



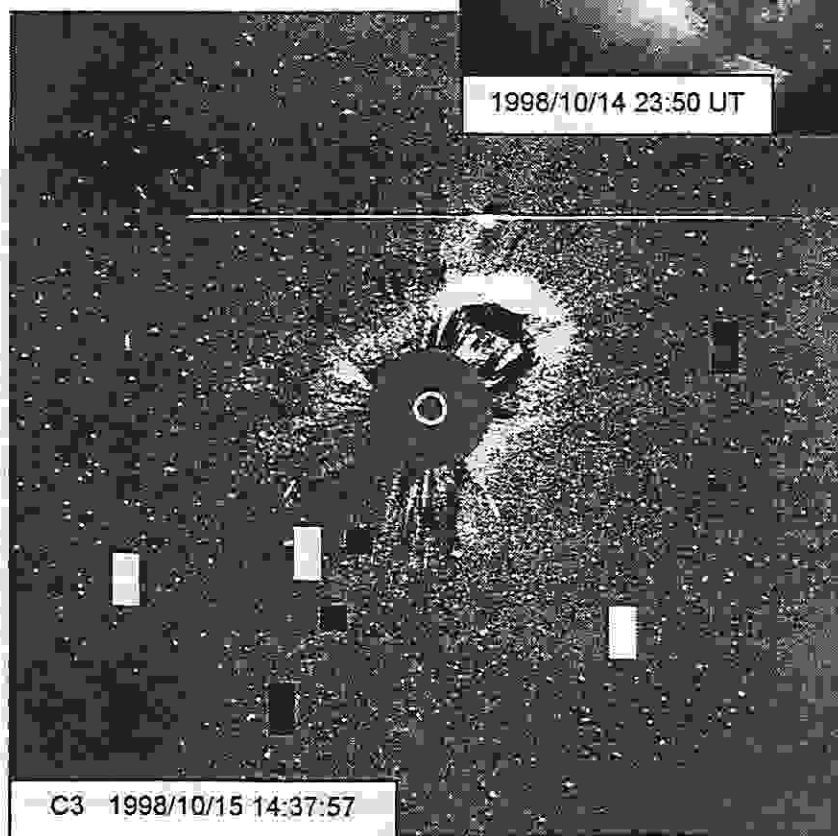
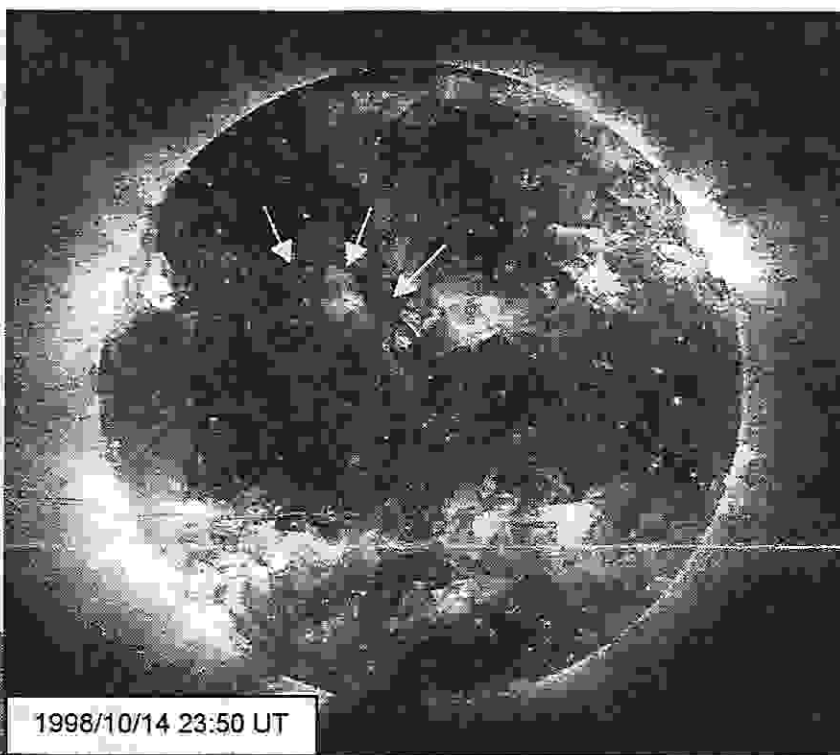
Desert Skies

Tucson Amateur Astronomy Association

Volume XLV, Number 4

April, 1999

*SOHO
Images
of the
Sun*



*Coronal
Mass
Ejections*

Calendar of Events

BEGINNERS LECTURE: Friday, April 2, 6:30 pm at the Steward Observatory Auditorium - Room N210. This month's topic is "Observing the Sun" by Jeff Medkeff.

GENERAL MEETING: Friday, April 2, 7:30 pm at the Steward Observatory Auditorium - Room N210. Topic is "The Sun As Seen By SOHO" by Dr. Frank Hill.

BOARD OF DIRECTORS MEETING: Thursday, April 8, 7:00 pm at Steward Observatory Conference Room N305.

STAR PARTIES & EVENTS:

- Apr. 10 - TAAA Star Party at Empire Ranch
- Apr. 16 - Desert Willow Elementary School Star Party
- Apr. 17 - TAAA Beginners Star Party at TIMPA
- Apr. 20 - Copper Creek Elementary School Star Party
- Apr. 21 - Amphi Middle School Star Party
- Apr. 22 - Tanque Verde Elementary School Star Party
- Apr. 30 - Girl Scouts (demonstration activity)
- May 1 - Titan Missile Museum Star Party
- May 4 - Wright Elementary School Star Party

Newsletter Schedule: Deadline for articles: Monday, April 19. Printing: Tuesday, April 27. Folding Party: Wednesday, April 28. Mailing: Thursday, April 29. The newsletter is scheduled to be in the mail at least one week prior to the following month's General Meeting.

Cover: These SOHO images show an earth directed coronal mass ejection (CME). The filament responsible for the CME is marked with arrows in the top image. The bottom image, which shows the CME, was taken with the wide field coronagraph which blocks out the sun. The horizontal line through this image is caused by Venus. Courtesy of the SOHO/EIT/LASCO consortium. SOHO is a project of international cooperation between ESA and NASA. For more information on these images, see this website: <http://umbra.nascom.nasa.gov/eit/cme/>

TAAA Web Page: <http://www.tucsonastronomy.org>

TAAA Phone Number: (520) 882-1950

Office/Position	Name	Phone	E-mail Address
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Vice-President	Andrew Cooper	795-3585	aecooper@flash.net
Secretary	Ingrid Saber	797-3834	
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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.

Membership in the TAAA:

Regular membership	\$ 23
Senior (over 60) membership	\$ 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	\$ 29.95 (NEW)
Add for Astronomy Magazine	\$ 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

4 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.

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:

TAAA - Desert Skies; c/o John Kalas
3470 W. Red Bird Court
Tucson, AZ 85745
or e-mail: jckalas@aol.com

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President's Message

At the March meeting, I made a request for additional volunteers for the School Star Party program. Six members signed up and two more members called me several days after the meeting to volunteer. With these new volunteers, the "On-call List" now totals 30 individuals. This is a great resource pool for our new Star Party Coordinator, Maureen Babcock, to work with. The efforts of all of the School Star Party volunteers are really appreciated by the schools that receive the star parties. See the note of appreciation in the Club News section under "Thanks".

As we approach the end of my year as President, the club must prepare for the election of officers for the upcoming year at the May 7th monthly meeting. In the Club News section of this newsletter, there is a listing of the nominees for the various elected offices. Our constitution requires that a preliminary slate of

candidates be published at least 30 days prior to the election. Nominations from the floor will be accepted at the May meeting, just prior to the election. So, anyone interested in helping to guide this organization through the upcoming year, get ready to throw your hat in the ring.

April is shaping up to be a very busy month with seven school/organization star parties scheduled before the next meeting in May. The 3rd Beginners Star Party is planned for Saturday, 4/17, at TIMPA. At this Beginners Star Party, there will be more support available for those who need it. I will not be bringing a telescope so I can devote the full evening to helping others.

John Kalas

Meeting Information

Beginner's Lecture

"Observing the Sun"
Jeff Medkeff

Market research has shown that the fastest growing segment of amateur astronomy is solar observation. This talk will cover solar observing safety (very important!), different kinds of solar filters available and how they work, observational techniques, and a discussion of what can be seen on the sun. Jeff will discuss narrowband filters (hydrogen-alpha and calcium line) and the details that can be seen on the sun using them.

Jeff Medkeff is a wide-area networking engineer who developed large portions of the Internet in the US Midwest and Ontario, and invented several internet-related devices and transport protocols. He has been an avid amateur astronomer from the age of about nine years or so. In 1997, he accepted appointment as a coordinator in the Association of Lunar and Planetary Observers' solar section. In addition to ALPO duties, Jeff occasionally writes for Sky & Telescope magazine and reviews astronomy grant funding proposals for information management needs. He hopes he gets a chance to spend a starry night or two with all fellow amateurs who he meets.

Main Lecture

"The Sun As Seen By SOHO"
Dr. Frank Hill

The SOHO spacecraft, launched in December 1995, has provided a wealth of new information about the Sun. It has provided spectacular views of the solar corona (including Coronal Mass Ejections), new insights into the solar interior through solar oscillations, and long-term views of the solar atmosphere in wavelengths inaccessible to ground-based observatories. This lecture will present an overview of some of the most significant results to date.

Dr. Frank Hill is currently on staff at the National Solar Observatory (a division of NOAO). His primary research interest is helioseismology. He received his Ph.D. in 1982 from the University of Colorado (Boulder) in Astrogeophysics. His hobbies are racecars and rock'n'roll.

Club News

Nominations For 1999 TAAA Officers

The Nominating Committee, consisting of Andrew Cooper, Sam Turner, and Mike Turner, has submitted the following list of candidates for the elected offices of the TAAA for the coming year:

- | | |
|-------------------|-----------------|
| • President | John Kalas |
| • Vice President | Andrew Cooper |
| • Secretary | Ingrid Saber |
| • Treasurer | Teresa Lappin |
| • Member-at-Large | Bill Lofquist |
| | Robert Callanan |
| | Daniel Manrique |

Floor nominations will be solicited at the May meeting prior to the election, provided that the floor nominee is present

to accept the nomination or supplies written indication of acceptance.

The TAAA does allow for absentee voting in the annual election of officers. If you are a member in good standing and will not be present at the May monthly meeting, you may request an absentee ballot. The request must be in writing and received at the club's mailing address by April 15th. Your ballot must be returned to the same club address by May 6th in a signed and sealed envelope.

Warning: Spring Fling This Month

The Spring Fling will be in progress during the TAAA April meeting. Please allow extra time for parking. The good news: the construction work has temporarily ended. This should be a great meeting, so it worth the effort to find a parking space.

Club News (cont.)

Member News

We welcome the most recent members who have joined the TAAA: Larry and Barbara Collins, David and Ruth Divine, Ed Finney, Jake Joyce, and Sam Rua. Glad to have you join! Let's introduce ourselves and get to know each other.

Some member's might remember Didier Saumon, who worked at the UA Lunar and Planetary Lab a few years back and was responsible for printing TAAA newsletters for a number of years. Didier is now in Nashville, TN and is on the faculty at Vanderbilt University. In a recent correspondence, I learned that he's planning on getting married soon. Congratulations to Didier and his future bride!

TAAA Annual Picnic

MARK YOUR CALENDARS!! Saturday, May 8*. Ed and Pat Vega have graciously offered Vega-Bray Observatory in Benson for our big annual TAAA family picnic/pot luck. It's a great event. Don't miss it. Barbecue grills and soft drinks are provided. Bring your own food plus an item to share. Bring all of your own plates and utensils. A camping table or card table and chairs are handy. Just in case, pack some insect repellent.

Don't forget to bring your telescope! If you don't bring one, don't worry. There are many telescopes at the observatory to look through. Ed and Pat have turned the inn into a veritable museum of interesting scientific items. There are lots of things for the kids. If you have never visited the Vega-Bray Observatory, here's your chance. It's fantastic!

Arrive as early as 4:00 pm and take advantage of the surroundings; a fish pond and hiking trails. More details and directions to the observatory will be in next month's newsletter.

1999 Messier Marathon Results and Awards

AJ Crayon, 1999 Messier Marathon Coordinator, is planning to visit our April 2nd monthly meeting to present the awards to the TAAA members who participated in this year's event. The TAAA was well represented at the marathon. Come to the meeting to see who will get awards and for how many objects.

Use of the TIMPA Site

The TIMPA Site, west of Tucson, is not open to TAAA member's use except on designated evenings when the TAAA has a scheduled activity. The club has not yet entered into a permanent agreement with the TIMPA organization regarding the proposed observatory and, therefore, we are their guests while using the site. The site has been used for Beginners Star Parties but only with the advanced permission of the TIMPA group. Camping overnight after a scheduled TAAA activity is also prohibited at this time. It is requested that TAAA members do not attempt to use the site for their own personal observing activities.

Empire Ranch, on the other hand, is open to public use at any time. TAAA members or anyone, for that matter, may use the Empire Ranch site any evening they wish.

Supporting the TAAA with Greenbacks!

Did you know several members make monthly contributions to the TAAA without lifting a finger? These members have agreed to allow the TAAA to transfer authorized funds from their bank account to a TAAA donation account automatically. No single contributor is making a huge contribution, but taken together, they account for a good portion of the TAAA's yearly donations.

This program works! In just over 5 years, this group of members has collectively contributed over \$10,000 to the Land & Telescope project! Congratulations to those contributing! You know who you are!

You too can participate in this program. We do ask that the minimum monthly donation be at least \$5. Your contribution can be designated for the Land & Telescope Fund, the Light Pollution Fund, the Education Fund, or the General Fund. Terri has the form for you to fill out. You also need to provide a voided or cancelled check for the account from which you want the transfer to be made. The transfers occur around the 15th each month (never before). In addition, it's easy to cancel the arrangement if you so desire. For more information, call Terri (the treasurer) or talk to her at a meeting.

Grand Canyon Star Party

12-19 June, 1999

In the years that the National Park Service has provided us with a few campsites to reward those setting up for the week at the Grand Canyon, we have nearly always had spaces to give away mere weeks before the event. Not this year! It started off slow on 1 March with a couple calls and e-mails, but by meeting time on 5 March, all 16 spots were gone - I have 20 names for the 16 sites, with a few that will be sharing. So sorry, the freebies are gone for '99. However, don't let that slow you down - they only go for \$10 or \$12 a day, so you can still spend the week there and get off cheaper than a night at El Tovar Hotel. Hopefully all TAAA members have made their plans - if not, go to our website at <http://www.tucsonastronomy.org> for all the info and phone numbers you need. Rumors are flying that motel reservations are very tight right now, so camping may be about your best bet.

For those of you who are coming and have a little experience speaking to the general public, think about giving a twilight talk. It is a lot of fun and everyone gets a great reception from the tourists there. All I ask is 30-45 minutes of astronomy-related topics for a general audience. That keeps the sunset watchers around long enough to start seeing stars thru the scopes waiting for them in the parking lot. Let me know if you want to volunteer. Give me a call at 293-2855 for questions or if you want to volunteer.

Dean Ketelsen

Club News (cont.)

Thanks

Here is why the TAAA has such an active school star party program:

Subj: Thanks for the Star Party!

Date: 2/24/99

Sender: Caty Pilachowski

To: Karen Allen

Hi Karen,

Please convey my thanks to the TAAA members who came out last night to put on a star party for kids and their families at Holladay Intermediate Magnet School. I heard many wonderful comments from kids, parents, and school staff who all seemed to enjoy the event enormously. The star party was the highlight of the school's "science night!"

This was a special night, too, because of the spectacular conjunction of Venus and Jupiter.

I was really impressed by how well organized the star party was and how well the crowd was handled. There were so many telescopes that no one had to wait more than a few minutes for a good view.

Everyone had a wonderful time! The joy that the TAAA brings to the Tucson community is very much appreciated. Thanks!

TAAA Youth Programs Survey

Enclosed in this issue of the newsletter is a brief survey focusing on TAAA youth programs. As we all know, the Association has a strong and longstanding emphasis on bringing astronomy to young people in the Tucson area. The purpose of this survey is to gain from our members as much insight as possible about how they see these programs working and how they might be improved. In other words, how can we build on this strength? It goes a bit beyond this to gain some understanding about how members themselves first became interested in astronomy and what influenced them the most. This information may be helpful in modifying existing programs or initiating something new.

We hope all members will complete the survey and return it to us in the easiest way possible. It can be brought to the monthly meeting, mailed, e-mailed or FAX'd.

Please return it to Bill Lofquist who will tabulate and collate the results. Findings will be reported in future newsletters.

You can reach Bill by mail at 1935 West Harran Circle, Tucson, 85704; by e-mail at wlofquist@aol.com; by FAX at 575-8586, or call at 297-6653.

Sky & Telescope Magazine Subscription Rate Increase

Our Treasurer, Terri Lappin, announced at the March meeting that she had been advised by Sky Publishing Corporation that the subscription rate for Sky & Telescope magazine has increased from \$27 per year to \$29.95. If your renewal notice has the old rate, it will be honored.

TAAA Property Inventory

On Saturday, 2/27, several TAAA members visited the club's storage shed to review the contents, discard unnecessary items, and take an accurate inventory. The inventory not only recorded the description of the items in the shed but also their location within the storage facility. This should make it easier to retrieve items, when necessary, in the future. Many thanks to those members who volunteered their Saturday.

S.A.R.S.E.F. Awards

The TAAA participated in judging this year's Southern Arizona Regional Science and Engineering Fair held on 3/16 at the Bear Down Gym on the campus of the UofA. Ingrid Saber, Robert Callanan, and John Polacheck comprised the TAAA judging team. The TAAA, along with Starizona and the Skywatcher's Inn, contributed the cash awards that were issued to the three categories of projects (high school, middle school, and elementary school). To receive a TAAA award, the project had to be related to astronomy or optics. A \$100 cash award was presented for the high school winner, a \$50 award went to the middle school recipient, and a \$50 award went to the elementary school winner. All awards were in the form of gift certificates at Starizona. The TAAA judges were so impressed with a second elementary school project, that all three judges personally funded another \$25 cash award. The winners' names and project information will be published in the next newsletter, after the recipients are notified by the S.A.R.S.E.F. committee of their awards.

Items of Interest

Telescopes for Telethon

The following message was received from David and Wendee Levy regarding an amateur astronomy activity in support of the Muscular Dystrophy Association. The TAAA Board of Directors reviewed the proposal at the March board meeting and approved pursuing this project. Anyone interested in coordinating this activity is asked to contact John Kalas. The project will be discussed at the April monthly meeting and details will be published in future newsletters.

Circular Letter to Astronomy Associations and Planetaria
From David and Wendee Levy

We've thought long and hard about finding a way to bring the strength of the astronomical community to bear on raising funds for a charity that seeks to restore health to people, especially to young people. It turns out that the Muscular Dystrophy Association, headquartered in Tucson near our home, does a superb job in combating muscular dystrophy and related disorders, and has a record of doing so for decades.

Items of Interest (cont.)

Telescopes for Telethon (cont.)

When I was growing up, I was a patient for more than a year at the Children's Asthma Research Institute and Hospital. I was always moved by the engraving on the front gate: "To help a child to health is to walk with God."

By helping raise funds for MDA, you will be helping researchers supported by the Association move another step closer to treatments and cures that will benefit children throughout the world with muscle disorders. They'll then be able, like the rest of us, to look forward to many happy years of looking at the stars. We hope you and your organization will participate in a program we call *Telescopes for Telethon*.

We propose a star party in the United States and Canada on Friday and Saturday, June 18 and 19, 1999, as a fun fund-raising event for MDA-- the organization of which Jerry Lewis is National Chairman. The purpose of this event would be to raise money for "Jerry's kids" by donating funds from people who love the night sky.

Here is how it will work. On the weekend of June 18 and 19, (first quarter Moon in the evening sky), all participating organizations would open their telescopes for viewing. (If your group is already committed for that date, you can choose a different weekend.) Each person who looks through a telescope would then make a donation to MDA by check or cash. After the event, you would convert all cash to a check or money order made payable to MDA and send it with other checks to us for transmittal to the Association.

When you respond to us indicating your interest in the program, MDA's local staff will be notified. They'll share information with you about opportunities for media exposure for your organization as well as what the minimum requirements are to present a facsimile check for the results from your event on a local segment of the Jerry Lewis MDA Telethon on Labor Day weekend. You'll be promoting your club twice, and helping MDA at the same time-- a true "win-win" situation.

The Jarnac Observatory, Inc. will act as a central clearinghouse for collecting the funds. Checks should be made payable to MDA and mailed to the address on this letterhead. The total amount collected would then be presented as a single donation from the Telescopes for Telethon program during the national broadcast of the Jerry Lewis MDA Telethon. Our purpose is to show what a strong and unified group of astronomers can do.

If you are interested in participating in this program or would like more information, please contact us.

Sincerely

David and Wendee Levy

P.S. We have just learned that Meade Instruments Corporation will award a \$3,350 ten-inch LX 200 telescope to the club or organization that raises the most money for MDA!! What's more, Meade will donate an ETX telescope to MDA's summer camp program. Thanks for helping Jerry's kids to see the stars!

FIGHT LIGHT POLLUTION!

PLEASE ATTEND THE MEETINGS OF THE SOUTHERN ARIZONA SECTION OF THE INTERNATIONAL DARK-SKY ASSOCIATION (SA-IDA).

SA-IDA meets on the second Wednesday of each month, at 5:30 p.m. at the offices of the IDA, 3225 N. First Ave. This is just south of the Map and Flag store on North First Ave. Close to the northwest corner of North First and Fort Lowell. Park behind the complex by entering from Fort Lowell behind the lighting fixture store.

Protect your rights for dark skies. Attend and participate (you do not need to be a member of the IDA to attend).
Ed Vega

IDA Annual Meeting

The annual meeting of the International Dark-Sky Association will be held April 23-25 at the Sumner Suites Hotel (near the airport). There is a \$25 pre-registration fee for the workshops. The dinner on 4/24 is \$25/person for IDA members and \$30/person for non-IDA members. The schedule of events is as follows:

Friday, April 23

- All activities will be held at the IDA Office, 3225 N. First Ave.
- Board Meeting - 10:00 am til noon
- Workshops - 1:30 pm til 5:00pm
- Informal dinner at the China Rose Restaurant

Saturday, April 24

- Displays and workshops at the Sumner Suites Hotel - 9:00 am til 5:00 pm

Sunday, April 25

- Same as Saturday except ends at noon

Steward Observatory Public Evening Lectures

Steward Observatory has been hosting public evening lectures in astronomy for 70 years. The remaining two lectures for the Spring 1999 semester will be held this month on the following nights at 7:30pm in room N210 of Steward Observatory. Following the talks, there will be opportunities for viewing the night sky (weather permitting) with the use of the 21-inch telescope at the Campus Station of the Observatory operated by undergraduate majors in astronomy and related sciences. All of the lectures and the use of the telescope are free of charge and open to the general public.

For more information about speakers and their talks, visit Steward Observatories website at:
http://hypatia.as.arizona.edu/~connie/pub_lect.html

- | | |
|---------|--|
| April 5 | Dr. Richard Poss
"Astronomy and Spirituality in the Arts" |
| Apr. 19 | Dr. Craig Foltz
"The Re-Birth of the MMT" |

TAAA Member Survey Young People and Astronomy

The purpose of this survey is to learn from TAAA members what influenced them to become interested in astronomy and at what age. This information will be used to compile a picture of current TAAA activities that introduce young people to astronomy and to learn what kinds of experiences are most influential with young people. If your interest started as an adult, that will also be of interest. This information will also help TAAA plan activities and events to strengthen our programs. Any specific part of this survey is optional. Please fill in as much of the survey as you can. Thank you.

When did you join TAAA? _____

What viewing instruments do you own and use? _____

When (age) and how did you first become interested in astronomy? Who/what influenced you most?

What experiences have you had introducing astronomy to young people? Please describe.

Are you active in TAAA efforts to introduce young people to astronomy? If so, please describe.

OVER PLEASE

TAAA is very active through star parties and Project Astro in introducing astronomy to young people. What do you think are its most effective ways of doing this? How do you think this might be done more effectively?

What additional methods do you think might be useful? Please describe.

Other comments and observations.

If you would like to become involved in TAAA programs with young people, please check here _____

NAME _____

ADDRESS _____

TELEPHONE _____

EMAIL ADDRESS _____

Thanks for your help. Please bring this survey to the monthly TAAA meeting or return to Bill Lofquist, 1935 W. Harran Circle, Tucson, AZ 85704. You can email your response to wlofquist@aol.com if you prefer, or FAX it to 575-8586. (3/99)

Items of Interest (cont.)

Project ASTRO - Year Four!

The National Optical Astronomy Observatories is now recruiting ASTRONOMERS (professional, amateur, students) and TEACHERS in grades 4-9 who wish to take part in Project ASTRO's fourth year in Tucson. This program forms partnerships between scientists and teachers and provides training, materials, and support for participants. Astronomers and teachers work together in the classroom to enhance science education through astronomy.

Consider applying as an astronomer partner (a degree in astronomy is NOT required) and get involved in a

worthwhile program to improve science education in Tucson schools! Inform teachers you know about Project ASTRO. Partnerships will take place next academic year (1999/2000), and the training workshop is scheduled for September 25 & 27, 1999 at the Steward Observatory Building.

The application deadline is April 15, 1999. For applications or more information, contact Ginny Beal, 318-8535, 950 N. Cherry Ave. email: gbeal@noao.edu

Dark Skies for April 1999

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, set for evening object

We/Th 31/ 1	FULL MOON	Su/Mo 11/12	20:15 - 3:51	Th/Fr 22/23	1:52 - 4:19
Th/Fr 1/ 2	- - -	Mo/Tu 12/13	20:16 - 4:31	Fr/Sa 23/24	2:35 - 4:18
Fr/Sa 2/ 3	20:08 - 20:30	Tu/We 13/14	20:17 - 4:32	Sa/Su 24/25	3:13 - 4:16
Sa/Su 3/ 4	20:09 - 21:24	We/Th 14/15	20:18 - 4:30		
		Th/Fr 15/16	20:19 - 4:29	Su/Mo 25/26	3:49 - 4:15
Su/Mo 4/ 5	20:09 - 22:17	Fr/Sa 16/17	20:20 - 4:27	Mo/Tu 26/27	- - -
Mo/Tu 5/ 6	20:10 - 23:09	Sa/Su 17/18	20:56 - 4:26	Tu/We 27/28	- - -
Tu/We 6/ 7	20:11 - 0:01			We/Th 28/29	- - -
We/Th 7/ 8	20:12 - 0:51	Su/Mo 18/19	22:04 - 4:25	Th/Fr 29/30	FULL MOON
Th/Fr 8/ 9	20:13 - 1:39	Mo/Tu 19/20	23:09 - 4:23	Fr/Sa 30/ 1	- - -
Fr/Sa 9/10	20:14 - 2:25	Tu/We 20/21	0:10 - 4:22	Sa/Su 1/ 2	- - -
Sa/Su 10/11	20:15 - 3:09	We/Th 21/22	1:04 - 4:20		

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn	
Sa/Su	Set	Rise	Rise Vi	Set Vi	Rise Vi	Rise Vi	Set Vi	Vi=Visibility
3/ 4	18:43	6:07	5:07 6	21:36 -3	20:40 -1	6:06 -	20:13 4	-3 brilliant
10/11	18:48	5:58	4:53 5	21:49 -3	20:04 -1	5:43 -	19:50 6	0 conspicuous
17/18	18:53	5:50	4:46 5	22:02 -4	19:26 -1	5:20 8	19:27 -	3 moderate
24/25	18:58	5:42	4:42 5	22:14 -4	18:47 -2	4:57 5	19:03 -	6 naked eye limit
1/ 2	19:03	5:35	4:42 6	22:24 -4	18:07 -1	4:34 3	18:40 -	9 binoculars limit

By Erich Karkoschka

Star Parties & Events

TAAA Empire Ranch Star Party April 10 (Saturday)

The Empire Ranch has been our normal observing site for quite a number of years. Empire Ranch is about 4000 feet in elevation, so be prepared for cold temperatures and arrive soon after sunset. Temperatures at this time of the year may get to freezing! Stay as long as you like, but let everyone know when you are ready to leave. Someone may be taking astrophotos. Bring a telescope if you have one, but you don't need one to attend. Any member would be glad to let you look through their telescope. There are no restroom facilities at the site, so be prepared. One nice advantage of belonging to the TAAA is the opportunity to observe among friends. Help in finding an object or the sharing of equipment always goes on at our star parties. If you haven't attended a star party yet, you're missing the

best part of belonging to the TAAA. See the directions to Empire Ranch on the outside flap of this newsletter.

Desert Willow Elementary School Star Party

April 16 (Friday)

No. of scopes: 8

The school is located at 9400 E. Esmond Loop (Rita Ranch area). Set-up is at 7:00 pm with observing starting at 7:30 pm. Volunteers are invited to a barbecue dinner at 6:00 pm. Take Kolb Rd. to Valencia Rd. and turn left (east) on Valencia. Turn right (south) on Nexus. Turn left (east) on Rita Rd. Turn right at Esmond Loop. Halfway around the loop, the school will be on the right. Turn into far east driveway and follow driveway to the gate leading to the basketball courts. Vehicles will be allowed to drive out onto the courts for set-up. There will be a sign-up sheet at the April meeting. A star party leader is needed of this event.

Star Parties & Events (cont.)

TAAA Beginners Star Party at TIMPA Site April 17 (Saturday)

This activity is designed for all TAAA members but especially for those who are new to the hobby or would like to learn more about observing. The event will concentrate on helping anyone who has questions about amateur astronomy or who is having problems using their telescope equipment. There will be no specific talk at this star party, just lots of help for those who ask for it. Be sure to dress warmly. Try to arrive before dark around 6:00 pm. John Kalas, and other members, will be available to answer questions before dark and help with observing issues after it gets dark. All TAAA members, novice and experienced, are welcome. See the directions to the TIMPA site on the outside flap of this newsletter.

Copper Creek Elementary School Star Party

April 20 (Tuesday) No. of scopes: 8

Set-up at 6:30 pm with observing at 7:00 pm. Take La Canada Dr. north past Lambert Ln. and Naranja Rd. Turn right on Silverleaf and follow it around until it deadends at the playground. Turn right down a driveway and then turn left into a gate that leads to the basketball courts. There will be a sign-up sheet at the April meeting. Lee Paulsel (577-8966) is the star party leader for this event.

Amphi Middle School Star Party

April 21 (Wednesday) No. of scopes: 5

The school is located at 315 E. Prince Rd. (between Stone Ave. and 1st Ave.). Set-up will be at 6:30 pm with observing starting at 7:00 pm. The set-up area will be behind the school on a running track. Take Stone Ave. north from Prince Rd. to Pasttime St. and turn right. Turn right into a parking lot at the rear of the school and park near the gate to the track. There will be a sign-up sheet at the April meeting. John Kalas (620-6502) is the star party leader for this event.

Tanque Verde Elementary School Star Party

April 22 (Thursday) No. of scopes: 4

Set-up at 6:30 pm with observing at 7:00 pm. The telescopes will be one of three or four stations at this 5th grade science

activity. Take Tanque Verde Rd. east past Houghton Rd. just past the 49ers Country Club, turn left (north) on Fennimore. Go two blocks north and the school will be on the right. Turn into the parking lot and go to the east end of the lot. Turn left and head north on driveway to soccer field. There will be a sign-up sheet at the April meeting. A star party leader is needed for this event.

Girl Scouts Star Party (Demonstration Activity)

April 30 (Friday)

Due to the full Moon on this evening, the TAAA will present an indoor astronomy-related activity to a group of Girl Scouts at the Sabino Canyon Rd. facility. Anyone interested in doing a "Project ASTRO" type of demonstration is invited to volunteer. There will be a sign-up sheet at the April meeting. An activity leader is needed for this event. Directions will be available at the April meeting.

Titan Missile Museum Star Party

May 1 (Saturday) No. of scopes: 6

Despite a nearly full Moon, the TAAA has agreed to support the museum with telescopes at their open house scheduled from 6:00 pm to 10:00 pm. Set-up will be at 6:30-7:00 pm with observing at 7:00-7:30 pm. Volunteers will receive a free pass to the museum. Take I-19 south to Exit 69 Duvall Mine Road and follow the signs to the museum. There will be a sign-up sheet at the April meeting. A star party leader is needed for this event.

Wright Elementary School Star Party

May 4 (Tuesday) No. of scopes: 5

Set-up at 7:00 pm with observing at 7:30 pm. John B. Wright Elementary School is located at 4311 E. Linden St (corner of Columbus and Linden). From Grant Ave take Columbus St south for 4 blocks to Linden St. From Speedway take Columbus St north for 5 blocks to Linden St. We will setup behind the school on the playground. There will be a sign-up sheet at the April meeting. Victor Jones (228-9193) is the star party leader for this event.

TAAA Board of Directors Meeting - March 11, 1999

Location: Steward Observatory Conference Room N350, University of Arizona
Call to Order: 7:06 pm

Board Members Present: John Kalas, Andrew Cooper, Ingrid Saber, Terri Lappin, Bill Lofquist

Board Members Absent: John Polachek, Dave Reynolds

Members Present: Robert Callanan, Gary Rosenbaum, Sam Turner, Larry Wilson

1. Treasurer's Report - A copy of the financial statements for February are available for review at the monthly meeting.
2. TAAA Library - Librarian, Sam Turner, has catalogued 84 books and 11 videos. He mentioned that we are running out of storage space for the club's collection and proposed the possibility of purging some of the older books. Larry Wilson, TAAA Webmaster, offered to publish the list of library materials on our website so members can review the listing and request books to be brought to the monthly meeting.
3. TAAA Membership Brochure - Terri Lappin circulated the latest version of the revised brochure for comment. She has identified the most cost effective company to do the copying. The board members made a few final recommendations that Terri will try to accommodate. The board, by verbal agreement, authorized Terri to proceed with the copying effort and expedite the fabrication of the new brochure. John Kalas asked Terri to inquire about the cost to print TAAA business cards with the club's new phone number and website domain name.

TAAA Board of Directors Meeting - March 11, 1999 (cont.)

4. S.A.R.S.E.F. Participation - Ingrid Saber reviewed the schedule of events for the judging of the science fair which takes place on March 16th. The TAAA judges will be John Polacheck, Robert Callanan, and Ingrid Saber. John Polacheck mentioned that Starizona and Skywatcher's Inn would match the TAAA awards.
5. Telescopes for Telethon - The TAAA received an e-mail message from David and Wendee Levy requesting the participation of the TAAA in a fundraising event for the MDA. The board agreed to take on the project and solicit for a chairperson. (EDITOR'S NOTE: See the article in the Club News section of this newsletter for details.)
6. Publicizing TAAA Activities - John Kalas advised the board that a TAAA member had approached him about the possibility of promoting TAAA activities by publicizing them in a variety of media. He acknowledged that the club did not have a publicity chairperson but thought that we probably should. Robert Callanan suggested that the club solicit members who may have publicity or marketing experience. A motion was forwarded by John to attempt to find a club member or group of members to formulate a publicity proposal for TAAA activities that would be monitored and controlled by the Board of Directors. The motion was seconded by Bill Lofquist and was passed unanimously. John Kalas will place an article in the newsletter requesting volunteer(s) for the position of publicity coordinator.
7. Automatic Transfer of Funds to Investment Account - John Kalas proposed that a procedure be adopted to authorize the Treasurer to transfer excess funds from the non-interest bearing club accounts to the investment account without the need for board approval. Treasurer Terri Lappin mentioned that the bank requirements for service fee exemption had changed and that the minimum balances needed to be recalculated. Terri was requested to prepare a proposal to present to the board at the April board meeting. She will also investigate other banks to determine which has the best account features.
8. Youth Programs - Bill Lofquist presented a revised survey form for board review. With minor recommendations the form was approved for distribution in the April newsletter. John Kalas requested that Bill write a brief article to place in the April newsletter explaining the purpose of the survey. Bill will tabulate the results of the survey and use the information to formulate new or revised approaches for astronomy education for young people.

Meeting Adjourned: 10:10 pm

Respectfully submitted,
Ingrid Saber, TAAA Secretary

Desert Skies Classified

- FOR SALE:** Swift Audubon Mark II 8.5x44 wide field binoculars with carrying case, like new, \$175. 2" dia. Light Pollution Rejection No. 5 filter, \$60. Call Duane Niehaus at 529-7767. (4/99)
- FOR SALE:** WWII vintage Elbow telescope (M75C) with crosshair reticle and dial-in filters (neutral, red and amber). Easily adapted to a camera tripod. Excellent condition, \$75. Call Duane Niehaus at 529-7767. (6/99)
- FOR SALE:** Celestron 8 Orange Tube 8" f/10 Schmidt Cassegrain telescope, manufactured by Celestron Pacific. Comes with 6x30 finder scope, special coatings, star diagonal, 25mm Kellner 1-1/4" eyepiece, Edmund Scientific dual-axis drive corrector with joystick controller, equatorial wedge and tripod. Great Shape! All for \$700.00. Call Steve Peterson at 326-5303, 446-2731 (digital pager), or e-mail at swpeter@theriver.com (6/99)
- FOR SALE:** 6" f/8 Newtonian reflector tube assembly with finder, \$250. Call Duane Niehaus at 529-7767. (7/99)
- FOR SALE:** 5", f/4 rich field Newtonian reflector with very solid and vibration free fork mounting and tripod. Byers worm gear drive on polar axis, tangent arm slow motion on dec. axis. Superb diffraction limited optics. Scope won merit award at Riverside and award for optical quality and mechanical excellence at Stellafane. Asking \$1200, but will consider all reasonable offers. For private demonstration or for more info call Duane Niehaus at (520) 529-7767. (7/99)
- FOR SALE:** U.S. Navy Mark 110 60mm telescope, two interchangeable Erfle eyepieces vary the power from 12X to 20X, helical focus, fits camera tripod. \$125. Call Duane Niehaus at 529-7767. (7/99)
- FOR SALE:** Takahashi E-160 astrograph with 7x50 finder and tube holder, camera adapter for Olympus. Great shape, less than a year old. \$2800. G-11 mount w/ 21 lb. counterweight, JMI NGC-Max digital setting circles, and polar alignment scope. Less than a year old. \$2000. Optec F3.3 for schmidt cassegrain telescope with adapter for Celestron Pixel 255 CCD Camera. Never used. \$375. Call Ted Wu at 733-3728. (7/99)
- FOR SALE:** Meade 10" LX-200 f/10 Schmidt-Cassegrain Telescope (1997 vintage), super wedge, field adjustable tripod, control paddle, 8x50 straight-thru finderscope, 1 1/4" star diagonal, Meade 26mm 1 1/4" Super Plossol eyepiece, and cigarette lighter adapter. Asking \$2500. Call Kevin Bays at (520) 783-6003 (Yuma). (7/99)

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.

Observing Report

A REGAL STAR

Shining brightly high in the south on these fine April nights is the bluewhite star Regulus. Regulus pronounced (REG-you-luss), means the "Little King". This star marks the heart of the Neumean lion, Leo. Regulus also designated as Alpha (α) Leonis is a wide double star readily visible with little optical aid. Regulus can be located at the following coordinates R.A. 10h 08m 22.2s Dec. $+11^{\circ} 58' 02''$.

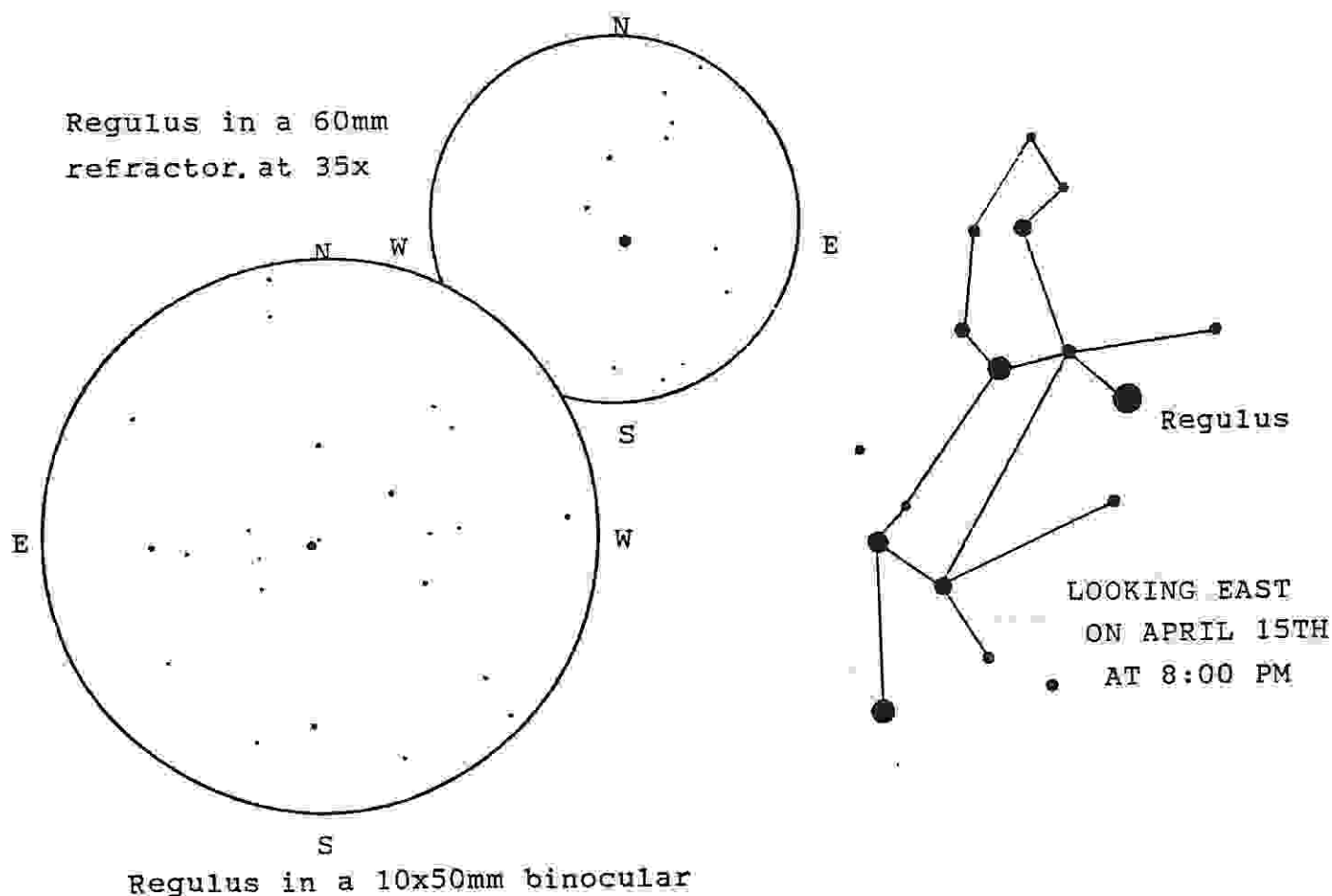
Regulus is a helium type star similar to the bright stars that make up the constellation of Orion. The spectrum of Regulus is B7Vn. The temperature of Regulus is 12,500°K, more than twice as hot as our Sun. It has a diameter 4 times greater than the Sun, and a luminosity of 140 suns. It has a mass of 5 suns. The distance to Regulus is around 85 light years. At magnitude 1.4 it is the 21st brightest star in the night sky. Regulus B can be found northwest of the primary at a P.A. of 307° , and a whopping 177".6 distant, nearly $3'$ of arc. The projected separation would then be 4000 A.U. Even a binocular will suffice to resolve this pair.

The companion itself is a close visual binary, consisting of a K2V orange dwarf of half the Sun's luminosity. This close pair was discovered by Winlock in 1867. The two stars of magnitude 8.1 and 13.1 are drawing closer. This pair has lost $1''.4$ in distance since their discovery, with the current separation at $2''.5$, P.A. 86° . These two need a large amateur telescope to be seen well. The companion is a dim red dwarf star with a luminosity of 1/250th of the Sun. This 8th magnitude pair is outshone by bluewhite Regulus some 400 times.

I can pick up the companion quite easily with a 10x50 binocular, and in my 6cm refractor at 35x, I see Regulus A with a bluish tint and the companion shows no color at all. In a large Dobsonian reflector I see the companion has a definite orangish hue at 60x - a pretty color contrast.

So look up and spend some time observing this unique wide color contrast pair amid the springtime stars.

by Jeff Brydges



Constellation Report

Corvus

The Crow, or Raven

Zoologists know the term "Corvus" as the genus to which crows belong. Astronomers are also familiar with the term since a constellation by the same name makes its appearance in the mid-evening hours this time of year, reaching the meridian at 11pm during the middle of April. If you look southwest of Spica in Virgo you will see an irregular quadrilateral of stars that is the constellation of Corvus. It is one of the smaller constellations, measuring 184 square degrees (Orion, by comparison, occupies 594 square degrees.)

One legend states that the god Apollo gave Corvus a cup to fetch some spring water. Along the way, the crow was tempted by a fig hanging from a tree, but since the fruit was still green, the crow couldn't resist waiting for it to ripen. When he returned, Corvus explained his tardiness by bringing back a water snake along with the full cup of water, saying the snake had attacked him. Apollo was too wise to believe the foolish bird and banished Corvus, the cup (Crater), and the water snake (Hydra) to the sky. Another legend says that Apollo was suspicious that Coronis, with whom he was having an affair, was being unfaithful, so Apollo sent Corvus, who then was a silver bird, to spy on her. Corvus reported back that Apollo's suspicions were correct, so the god slew Coronis and sent Corvus to Hades where his feathers were burned black.

The four bright stars of Corvus was seen as a tent by the Arabs. In fact, Alpha (α) Corvi is named Alchiba, the Arabic word for "tent." This is a relatively nearby star lying 68 light years from Earth. Delta (δ) Corvi, named Algorab (an Arabic derivative meaning "raven's wing"), is a pleasant double star which has a primary of magnitude 3.1 and spectral type of B9 V, and a dimmer secondary shining at magnitude 8.4 and having a spectral type of K2 III. The two are separated by a comfortable 24.2 arc seconds, so splitting them is an easy task. You could even consider Delta forming a visual double with nearby Eta (η) Corvi, 37 arc minutes away and of magnitude 4.3.

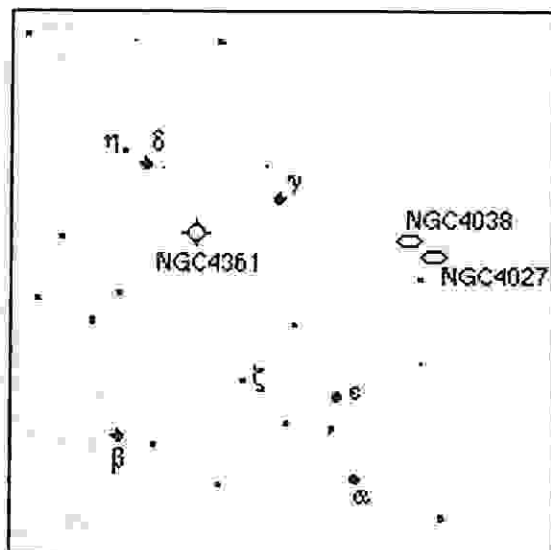
The most intriguing deep sky object in Corvus undoubtedly has to be NGC4038, also known as the ring-tail galaxy. The coordinates are RA: 12h 01.8', Dec: -18° 51.3', or about 14 minutes in RA west and 1.2 degrees south in Dec from Gamma (γ) Corvi. This is a magnitude 11 galaxy measuring 2.5 arc minutes on each side. Through medium sized telescopes, this galaxy exhibits a heart shaped structure which results from what is apparently a collision between two separate galaxies. Although too dim to see through a

telescope, two long filaments extend tens of thousands of light years on each side of the main body of the galaxy. It has been determined that these long trails of stars are the result of tidal interaction from the combined gravity of the two systems. You may remember that a Hubble telescope image showed vast regions within the two halves of the merging pair where stars are forming at an incredible rate because of the forces involved with this process.

A short hop of 0.7 degrees to the southwest will reveal another galaxy with a similar brightness of magnitude 11.6 and a size of 2.0 x 1.7 arc minutes. This is NGC4027 (RA: 11h 59.5', Dec: -19° 15.3') which, at an actual distance of only about a million light years from NGC4038, appears to be a third member of this small group. In fact, it is an irregularly shaped spiral which also seems to be distorted by the gravity of its interacting neighbor. Through a telescope it shows little overall detail other than a smooth oval.

A fairly easy planetary nebula floats within the heart of Corvus at RA: 12h 24.6', Dec: -18° 43.3'. With the designation of NGC4361, this 10.5 magnitude planetary can also be found by moving 5 minutes west in RA and 2.3 degrees south of Delta (δ) Corvi. The diameter of this nebula is about 80 arc seconds (or almost exactly the same size as the often observed M57 in Lyra) and, depending on the size of your telescope, gives you a decent opportunity at glimpsing its central star shining at magnitude 13. The nebula is almost perfectly round with a hint of an oval shape, and its surface is smooth with no apparent mottling.

If you can tear yourself away from the galaxy clusters of Virgo and Coma Berenices, look southward to Corvus where you can find more individual treasures.



Chris Lancaster