The Meteorite:
How it got here and how to use it.

The Meteorite has always been the main connection between members since its inception in 1947. Its content has change a little over the years. There are fewer poems and more about the MVAS and observing. It's now constructed
to feature one constellation per month. This is helpful for beginners in learning the sky, one constellation at a time.

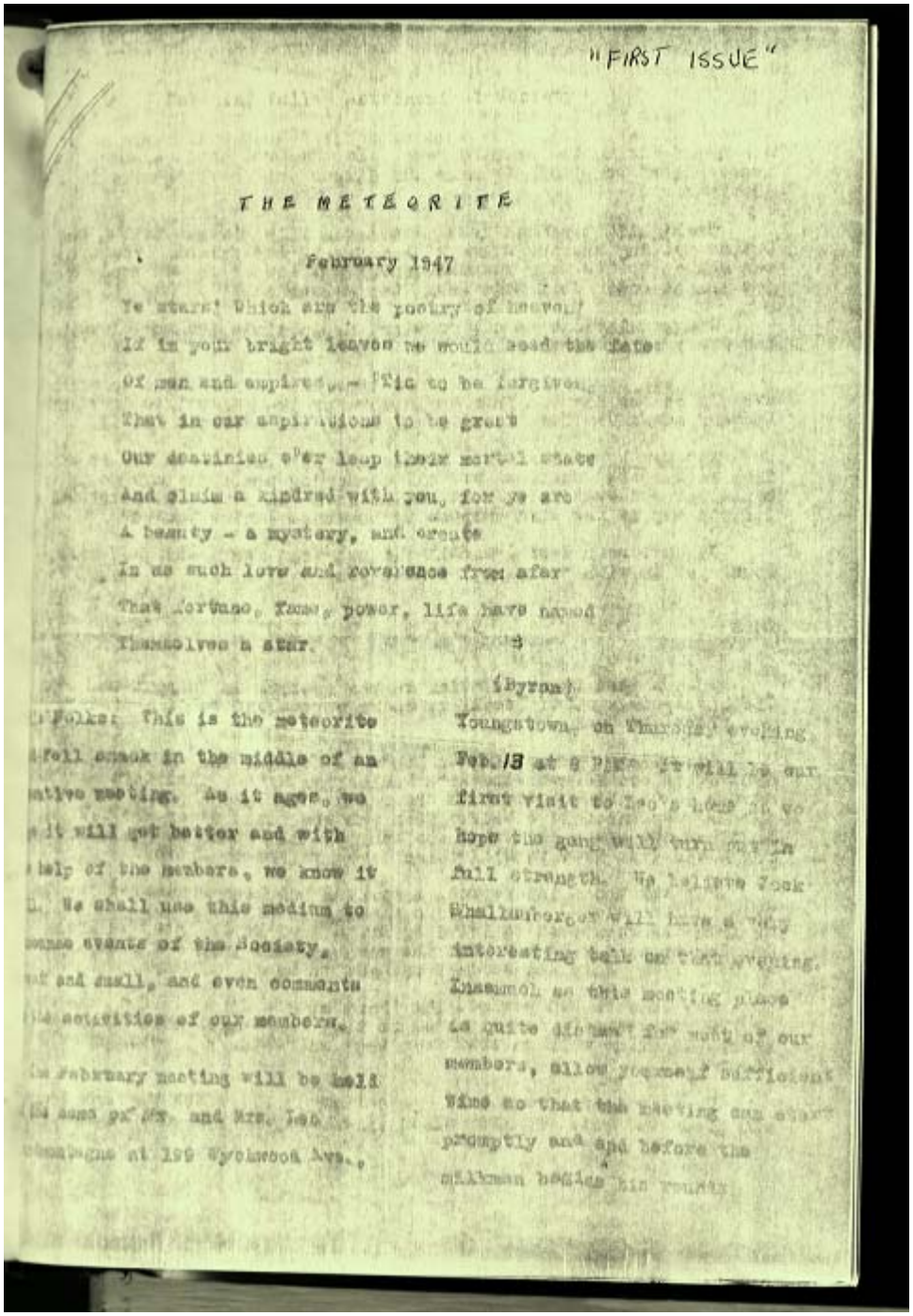
The "Homework" is also centered on the constellation, thus you don't have to search the sky to get all the objects. The object catagories can also lead you into doing real research. There is a method to the maddness, as they say!

Let's start by noting all those that have served as Meteorite editor. Putting together any newsletter is time consuming. One as technical as an astronomy club newsletter can be even more daunting.

We should applaud those editors that came before. They didn't have the luxury of computer editing and internet sources. The job today is easier but still time consuming.

1947-50	Steve Hoynos, Norman Ulam (art)
1951-64	out of print
1965-67	G. Pitcovich, A. Heasley
1968-75	Allen Heasley
1970	A. Heasley, John Godjics
1975-76	Dan Galdun
1977-78	Robert Andress
1979	D. Mathews, and Andy Jackson
1979-80	Don Mathews (til Aug.)
1980-89	Bob Clyde
1990-95	Bob Clyde, Phil Plante
1995-?	Phil Plante, Steve Bartos

First Meteorite - **Published February 1947**
Steve Hoynos 1st Editor



"FIRST ISSUE"

THE METEORITE

February 1947

Ye stars! which are the poetry of heaven!
If in your bright leaves we would read the fate
Of men and empires,—'tis to be forgiven,
That in our aspirations to be great
Our destinies o'erleap their mortal state
And claim a kindred with you, for ye are
A beauty – a mystery, and create
In us such love and reverence from afar
That fortune, fame, power, life have named
Themselves a star.

(Byron)

Folks: This is the meteorite
fell smack in the middle of an
native meeting. As it ages, we
it will get better and with
help of the members, we know it
. We shall use this medium to
some events of the Society,
and dull, and even comments
activities of our members.

February meeting will be held
the home of Mr. and Mrs. Jen
Youngstown, on Thursday evening,
Feb. 13 at 8 P.M. It will be our
first visit to Jen's home so we
hope the gang will turn out in
full strength. We believe Jack
Whallmeyer will have a very
interesting talk on that evening.
Inasmuch as this meeting place
is quite different for most of our
members, allow yourself sufficient
time so that the meeting can start
promptly and end before the
milkman begins his rounds.

First Masthead. **Used for April 1947 issue.**

Mahoning Valley Astronomical Society

T H E

METEORITE

April 1947

The Donkey

When fishes flew and forests walked
And figs grew upon thorn,
Some moment when the moon was blood
Then surely I was born.

With monstrous head and sickening cry
And ears like errant wings,
The devil's walking parody
On all four footed things.

The tattered outlaw of the earth
Of ancient crooked will,
Starve, scourge, deride me: I am dumb
I keep my secret well.

Fools! For I also had my hour
One far fierce hour and sweet,
There was a shout about my ears
And palms before my feet.

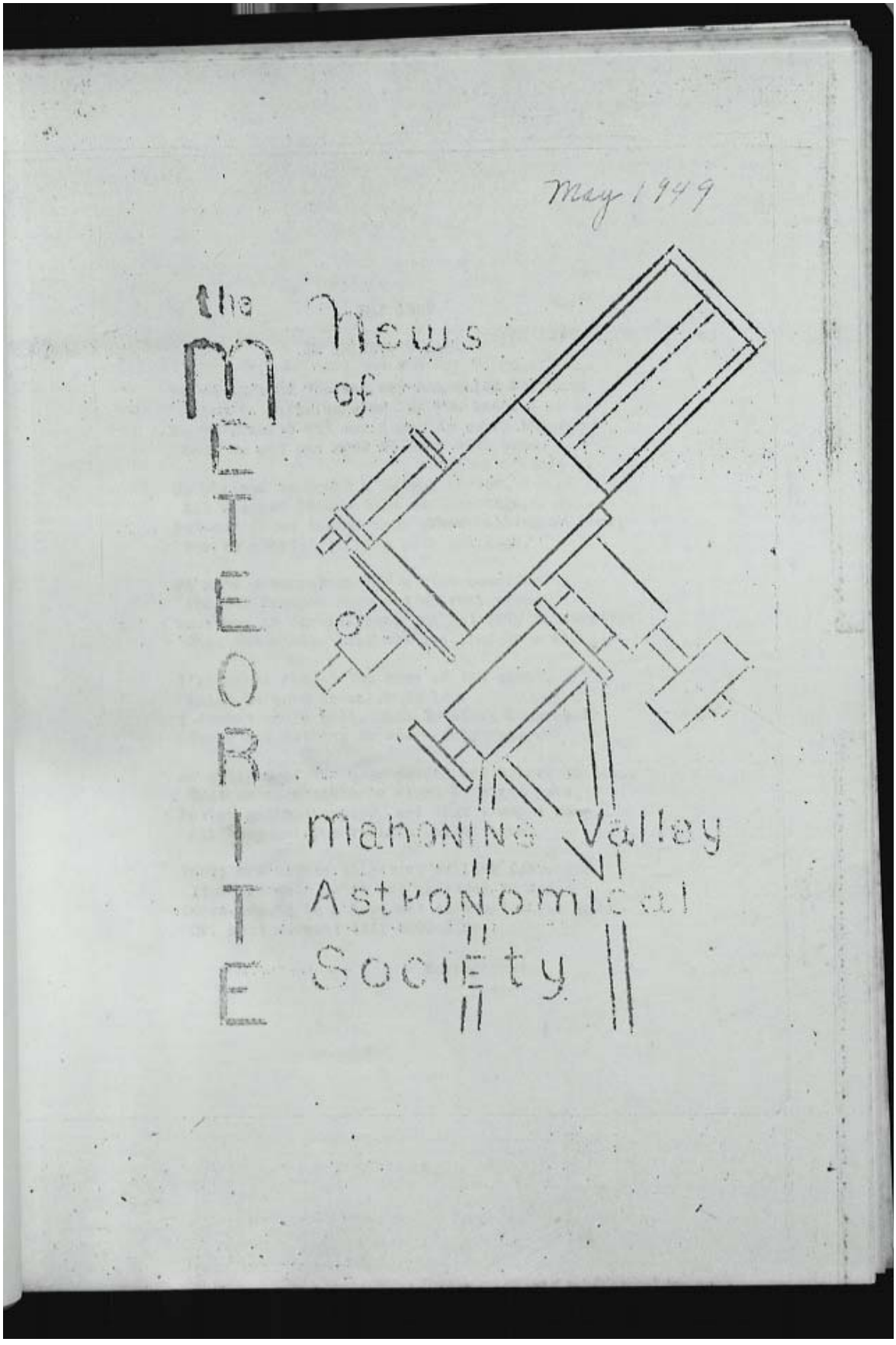
G. K. Chesterton

Once again, the time has come to greet our members through the medium of our little paper. The pages keep slipping off the calendar and the activities keep right on going, so let's see what I can clip from last months happenings. Here we go, so hold on!

The next meeting of the MVAS will be held April 10th at the home of Mr. & Mrs. Jack Shallenberger, West Farmington. For those others who may not know the way to Shallenberger's, smooth sailing is promised if they meet in front of Charlie Prather's home. We will leave Charlie's at seven thirty (7:30) PM sharp, so give yourself a little time if you want to be shown the way out.

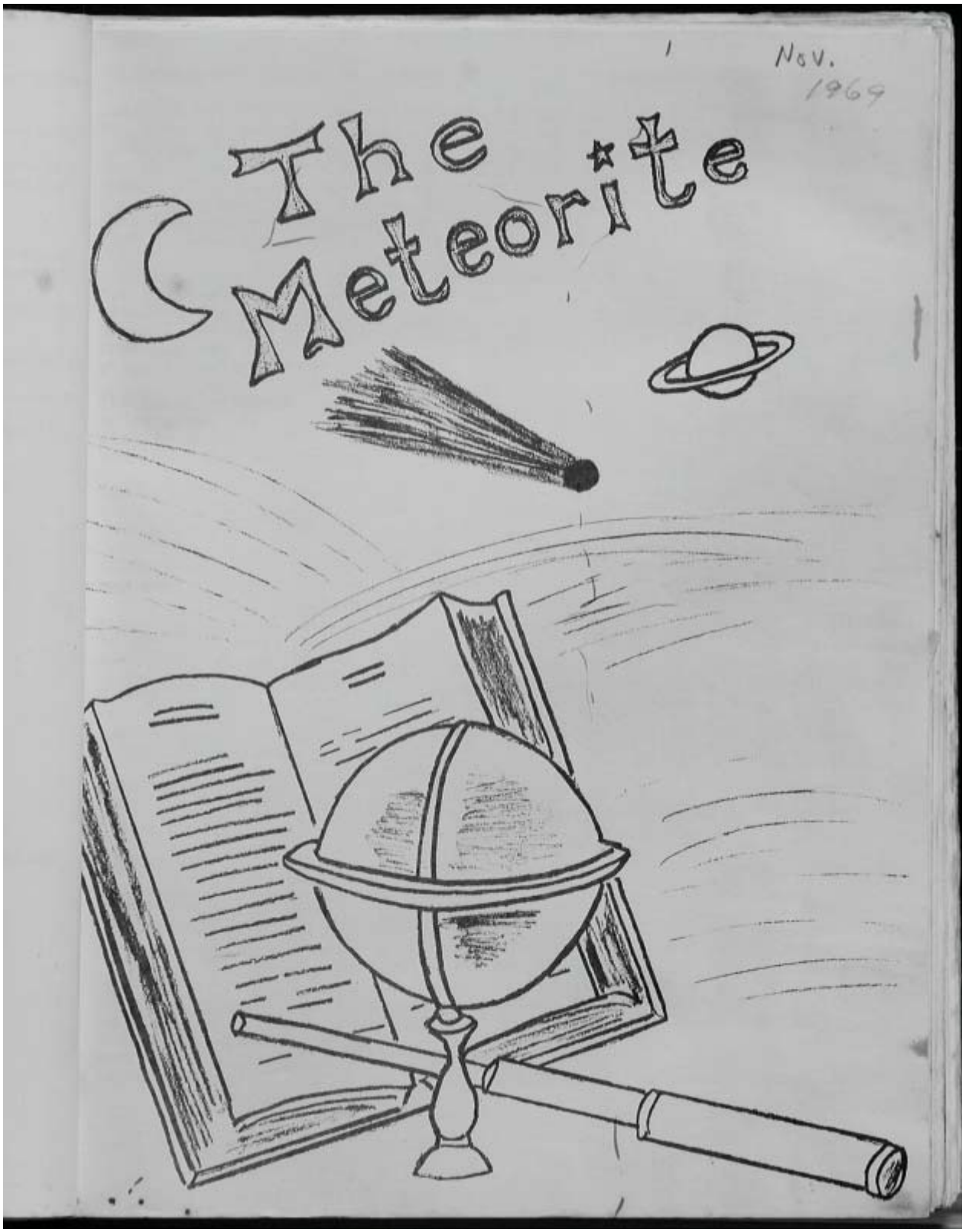
"The Creation" played by Mrs. Davis and "The Recitative" by Carol Prather are scheduled features of the next meeting. It will surely be good so be on hand to enjoy yourself.

The First Full Cover Various others 1947 to 1950



Revitalized in 1964.
Allen Heasley &
George Pitcovich

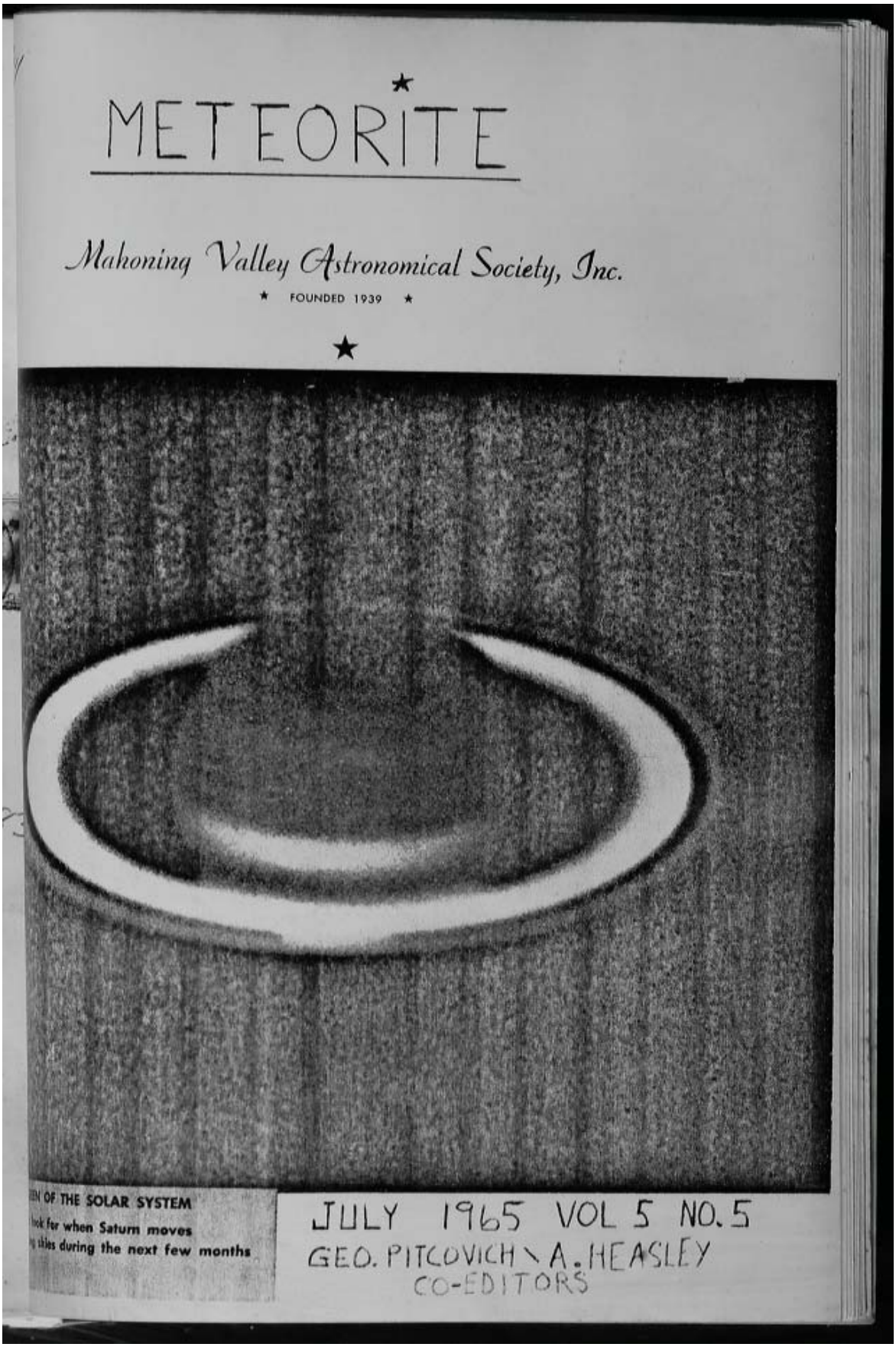
In regular use until 1971.
Various other covers used.



Special Edition for Jack Draper He died in July 1967

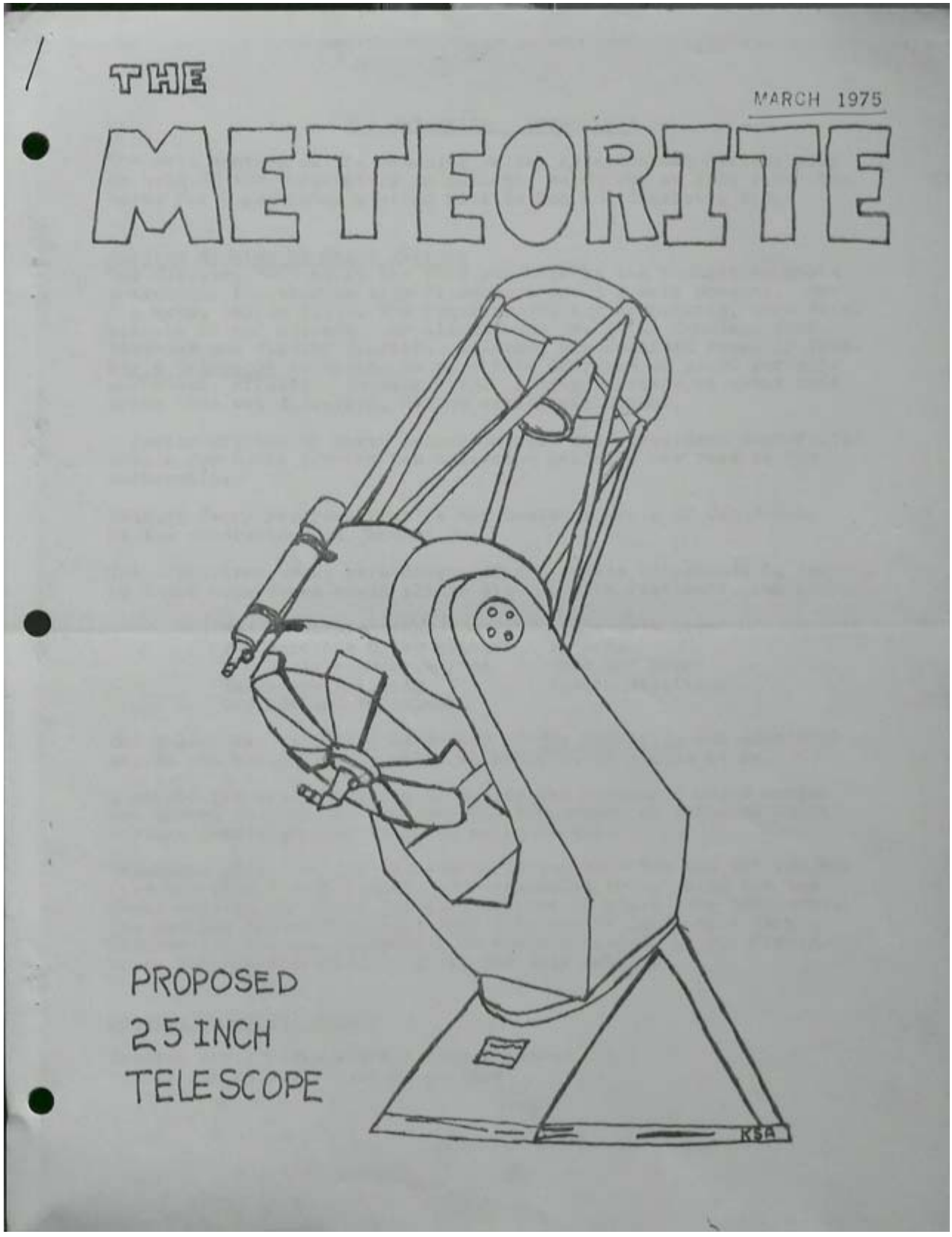
Another variation, was using images on the cover.

Allen tried these for 1965 ~ 1966



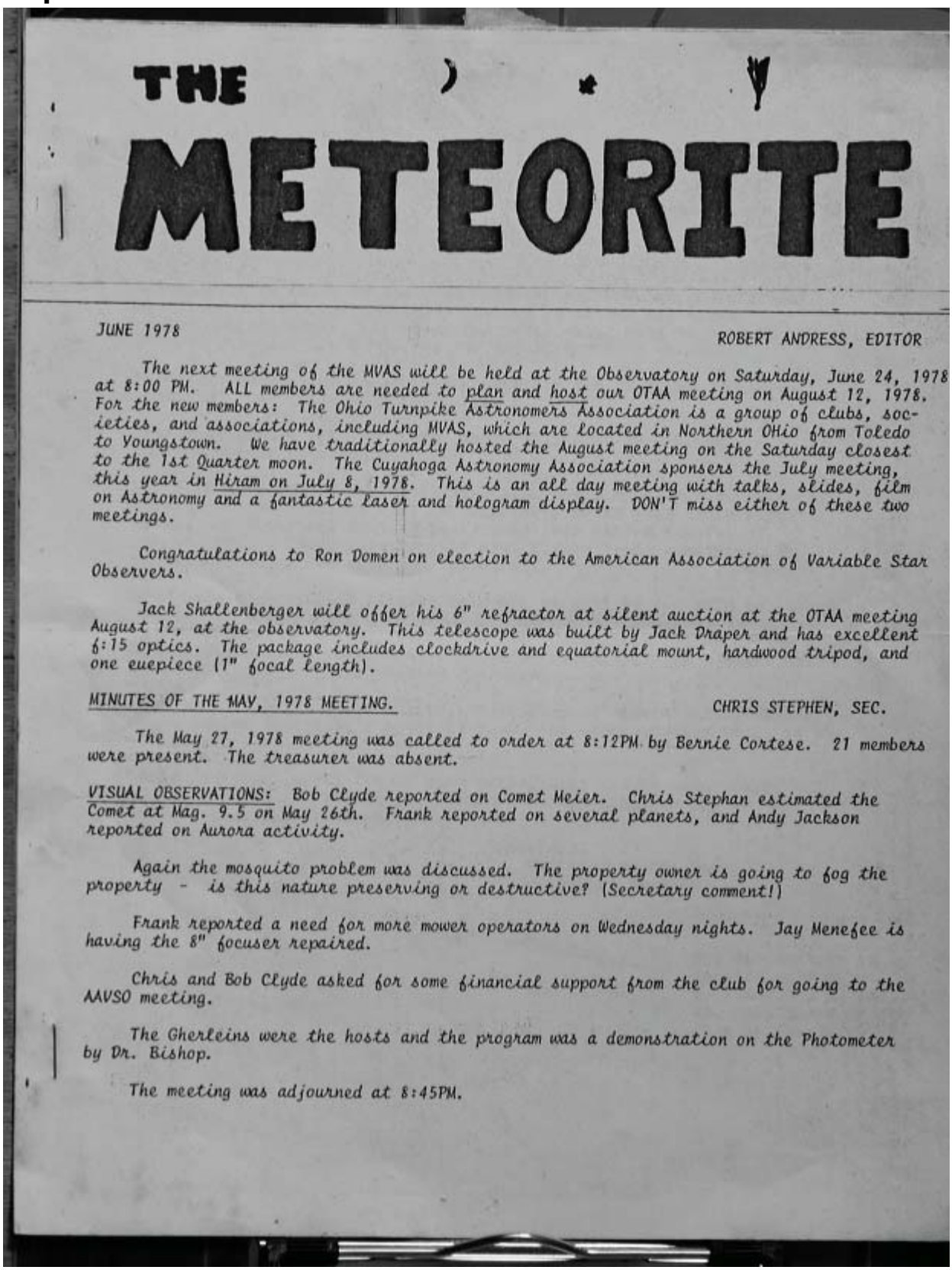
With the 8” Building completed 1968, a new project was planned.

This cover was used often until the early 80s as Clyde took over.



Bob Andress takes over as editor. The masthead is simplified.

Used 1978 to 1980.



THE METEORITE

JUNE 1978

ROBERT ANDRESS, EDITOR

The next meeting of the MVAS will be held at the Observatory on Saturday, June 24, 1978 at 8:00 PM. ALL members are needed to plan and host our OTAA meeting on August 12, 1978. For the new members: The Ohio Turnpike Astronomers Association is a group of clubs, societies, and associations, including MVAS, which are located in Northern OHio from Toledo to Youngstown. We have traditionally hosted the August meeting on the Saturday closest to the 1st Quarter moon. The Cuyahoga Astronomy Association sponsers the July meeting, this year in Hiram on July 8, 1978. This is an all day meeting with talks, slides, film on Astronomy and a fantastic laser and hologram display. DON'T miss either of these two meetings.

Congratulations to Ron Domen on election to the American Association of Variable Star Observers.

Jack Shallenberger will offer his 6" refractor at silent auction at the OTAA meeting August 12, at the observatory. This telescope was built by Jack Draper and has excellent f:15 optics. The package includes clockdrive and equatorial mount, hardwood tripod, and one euepiece (1" focal length).

MINUTES OF THE MAY, 1978 MEETING.

CHRIS STEPHEN, SEC.

The May 27, 1978 meeting was called to order at 8:12PM by Bernie Cortese. 21 members were present. The treasurer was absent.

VISUAL OBSERVATIONS: Bob Clyde reported on Comet Meier. Chris Stephan estimated the Comet at Mag. 9.5 on May 26th. Frank reported on several planets, and Andy Jackson reported on Aurora activity.

Again the mosquito problem was discussed. The property owner is going to fog the property - is this nature preserving or destructive? (Secretary comment!)

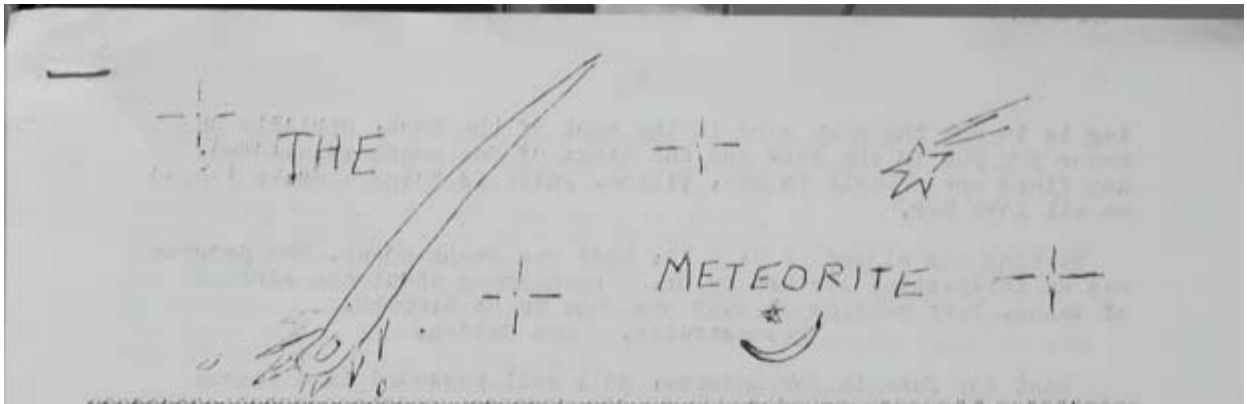
Frank reported a need for more mower operators on Wednesday nights. Jay Menefee is having the 8" focuser repaired.

Chris and Bob Clyde asked for some financial support from the club for going to the AAVSO meeting.

The Gherleins were the hosts and the program was a demonstration on the Photometer by Dr. Bishop.

The meeting was adjourned at 8:45PM.

Bob Clyde takes over. **1980 to 1995**



MAHONING VALLEY ASTRONOMICAL SOCIETY 1076 SR 534 NEWTON FALLS OH 44444

JUNE 1982

The May meeting of the Mahoning Valley Astronomical Society was called to order on Saturday, May 29 at 8:15 PM by President Bob Andreas. There were 23 members and one guest present at the observatory. The April minutes were read and approved.

Treasurer Allen Heasley reported a balance on hand at the last meeting of $2465.77. Income since then totalled $20.00 and expenses were $75.40. This leaves a balance on hand at this meeting of $2410.37.

Under correspondence, Bob Andreas informed members of three OTAA meetings. The first is on June 19 at Birmingham, OH. and sponsored by the Black River Astronomical Society. The second will be on June 26 at the University of Akron and sponsored by Astronomy Club of Akron. The third is at Hiram College, July 10 and sponsored by Cuyahoga Astronomical Association.

Observatory director Bernie Cortese reported that a number of members had been out earlier to help clean up the pond and surrounding area. This is being done per a request from Mr. Steinmann. [illegible] to Bernie and the rest of the lease committee are currently negotiating for a new lease to replace the old which has expired. (The new one calls for $600.00 per year with pond cleaning thrown in.) Bernie reported that design of the 32 inch worm gear for the 25" telescope has started. He also indicated that Dr. Bishop will soon be testing the secondary. Also, he asked that members consider a locking mechanism to lock the tube to the yoke.

Bob Clyde of the visual committee reminded members of the upcoming lunar eclipse on July 5-6. It is total in the early hours. He reported on observations by Mike Morley and Andy Gudgel.

An application for membership was filed at the last meeting by Mel Hosler. Mike Morley moved/Bob Clyde seconded a motion to grant membership to Mr. Hosler. Passed unanimously.

Additional discussion was held on our August OTAA meeting. Bob Andreas mentioned that we should try to attend other club sponsored meetings if we expect them to attend ours. Bob also reminded members of the Wednesday night work sessions. If possible bring tools to be used in cleaning up the pond site. Gloves, boots axes, chain saws and other brush clearing tools. Julie Tilton informed members that new books have been cataloged. If you have books out for a long time please return them. The method of borrow-

Bob gets new meteor streak. Used 1980 to 1985.
And a neat observatory!

THE METEORITE

Mahoning Valley Astronomical Society

1076 State Route 534 Newton Falls, OH 44444

MERRY CHRISTMAS TO ALL DECEMBER 1988 Editor-R.Clyde

Minutes of the November meeting of MVAS at the YSU planetarium November 19, 1988. Meeting started at 9:00 PM and closed at 10:00 PM. Sixteen members were present, no guests. A lunar crater was used for the rollcall password.

Discussion began with the charge of the light brigade -- the Ohio Edison bill. The $34.19 amount for September included an energy charge for $16.64. This apparently covered the use of 130 Kilowatt hours of electricity. November's charge was $1.57. Our basic charge is the minimum of $15.88. A suggestion was made that we might afford a small generator for our use and cancel Ohio Edison's supply. No more was said on that idea. There are three parts to each bill; 1. present cost, 2. energy charge, 3. fuel component, which all add up. Rick Pirko had no treasurer's report so we must assume September's balance of $788.80. Raffle tickets are available which should swell the balance.

Minutes of the Oct. 29 meeting were accepted as presented in the "Meteorite" on a motion of Warren Young; seconded by Phil Plante. Passed by voice.

President's report: A committee of Dr. Bishop, Dr. Young, Dr. Frank Graham, Mark Slack, Bill Frank and Mark Baker met with the trustees of Scenic Vista Park in Columbiana County during November. The subject was concerning the possibility of developing a secondary observatory in the park. The trustees were receptive to our proposal and attorney Slack is drawing up a lease for their consideration. A sketch of the building consisting of two rooms roughly the size of our 16" telescope building at MVAS will be drawn up.

Most of us may be familiar with the location. The nearest power supply, maybe 200 or 300 feet away would have to be brought in underground, water supply is from a hand pump deep in the woods, an outhouse for the public use is also available. Any ideas, discussion or comments may be brought up at the Christmas party Dec. 10 or later.

Christmas Party: Art Caruso arranged for our use of Odd Fellows Hall in Canfield on Dec. 10, 6:30 PM for cocktails, 7:30 for dinner. Colonial Catering of Canfield will provide the food for probably $6 per person if 20 or more attend. Reservations should be in by Dec. 1. Money collected at the door. Bernie Cortese will provide the beverages. Ruth Rossy offered to set up a phone chain, Sundays only for taking reservations. Number is 743-7644. No rollcall password for this time. Enclosed form may be mailed to Dr. Bishop. Map shows location, S. Broad is a two way street. Park in the rear of the hall, entrance in back down stairs also. Bon appetit!

Bob changes to the MVAS logo. 1986 to 1991, alternates the logos.

Circa 1883 to 1988.

THE METEORITE

Mahoning Valley Astronomical Society MVAS

1076 State Route 534 Newton Falls, OH 44444

SEPTEMBER 1988

DATE : August 27, 1988

PLACE : Scenic Vista Park near Lisbon, OH.

ROLL CALL : Not necessary as only 5 members were present, but even at that we had one visitor.

AS NO QUORUM WAS PRESENT, NO BUSINESS COULD BE TRANSACTED.

Those present told olde asronomical "war stories", had something to eat and then went home about 10:00 P.M.

I guess some anomaly in every society takes place sooner or later. Ours is in a later time bracket or warp if you like. The anomaly I speak of is burn-out or lack of spirit. With the farm up for sale and run down equipment, we are going through such a phase. Efforts to establish a new observatory have brought us to the looking phase. There has been a committee for a new location for some years now but no action has happened. The extreme cost of land and utilities are prohibitive for a private base. We have to look for more favorable circumstances, and Scenic Vista Park is most likely.

Our budget prevents any positive action taking place, and our rights to the 8" building went with the farm; we are out in the rain without an umbrella. Ideas and suggestions for a new location will be cordially entertained. If we have a George Ellery Hale amongst us, let him step forward now. His biography should be "must" reading for every aspiring astronomer.

Sooner or later a history of the Mahoning Valley Astronomical Society will appear in the Meteorite. It will depict the bright years of the establishment and building of the observatories, the OTAA picnics, field trips and generally happy times we have had. If the farm is sold, let us all hope the new owner will be as accomodating as Mr. Steinmann has been with us. He wishes to move back to Wisconsin to be near relatives.

- - - - - - - - - - - - - - - - - -

The Ohio Turnpike Astronomer's shindy turned out pretty nicely. We took in $97.00 in registration fees. There were 90 attendees and guests. The silent auction paid $15.00. Bob Andress donated a finder for the 16" Cassegrain scope and a 6" f.2 reflector for club use. There is a certain amount of work to be done on it.

The food was good and everyone enjoyed it. I heard no complaints. A party of people looking over the place as prospective purchasers were invited to eat with us. They did. They also helped to dispense the melons. Keith Janeco's lasagna made a big hit with them. The real estate agent wouldn't leave until she got the recipe.

In 1990 Bob allows P. Plante to make small changes. Besides various articles,

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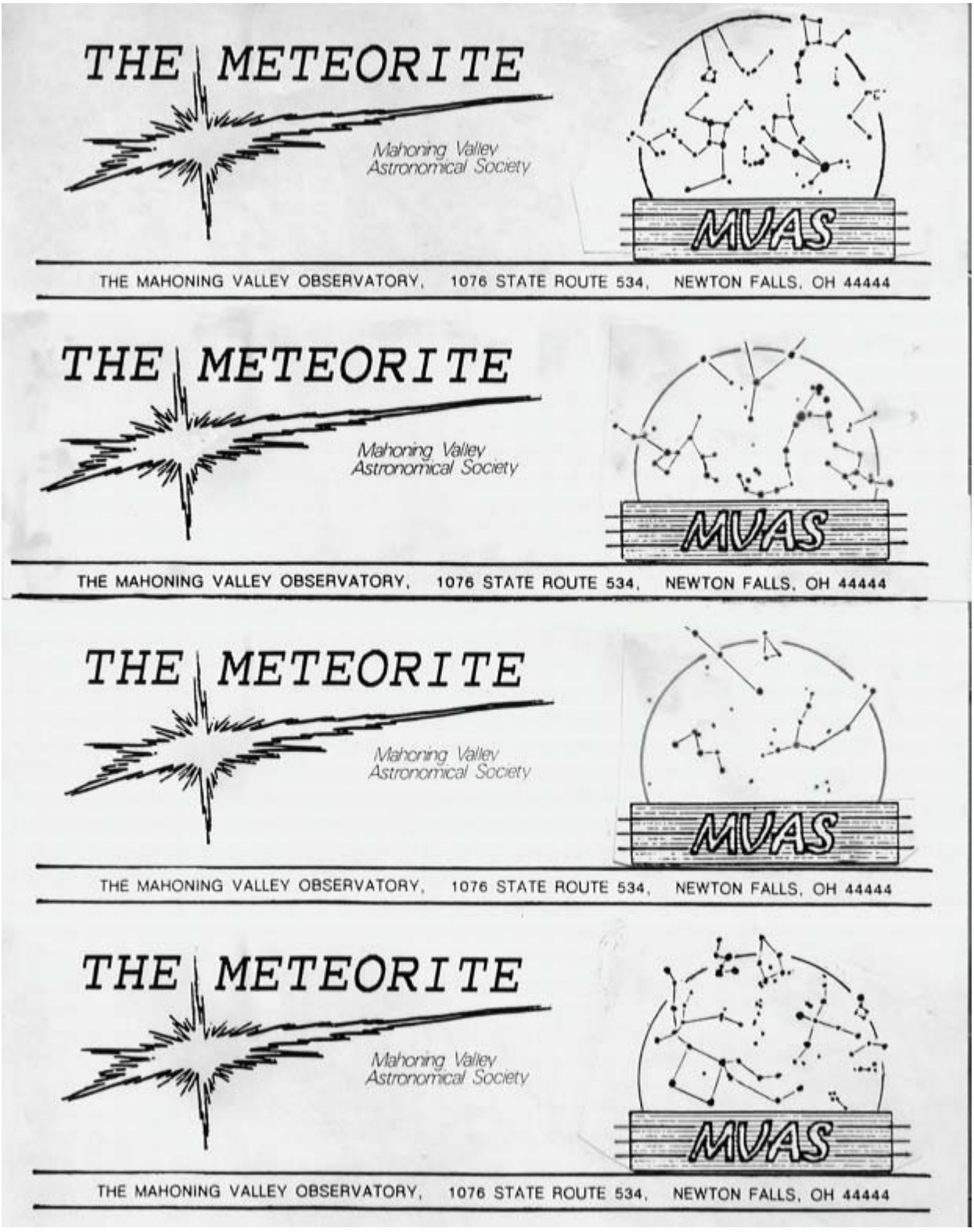
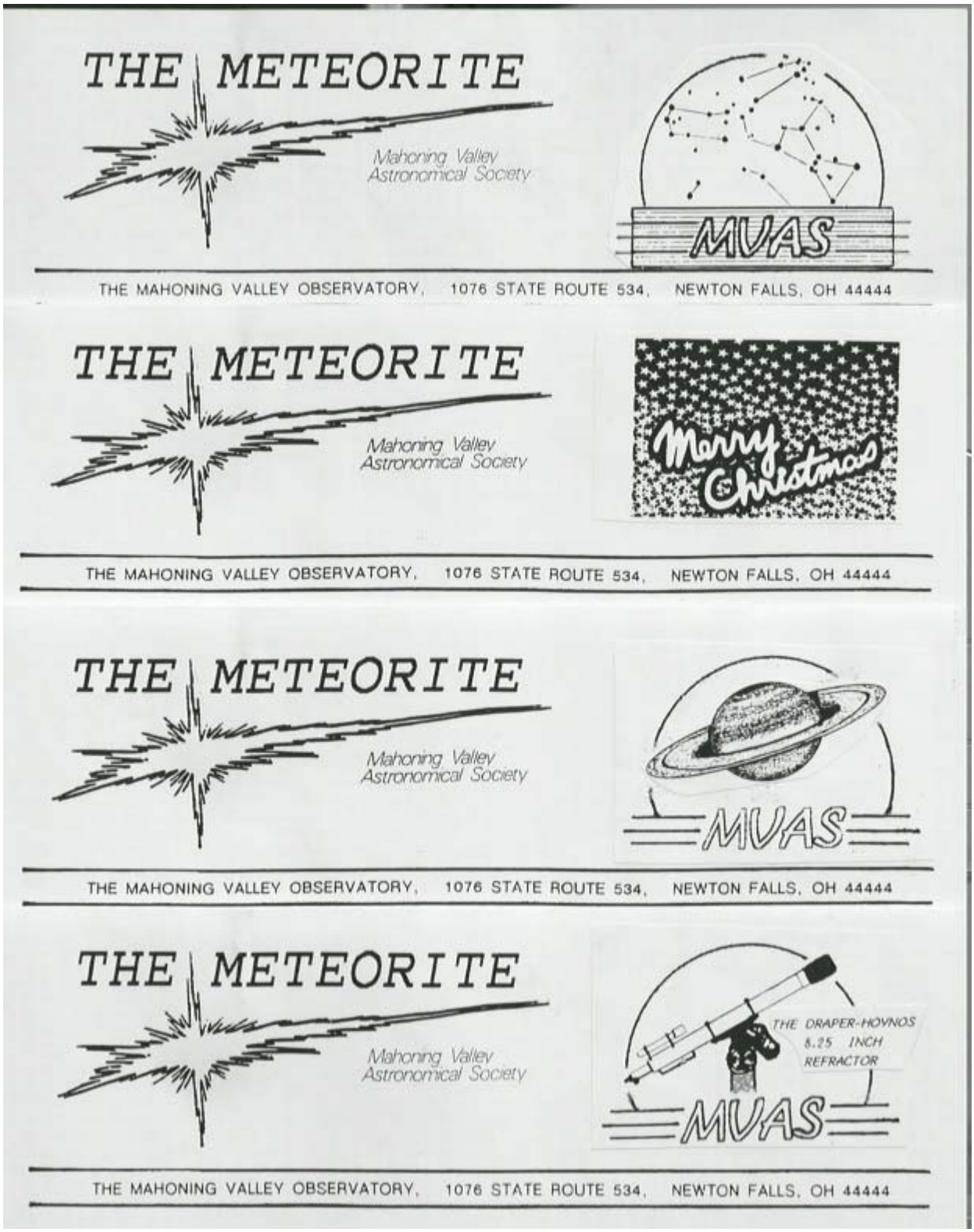
Plante added new art to the masthead.

From 1993 to 1997.



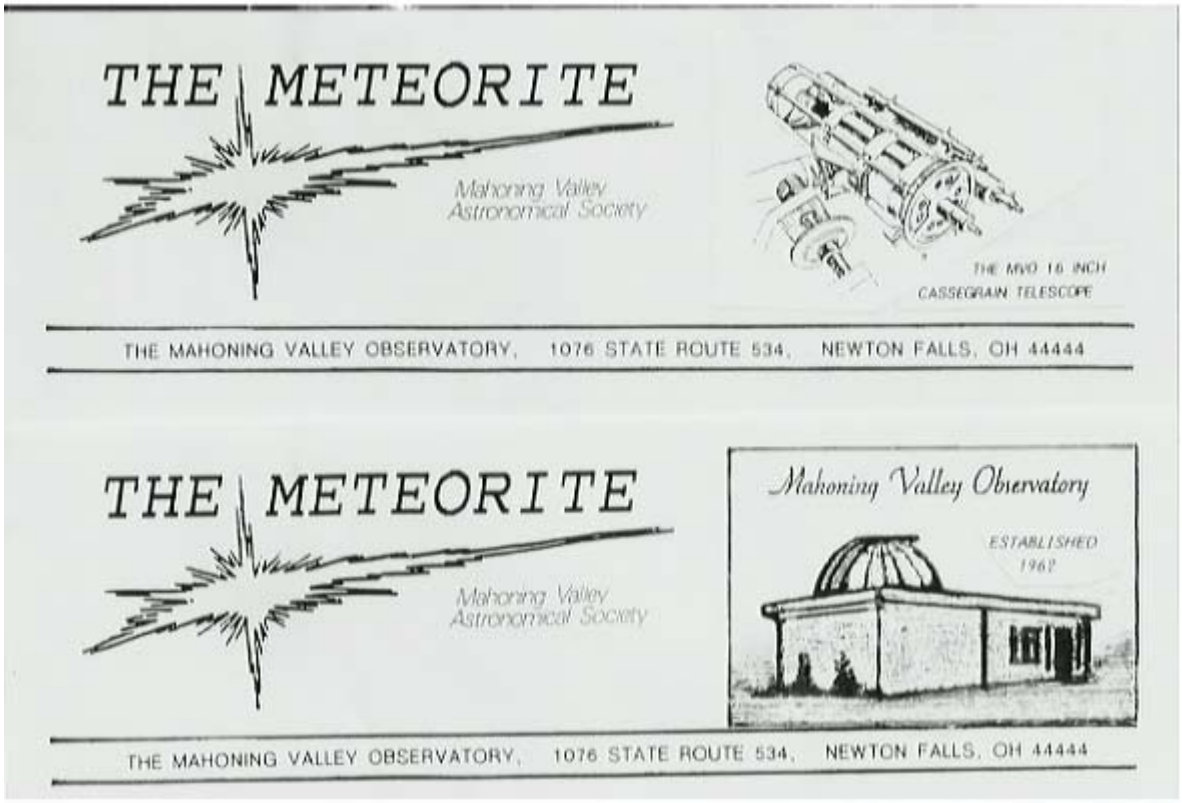
Plante eliminated logos in 1998. Used the date in upper right.

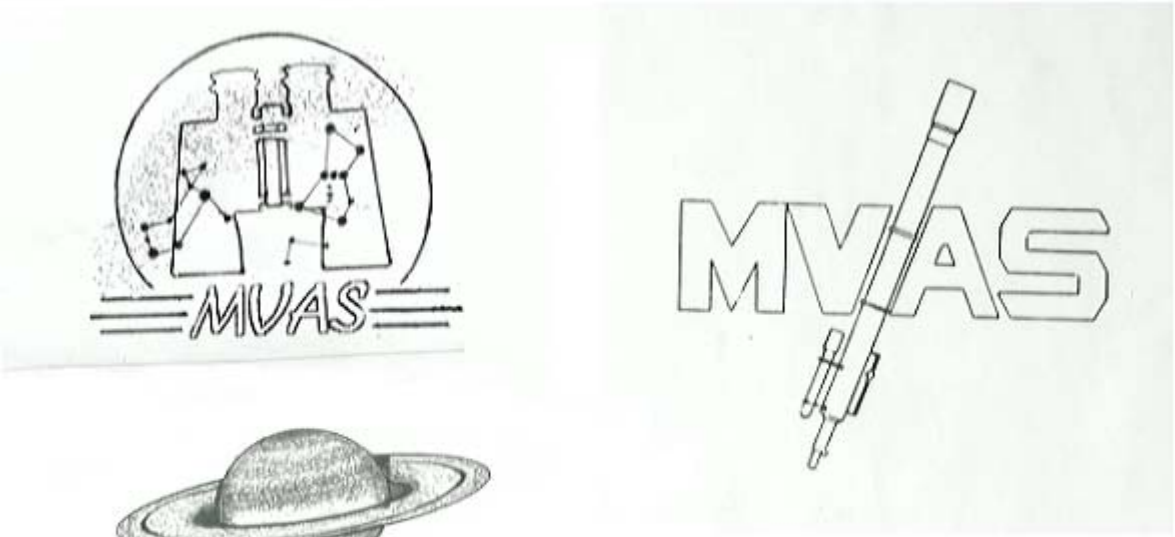
Switched to double column format in 2000.



More new “art” that made it to the masthead. The 8” and 16” logos used a few times. Alternated with “season skies” .

Building and 8” became T-shirt designs. The Saturn logo was an experimental T-shirt design, modified for use in Meteorite.





Some of the B&W Covers

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Cover- Imbrium, Plato

Cover- Jupiter


Cover- Lunar Landing

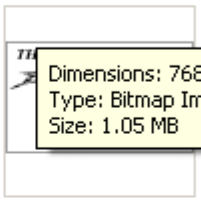

Cover- M1


Cover- M3

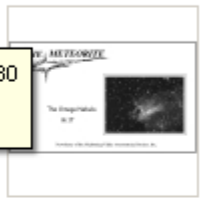

Cover- M10


Cover- M13


Cover- M15



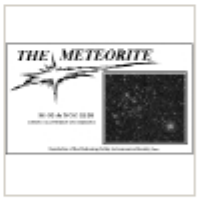
Cover- M16


Cover- M17


Cover- M30


Cover- M31


Cover- M33

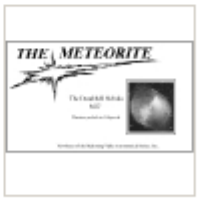

Cover- M35


Cover- M38


Cover- M8 -1


Cover- M8 -2


Cover- M22

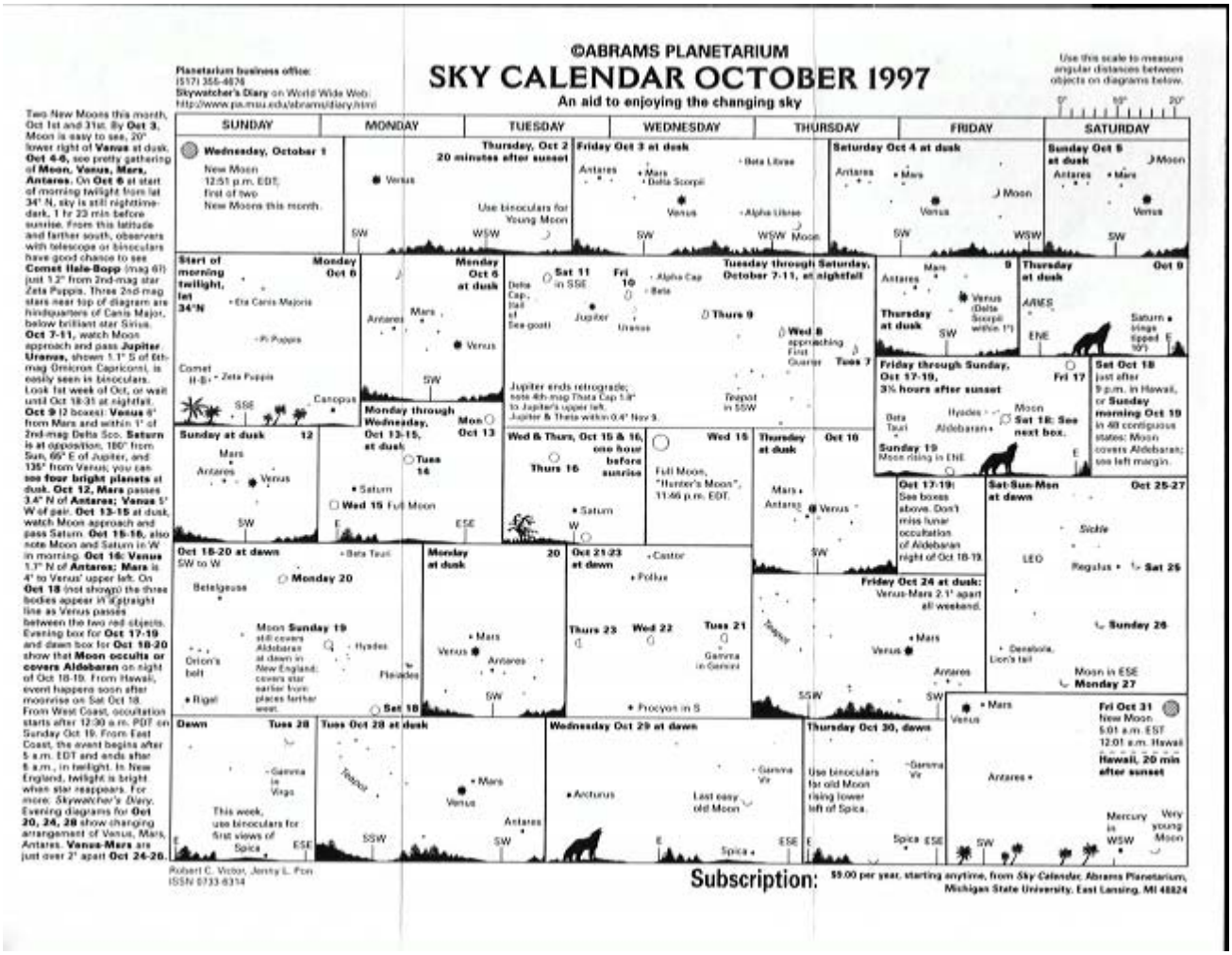

Cover- M27


Cover- M39

20 of 57 B&W covers

1995 Transitions:

In 1995, Bob Clyde could no longer be editor due to health reasons. He passed away in 2000 at the age of 89. Having produced the Meteorite for Bob since 1990, I was given the job of Editor. As time went on I made covers as needed (in B&W). I recycled as many as needed over the years. When switching to PDF format in 2006, I was able to use color images. Many of the B&W source images were in color. I had saved them. They are now used in the current Meteorite, in color. New covers are made as needed.



©ABRAMS PLANETARIUM

SKY CALENDAR OCTOBER 1997

An aid to enjoying the changing sky

Planetarium business office: (517) 355-4676
Skywatcher's Diary on World Wide Web: http://www.pa.msu.edu/abrams/diary.html

Use this scale to measure angular distances between objects on diagrams below.

Two New Moons this month, Oct 1st and 31st. By **Oct 3**, Moon is easy to see, 20° lower right of **Venus** at dusk. **Oct 4-6**, see pretty gathering of **Moon, Venus, Mars, Antares.** On **Oct 6** at start of morning twilight from lat 34° N, sky is still nighttime-dark, 1 hr 23 min before sunrise. From this latitude and farther south, observers with telescope or binoculars have good chance to see **Comet Hale-Bopp** (mag 6!) just 1.2° from 2nd-mag star Zeta Puppis. Three 2nd-mag stars near top of diagram are hindquarters of Canis Major, below brilliant star Sirius. **Oct 7-11,** watch Moon approach and pass **Jupiter, Uranus,** shown 1.1° S of 6th-mag Omicron Capricorni, is easily seen in binoculars. Look 1st week of Oct, or wait until Oct 18-31 at nightfall. **Oct 9** (2 boxes): **Venus** 6° from Mars and within 1° of 2nd-mag Delta Sco. **Saturn** is at opposition, 180° from Sun, 65° E of Jupiter, and 135° from Venus; you can **see four bright planets at dusk. Oct 12, Mars** passes 3.4° N of **Antares; Venus** 5° W of pair. **Oct 13-15** at dusk, watch Moon approach and pass Saturn. **Oct 15-16,** also note Moon and Saturn in W in morning. **Oct 16: Venus** 1.7° N of **Antares; Mars** is 4° to Venus' upper left. On **Oct 18** (not shown) the three bodies appear in a straight line as Venus passes between the two red objects. Evening box for **Oct 17-19** and dawn box for **Oct 18-20** show that **Moon occults or covers Aldebaran** on night of Oct 18-19. From Hawaii, event happens soon after moonrise on Sat Oct 18. From West Coast, occultation starts after 12:30 a.m. PDT on Sunday Oct 19. From East Coast, the event begins after 5 a.m. EDT and ends after 6 a.m., in twilight. In New England, twilight is bright when star reappears. For more, *Skywatcher's Diary*. Evening diagrams for **Oct 20, 24, 28** show changing arrangement of Venus, Mars, Antares. **Venus-Mars** are just over 2° apart **Oct 24-26.**

SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY

Wednesday, October 1 — New Moon 12:51 p.m. EDT; first of two New Moons this month.

Thursday, Oct 2 — 20 minutes after sunset. Use binoculars for Young Moon.

Friday Oct 3 at dusk

Saturday Oct 4 at dusk

Sunday Oct 5 at dusk

Start of morning twilight, 1et 34°N — Monday Oct 6

Monday Oct 6 at dusk

Tuesday through Saturday, October 7-11, at nightfall

Thursday at dusk — Oct 9

Friday through Sunday, Oct 17-19, 3¾ hours after sunset

Sunday at dusk — 12

Monday through Wednesday, Oct 13-15, at dusk

Wed & Thurs, Oct 15 & 16, one hour before sunrise

Wed 15 — Full Moon, "Hunter's Moon", 11:46 p.m. EDT.

Thursday at dusk — Oct 16

Oct 17-19: See boxes above. Don't miss lunar occultation of Aldebaran night of Oct 18-19.

Sat Oct 18 just after 9 p.m. in Hawaii, or **Sunday morning Oct 19** in 48 contiguous states: Moon covers Aldebaran; see left margin.

Sat-Sun-Mon at dawn — Oct 25-27

Oct 18-20 at dawn — SW to W

Monday at dusk — 20

Oct 21-23 at dawn

Friday Oct 24 at dusk: Venus-Mars 2.1° apart all weekend.

Dawn — Tues 28

Tues Oct 28 at dusk

Wednesday Oct 29 at dawn

Thursday Oct 30, dawn

Fri Oct 31 New Moon 5:01 a.m. EST 12:01 a.m. Hawaii **Hawaii, 20 min after sunset**

Robert C. Victor, Jenny L. Fon
ISSN 0733-8314

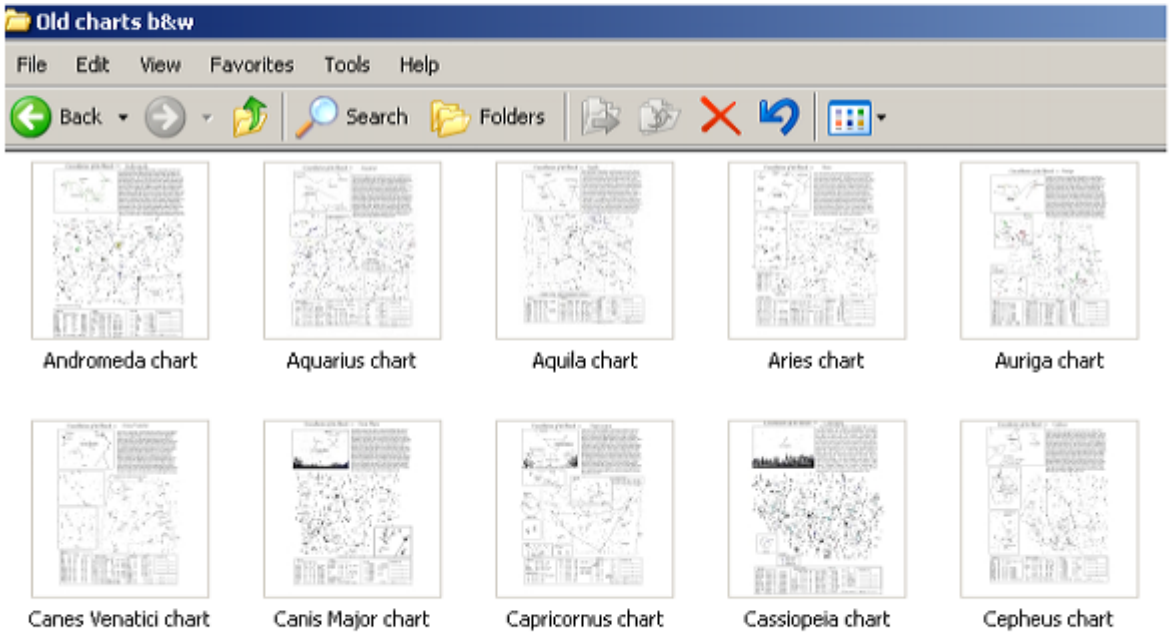
Subscription: $9.00 per year, starting anytime, from *Sky Calendar*, Abrams Planetarium, Michigan State University, East Lansing, MI 48824

After 1997, the Abrams Planetarium Sky Calendar was dropped. After polling members only ~half used it. There were copyright concerns as well. It needed to be replaced. So I developed the Sky Almanac. It had data on locally observed events. I generated the data and put it into tabular form as opposed to the Sky Calendar format. Usually the same data as in Sky Calendar, and even more.

Currently working with 40 constellations.

10 old B&W files displayed below.

Same B&W files modified, corrected and color coded objects added.



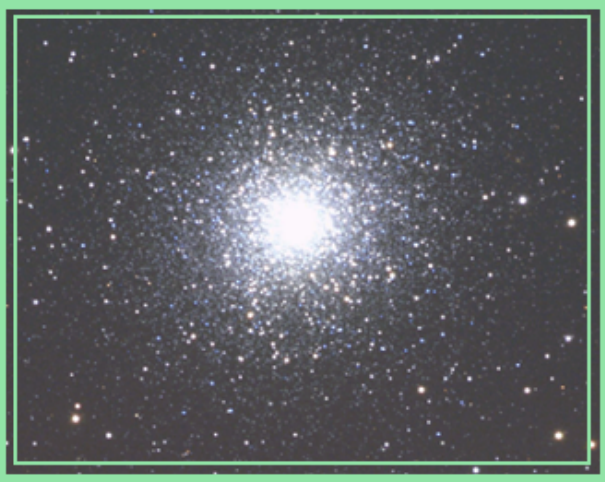
The Sky Calendar was used sporadically starting in 1971. Increased usage from 1986 until 1997. To replace the Sky Calendar's "all sky" chart, I rekindled Bob Andress's *Constellation of the Month* feature he introduced in the 1970's. I generated charts using Megastar or Guide software.

In MS Paint I re-labeled objects and eliminated harder targets. Various close-up charts were added. Along the bottom was an object list; to the right, a check-off list was there to record your observations- right in your copy of the Meteorite.

AND NOW!

Today's Meteorite!.....

THE METEORITE



M-13
The Hercules Cluster

Newsletter of the Mahoning Valley Astronomical Society, Inc.

APRIL 2015

IN THIS ISSUE:

⇦Not in paper edition

Meteorite Editor: Phil Plante
1982 Mathews Rd. #2
Youngstown OH 44514

THE METEORITE

Newsletter of the Mahoning Valley Astronomical Society, Inc.

MVAS CALENDAR

APR 11 Chili Fest at MVCO. Starts at 7:00PM.

APR 17 Star Gaze at Mill Creek Exp. Farm. Set-up 7 PM.

APR 18 Annual Bino-Blast at the MVCO. Sunset at 8PM.

APR 25 Business meeting at the MVCO. 8:00 PM
Talk: *Are You a Skeptic*, by Randy Cox

MAY 16 MVAS-OTAA Public Stargaze at Scenic Vista.
Public show at sunset ~8:00PM. An MVAS Picnic?

NATIONAL & REGIONAL EVENTS

APR 16-19 **SJAC Spring Star Party.** Held at Belleplain State Forest. Hosted by the South Jersey Astronomy Club. Join us under dark South Jersey skies for three nights of observing. Cost: $20 per person, register at website. www.sjac.us

APR 18-19 **NEAF.** The Northeast Astronomy Forum held at Rockland Community College, Suffern, New York. Two exciting event-packed days, NEAF has been renowned as the ultimate astronomy experience. Nowhere else can you find so much in one place or at one time. Tickets $25 (1-Day), $45 (2-Days) http://www.rocklandastronomy.com/neaf.html

MAY 10-17 **Texas Star Party.** Attend the 37th annual Texas Star Party on Prude Ranch just outside Fort Davis Speakers imaging workshops, & observing. . http://texasstarparty.org/

MVAS, 1076 SR 534, NEWTON FALLS, OH 44444-9998

Website- http://mvobservatory.com

Facebook: https://www.facebook.com/astrronomy?ref=bookmarks

APRIL 2015

NEWS NOTES

Non-bumps in dark matter? Galaxies tend to gather into clusters. There are many of these and often enough, these galaxy clusters collide and pass through each other. Galaxy clusters are made of three main parts: galaxies, clouds of gas, and dark matter. During collisions, the gas clouds that envelope the galaxies crash into each other and slow down or stop. But the galaxies themselves pass through each other with virtually no effect. The stars are too far apart for collisions. But what about the dark matter? Because dark matter does not reflect, absorb, or emit light, it can only be traced indirectly, such as by measuring how it warps space through gravitational lensing. The light from distant sources is magnified and distorted by the gravitational effects of dark matter.

Astronomers using observations from NASA's Hubble Space Telescope and Chandra X-ray Observatory have found that dark matter does not slow down when galaxies collide. This means that it interacts with itself even less than previously thought. Researchers say this finding narrows down the options for what dark matter might be. David Harvey and his team used the Hubble and Chandra data to study 72 large cluster collisions. The collisions happened at different times, and are seen from different angles - some from the side, and others head-on. The team has successfully narrowed down the properties of dark matter. Particle physics theorists now have a smaller set of unknowns to work with when building their models

The leading theory is that the dark matter particles in galaxy clusters do not frequently bump into each other. Dark matter's resistance to slowing is because it not only doesn't interact with regular matter, it also doesn't interact with other dark matter. Harvey said that the results suggest that dark matter is unlikely to be just a kind of dark proton. If dark matter scattered electrostatically like protons do, it would have been detected. "This challenges the idea that there exists 'dark photons,' the dark matter equivalent of photons," he said. "There are still several viable candidates for dark matter, so the game is not over, but we are getting nearer to an answer," concludes Harvey. The team will next be looking at individual galaxy collisions which are more common that cluster collisions.

What-a-ya call it. In partnership with NASA's New Horizons mission and the SETI Institute, the IAU is endorsing a campaign that will allow the public to participate in naming newly discovered features on Pluto and its satellites; when New Horizons makes its flyby on July 15, 2015. You are invited to visit the website http://ourpluto.seti.org, There you can vote for the names that you think should be used to identify the most prominent features on both Pluto and Charon. You can also suggest additional names. These must be associated with a set of accepted themes set out by the IAU's Working Group for Planetary System Nomenclature (WGPSN) related to mythology and the literature and history of exploration:

Condolences. With great sadness we have learned that Janice Danko has lost her battle with breast cancer. She passed away on March 20, 2015. She was wife of long time MVAS member Bob Danko. She enjoyed camping, bonfires, reading books, and loved cats. She often attended MVAS events with Bob. Our hearts go out to Bob and his family. We will miss her.

MVAS Meeting on March 28, 2015: Members gathered in Room 101 across from the planetarium at 7:00 PM. The projector wasn't working so all moved to the next room. A sign was posted noting the last minute move. Apologies to anyone that missed it. Jodi McCullough then gave an "Astronomy 101" talk on eclipse dynamics, using images from recent eclipses. She then gave a presentation about the March 20th total solar eclipse in Longyearbyen, Svalbard. .

Phil then gave a short talk on the Constellation of the Month; Cancer. He pointed out a few deep sky objects including the famous Beehive aka M-44 (also a Homework subject). Members went over to the Planetarium for the show "Dark" which described our current research and understanding of dark matter. It makes up 80% of the mass in the Universe. We just can't see it. Yet. Sharon Shanks then gave a tour of the night sky. Showing both north and southern hemispheres. Next, It was a move back to the classroom for the meeting.

MINUTES OF THE MARCH MEETING

MARCH 28, 2015 at YSU

President Jodi McCullough called the meeting to order at 9:12 PM. All officers and Trustees were present. Roll Call was taken. Twenty-five members gave the password. Two more arrived near the end of the meeting. We had seven guests in attendance. They included Dominic and Nicholas Mattuissi, Gregg and Debbie Crenshaw (from ACA), William and Addison Garro, and Karen Davies. A Call for the Reading of the minutes was made. Harry Harker moved to suspend the reading. With a seconded from Rich Mattuissi, the motion was adopted by a unanimous voice vote. With no further discussion or corrections, the Minutes were accepted as published.

TREASURER'S REPORT: The Report was read by Steve Bartos. There were no questions or further discussion. Chris Stephan moved to accept the Report as read. Larry Plante seconded the motion. A unanimous voice vote passed the motion. Phil noted that the reservation for the Christmas Party at Boardman Park was due to the fact that having the Party at the Royal Buffet would have not worked. Phil paid the deposit on the Boardman reservation already made, to ensure our spot. We'll just do as we did in 2014. Bring food, etc.

General Fund	**2/1 thru 2/28 2015**	
OPENING BALANCE:	$	10,978.53
CLOSING BALANCE:	$	11,218.70
AVAILABLE FUNDS (NON-RESERVED):	$	6,969.58
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	$	+240.17
INCOME:		
DUES	$	340.00
INTEREST		0.17
TOTAL INCOME	$	340.17
EXPENSES:		
CK# 2826 BOARDMAN PARK RESERVATION	$	100.00
TOTAL EXPENSES	$	100.00
Reserved Funds		
OBERVATORY ACQUISITION & DEVELOPMENT FUND	$	3,914.12
MVCO KEY DEPOSITS		305.00
SUNSHINE FUND		30.00
TOTAL RESERVED FUNDS	**$**	**4,249.12**

2015 Membership dues paid by: R. Blevins, D. Cherry, S. DiRocco, M. Garro, T & A. Garro, J. Haklar, C. & D. Iliff, G. Thomas III, Thank you all!

CORRESPONDENCE: Chris Stephan had spoken with Allen Heasley over the phone for some time, a few days earlier. Allen is doing fine. He also talked with Bob Danko via phone call. Bob had called Phil earlier this day to report that the Scenic Vista has sent their annual request for donations. Bob would mail it to Phil. We usually donate $50. Steve said he had not received a form yet. It's likely we'll make the donation in coming weeks.

OFFICER REPORTS: *OBSERVATORY DIRECTOR:* Larry Plante reported that he and Randy Cox went to the MVCO to work on the 8" drive. (It is working better now). They found about 8 inches of snow at the site. Randy got stuck driving out but some crafty shovel work did the trick freeing his Ranger. The floor of the 8" building had heaved (ground swell) which made opening the roll-off roof a risky proposition; the roof wheels would raise off the tracks. The only leaks in the 16" building were under the roof vent. The ceiling panel under the vent is ruined. It's thought snow may have piled too high around the vent, letting snow melt leak in. Other than that, everything seemed to be dry in both buildings. It seems apparent that we will need to deal with our water problems this year. Bob Danko sent word that the gate pad lock tumblers were frozen. Bob will get some WD-40 in it when the weather gets better. The mail box is still standing! Bob will brace it up as the weather permits.

Larry has spoken to Mike Sprague about doing lamb for the May 30th meeting annual BBQ. It can be done- as well as other things (chicken?). It was decided that MVAS will pay for the meats. We'll have a donation can to help offset the expense. Members will of course bring side dishes. Randy says that Sam's Club has lamb legs for about $5 / lb.

LIBRARIAN: Nothing new to report. Rosemary has started reading the new book addition by Brother Guy Consolmagno entitled, *Would You Baptize an Extra-terrestrial?*

COMMITTEE REPORTS: *IMAGING COMMITTEE:* Jodi showed recent images taken by Jim Haklar, Phil, Jodi and Roy. Mostly solar images (sunspot and eclipse) and some aurora shots from Svalbard. *VISUAL COMMITTEE:* Harry Harker saw auroral displays from Columbiana County around March 17th. Phil got 6 variables in March. No Homework turned in.

OLD BUSINESS: The Columbiana Library has requested a tune-up for their telescopes. Saturday April 4th is the day. Jodi will give a short presentation, but she will need help making scope adjustments as well as help showing patrons how to use the scopes. Let her know if you can help out. Jodi promised that the MVAS website will be up by June 1st. That is the hope. She then reviewed the Observer's Incentive program and how to get awards. New member Nick Chirozzi was interested in what the "Homework" was. Phil gave a brief review (it's part of the Meteorite). Randy gave Nick copies of the latest Homework form and one of the Visual Committee form.

A status check on the New Member's Package was given by Don Cherry. He expects a final package to be available at the next meeting. Phil had received email from Black River president Steve Schauer regarding their new member packet. He offered it to MVAS for suggestions. Don and Randy were interested. Phil will arrange the exchange. Randy next reported on the **O**pen **F**or **B**usiness program. He (we) needed to set the dates for these observing events at the MVCO. They are meant to foster observing skills, completion of Homework and/or Visual Reports, training on and/or general observation with MVCO telescopes and equipment. It is open to all members, new or old. It was decided that the specified dates would not be cancelled by inclement weather. Indoor activities such as

watching astronomy videos like Carl Sagan's *Cosmos* TV series would used for learning astronomy. All O.F.B.'s would be on Saturday evenings. Dates will be selected so as not to conflict with other MVAS events or OTAA meetings. They will be listed in future Meteorites.

Lastly, the membership has voted to join the Astronomical League. About a dozen have expressed interest. All those that wish to join need to get $9.95 to the Treasurer as soon as possible. MVAS (Jodi) need to submit names and addresses, and payment via MVAS check to the Astronomical League in April. Subscription to the A.L.'s quarterly magazine "The Reflector" will be good until July 2016.

NEW BUSINESS: Jodi reviewed the busy month ahead in April. MVAS will be helping at Columbiana Library on the 4th. Then it's the Chilli Fest at the MVCO (7PM) on April 11th, The Mill Creek Park public event (7pm to 9:30pm) on Friday April 17th, the annual Bino-Blast the next night, April 18th, at the MVCO 8PM. A rain date for Mill Creek on Friday April 24th and our April business meeting on the 25th. She noted that the Mill Creek Park event has been advertised to 10,000 Mill Creek email recipients. There could be anywhere from 10 to 300 people showing up. We will need all the help we can muster. Even if you don't have a telescope you could help with indoor activities. This event is at the Mill Creek Experimental farm in Canfield, OH, Rt 46 across from the Fairgrounds.

Jodi knows someone that is moving to Alaska and needs to sell astronomy equipment. It includes two Orion scopes, eyepieces and filters. She will get a list and prices. These will be offered for sale to MVAS members. Steve still has a few 2015 Astronomy Calendars for sale as well as MVAS clothing. Chris Stephan was to only host slated for the next meeting. Rosemary volunteered to help. Randy will give a talk "Are you Skeptical" and Jodi will cover the constellation Hercules.

GOOD OF THE SOCIETY: There was more sad new to report. Bob Danko's wife Janice has passed away after a long battle with breast cancer. A $50 gift in lieu of flowers will be sent to MVI Homecare, on Belmont Ave. Youngstown, OH. Two cards were signed by members present. One will be sent to Allen Heasley on behalf of Bette's passing just a week after the February meeting and to Bob Danko for Janice. The entire MVAS family is saddened by these losses.

Chris Stephan asked if any members would be interested in attending Cherry Springs June 11th to 13th. He will be going as a vendor. There was an issue that it was a rain date weekend for the Bill Pearce Memorial Star Gaze in Austintown Park. There were no immediate takers. It was noted that the September Cherry Springs event would be a bigger event. It was also noted that the Oil City AstroBlast would be in October this year. Later than usual. They are construction a new building that should be ready by then.

Tony Mehle pointed out that this would be the last meeting at the planetarium with Sharon Shanks hosting the MVAS. He recommended a round of applause and appreciation for all that she has done over the years to accommodate the MVAS and our late hours there on meeting nights. And so, it was a round of applause. We thank you Sharon.

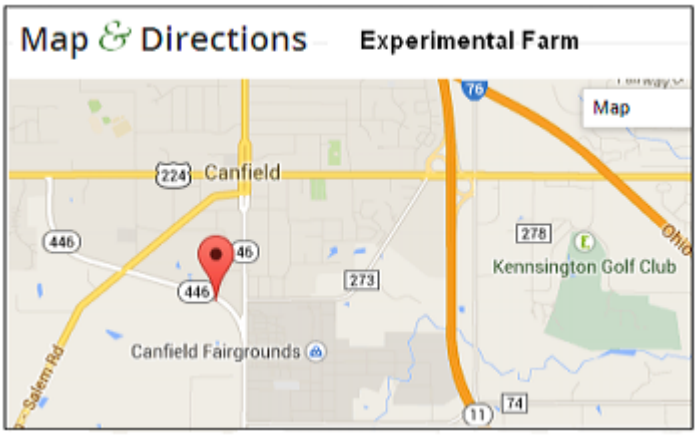
ADJOURNMENT: Adjournment came at 9:51PM after a motion and second to adjourn (Chris/Randy). We thank our hosts Rich Laughlin and Frank Naypaver for the tasty pasties. The next meeting will be at the MVCO on April 25, 2015. Meeting begins at 8:00 PM. Hosts are Chris Stephan and Rosemary Chomos. PASSWORD: name a asteroid. *-minutes by P. Plante*

MVAS REMINDERS

2015 Dues. As of the February Treasurer's Report, 35 have paid dues for 2015 MVAS membership. That leaves 25 as unpaid. Some may have paid at the March meeting. Please remember to pay dues by or at the April meeting. At least let us know your intentions. We do value your membership and companionship. But this is last call. By regulation, you need to be dropped from the roster in May- if you have not paid. You may mail-in your dues to Steve Bartos, 107 Forest Creek Dr., Struthers OH 44471. Or mail to the Secretary: Phil Plante, 1982 Mathews Rd. Apt. 2, Youngstown, OH 44514. Make any checks as payable to "MVAS". Please indicate what it is for on the "For" line. Regular dues are $40 per person. Thanks to those faithful that have paid already and thanks in advance to the rest.

April 11, Chili Fest. This will be the 9th Chili Fest (formerly Chili Cook-off) held at the MVCO. The first one was a cold March 4, 2006 evening. It was a clear night and the MVCO scopes got some use. A few personal scopes set-up in the yard did well. Nine crock pots of chili kept the taste buds busy, judging the best. Greg Higgins' hot brew won the prize (Tirions's Bright Star Atlas). He also had a blue icing birthday cake. Everyone had blue tongues. The kids were playing Star Wars video games on the computer. Later, a concert DVD of guitarist Joe Bonamassa was played. The 30 folks that were present seemed to "rock-out" as it played A good time for all. It was decided that night to have another, and then another, and so on.... This year, we hope that we can repeat this 1st Cook-off excitement. **New members**- all you need to do is bring your best chili and your apatite. If you can't do chili, bringing sides, desserts or pop is welcome. Not so much a contest these days, it's still a chance to sample great chili. Anyone that brings a pot of chili will be entered in a raffle for a small prize. That prize has not been determined yet. We usually start eating around 7PM. If you get there later, that is fine. We'll leave an outlet on for you.

April 17, Mill Creek Metro-Parks. "Starry Night" is a Friday night public star gaze at the Experimental Farm, on Rt 46 in Canfield. It's south of Rt. 224 and is across from the Fairgrounds. it has a large parking lot. We will be set-up farthest from the road. We'll need all the members and telescopes we can muster. 10,000 Park members received an e-mail about this first time event. Who knows how many folks will show-up. The show starts at 7:30 PM, but we should get there by 7PM to set up. There will be indoor activities as well. It ends at 9:30PM or so. A rain date is set for April 24th.



http://www.millcreekmetroparks.org/visit/places/metroparks-farm/

April 18. Bino-Blast 2015. Right after the Mill Creek event we have an observing session the next night at the MVCO. Bino-Blast started about 4 years ago. In this, all you need to bring are your binoculars. Binoculars are easy to use and transport. Personal scopes are welcome. This is the first group observing event at the MVCO. Food will likely be part of the adventure. In fact, you are encouraged to attend even if it is cloudy. We will eat, chat and maybe learn some astronomy. Starts at sunset which is around 8:00 PM. Come earlier if you like. Stay tuned to the e-mail list about food and parking conditions of the grounds at the MVCO. Let's hope for clear skies. Hope to see you there.

MVAS ACTIVITIES

NOTE: Further investigation into a new site (Royal Buffet) for the 2015 Christmas Dinner showed that we'd have to share the room with other groups and we'd not be able to reserve it for the length of time we needed. A week night or a Sunday afternoon might work. This seemed an unappealing choice. A reservation at Boardman Park had previously been made as a back-up plan. Hence, the deposit was paid when the new plan fell threw. We'll just have to repeat the food routine we did in 2014. Food was good. We will discuss plans later this year for 2016.

In the Shadow Again. It is the most northern city in the world. A 2 1/2 hour flight north from Oslo, Norway. The Svalbard town of Longyearbyen is a charming settlement. With around 2,000 people, it is a modern city in all respects, despite its remoteness. Longyearbyen is nestled between beautiful snow white mountains on either side. They said just as many polar bears are on the island as there are people. Several were spotted, but they were of the stuffed variety. One bear greets you at the airport. at least. Svalbard is beautiful and fascinating. Being so remote, it isn't a normal tourist destination. But that's what eclipse chasers do. You go to where the shadow points.

MVAS members Jodi & Roy McCullough and Phil Plante went to this frigid location about 850 mi. from the North Pole. They joined over 1,000 other world travelers, all hoping that the weather gods would let them see the eclipse. Our *Travel Quest* group had met in Oslo, Norway, before flying to Longyearbyen. I met my usual roommate Juan Carbajo as well as Jodi and Roy in Oslo. Once in Longyearbyen, chatting with chasers from previous trips, optional tours, looking for aurora and just getting used to the place filled the 5 days in town. And then there was the eclipse. It would be my 5th eclipse with Juan and 1st with the McCullough's. It was my 11th stand in the shadow, Juan's 12th and Jodi and Roy's 2nd. Evenings at Camp Barentz; we learned about polar bears, had reindeer or ox stew and aurora watching. Jodi and Roy got the best aurora views. Juan and I had clouds, but we did see some at the hotel.

Eclipse day dawned to crystal clear skies and -4° F. temperatures. Nearly 400 people were on the *Travel Quest* tour. Other groups were set-up in the area. Our busses took us about 6 miles out of town to a spot where the 11° low Sun would clear the mountain tops at eclipse time. Jodi and Roy had the only chairs and tables at the site. *Travel Quest* did have a huge 100ft long heated tent with hot drinks and benches inside.

As second contact drew near, the crowd began shouting out various things: One minute! Shadow Bands! I stopped to look. I saw them for the first time, rippling across the snow. My hands were red from the bitter cold (gloves had been off a while), I fumbled with camera gear. Couldn't feel with my fingers to change shutter speed. I forgot to remove the solar filter from the video camera- anyway, that battery went dead halfway thru the eclipse The McCullough's had everything computer controlled. They got the shots! Juan stood by taking poin-n-shoot pictures. I looked up for about 20 seconds for a visual snapshot to my memory. Before it started, it was over. Well, it always seems that way. As normal, my photo session left something to be desired. But it was a successful eclipse.

The folks of Lonyearbyen were wonderful. Friendly- and they all spoke English. The food was the best you could want. Much of the conversation revolved around the next few eclipses. Think I'll skip 2016 in Indonesia. Time to start planning a trip in the USA for August 2017. That shadow should be a little warmer.

OBSERVER'S NOTES: Spring's Doubles

Springtime provides a splash of color; Flowers dot the landscape and/or yards during the day. At night, astronomers get to see colorful double stars. There are doubles in the sky all year, but the spring doubles seem spectacular. When the seeing is steady, pump up the magnification until you see the Airy disks. Study the color differences. The colors given below are from Webb and Sissy Haas' catalogue. What do you see? Below are a few of my favorites. Get out a good star atlas and have at it. I recommend *The Cambridge Double Star Atlas*. It's a good general purpose atlas as well. Reasonable price too. You can enjoy these in light pollution or moon light. *-P. Plante*

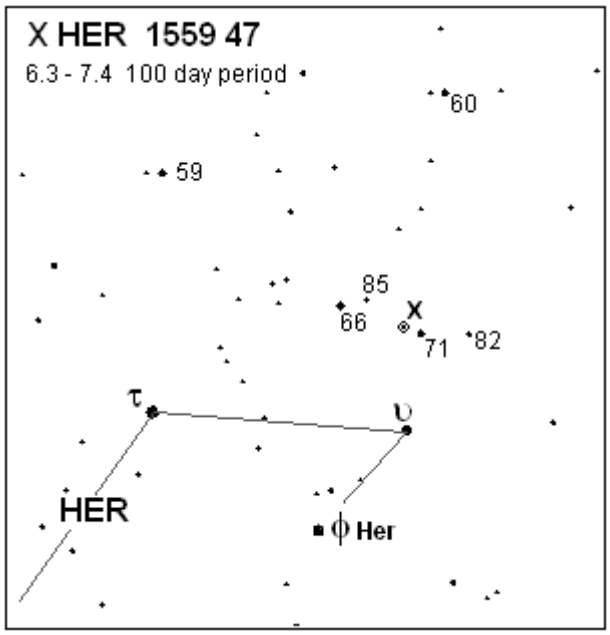
Binary	mag1	mag2	sep.	colors
ι Cnc	4.0	6.6	30.9"	yellow, blue
γ Leo	2.4	3.6	4.6"	yellow, yellow-green
54 Leo	4.3	6.3	6.7"	yellow white, pale blue
24 Com	5.1	6.3	20.0"	gold, blue
α CVn	2.9	5.6	19.0"	yellow, pale copper
γ Vir	3.5	3.5	2.3"	silvery, pale yellow
ε Boo	2.6	4.8	2.8"	yellow, sky blue
ξ Boo	4.8	7.0	5.6"	yellow, orange
π Boo	4.5	4.9	5.3"	white, pinkish
α Her	3.5	5.4	4.6"	gold, turquoise
ρ Her	4.5	4.9	4.3"	bluish, pale emerald
95 Her	5.0	5.1	6.0"	cherry, apple green
α Sco	1.0	5.5	2.6"	orange, greenish
β Sco	2.6	4.5	13.6"	white, greenish
ε Lyr [1, 2]	5.0	5.3	210.5"	straw yellow, amber yellow
0Σ 525 (Lyr)	6.1	7.6	45.1"	a mini Alberio, north of M-57
ζ UMa	2.2	4.0	708.5"	Mizar, Alcor, greenish white

MVAS Homework: Globular Cluster M-13

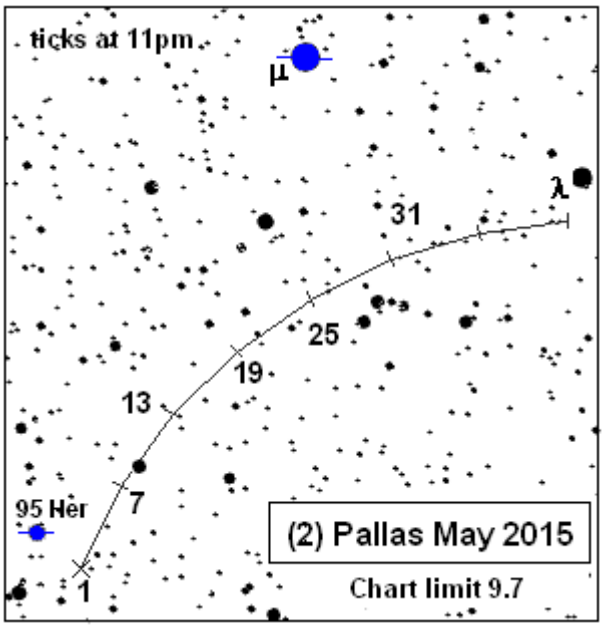
One of the objects that nearly every observer stops at is the Great Hercules Cluster, aka M-13. This globular cluster begins to be resolved in a 6" glass. It spans 16.6 arc minutes, making it about half the size of a full moon. It rises kind of late in April and May- but then, it also gets dark later. Perfect timing. M-13 is consider by many as the finest globular for northern observers. It's just visible through binoculars in light polluted skies and can even be seen with the un-aided eye from a really dark sky location. This scribe once eyeballed it from the deserts of New Mexico as a fuzzy 3rd magnitude star. At the other extreme, the view through Titan (our 25") is far more spectacular. At 215x using a 12mm Nagler, it nearly fills the eyepiece as a ball of countless stars. Get a peek of it through the 25" when you can. But then, even humble 50mm binoculars can yield memorable views during those quick binocular tours *- P. Plante*

MVAS OBSERVER'S CHARTS

Variable star of the month: X Herculis (*abbrev:* X Her). Located north of the Keystone, X Her is a fairly easy target with binoculars. Most of the time it seems to hover around 6th magnitude. The change of about 1.0 magnitude might be hard to detect for a novice. Frequent checks on this star will make detection of magnitude changes much easier. Numbers on the chart below are comparison star magnitudes. I like to star hop with binoculars, from M-13 up the side of Hercules until I find the trio of stars τ, υ,and ϕ....X Her is just above them.



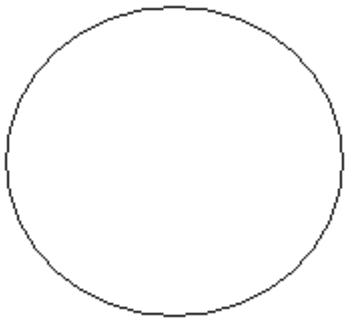
Asteroid of the month: (**2) Pallas.** Pallas will remain at magnitude 9.4 for most of the month. This may be a bit faint to pick up in big binoculars. A 4" RFT might do the trick. Note that Pallas starts off just west of 95 Her. A fine double star, listed in the Observer's Notes above. North is (mu) μ Her, another fine double (3.8 - 9.4 mag. at 35" separation). Stuff to see here!



MVAS OBSERVATIONS - DUE (HOMEWORK) 2015

OBSERVER_____

Featured object: M-13 Start sketching by marking pencil dots for the few brightest stars. Keep the orientation as close to the actual view. Then fill in lesser stars as best you can. Then even fainter stars. And so on. The more stars your scope resolves, the more stars you'll need to plot. Smaller scopes will make sketching easier for beginners. Fill in the rest of the central glow with pencil smudges. This teaches your eye to detect details.



M-13 Observation:

Date:_____ Time(EDT)_____ Scope_____

X Her magnitude estimates:

Date:	Time:	estimate:	Instrument:
_____	_____	_____	_____
_____	_____	_____	_____

(2) Pallas Observations:

Date:	Time:	Instrument:	magnification:
_____	_____	_____	_____
_____	_____	_____	_____

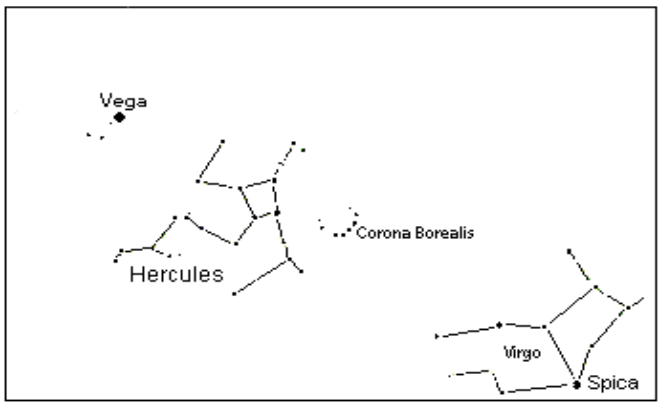
Other Objects in Hercules to observe

D. Sky	Date	Scope	**Dbl.**	Date	Scope	SEP	MAG	SPLIT?
M- 92	_____	_____	α Her	_____	____	5.0"	3.1 - 3.9	Y / N
N- 6210	_____	_____	ρ Her	_____	____	4.0"	4.5 - 5.4	Y / N
N- 6229	_____	_____	95 Her	_____	____	6.0"	4.9 - 5.2	Y / N

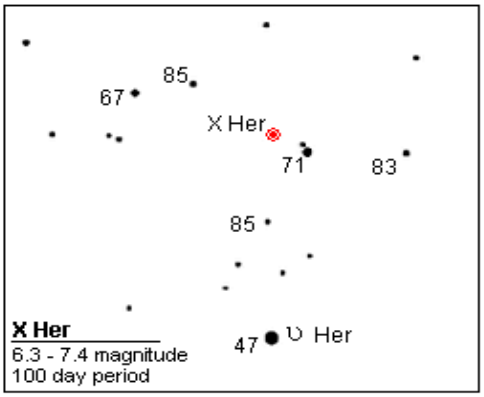
Lunar Occultations (see Sky Almanac):

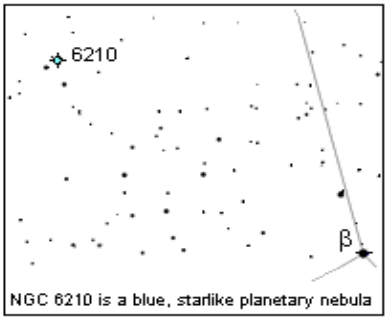
Star	(UT) Date	Time	Scope	magx.	Event(circle)
_____	_____	_____	_____	_____x	R D
_____	_____	_____	_____	_____x	R D
_____	_____	_____	_____	_____x	R D

Constellation of the Month — Hercules

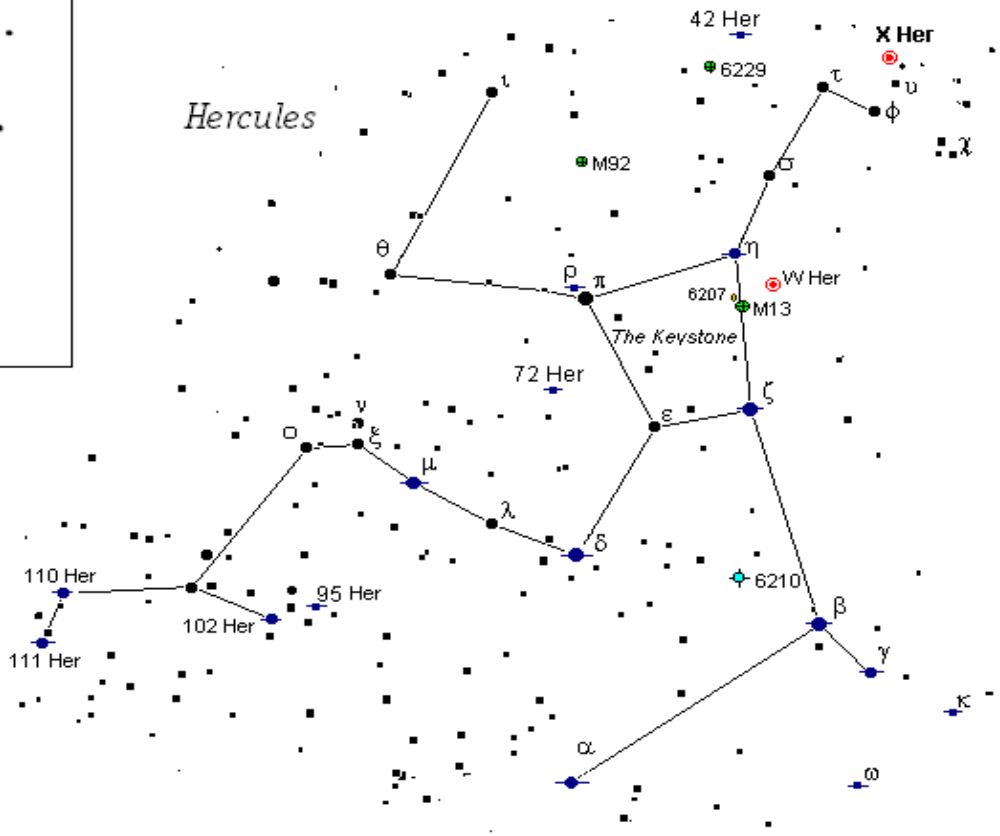


Hercules can be found just southwest of the brilliant blue-white star Vega. Made up of moderately faint stars, it will be difficult to trace-out from suburban back yards.But it can be seen if you sheild your eyes from any lights. Look for the "Keystone". With binioculars you should find M13 easy-- even in town. At a truley dark sky site, it can be glimpsed as a fuzzy star with the eye alone. Moving up to small telescopes brings most of the objects listed below into fine view. The faint galaxy NGC 6207 right next to M-13 is a challenge for an 8" scope under dark skies. What can you see? Check out the double stars too. Many have nice color contrasts and are splendid sights on these pleasant spring evenings. X Her is a nice binocular variable you can follow well into October. Remember to have fun!





a double star:



DEEP SKY

M 13	5.8 mag.	21'	Glob. Clust.
M 92	6.5 mag.	14'	Glob. Clust.
N 6229	9.4 mag.	4.2'	Glob. Clust.
N 6210	9.3 mag.	16.2"	Plan. Neb.
N 6207	12.2 mag.	2' x 1'	Galaxy

STARS

DOUBLES: colors

α	3.5, 5.4	4.7"	orange, green
β	2.8, 10.1	256"	
γ	3.8, 9.8	42"	
δ	3.1, 8.2	9"	white, indigo
ζ	2.9, 5.5	1.1"	
κ	5.3, 6.5	28"	
μ	3.4, 10.1	34"	
ρ	4.6, 5.6	4.1"	greenish blue, white
95	5.0, 5.1	6.3"	orange, green
72	5.4, 9.7	230"	
42	5.1, 11.8	26"	

Variable Star:
X Her 7.5 to 8.5mag. 95 days

Check list

- ____ M 13
- ____ M 92
- ____ N 6229
- ____ N 6210
- ____ N 6207
- ____ α
- ____ β
- ____ γ
- ____ δ
- ____ ζ
- ____ κ
- ____ μ
- ____ ρ
- ____ 95
- ____ 72
- ____ 42
- ____ 110
- ____ 111
- ____ X Her

Instruments used:

____ on ____
____ on ____
____ on ____
____ on ____

____ mag. on ___/___/____

NOTE: Object list & data ↑
Note the various other close-up charts

NOTE: Check-off list ↑ Note the constellation finder chart upper left.

2015 MAY SKY ALMANAC

Solar and Lunar (EDT).

Date	Sunset	Moonrise	Moonset
1	8 : 21	-- : --	5 : 08A
5	8 : 25	10 : 00P	-- : --
9	8 : 29	12 : 40A	-- : --
13	8 : 33	3 : 23A	-- : --
17	8 : 37	-- : --	8 : 09P
21	8 : 41	-- : --	11 : 52P
25	8 : 45	-- : --	1 : 42A
29	8 : 48	-- : --	3 : 39A

PLANET WATCH (EDT)

Mercury	Saturn	Jupiter
Sets	*Transits*	*Sets*
10:10 PM	2:55 AM	3:01 AM
10:20 PM	2:38 AM	2:46 AM
10:22 PM	2:21 AM	2:32 AM
10:16 PM	2:04 AM	2:17 AM
10:02 PM	1:47 AM	2:02 AM
9:41 PM	1:30 AM	1:48 AM
9:15 PM	1:13 AM	1:33 AM
8:45 PM	12:56 AM	1:19 AM

May 2015

S	M	T	W	T	F	S
					1	2
3	4 ○	5	6	7	8	9
10	11 ☾	12	13	14	15	16 SV
17	18 ●	19	20	21	22	23
24	25 ☽	26	27	28	29	30
31						

Asteroid for May 2015 (2) Pallas

Date	Rises	RA hr. min	Dec. deg.	Alt.	Azm	Magnitude
		topocentric				
1	9 : 18 pm	17 : 58	+21.1	16°	076°	9.5
7	8 : 48 pm	17 : 56	+22.2	22	79	9.5
13	8 : 17 pm	17 : 54	+23.1	27	82	9.4
19	7 : 46 pm	17 : 50	+23.9	33	86	9.4
25	7 : 16 pm	17 : 46	+24.6	38	89	9.4
31	6 : 45 pm	17 : 41	+25.1	44	94	9.4
		(at 11:00 pm)		*(at 11:00 pm)*		

Variable Star of the Month: **X Her** **6.3 - 7.4mag** **100 day period**

Celestial Highlights

Date	UT hr	
4	3.7	**FULL MOON**
6	5.0	eta Aquariids ZHR 40 (moon)
7	4.6	Mercury- elong. 21.2° E.
8	6.9	**Moon occults M-25**
11	10.6	**LAST QUARTER MOON**
11	5.5	Iapetus 7.4' west of Saturn
16	23.9	Scenic Vista Public Night
18	4.0	**NEW MOON**
19	2.9	Aldebaran 0.9 S. of Moon
23	2.0	**Saturn at opposition**
25	17.3	**FIRST QUARTER MOON**

LUNAR OCCULTATIONS FOR: MAY 2015

Civil (24hr) date	hr	min	sec	UT date	hr	min	sec	Ph	Moon % illum.	Moon alt	Moon azimuth	Star name	Star Mag.	event PA	dbl./ sep.
6	3	52	45	*6*	07	52	45	**r**	95-	30°	193°	ZC 2390	6.7	303°	NA"
8	3	30	31	*8*	07	30	31	**R**	28+	28	159	ZC 2680	5.6	307°	.100"
8	4	14	08	*8*	08	14	08	**r**	82-	29	170	**U SGR***	6.6	199°	66.0"
21	21	26	19	*22*	01	26	19	**D**	17+	25	270	Lam GEM	3.6	097°	.045"
21	22	26	52	*22*	02	26	52	**R**	17+	14	280	Lam GEM	3.6	289°	.045"
22	21	54	13	*23*	01	54	13	**D**	25+	28	265	ZC 1234	6.2	090°	.100"
27	0	21	58	*27*	04	21	58	**D**	63+	24	106	79 LEO	5.4	115°	.003"
28	1	53	52	*28*	05	53	52	**d**	73+	13	255	ZC 1753	6.7	150°	NA"

** U Sgr is in M-25*

M-25 Occultation 6:55 to 9:03 UT

at MVCO

D= disappearance. Good occultation event.

d= disappearance, the star's magnitude approaches the observing limits of 200mm objective

R= reappearance. Good occultation event

r= reappearance, the star's magnitude approaches the observing limits of 200mm objective

All disappearances (D) occur on the eastern limb (left side in the sky). Reappearances (R) always occur on the western limb.

Position Angle (PA): tells where along the west limb to watch for a reappearance.

PA is referenced to celestial north: North=0° East=90° South=180° West=270°

The Almanac is designed as a quick check for events. It is published a month early so one can plan observations. Data is given that is tied to Homework (asteroid, variable).

GALLERY…..

Features latest images from MVAS events, Imaging and Visual Committee's and images from NASA, etc. Your contributions are welcome.

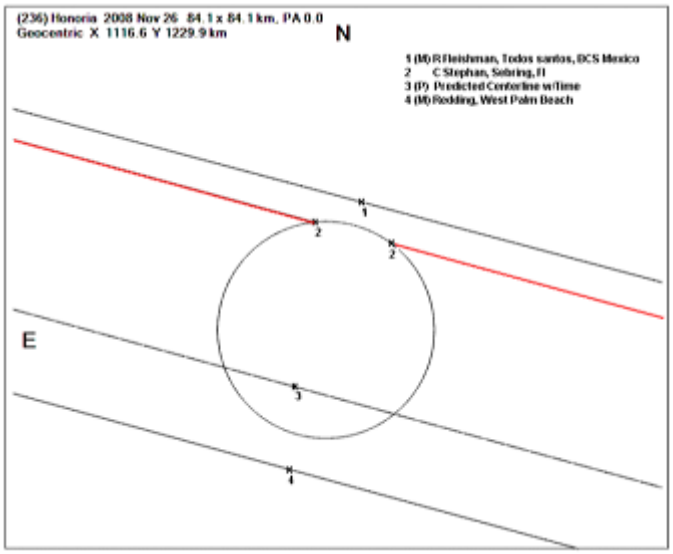
Doing HOMEWORK

Every month a constellation is selected that will have an asteroid, variable star and deep sky object to serve as the Homework Object. This is usually on the cover. Thus one only need to stay in one constellation to complete the Homework. Beginners have a way to learn the sky, one constellation at a time.

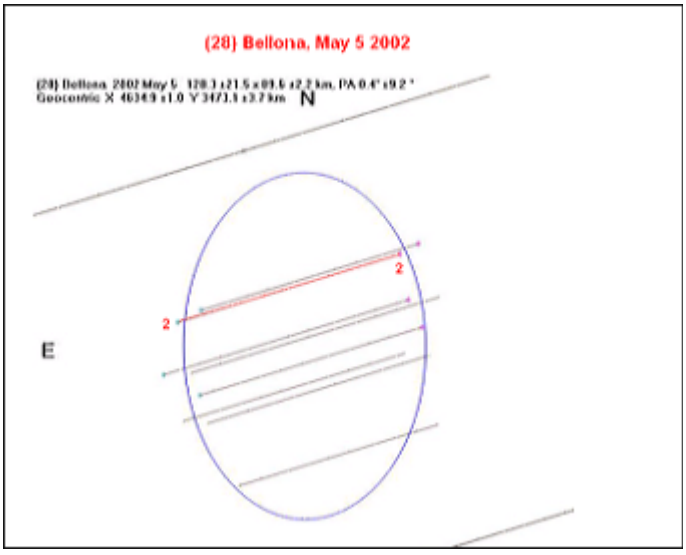
By adding variables, asteroids and occultations to your observing lists, you will become familiar with real science that amateurs can do. The AAVSO, IOTA and ALPO all collect your data which is used by professional astronomers. This type of work can form a solid basis for getting your telescope out.

Doing asteroid occultations helps to measure the size of asteroids. Here are a few results from MVAS members.

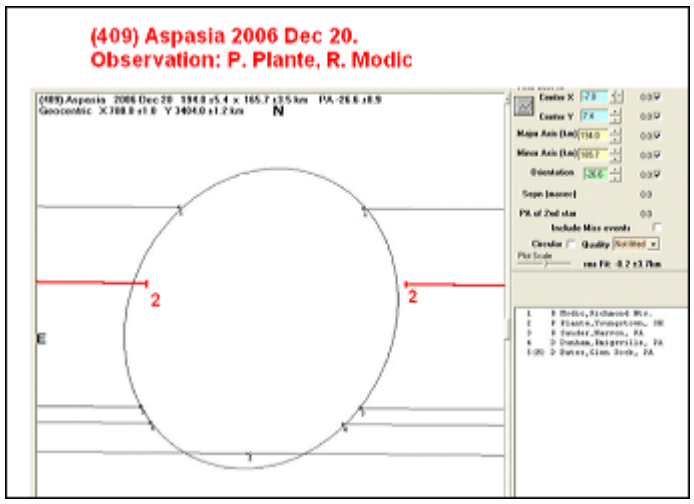
Measure an asteroid:



By Chris Stephan- (236) Honoria 11-26-2008



By Phil Plante (28) Bellona 05-05-2002



By Phil Plante (409) Aspasia 12-20-06

Lunar occultation:

May 22, 2015 9:54:03 EDT
Star ZC1234 6.2mg. Double. sep.= 0.100”

By: Don Cherry, Bob Danko, Adam DiCristifaro, Jodi McCullough, Larry Plante, Phil Plante and others? At the MVCO.

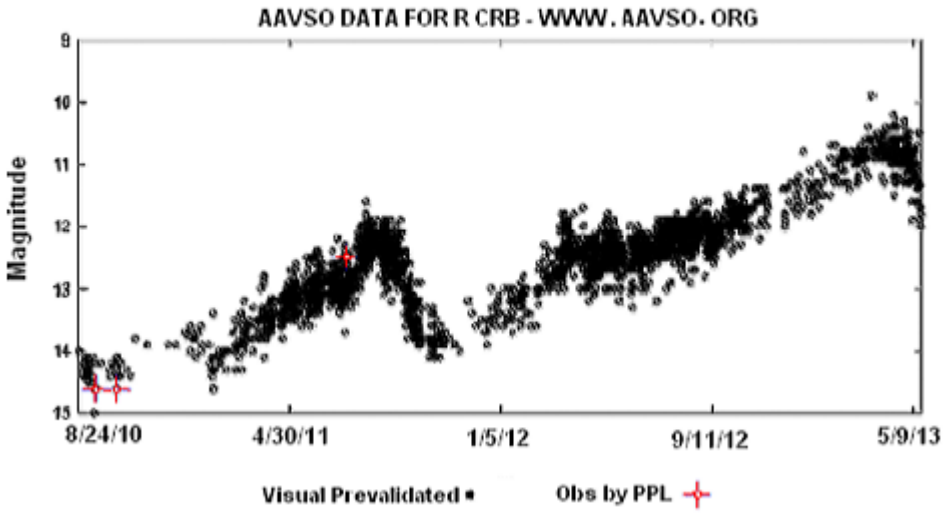
Sketching!

This could be the most challenging part of Homework but it can be the most fun. Once you get the hang of it. It also teaches you to slow down. Stay on one object and look for details. No need to make an artistic drawing unless you want to. A sketch is a simple drawing made quickly with minimum but important detail. All you need is a sharp 10 cent pencil (and eraser!), red flashlight, paper, clip board. A tracking scope makes it easier, but one is not needed.
A few examples follow.

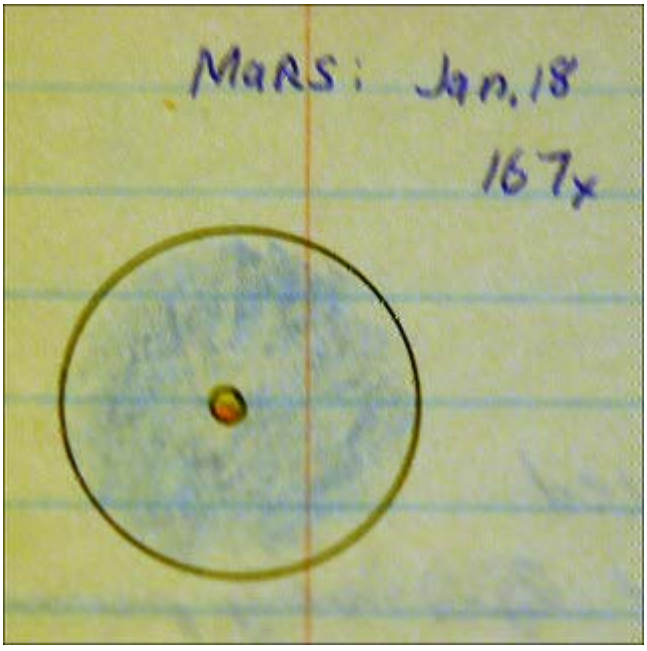
Variable Stars:

Observations added to AAVSO Data Base. Your observations can be seen as plotted with all other observations for any particular variable. Even one observation is valuable!

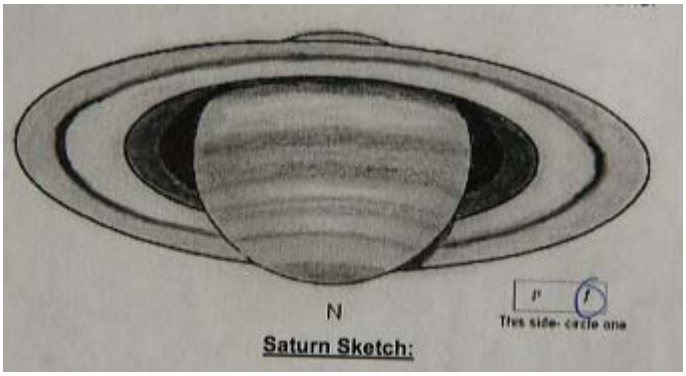
Plot your light curves!



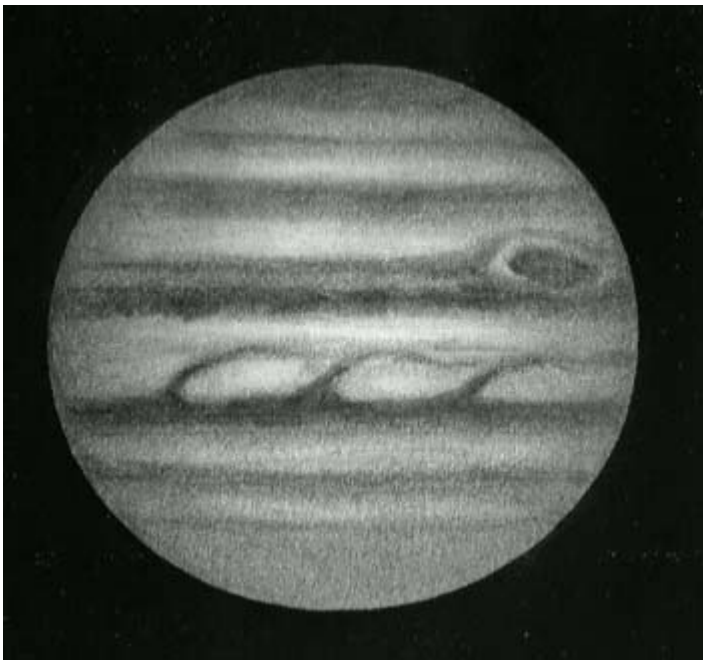
This plot shows three observations by P. Plante done with the 25" telescope. Last observation was on Sep. 24, 2014 at 9.8 mag. With 25"



60mm Tasco refractor. 167x
January 18, 1970. From my log book

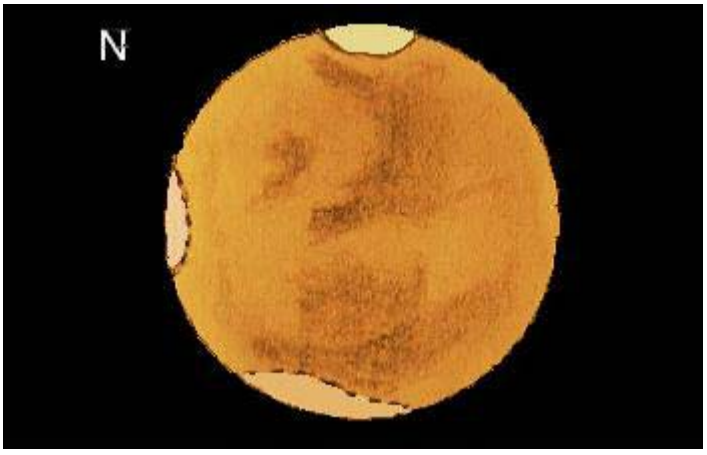


Titan May 18, 2014, 215x @ 2:15 UT

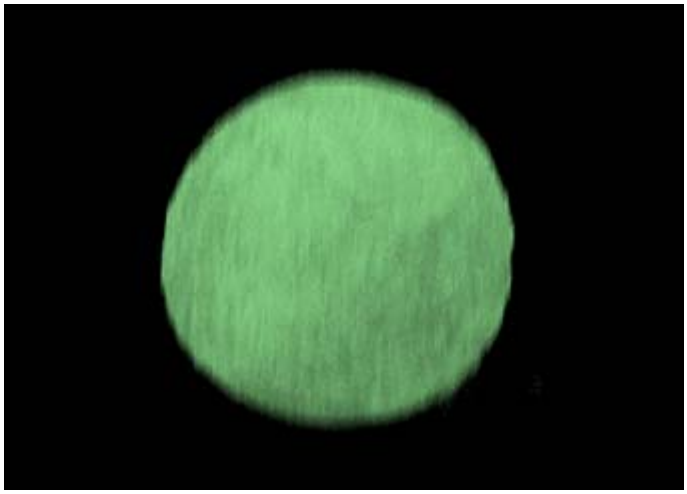


Titan. April 9, 2013 152x 6:14 UT

C-8 July 22, 1988. 570x. From Index card sketch.



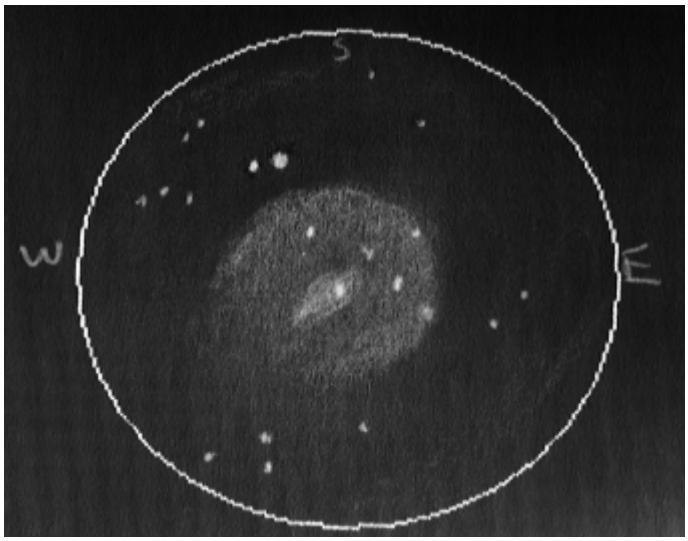
25" Titan. May 26, 2014. 215x @2:10 UT



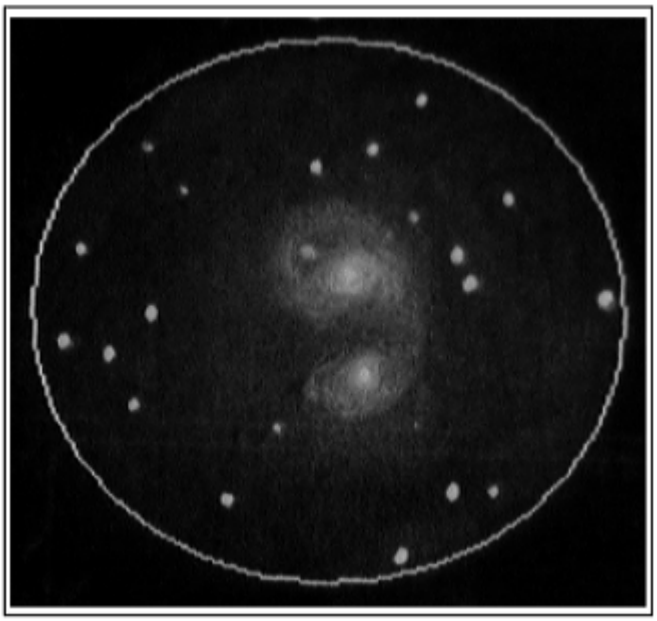
Titan. Oct. 15, 2006 @ 320x 2:49 UT
Appeared in book: *Uranus, Neptune, Pluto by Richard Schmude. Springer Books*

DEEP SKY SKETHCING:

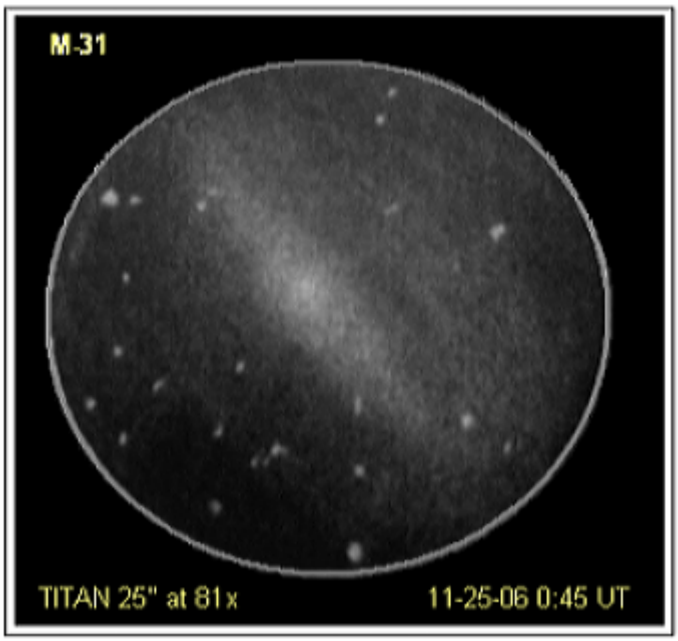
(All sketches by P. Plante)



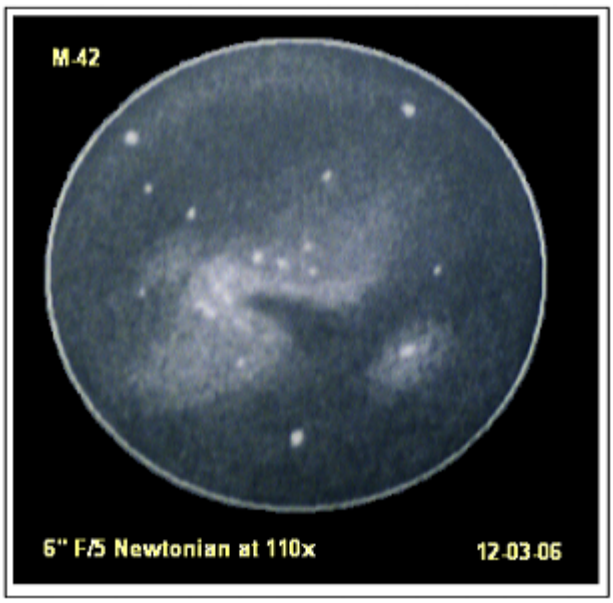
Titan. Comet Holmes 11-02-07, 74x 1:09 UT



MVCO 12.5“ M-51, 04-22-07. 4:10 UT



Titan. M-31, 11-25-06 81x 0:45 UT



6” F/5 Home made. M-42 12-03-06 110x 4:25 UT

That concludes this talk.....

GO GET’EM !!!!