud in the sky and most of the desert haze left behind in the valley below. As the twilight darkened Steve Ratts gave views of planets through his 7" mak-newt. Likewise, John Kalas used his refractor on Jupiter and Saturn. George Barber was there with a tax return worth of new eyepieces to try out. Dean Ketelsen explained for the millionth time how his 11" photographic

Club News (cont.)

scope worked. This scope does tend to draw a second take, but its innovation has been recognized by a merit award from the Riverside Telescope Makers Conference

The night was a major milestone for myself as I celebrated first light for my 18" after a year and a half of effort.



What a setting! The 18" set up for the first time under the sky with the domes of Kitt Peak behind. The first image focused was the core of the Orion Nebula. Tom Peck, who ground the mirror, and I enjoyed using it to show the sky to the crowd who gathered around every time we changed objects. The scope still needs work, but still it showed impressive detail in galaxies and nebulas as it demonstrated just what aperture can do, spiral arms and dust lanes drawing exclamations from viewers. Look for this scope at future club events!

In the end it was a shame to break down while such a beautiful sky was overhead, but those are the rules of our use of the mountain, and the moon was due to come up soon anyway. Our thanks to Richard Green and the staff at NOAO who allow us use of the facilities.

Members Participate in Judging Science Fair

By Bill Lofquist

This year the Southern Arizona Regional Science and Engineering Fair was held at the Tucson Community Center on March 20. Of the many dozens of projects entered in the Fair by Tucson area students from the elementary through high school grades, there were more than a dozen that focused on astronomy or astronomy related topics. All of the students did a very fine job of exploring their chosen subjects, and several of them were quite impressive in both their methodology and findings.

TAAA members Terri Lapin, John Polacheck and Bill Lofquist were present to review the projects and select four for special recognition through a prize. The prizes were contributed by Dr. Ed Vega of Skywatcher's Inn, Starizona and TAAA.

Those projects selected were as follows: TAAA member Rhiannon Scott, who attends Emily Gray Junior High School, presented her very thorough research entitled "Analyzing Astronomical Images in an Attempt to Locate and Identify Brown Dwarfs." "The purpose of this research was to search for brown dwarfs that might be companions to nearby stars. Using the Bok 2.3 meter telescope on Kitt Peak and the U of A Pices infrared camera, I collected infrared images of the stars GL 190 and LHS 1731." Rhiannon found an object near GL 190 that may be a brown dwarf, but concluded that further research is needed to confirm the identity of the object. The presentation of her methodology and the recording of the steps she used was thorough and impressive. Her teacher is Kathy Friedman.

A second project was presented by Zachary Muller, student at Salpointe Catholic High School. His project was entitled "Denting the Earth: Formation of Impact Craters." His project "attempts to discern the relationship between a falling object's mass and velocity to the depth and width of a crater it forms by dropping chrome ball bearings into sand from different heights." He related the results of his tests to Meteor Creator and was able to find and discuss discrepancies in them. His teacher is Tim Barry.

A third project was the work of Tom Carsten, a student at Catalina Foothills High School. His subject was "The Search for Extra-Solar Planetary Systems." The abstract of his project states "The search for extra-solar planetary systems is one of the most difficult observational problems in astronomy today. Currently there are two main methods for detecting extra-solar planets, the Doppler Shift Method and the Transit Method. Both methods work; however, which one is the better method?" Tom discussed each of these methods and gave his perspective on the strengths and weaknesses of each. His teacher is Ann Marie Condes.

These students and their teachers are to be congratulated for their fine work. We appreciate the generosity of Dr. Vega and Starizona for their contributions to the recognition of these students and their work.

Grand Canyon Star Party

16-23 June, 2001

This year's event is slowly growing nearer - only 6 weeks away. Hopefully, all of you who are attending have made your arrangements. For those of you who might not have considered coming, think hard about making the trip, perhaps making a long weekend of it. It is a great event and a chance to see amateurs from both the region and across the country. And if you've not heard John Dobson's twilight talk you really ought to - he might seem like he is going to be around forever, but as he is in his mid-80s, take advantage of the chance. Guaranteed the 6-hour drive is worth it!

For my regulars and newcomers alike, I'm organizing the twilight talks. As always, we need some entertainment to

Club News (cont.)

keep the public occupied while it gets dark enough to observe. Slide projector is supplied, talent is up to you! We need about 30-40 minutes (though the opportunity to combine several smaller talks exists) on an astronomical topic at an elementary level (literally - about 4th grade level). Let me know and I'll give you the spotlight!

Dean Ketelsen 293-2855

Items of Interest

Websites: Trips on the Internet Super-Skyway
By Rik Hill

Quick Astroimaging without a mortgage

More and more amateur astronomers are exploiting the electronic revolution. Because of thrift and the ever-increasing cost of our telescope-toys, devices designed for totally different uses are now being put to good astronomical use. One of the most impressive examples of this I've seen lately is from Antonio Cidadao at:

http.//www.geocities.com/CapeCanaveral/5409/qc_index.html

He uses the golf ball-like little camera called QuickCam. With minor adaptations (detailed on his page and others I will list here) this little camera can be readily adapted for astronomical use. On the second half of his page are links to his images. His lunar images are very nice. He has been able to make a 3-D image of the full moon plus a nice montage of the full moon at apogee and perigee. Individual features are highlighted with his various telescopes are listed as you go down the page. They just get better and better. He is currently working on an interactive Atlas of Moon composed of images obtained with the B/W QuickCam. These are not the highest quality amateur images of the moon, probably not even for the aperture. But I'll bet they are for the cost!

The imaging of Antonio's that I found most interesting and hypnotic were images of his at:

http://www.astrabio.demon.co.uk/QCUIAG/ac/lunat01.htm

This is an animation of an entire lunation (lunar day cycle) that he took with a 4" f/10 Schmidt-Cass. at f/6.3. The first thing you notice is the changing phases. While these are nice there are two other things going on. First there's the libration or wobbling of the moon as we see different portions of it as it goes around in its orbit. Then there's the more subtle change in size as we go from perigee to apogee and back. A very nice piece of work with modest equipment!

Other amateur astronomers have modified and used the QuickCam for astroimaging. There's the work done with a 4.5" reflector by one amateur at:

http://www.vub.ac.be/STER/www.astro/AstroCCD/AstroQC.htm

Unfortunately a large number of his links are no good so be prepared if you go searching.

The Lance Hill Observatory has been doing a lot of work with the QuickCam as well. You can see this at:

http://www.geology.ewu.edu/jpb/lho/lho.htm

and browse their excellent list of links at:

http://www.geology.ewu.edu/jpb/lho/links.htm

As always, if you know of a particularly good website you would like mentioned here, drop me a line at rhill@lpl.arizona.edu or visit my website at:

http://www.lpl.arizona.edu/~rhill

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ketelsen@as.arizona.edu

Congratulations, Michael Magee!

Michael Magee, Director of the Flandrau Planetarium, has been honored for his two decades of service to public science education by having an asteroid named after him. An asteroid discovered in 1990 has been officially named "Mikemagee" by the International Astronomical Union's Committee for Small Body Nomenclature. Michael started his career at Flandrau in 1981 as a student employee. After graduating in 1983, he joined the planetarium staff permanently and served as a technician, production assistant, and operations manager and was named director last year. Congratulations, Michael, for the well-deserved recognition.

Messier Marathon Success!
By Andrew Cooper

This year's All Arizona Messier Marathon was a spectacular success. A beautiful night under the stars shared with our friends from around the state. A total of 25 marathoners scored a perfect 110. TAAA members who got all of them include: Jim & Delia Brix, Andrew Cooper, Dean Ketelsen, Sam Rua, and Doug Smith. For many of us this was not our first attempt and the practice of previous marathons paid off. Other high scores included Kevin Bays with 108, Steve Ratts with 107, Bill Lofquist with 105, Pat Heimann with 51. Impressive, as some of these guys were doing this for the first time and had never tried to locate many of the messier objects before. The awards and certificates will be presented at the May meeting. In total there were 91 observers with 79 scopes set up and waiting for the dark. Some came from far away to join us under Arizonan skies including places like Colorado, New Jersey, Oregon, Ohio and Ontario. Not all of these were crazy enough to join in the marathon, but came to enjoy a dark night in the company of fellow observers.

Items of Interest (cont.)

Thanks must go to AJ Crayon and the others from EVAC who arranged all of the little details a major star party requires, up to and including the port-a-john. Even more thanks must go to Ray Farnsworth for allowing us use of his property and insuring the road in was passable. With the recent rains the observing field was not as dusty as years past and quite enjoyable.

For more details, including the official results, you can go to <http://www.seds.org/messier/xtra/marathon/results.html>, or read AJ's report at http://www.seds.org/messier/xtra/marathon/az01res.txt

A beautiful Arizonan night, good company and dark skies. Just what a star party should be.

TIMPA Site News

TIMPA Long-Range Planning Meeting

The next meeting of the TIMPA Long Range Planning Subcommittee will be held on Wednesday, May 9th at 7:00pm in the Steward Observatory 3rd floor conference room (N305). We will be reviewing the long-range plan that was laid out at the April meeting. It is hoped that this plan will be ready for presenting to the general membership at the June Member's Night. All TAAA members are encouraged to attend this Long Range Planning Subcommittee meeting, especially those who use the TIMPA site. This is YOUR chance to give input into what happens at TIMPA. If you wish to be included in TIMPA Long-Range Planning Committee email announcements and reminders, send a request to Terri Lappin via email (tklappin@earthlink.net).

TIMPA Update

By John Kalas

Slowly but surely, progress continues at TIMPA with the installation of the reinforcing steel bars into the previously dug footer trench. Claude and Teresa Plymate and I stopped off at Home Depot before the work party on Saturday, 4/7, and picked up the materials. The special rebar separators donated by Steve Furlong worked well to position the four loops of rebar. The next step is to schedule a cement truck to pour the footer. That should occur in May.

We are hoping to schedule another work party attempt to transfer the observatory support structure from Kitt Peak to TIMPA one either Saturday, 5/5 or Sunday, 5/6. The exact schedule will be announced at the May 4th meeting. If you are unable to attend the meeting, but would like to help out, please call John Kalas at 620-6502.

Star Parties & Events

Star Party Scheduling Suggestions

Although most star party requests originate from school-related or non-profit organizations, we occasionally get requests for star parties from TAAA members themselves. In these cases, we ask that the member follow these three steps prior to fully committing to a particular date: 1) contact us at 760-4578 or e-mail at jeffbuzek@aol.com to discuss the potential date in order to determine if there are any conflicts with the date; 2) discuss who will prepare the information for the newsletter so that your star party will be appropriately advertised; 3) discuss who will prepare the sign up sheet for the monthly meeting. Following these steps will ensure a successful star party for your group or organization. Thank you.

Jeff and Maggie Buzek

Grace Community Covenant Church Northwest

May 5, (Saturday) No. of Scopes: 5

The church is located at 9755 N. La Cholla Blvd. Take Ina Road to La Cholla Blvd and go north. Continue north past Magee and Overton Road. Look for the church approximately ½ mile north of Overton Road. There is a sign on the left (west) side of the street. Set up is at 7:15 pm in the northern parking lot with observing from 7:45 pm to 9:30 pm. Volunteers will be treated to dinner beginning at 6:30 pm. In addition, the church is graciously providing a $75.00 donation to the TAAA. A star party leader is needed for this event, and a sign up sheet will be available at the May meeting.

Star Parties & Events (cont.)

Lyons Elementary School Star Party — Southeast
May 10, (Thursday) No. of Scopes: 3

The school is located at 7555 E. Dogwood Street. From Kolb and Broadway go south 3 miles to Escalante Road. Turn left (east) and go 1 mile to Pantano Rd. Turn right (south) and proceed approximately 1/3 mile to Dogwood Street. Turn right (west) and go approximately ½ mile. The school is on the right side of the road. Set up is at 7:15 pm on the basketball courts (located on the west side of the main school building) with observing from 7:45 pm to 9:00 pm. A star party leader is needed for this event, and a sign up sheet will be available at the May meeting.

Accelerated Learning Center School — West
May 11, (Friday) No. of Scopes: 5

The school is located at 5245 N. Camino De Oeste. Take Silverbell Road north from Grant Road and proceed to El Camino Del Cerro. Turn left (west) and proceed approximately 1 mile to Camino De Oeste. Turn right (north) and go approximately ¼ mile and look for a white A-frame sign on the left side of the road with the school's name. Turn left on to the driveway and proceed to the first parking lot on your right. This is the observing area. Set up is at 7:00 pm with observing from 7:30 pm to 9:30 pm. A star party leader is needed for this event, and a sign up sheet will be available at the May meeting.

TAAA Star Party at TIMPA
May 12 (Saturday)

What makes this event special is that our novice members can get help with observing issues or equipment problems. There will be experienced members present who would be more than happy to help. If you don't own a telescope, don't worry. There will be lots of scopes set up and everyone is invited to look through them. This is a great way to check out the different telescope designs before you make that all-important decision to buy. There is no scheduled talk for this activity. Just come out with lots of questions and we'll do our best to get you the answers you need. Arrive at about 6:00 pm for a group question and answer session. It should be dark enough to observe by 7:30 pm. If you have friends who might be interested in amateur astronomy, bring them along. Be prepared for cold weather and dress warmly. Directions to the TIMPA site are located on the outside flap of this newsletter.

Sonoran Desert Home Schoolers — Southwest
May 12, (Saturday) No. of Scopes: 7

This star party is being held at the home of Karen and Brian Metcalf. Their home is located at 3450 S. Jamie Avenue. Go west on Ajo past Mission to Kinney Road and turn right (north). Proceed approximately ¼ mile to Bopp Road and turn left (west). Go about 2 miles on Bopp Road

Dark Skies for May 2001

DARK SKIES (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm,20=8pm, 22=10pm, 0=12am
RISE, SET, VISIBILITY for sun and bright planets: rise for morning object, s=et for evening object

Mo/Tu	30/ 1	2:07 - 4:08	Fr/Sa	11/12	20:45 - 23:21	Mo/Tu	21/22	20:55 - 3:46
Tu/We	1/ 2	2:49 - 4:07	Sa/Su	12/13	20:46 - 0:08	Tu/We	22/23	20:56 - 3:45
We/Th	2/ 3	3:28 - 4:06				We/Th	23/24	20:57 - 3:45
Th/Fr	3/ 4	4:03 - 4:04	Su/Mo	13/14	20:47 - 0:49	Th/Fr	24/25	21:18 - 3:44
Fr/Sa	4/ 5	- - -	Mo/Tu	14/15	20:48 - 1:26	Fr/Sa	25/26	22:20 - 3:43
Sa/Su	5/ 6	- - -	Tu/We	15/16	20:49 - 2:00	Sa/Su	26/27	23:16 - 3:43
			We/Th	16/17	20:50 - 2:32			
Su/Mo	6/ 7	FULL MOON	Th/Fr	17/18	20:51 - 3:02	Su/Mo	27/28	0:06 - 3:42
Mo/Tu	7/ 8	- - -	Fr/Sa	18/19	20:52 - 3:32	Mo/Tu	28/29	0:50 - 3:41
Tu/We	8/ 9	- - -	Sa/Su	19/20	20:53 - 3:48	Tu/We	29/30	1:30 - 3:41
We/Th	9/10	20:43 - 21:33				We/Th	30/31	2:05 - 3:40
Th/Fr	10/11	20:44 - 22:29	Su/Mo	20/21	20:54 - 3:47	Th/Fr	31/ 1	2:39 - 3:40

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn	
Sa/Su	Set	Rise	Set Vi	Rise Vi	Rise Vi	Set Vi	Set Vi	Vi=Visibility
5/ 6	19:06	5:31	20:16 4	3:35 -3	22:24 -1	21:21 0	20:19 5	-3 brilliant
12/13	19:11	5:26	20:49 3	3:23 -3	21:58 -1	21:01 1	19:56 8	0 conspicuous
19/20	19:16	5:21	21:05 3	3:12 -3	21:30 -1	20:41 2	19:32 -	3 moderate
26/27	19:20	5:18	21:03 4	3:03 -3	20:59 -2	20:21 4	Rise -	6 naked eye limit
2/ 3	19:24	5:16	20:41 7	2:55 -3	20:26 -2	20:00 8	4:55 -	9 binoculars limit

By Erich Karkoschka

Star Parties & Events (cont.)

and look for Jamie Avenue that goes RIGHT (north) off of Bopp Road. Their house is the second house on the left. If you have any difficulty locating their house, please call Karen or Brian at 883-1543. Follow the driveway past the house to the back of the property and look for the set up area at the back. Volunteers are welcome to join in their complimentary potluck dinner, which begins at 5:00 pm. Set-up will be at 7:00 pm with observing from 7:30 pm to 9:30 pm. A star party leader is needed for this event and a sign up sheet will be available at the May meeting.

Valencia Middle School Star Party [Southwest]

May 18 (Friday) No. of Scopes: 3-5

The school is located at 4400 W. Irvington Rd. Take I-10 east to the Irvington Rd exit and proceed west (right) at the exit light. Proceed west for approximately 4 miles passing through the intersections of Midvale Park Rd and Mission Rd, both of which have stoplights. The school will be on your right. Proceed into the parking lot. The set-up area will be at the basketball and volleyball courts. Set-up will be at 7:00 pm. Observing will run from 7:30 pm to about 9:30 pm. George Barber will be the star party leader for this event. A sign up sheet will be available at the May meeting.

Desert Museum Public Star Party

May 19 (Saturday)

This will be the third in a series of public star parties that the TAAA will co-host with the Desert Museum. TAAA telescope volunteers will set up their equipment in the front two rows of the main parking lot and in the circular drive close to the museum entrance. Set-up will be at 6:30 pm with observing from 7:30 pm to 11:00 pm. A moonless evening will make for great viewing of deep sky objects. This should be a fun activity, so please come on out!

TAAA Board of Directors Meeting - March 12, 2001

Location: Steward Observatory Conference Room N305 University of Arizona
Board Members Present: John Kalas, Andrew Cooper, Terri Lappin, Jane Tongate, Bill Lofquist, Robert Callanan, Steve Peterson
Call to Order: 7:07 pm

1. Events - John Kalas went over the list of events through May 3. Several scopes are still needed for 3/20, 3/24 and 3/29 star parties. There are five star parties scheduled for the month of March. April 21 will be the TAAA Annual Picnic out at Vega-Bray Observatory.
2. Treasurer's Report - Terri Lappin gave the Treasurer's report. TAAA will need to sign paperwork and send it back to Kitt-Peak after taking possession of the dome. The Board agreed to contribute $200. to Ed Vega towards beverages for the Annual Picnic and to send IDA $100. for club membership dues.
3. TIMPA - The trip up Kitt Peak to take down the support structure was cancelled again due to poor road conditions. The effort was redirected to digging a trench out at TIMPA. The Site Prep Committee will meet on 3/13 to schedule masonry work. John will talk to Home Deport to seek support of the TIMPA project through donations or materials at cost. TAAA would recognize all contributors with a plaque at the completed observatory. Andrew Cooper has volunteered to lead TIMPA work groups, if needed.
4. TAAA Sponsored Solar Observing Activity - John Kalas has not pursued trying to find out more information regarding this activity.
5. Officer Workload Reduction - Committees for 2001 - John Kalas handed out a listing with some of the positions filled. There is a still a need for a Holiday Party Coordinator soon! Also needed is a coordinator for Beginners Lectures and a Newsletter Folding/Mailing Coordinator. John will continue to solicit volunteers for these positions in the April newsletter.
6. TAAA E-mail Exploder - Andrew Cooper reported that he is having trouble getting the password to work.
7. Signs for TIMPA Site - John reported that the signs should be completed, he will follow up.
8. Kitt-Peak Star-b-cue dates - There is a tentative OK for April 14 with no word about the Oct. 13 date that was also requested. John will pursue the both dates since many members would like to take part in this activity.
9. Club insurance - One of the club members is putting together questions to determine that the club has adequate insurance.
10. So. AZ Regional Science & Engineering Fair - Bill Lofquist, John Polachek and Bill Schwartz will be judges representing the TAAA. Awards need to be determined. The event will be held on 3/20. A check for $60 was given to Bill to purchase award gifts on behalf of the TAAA.
11. Constitutional Amendment - The following idea will be developed and presented to membership as an amendment to the TAAA Constitution; "if there is only one candidate for each officer/board position, voting by a show of hands will be allowed". John Kalas will draft the final amendment wording and send to Board members via e-mail for final approval. It will then be presented in the April newsletter and voted on at the May monthly meeting.
12. Club Publicity – A TAAA Member has shown interest in this responsibility. He has asked for a list of duties to determine time com-

TAAA Board of Directors Meeting - March 12, 2001 (cont.)

mitment.

13. Lifetime Membership - Further discussion was presented by Terri Lappin to see if this is something the club wants to pursue. If so, a dollar amount will need to be determined. Discussion will continue at the April board meeting.
14. Telescopes for Telethon Public Star Party - 32 TAAA Members have signed up for the March 30 event. John Kalas and others will plan to set up earlier that day for solar viewing.
15. May Monthly Meeting - Demo Night? - There has been a cancellation for the May speaker. A demo night could be done instead. May is also election night for the 2001-2002 TAAA Officers.
16. June Monthly Meeting - The location has changed. The meeting will be held at the Lunar & Planetary Lab Lecture Hall. Steward is replacing AV equipment, making the room unavailable in June.
17. Reach for the Stars - Bill Lofquist reported that Vision Charter High School has shown great promise in taking advantage of this program. Sunnyside High School also looks promising.
18. 6 ft. Dome at TIMPA - Robert Callanan presented a discussion based on ideas set forth by John Polacheck about what to do with this dome. The Board agreed to put pier and dome in place and authorize John Polacheck to continue soliciting donations for a telescope. Purchase of the telescope to be approved by the Board.

Meeting adjourned at 10:19 pm.

Respectfully submitted,
Jane Tongate,
Secretary, TAAA

TAAA Board of Directors Meeting- April 9, 2001

Location: Steward Observatory Conference Room N305 University of Arizona
Board Members Present: John Kalas, Andrew Cooper, Terri Lappin, Robert Callanan, and Steve Peterson
Board Members Absent: Jane Tongate, Bill Lofquist
Call to Order: 7:08 pm

1. Treasurer's Report – Terri Lappin distributed copies of the financial statement and they were reviewed by the board. Terri commented that there have been only two new members for each of the last two months. Club membership stands at 386.
2. TIMPA Update - John Kalas reported that rebar installation into the footer trench was accomplished thanks to Claude and Teresa Plymate and himself. Steve Furlong had previously donated special rebar separators for the job. He also stated that the signs for the TIMPA Site have been completed. Pat Heimann, who donated the signs to the club, will bring one to a club activity for display.
3. Officer Workload Reduction – John Kalas advised the board that volunteers have been located for all but three of the tasks for which help had been solicited. The effort to fill these last positions will continue.
4. TAAA E-mail Exploder – Andrew Cooper reported that no progress had been made in the past month toward implementing this system.
5. Kitt Peak Star-b-cue - John Kalas reported that there were about 45 members/families who had signed up for the event at the April meeting.
6. SARSEF Participation – Terri Lappin voiced some concerns about the way the awards for the winning astronomy projects were packaged and identified. Better preparation for next year's event will address the concerns.
7. Constitutional Amendment – John Kalas advised that he had failed to present the final draft of the proposed amendment to the board in time for the announcement to be made in the April newsletter. The amendment will be pursued at a later date.
8. Lifetime Membership – Terri Lappin coordinated a discussion of this topic. The final result was that the board did not feel that a lifetime membership benefited the club and therefore would not be implemented.
9. Telescopes for Telethon Public Star Party – John Kalas recapped the very successful event and announced that the total donation to the MDA was $1900.
10. May Monthly Meeting – John Kalas reviewed the election of officers for the May meeting. Terri Lappin has the ballot already configured and will bring them to the meeting. TAAA Member David Acklam advised Nominating Committee Member Michael Turner at the April meeting that he would run for the office of Vice-President filling the slate of candidates.
11. Crawford Library Donation - The board discussed the issue of where to store the large number of astronomy books donated to the club. Several options were considered. Additional investigation is required.
12. June Monthly Meeting – Terri Lappin advised the board that the Steward Observatory Lecture Hall N210 would not be available for the TAAA June meeting due to equipment upgrades. She has requested permission to use the Lunar & Planetary Lab's conference room. Roger Tanner, who works at LPL, would be the authorized person to operate the conference room for the meeting.
13. Purchase of 11" Nextar for Small Dome at TIMPA – John Kalas reviewed the status of this project spearheaded by John Polacheck. John Polacheck has received nearly all of the pledges of donation to cover the cost of the telescope. The board debated the merits of purchasing an instrument sight-unseen. After much discussion a motion was made by Andrew Cooper and seconded by Steve Peterson stating "The board authorizes the purchase of a Celestron 11" Nextar Telescope by using funds donated by TAAA Members." The motion passed 4 to 1. Further discussion pertained to the preparation of the 6' Home Dome to receive the 11" Nextar Telescope. Andrew Cooper made a motion that was seconded by Terri Lappin stating "Authorization to proceed with the installation of the 6' dome at the TIMPA Site with an adequate accounting of cost of materials prior to their purchase." The motion passed unanimously 5 to 0.
14. Request for TAAA Speaker – John Kalas mentioned that he had received an e-mail message from the Society for Optical Engineering requesting a speaker from the TAAA to address the topic amateur telescopes. Several members of the club were thought to be potential candidates for this type of talk. John Kalas will contact these individuals to determine their interest in participating.
15. Club's Insurance – Terri Lappin advised the board that the club's current insurance policy was due for renewal in May. She men-

TAAA Board of Directors M...ng– Apr... (cont.)

tioned that TAAA Member Robert Crawford was inve...igating ot... ...urance ... ...ed on the short amount of time available, the board recommended that Terri renew the curren... ...olicy. If ... ...lternativ... ...ified at a later date, the current insurance could be canceled and a new policy instituted.

16. 30" Mirror Project – Robert Callanan mentioned tha... would ... see the ... ...d with efforts to finish the big mirror and possibly install it up on Mt. Lemmon. John Kalas ... ...ed him ... board t... ...osenbaum has initiated further efforts to wards that goal through coordination with Roger T... ...r. A t... the 40" ... observatory on Mt. Lemmon to take addi... tional measurements is being scheduled and a vi... ...ut to ... ...A storag... TIMPA to review the mirror itself is also planned.

The meeting was adjourned at 10: 15 pm.

Respectfully submitted,
John Kalas,
President, TAAA

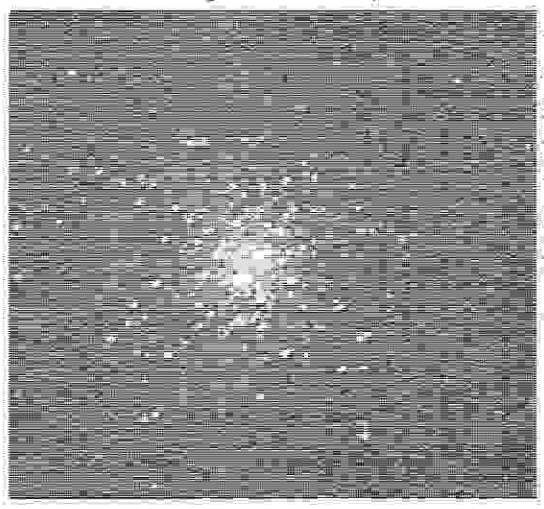
Object of the Mont... ...fredo ... ...r.

Wow, didn't March and April just whiz by! I hope you we... ...o get o... ...ne good observing. There were some excellent observing opportunities. So here we are at the th... ...ct of th... OTM) column. I hope you enjoyed the past two columns as much as I did composing them. This ... I am g... ...itch gears and move from galaxies to a different class of objects that are part of our Milky Way G... ...I also ... ...ther galaxies as well.

If you go out observing around mid-May and look to the ... ...t 9:00 ... about 35 degrees above the horizon, you will observe a well-known constellation gracing the sk... ...onstell... ...ost easily recognized by an asterism it harbors known as the Keystone, a trapezoid-shaped patte... ...up of fo... stars. The constellation I am referring to, of course, is none other than the mighty Hercules.

The mighty son of Zeus is home to a glorious object that is ...May OTM ... object is the Great Hercules Cluster or M13. It is a superior example of a class of objects known ... ...bular clu... globular star cluster is a dense ball of about 10,000 to 1,000,000 stars, all lying in a very small volum... of space ... luster's nucleus the stars are so close that in a cubic parsec (34.6 cubic light-years) one can find more than 10... By comparison, in our Sun's vicinity there are no stars within a cubic parsec. The globular clusters orbit the ... the galaxy in a spherical distribution around 15,000 parsecs (1 parsec = 3.26 light-years) in diameter. The ... clusters are special because they are among the oldest stellar systems known and so their ages help constrain t... the universe. They have been contro- versial because the age of the universe from their ages until recently has ... ler than that determined from the ex- pansion of the universe. So they appeared to be older than the universe ... of course impossible. Data from the recent Hipparcos satellite helped eliminate the contradiction, however. The... ver 150 globulars that exist in our gal- axy alone.

OK, so much for Globular Clusters 101, now let's turn our attention to M1... great globular cluster is only observa- tionally rivaled (in my opinion mind you!) by the Omega Cluster in the sou... ...s. The Omega Cluster is visible, how- ever, from a site like Empire Ranch where you have an unobstructed, low... ...rn horizon view. None the less, the Great Hercules Cluster provides us with a spectacular view in dark skies and ... ...e observed even from city and subur- ban skies though it loses it splendor.



The Great Hercules Cluster is eas... ...d and from a dark sky location can be spotted by the naked eye. That ... ...ou some idea as to its splendor and greatness. So, next time you are ... Empire Ranch or some other dark sky location, try to find it visually fi... ...re turning a scope on it. Wonder at this celestial beauty that is home ... ...rally hundreds of thousands of stars. To find this great globular cluster ... simply need find the trapezoid-shaped Keystone asterism in Hercules. Th... ...ap below shows that you should look about a third of the way along a line drawn from Eta to Zeta to find M13.

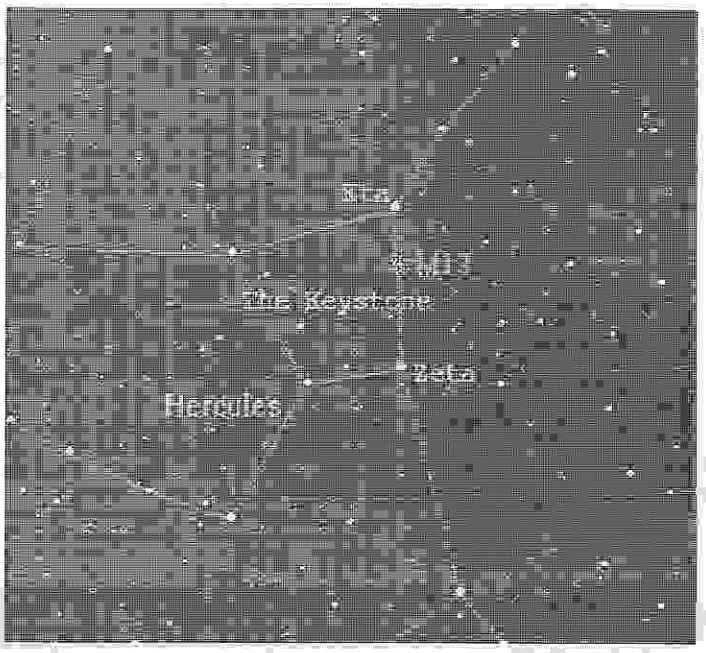
M13 Vital Statistics

Position: RA 16 hours 41 minutes 36 seconds
DEC +36 degrees 27 minutes 00 seconds
Size: 16.6 Arc minutes
Magnitude: 5.68

Object of the Month by Alfredo Garcia, Jr. (cont.)

M13 was one of the first deep space objects I astrophotographed back when I started my interest in astrophotography some 12 years ago. It's inherent brightness and size makes it an easy target to find, compose, and astrophotograph. I would recommend it to anyone who is trying deep space object astrophotography. Shown below is my first astrophotograph of M13. Though the TAAA newsletter only shows it in shades of gray, my first color astrophotograph shows M13 as a stunning globule made up of an absolute multitude of stars against a stunning black background...Wow! I was simply amazed when I saw the astrophotograph for the first time!

(Image by Author) using Meade 10" f/4 Deep Space Newtonian Reflector, 15 Min Exposure, 3M (ASA 400) Speed Color Print Film, Jun 1989



Sir Edmund Halley of comet fame first discovered this great globular cluster in 1714. Charles Messier later designated it as M13. The cluster contains an estimated 1 million stars and is approximately 22,000 light-years distant. At this distance estimate, M13's diameter is around 160 light-years or over 320,000 times larger than our own solar system's diameter! Astronomers place a density of 1 star per cubic light year at the central core. A visitor to the core would find a nighttime sky filled with an absolute myriad of brilliant stars. Imagine the view!! (Map From StarTraveler Software)

And one final interesting note about M13 is that in 1974, at the dedication of the Arecibo Observatory, it was selected as a target for one of the first radio messages addressed to possible extra-terrestrial intelligent races. As such, a radio message about Earth was sent in the direction of M13. Of course, the message will take about 22,000 years to reach the cluster and an answer cannot be expected for about 44,000 years! I don't expect you or I will be around by then, at least not in our present forms, but maybe "someone" from M13 will send a return message to our celestial "HOWDY" to our very distant future descendants!

So next time you are out under our clear, Arizona skies and observing the Great Hercules Cluster, imagine that 1974 radio message heading in the direction of M13 at the speed of light. But, realize that it is, however, only some 27 years (as of 2001) along in its 22,000-year trek through space!

Desert Skies Classified

FOR SALE:	Eyepieces (1 1/4"): Celestron 25mm SMA wide angle $25; Orion Explorer II 10mm (2) $20. Call Chris at 750-9463 or e-mail <ctlancaster@earthlink.net> (5/01)
FOR SALE:	Standard Questar, S/N 2-1229 with coated lens and sun filters, 16mm Brandon eyepiece, Diopter adapter, Camera coupling, Porro prism, Leather carrying case, all brochures and instruction books. $3,000. Call Howard Baxter in Green Valley at 625-7127 or contact via e-mail at <xhbaxterx@aol.com> (5/01)
FOR SALE:	Items from Pierre Schwaar's Estate. His 16" f/4 optical tube assembly with excellent mirror: $2,000 OBO. 20" f/5 Super Bigfoot telescope with good optics: $3,000 OBO. Numerous coated and signed mirrors: 4.25 to 10". Small glass blanks and telescope tubes: 3 to 6". Call or email for price list. Digital photos available for 16" and 20" scopes. All proceeds to be donated by the Schwaar Family to charity in Pierre's name. Contact: Sam Herchak, 480-924-5981, 76627.3322@compuserve.com (8/01)
FOR SALE:	5 year old Astro systems Dobsonian truss support telescope (setup or take down in 5 to 10 minutes) 14.5" John Hall mirror f/5.5, 79.75" focal length (one 1/8" blem on surface.has no effect on viewing), superb, must see and must view, very sharp. Includes: 2" Astro Systems focuser, 5 great eyepieces included (Panoptic 27mm, Nagler 20mm, Nagler 16mm, Nagler 12mm, Pentax 7mm), Lumicon OIII filter, Telrad finderscope, light shroud, attachable portable wheels, collimation tools. Asking $3000. for complete package. Please contact Roger on Prescott at (520) 717-6013 or saturn@futureone.com (8/01)
FOR SALE:	C-11 Optical Tube Assembly, black tube, less than 6 month old. Good condition. Includes: Losmandy dovetail plates both on top & bottom, Kwik focus and dew shield. No eyepiece or diagonal. Asking for $1100.00. Contact: Ted Wu at 806-3808 or CTGWC@aol.com (8/01)
SERVICE:	Custom machine shop work - design and manufacture of telescopes and mountings. Fabrication of small parts or repair of existing hardware. For consultation and price quotes, call Duane Niehaus at 290-1722.

Your ad will run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call John Kalas at 620-6502 or e-mail at jckalas@aol.com.

Constellation Report by Chris Lancaster

Virgo, the maiden

Throughout the millennia, Virgo has been seen as a female representing many different goddesses in various ancient cultures. Among them are Ishtar, the goddess of fertility in ancient Babylonia, the goddess of nature for the Egyptians, Astraea, Roman goddess of justice, the terrible Gorgon Medusa, an Anatolian goddess of the Earth called Cybele, and various Greek goddesses such as Artemis, the Moon goddess, Athena, goddess of wisdom and Demeter, Greek goddess of agriculture, and her daughter Persephone. The brightest star of Virgo, the hot blue star Spica of spectral type B1, is traditionally depicted as the ear of wheat, or "spica", [illegible] the maiden is holding in her left hand.

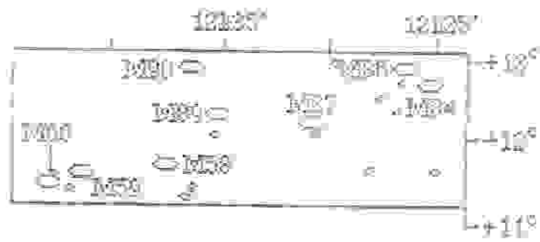
Virgo is [illegible] with galaxies, but before we delve into these, let's start with NGC 5634, a magnitude [illegible] globular cluster sitting midway and slightly below a line connecting [illegible] and [illegible] Virginis (R.A. 14h 29.6m, Dec -05 59'). This is a fairly bright globular visible even through Tucson's light polluted skies, [illegible] Through most amateur telescopes it appears as a soft glow sitting within a triangle of dim stars.

Now that [illegible] our tour of galaxies we can start with M104, a [illegible] edge-on spiral popularly called the Sombrero [illegible] degrees [illegible] west of Spica [illegible] R.A. 12h 40m Dec -11d 37'. Its [illegible] magnitude glow is marked by a [illegible] dark lane across its large central bulge. Any telescope will provide a [illegible] view of the galaxy.

Moving north we will see M61. Perhaps not quite as striking as M104, but still spectacular nonetheless. Start at Eta Virginis, move north [illegible] degrees to the 5th magnitude star 16 Virginis, and then 1.2 degrees NNE to M61 (R.A. 12h 21.9m Dec +04 28'). What you will find at M61 is a magnitude [illegible] face-on galaxy with [illegible] almost stellar nucleus, with [illegible] [illegible] measuring 5' x 5.8'. Those of you with large apertures [illegible] about M61's arms. Instead of [illegible] they show sharp [illegible] and produce a distorted [illegible] for the galaxy.

The best sights in Virgo await us in the galaxy cluster which spills into the neighboring constellation of Coma Berenices to the north. There are actually some members of the cluster that extend as far north as Canes Venatici and south into Corvus. The most concentrated section of the cluster, which also contains the largest, brightest galaxies, is about [illegible] degrees west of Vindemiatrix (Epsilon Virginis). For casual observing, it's not even necessary to know which galaxy is which (because that can even be quite a challenge!). Simply sweep your telescope through the cluster and admire galaxy after galaxy as they come into view.

THE VIRGO CLUSTER



We can summarize Virgo's Messier galaxies as follows:

M86: This is a bright elliptical at RA 12h 26.2m Dec +12d 57', shining at magnitude 9.8.

M84: [illegible] minutes [illegible] of M86 at RA 12h 25.1m Dec +12d 53', a similar elliptical of magnitude 10. NGC 4388 is a magnitude [illegible] edge-on spiral to the south forming an [illegible] triangle with M86 and M84.

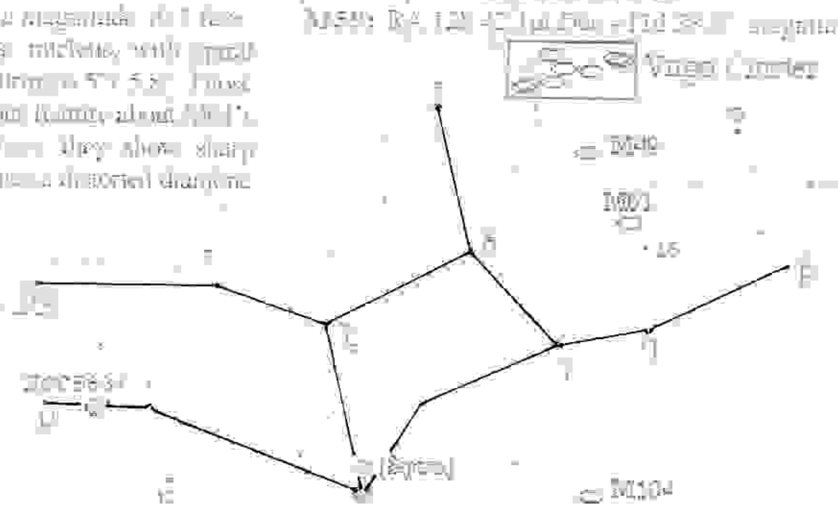
M87: Another elliptical, magnitude [illegible] at RA 12h 30.8m Dec +12d 23'. Two very small galaxies to the [illegible] can be seen in the same field.

M90: RA 12h 36.8m Dec +13d [illegible] magnitude 9.5. An elongated spiral with [illegible]

M89: RA 12h 35.7m Dec +12d 33', magnitude [illegible] elliptical.

M58: RA 12h 37.7m Dec +11d 49', magnitude [illegible]. A spiral not quite turned face-on to us.

M59: RA 12h 42.0m Dec +11d 39', magnitude [illegible]



As we get closer to the edge of the Virgo galaxy cluster, we find M49 [illegible] degrees NNE of M61. Here is a bright [illegible] elliptical [illegible] Its center fades to its edges forming an oval measuring [illegible] at RA 12h 29.8m Dec +8d 00'.

[illegible] galaxy [illegible]

M60: RA 12h 43.7' Dec +11d 33'. Bright elliptical of magnitude [illegible], [illegible] magnitude spiral, NGC 4647, borders M60 [illegible] to the northwest.