FOCAL POINT

Issued by the *Milwaukee Astronomical Society* March 1988

INSIDE

A Reminder

There will be no March program-meeting. Instead, a Spring Field trip to Chicago will be offered on Saturday, March 19, 1988.

Last month, all members received complete information, along with a registration and payment form. The deadline is March 14, so please decide soon so President Dan Koehler can finalize the hundred and one planning details. As of February 27, 44 seats were still available. If anyone needs Field Trip information please call Dan at (414) 662-2987 after 6 P.M. or anytime on weekends. Call 933-3052 for forms.

Similar to last years event, the itinerary will include an Adler Planetarium tour and a choice of visits to the Museum of Science and Industry, the Shedd Aquarium, or the Field Museum. Round trip bus transportation is included in the tour price.

Please decide soon as time is short!

Election Preview

The May general meeting is traditionally mainly devoted to election of MAS governors whose terms have expired. The board consists of 13 board members, 11 permanently. Four officers serve ex-officio. Directors serve 3 years, officers are elected annually.

This year there will be re-election of officers and three board members, two re-electable. All paid-up members are eligible. They may volunteer, be nominated, or consent to volunteer after recommendation by another member.

The board usually meets once a month.

Occultation

A grazing occultation of CHI CAP on April 10-11 at 9:37 U.T. (4:37 AM CDT) Monday morning. Although this graze is rated favorable, no cable expedition is planned. The altitude is about 5 degrees and the cusp angle is less than one degree. Even this 5.3 mag star may be hard to see. Information will be available on request. (475-9418)

New Member

The Milwaukee Astronomical Society welcomes Ray Hernday of Butler.

Meteor Showers

The month of March brings warmer temperatures but almost no prominent showers.

Corona-Australids - March 16. Peak at 4:45 AM. 5-7 per hour. Look south

Camelopardalids -March 22. Small shower with big name, has no definite peak. Only 1 per hour. They travel very slow.

March Geminids - March 22. Overhead at dark. Watch closely as this shower was not discovered until 1973, and it is not known if it truly is an annual shower.

Calendar of Events

Monday, March 14	-	Board Meeting (J. Toeller).
Saturday, March 19	-	MAS Spring Field Trip.
Sunday, March 20	-	Spring begins at 3:39 A.M. CST.
Wednesday, March 23	-	***"Focal Point"* Deadline.**
Saturday, April 2	-	Full Pink Moon
Wednesday, April 6	-	First Wednesday at observatory, 7:30 PM. Everyone is welcome.
Saturdays	-	Observatory maintenance and improvements. Help wanted. Call 475-9418 or 258-5626.
Saturday Nights	-	Member's night at the observatory.

Astrophoto Contrast Enhancement

This may sound a little crazy. Would you take a picture with slide film, develop it as a negative, and then re-photograph the negative to turn it back into a slide (which you had in the first place)? Well if you do, don't tell your friends, because they will think you are nuts! But, there just might be a very good reason for going through that involved process.

In deep-sky astrophotography we are often dealing with subjects which have very intrinsic contrast. Consequently, the astrophotographer is constantly striving to increase the contrast of his photos in order to make the details of the subject more pronounced.

I have been experimenting with a technique which does, indeed, increase the contrast of normally low contrast deep-sky objects. This technique, which was developed by Dr. Jack Marling of Lumicon, basically involves developing all color film as a negative and then converting the negatives into a color slide. The whole process works something like this:

You begin by shooting your astrophotos with the gas hypersensitized color film of your choice. You may use either film for prints or slides. But the important thing is to ALWAYS develop the film as a negative, even the slide film. This usually requires the C-41 process.

The next step is to convert the negative back into a slide. This is where the greatest contrast enhancement is gained, and is accomplished by taking a picture of the color negative using special C-41 process slide film. The film of choice for this step of photographing the negative is Kodak 5072 Vericolor Slide Film. This film is ideal because it has extremely fine grain, it has high contrast, and it has a colorless film base. Kodak 5072 is only available in 100 foot bulk reels. However, Kodak markets a 36-exposure cassette version under the name SO-279.

To perform this step I obtained a low cost slide duplicator (about $50). The duplicator fits onto my 35mm camera in place of a lens. The color negative is inserted into the duplicator and the whole set-up is pointed at a bare light bulb which serves as the light source.

Dr. Marling recommends using a normal 100 watt white light bulb. However, in my tests I found that unsatisfactory for two reasons. The relative low intensity of the light resulted in longer exposures; and the resultant slides had a strong blue tint. The light source I finally settled on was the General Electric B1 Photo Flood (BCA-No.1), thanks to the suggestions of Dick Wiesen. This blue light bulb is available in most photo stores. The B1 is a very intense light resulting in shorter exposures, plus it yields a nice black sky background. I position the bare bulb about 5 inches away from the aperture of the slide duplicator.

Also through experimentation, I determined that the proper exposure was about 1 or 2 seconds. However, this could vary greatly depending upon many factors including the f/ratio of the duplicator, the particular emulsions of both the negative and slide films, the light source, and the filters which are being used. It is only through extensive experimentation that the optimum exposure time will be determined. Remember, the longer the exposure, the DARKER the result (which is reversed from normal exposures where longer means lighter).

This method also allows you to control the color balance. In fact, it requires it. Due to the color response of both the original film and the film used to make the slides, the color balance of the end product will be pretty wacky. However, this is where the fun comes in. You can now be in complete control of the resultant colors. What you need is a set of 2" x 2" color correcting filters. These filters are available in "units" which designate the density of the particular color. You will probably need a 10, 20, and 40 of each of the colors of yellow, magenta, and cyan. They are designated as *CCuucc*; where *CC* is "Color Correcting", *uu* is the density in units, and *c* is the color. So, a filter of 20 units of yellow would be CC20Y.

The filters are placed between the light source and the negative being photographed. Again, experimentation will be required to determine the proper filter "pack" for each negative emulsion you use. Basically, to remove excess blue from the slides, add cyan or subtract yellow. To remove excess red, add equal amounts of yellow and magenta, or subtract cyan. To remove excess green, subtract magenta. Once you have determined the proper filter pack for a particular negative type, write it down so you will have a good starting point next time.

For Konica SR1600 or Fujichrome 400 color negatives and a B1 Photo Flood, here are the filter packs I use:

Galaxies - CC20C
Nebulae - CC20c + CC10M

Note: For nebulae the cyan seems to control the color of the background and the magenta the nebula itself. If you prefer to see M42 a little more red, subtract magenta.

With a 100 watt white light bulb here are the starting filter packs recommended by Dr. Jack Marling:

Film Negative	Yellow	Magenta	Cyan
Konica SR1600	40	10	00
Kodak VR200	10	30	00
Kodak VR1000	00	00	20
Fujichrome RD100	30	10	00
Fujichrome 400	40	10	00
Fuji HR1600	00	00	00

Obtaining the correct color balance is probably the most difficult part of the whole process. It requires extensive trial and error testing. However, once you have established the correct filter pack for your particular configuration of films and lights, you can get slides of objects that look like you think they should look.

This technique may seem like a lot of work. And it is! But, if you want to obtain a near-black sky background, and higher contrast photos this is the way to do it. I am convinced that this method results in substantially better astrophotos, and I now use it exclusively. Even when I shoot astrophotos with slide film, I still develop them as a negative and then take them through the conversion process. The results are definitely worth the effort.

As with most tricks employed by astrophotographers, a great deal of trial and error is needed to perfect the system. In my case it required a lot of film, and a lot of much appreciated help and guidance from fellow MAS member, Dick Wiesen. But it is the development of these special techniques which makes our avocation so much fun. So, if you feel like experimenting (and what good astrophotographer doesn't) pick up a few rolls of S)-279, a light, a few filters and give it a try. I think you will be pleased with the results.

Observer's Notes by Lee Keith

Designations: NGC 457, H42[7]

Specifications: Galactic Clusterin Cassiopeia.
R.A. = 1h 19.1m Dec. = +58° 20' (epoch 2000)
Size: 30'; 7th magnitude

General Location: Near the central portion of the "W" of Cassiopeia, adjacent to PHI Cass; 2° southwest of 3rd mag. DELTA Cass.

Right Angle Sweep: Starting at DELTA Cass., sweep 2° south and 0.5° west.

REFERENCES:

ASTRONOMY Magazine, August 1987, p87:

The brightest stars of NGC 457 are arranged in distinct lines and curves, outlining the apparent form of an owl. The two bright field stars, PHI and HD 7902, represent the bird's eyes. A rectangular clump of 9th & 10th magnitude stars traces a body, and scattered curving rows of fainter stars outline an owl's wings, which extend roughly N-S. ...has acquired the nickname "the Owl Cluster." ...the brightest cluster member, a 8.6 magnitude star, has a distinctly ruddy orange color. ...Although NGC 457 was not included in Messier's catalog, ...a look at this group of stars should convince you it is one of the finest in the northern sky.

Webb Society Deep Sky Observer's Handbook Vol 3, p52:

(10") Triangles of 9 mag stars grouped mainly to the W; stars concentrated in small groups.
(8") 25 stars plus fainter ones in a 25' field.
(6") Fine group of large and small stars; no sign of nebulosity formed by unresoved members; 10'dia.
(10x50) Easily resolvable and very bright; stars scattered and pointing in a northerly direction.

Observe the Herschel Objects (Pub by the Astronomical League):

Mag 7.5, open cluster in Cassiopeia, 10' in size. Some 50 stars counted in this large cluster of prominent bright stars. Resembling some type of bug! What do you see here in this rich and scattered cluster? Located in same field as PHI Cass. (8" Starliner, 48x)

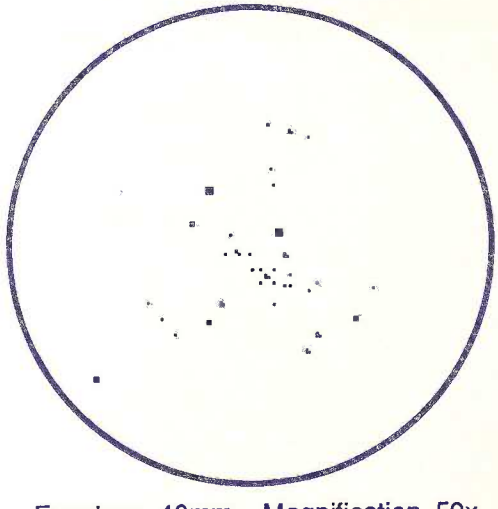
Burnham's Celestial Handbook, p530:

Bright, large, pretty rich, 10' diameter, 100 stars, mags 8... Class E (moderately concentrated), PHI Cass on edge of group. ...NGC 457 is a rather young star group. In the main mass of the cluster, the brightest star is a red supergiant of type MO, of apparent mag 8.6, and absolute mag -5.2. The true luminosity is about 10,000 times that of the Sun. ...as a standard of comparison, our sun at a distance of [the cluster] 9300 light years, would appear as a star of magnitude 17.3! Such a consideration may help the observer to realize...the true splendor of some of these distant groups of distant suns.

OBJECT DESCRIPTION

NGC/IC No: 457 Other: H42[7]
Size: 30' Magnitude: 7
Object Type: Open Cluste r in Cass.

EYEPIECE DRAWING



Eyepiece 40mm Magnification 59x

VIEWING CONDITIONS

Date: 11/22/87 Time: 2:40 UT
Seeing: Avg Transparency: 4.5
Observer's Name: Lee Keith
Location: MAS Observatory
Telescope Type: "B" 12.5" f/7
Other Conditions: Some patchy clouds

ADDITIONAL SKETCHES & NOTES

Looks like Aquila. Large and bright. Mainly stars of 7 - 8th magnitude. About 50 stars.

"Northern Lights"

"Northern Lights" will publish its next issue in April. MAS member and editor, Ray Wendt, Invites you to submit short, newsy astronomical articles, book reports, or an account of some event.

Mail your material to:

Ray Wendt
4834 N. 70th Street
Milwaukee, Wisconsin
53218

Subscriptions are $2.50 per year for four quarterly issues. MAS members receive "Northern Lights" as part of their paid membership.

For Sale

Meade 8" Schmidt-Cassegrain reflector. Includes a dew zapper, drive corrector, camera bracket, and other items. Price: $775.00.

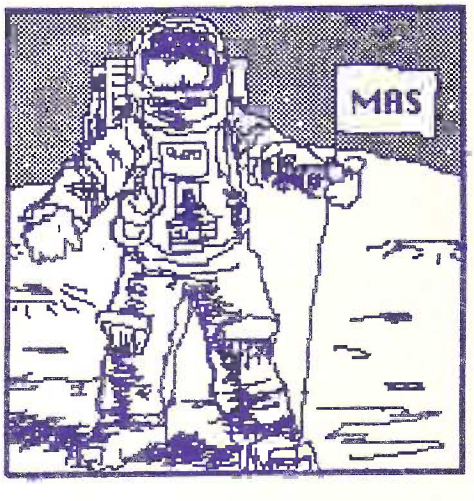
Please call Tom Schmidtkunz at 784-0253 evenings, 277-6049 days.

NOTICE ! !

The May Program Meeting will be on May 20 NOT on the 13 as previously thought, and the NCRAL will be on May 13 - 15. Please disregard anything to the contrary.

Keyholders

March 12	William Tuerck	782-2844
March 26	Dr. Wiesen	781-4757
April 2	John Asztalos	258-5626
April 9	Harry Auchter	542-2158
April 16	Paul Borchardt	781-0169



Observatory News

Rumor has it that the guy with the icicle nose will slowly but surely be leaving. His departure will allow Society members the exhilaration of starting the tasks to put our facilities back in A-1 shape!

The bigger jobs and their overseers include painting the Quonset hut interior (Dan Koehler 662-2987), overhauling the "A" - dome shutter cable system (Jim Toeller 352-7144), refitting the 26" dome shutter (Frank Roldan 423-0210), and installing the 10" Ceolla telescope in the satellite shelter (Paul Borchardt 781-0169). So, needless to say, help is needed. Preparation and painting of the Quonset hut interior is scheduled for Saturday, March 26. Please bring scrapers, brushes, step ladders, and elbow grease. We'll furnish paint.

Please do not drive on the grassy areas. You may notice a sinking feeling! Preferably park in the lower lots.

On a serious note, despite President Dan Koehler's plea, including forgiveness, the observatory's Starlight-1 photoelectric photometer has not been returned to its rightful owners, us. The large, heavy instrument in two blue boxes, complete with cables and attachments, is of little, if any, use to anyone except to a person well acquainted with its use. Simply return the instrument or offer information to Dan Koehler, W248-S7040 Sugar Maple Drive, Waukesha, Wisconsin 53186 (662-2987). We promise no questions or legal action.

Mnemonics

Mnemonics, (the M is silent), are devices to assist the memory. Member Tom Milner offers this one for recalling the spectroscopic classification of stars by temperature: O - B - A - F - G - K - M - R - N - S (**O**h **B**e **A** **F**ine **G**irl, **K**iss **M**e **R**ight **N**ow **S**mak!). The temperature decreases with type O as the hottest.

To recall the planets from Mercury to Pluto, use the sentence "**M**ary's **V**iolet **E**yes **M**ade **J**ohn **S**tay **U**p **N**ights **P**ondering." (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto).

To recall the first nine asteroids, use the phrase "**C**ertain **P**lanets **J**ourney **V**ery **A**ncient **H**eavens **I**n **F**aint **M**agnitudes." (Ceres, Pallas, Juno, Vesta, Astraea, Hebe, Iris, Flora, Metis).

Mnemonic phrases or sentences can be used to recall numbers, each digit by the number of letters in a word. As an example, remember Mars' mean distance from the sun in astronomical units by "a fiery or red planet, spherical" (1.52369).

Directory

President	Dan Koehler	662-2987
Vice President	Dr. R. Wiesen	781-4757
Secretary	Ms. K. Wesener	961-8752
Treasurer	J. Toeller	352-7144
Observatory Director	G. Samolyk	475-9418
Assistant Observatory Director	J. Asztalos	258-5626
Librarian	Mrs. S. Waraczynski	312-0918
Assistant Librarian	Mrs. J. Regis	962-0896
Program Chairman	M. McNeeley	354-5347
FOCAL POINT Editor	L. Simandl 4201 W. Highland Blvd. Milwaukee, Wisconsin 53208	933-3052
MAS Observatory	18850 W. Observatory Rd. New Berlin, Wisconsin 542-9071	

A Schedule of Events for the MAS from April to October, 1988

APRIL

Saturday	2	FULL MOON
Sunday	3	Easter
Wednesday	6	First Wednesday
Saturday	9	LAST QUARTER
Monday	11	Board of Directors Meeting, 7:30 p.m. at the Observatory
Friday	15	Membership meeting at CATC, 8:00 p.m.
Fri-Sun.	15-17	Spring Camp-out at Greenbush
Saturday	16	NEW MOON
Saturday	23	FIRST QUARTER
		National Astronomy Day
		Open House for Nat'l Ast. Day at Observatory, 2-11 p.m.

MAY

Sunday	1	FULL MOON
Wednesday	4	First Wednesday
Monday	9	LAST QUARTER
		Board of Directors Meeting, 7:30 p.m., at the Observatory
Fri.-Sun.	13-15	NCRAL Convention, Marquette, MI
Sunday	15	NEW MOON
Friday	20	Membership Meeting-ELECTIONS—CATC, 8:00 p.m.
		Note: Meeting moved due to NCRAL Convention on the 13th - 15th.
Monday	23	FIRST QUARTER
Monday	30	Memorial Day
Tuesday	31	FULL MOON

JUNE

Wednesday	1	First Wednesday
Tuesday	7	LAST QUARTER
Monday	13	Board of Directors Meeting, 7:30 p.m., at the Observatory
Tuesday	14	NEW MOON
Wednesday	22	FIRST QUARTER
Wednesday	29	FULL MOON

Note: ALL WEEKENDS IN JUNE ARE RESERVED FOR OBSERVATORY MAINTENANCE, but evenings will be free for observing!!

Note: All members are invited to the "First Wednesday Gatherings" at the Observatory on the first Wednesday of each month, 7:30 p.m.

Call John Aztalos, 258-5626, for details concerning the camp-outs.

JULY

Monday	4	Independence Day
Wednesday	6	LAST QUARTER
		First Wednesday
Friday	8	Open House #1—"Galaxies, Nebulae, and Star Clusters"
Monday	11	Board of Directors Meeting, 7:30 p.m. at the Observatory
Wednesday	13	NEW MOON
Saturday	16	MAS Family Picnic, 2:00 p.m. - ???, details to be announced.
Friday	22	FIRST QUARTER
		Open House #2—"The Moon"
Weds.-Sat.	27-31	Astronomical League National Convention, Council Bluffs, IA
Friday	29	FULL MOON

AUGUST

Wednesday	3	First Wednesday
Thursday	4	LAST QUARTER
Friday	5	Open House #3—"Meteors"
Monday	8	Board of Directors Meeting, 7:30 p.m. at the Observatory
Thurs.-Sun.	11-14	Summer Camp-out at Greenbush
Friday	12	Perseid Meteor Peak
		NEW MOON
Friday	19	Open House #4—"Stars"
Saturday	20	FIRST QUARTER
Saturday	27	FULL MOON

SEPTEMBER

Saturday	3	LAST QUARTER
Monday	5	Labor Day
Wednesday	7	First Wednesday
Fri.-Sun.	9-11	Astrofest, Kankakee, IL, details to be announced
Sunday	11	NEW MOON
Monday	12	Board of Directors Meeting, 7:30 p.m., at the Observatory
Friday	16	Open House #5—"Telescopes"
Monday	19	FIRST QUARTER
Friday	23	Membership Meeting, at the Observatory, 8:00 p.m.
		Moved from the 16th due to Open House.
Sunday	25	FULL MOON
Wednesday	28	Mars at Opposition
Friday	30	Open House #6—"Mars"

OCTOBER

Sunday	2	LAST QUARTER
Wednesday	5	First Wednesday
Fri.-Sun.	7-9	Fall Camp-out at Greenbush
Monday	10	NEW MOON
		Board of Directors Meeting, 7:30 p.m. at the Observatory
Friday	14	Open House #7—"General Astronomy"
Tuesday	18	FIRST QUARTER
Friday	21	MAS Annual Dinner, location and details to be announced.
Tuesday	25	FULL MOON