THE Prairie Astronomer

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Hpyersensitize Your Film!!!

BY RICHARD JOHNSON

First there was the cold camera and now it is gas Hypersensitization. The cold camera meant a lot of work with dry ice at the telescope while hypersensitization moves the work from the telescope to the dark room where it is much easier to handle. Hypered film has little reciprocity failure (the slowing of the film speed during the exposure) as well as a true speed increase. This is done by soaking the film in a gas mixture of 8% hydrogen and 92% nitrogen at 50 degrees Celsius for up to two and one half days.

Hypered film should be home developed. Commercial development procedures will usually result in severe fog problems. This applies to most black and white film as well as slide films. Commercial development of color negatives may not suffer as badly from this problem.

Hypered from must be developed right after exposure for maximum benefit from the film. Cut the film and develop only what was exposed. Return the unexposed film to the plastic container. Put this back in the refrigerator. If the film is not to be used for a month or longer then put it in the freezer. 2415 will retain its hypered state for at least a year if handled this way. Color film will not. It will loose about half of its gain each time it is returned to the refrigerator and has a shelf life of only one month before it should be discarded. thus it can be quite expensive to work with.

Is it all worth it? I think so. Compared to hypered Tri-X film, 2415 is 20 times faster in recording emission nebula and at least twice as fast in recording stars. Yet it has far finer grain and much higher resolution. You can easily resolve 400 lines per millimeter while Tri-X only resolves 80. With Lumicon's hydrogen alpha filter and 2415 you can take a picture of Barnard's loop in Orion from right here in Lincoln! I never succeeded in photographing it with Tri-X in the country! Coupled with the inexpensive filter, deep sky photography from the driveway becomes possible. Exposures at f/5 of up to 30 minutes can be made where with Tri-X (which is 20 times slower at this color) you would skyfog in 5 minutes without the filter. Yet the filter isn't blocking more than 15% of the hydrogen alpha light. This is what makes the film so useful to the astronomer who doesn't want to leave the comforts of home.

When the hydrogen alpha filter is used with a lens it must be refocused since the red color is too red for the color correction of most lenses. True infinity focus will be about half way between the regular infinity setting and the infrared infinity mark some lenses have. Experiment until you find the right setting then mark your lens for fast resetting. Since most lenses also are not fully corrected at this color it is best to stop down one stop or to f2.5, whichever gives the widest opening. Mirror systems won't need refocusing.

Hypered 2415 is also very good for planetary photography since it has a rated ASA (now ISO) of 200. With its much higher resolution you can shorten the effective focal length of the telescope by a factor of 5 and still achieve the same resolution as with Tri-X. Since the film is only half as fast this means an exposure time of only 1/16th of what it was on Tri-X yet you retain the same resolution. Shorter exposure means less chance for the atmosphere and poor tracking to screw up the

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picture.

Now to the point of all this. I recently purchased a Lumicon film hypersensitizing kit. This will allow me to hyper 2415 film for a fraction of the cost of buying it already hypered from Lumicon. I will make hypered 2415 available to club members at cost. The total cost will be $3.50 per roll with a 50 cent deposit on the film cassette. Harmon's is currently selling regular 2415 at $4.42 a roll! Lumicon wants about $12.00 for hypered 2415 though others are selling it for about $10.00. I hope this will spur some interest in this amazing film.

2415 must be developed 4 minutes in D-19. This developer can only be purchased in gallon quantities for about $6.00 or more. It has a very short shelf life so you will end up throwing most of it away! I can make the chemicals for D-19 available at a cost of 40 cents a pint. One pint will develop 4 rolls of 2415. Since the shelf life is only a month you will probably not use that much. Please supply your own sealed jar to hold the dry chemicals. An 8 oz. jelly jar will be sufficient.

I will also hyper some color films if you provide the film. The cost is about $2.25 per roll. All of these prices include a 50 cent deposit on the reusable cassette.

EDITORS NOTE: Rick dropped me a letter a few days later stating that he hypered a roll of expired (by 2 years) Tri-X film and compared the developed roll to identical pictures taken with non-hypered film from the same emulsion. From exposures of 1/1000 to 30 minutes the hypered film had a constant speed gain of 4 with NO FOGGING!!! That in itself is amazing since expired film will often fog just by looking at it wrong! Rick also explained all the hastle he has to go through to hyper a roll of film. I hope everyone will give him a big thanks for being so generous in his offer. I know I plan on trying some hypered colored slide film out in the next few months!

JUST TO LET YOU KNOW.....

To help you remember when you need to renew your PAC membership, a monthly listing of who is up for renewal will appear in the Prairie Astronomer. Those due to renew in January, February and March are...

Andy Corkill
Daniel Cowell
Steve Keil
John Lortz

To insure that you receive your Sky & Tel on time, be sure to get your dues to Norma.

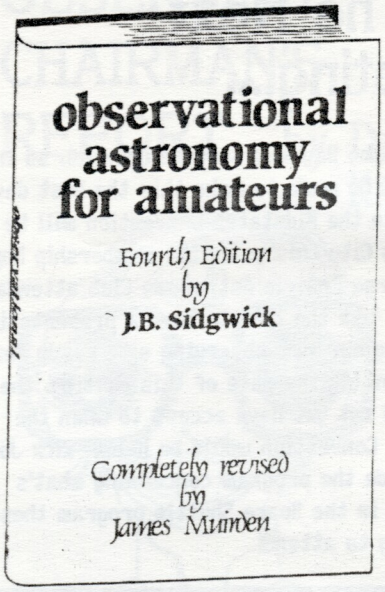
The Prairie Astronomer is published monthly by The Prairie Astronomy Club Inc., and is free to all club members. Membership expiration date is listed on the mailing label. Membership dues are: Junior Members and Newsletter Only Subscribers... $8.00/yr, Regular Members... $22.00/yr, Family Membership... $25.00/yr. Address all Membership renewals or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE. 68501. For other club information contact one of the following officers: Lee Thomas (Pres) 483-5639, David Knisely(V. Pres) 223-3968, John Lortz (Sec.) 390-9821 (Omaha), Norma Coufal(Treas.) 483-5685, Dan Neville (2nd VP) 476-7772. All articles and comments should be sent to newsletter editor JOHN LORTZ 9255 CADY AVE. #14, OMAHA, NE. 68134 no later than 6 days before monthly club meetings.

THE REVIEWER...

by David Knisely

Observational Astronomy For The Amateurs 4th Edition

BY J.B. SEDGWICK REVISED BY JAMES MUIRDEN
ENSLOW PUBLISHERS, 1982



PUBLISHER'S PRICE: $19.95

This work is one of the classics in amateur astronomy, and for years has been one of the most quoted books in the field. It was sadly outdated, mostly by discoveries by space probes, but James Muirden updated some of the sections making it useful again for the serious amateur. This is NOT a guide book. Rather, it is designed for the individual who wishes to study the sky in depth for personal and scientific reasons. It is rigorous, allowing the serious observer to develop his own program of observations that may be of use by other amateurs or professionals.

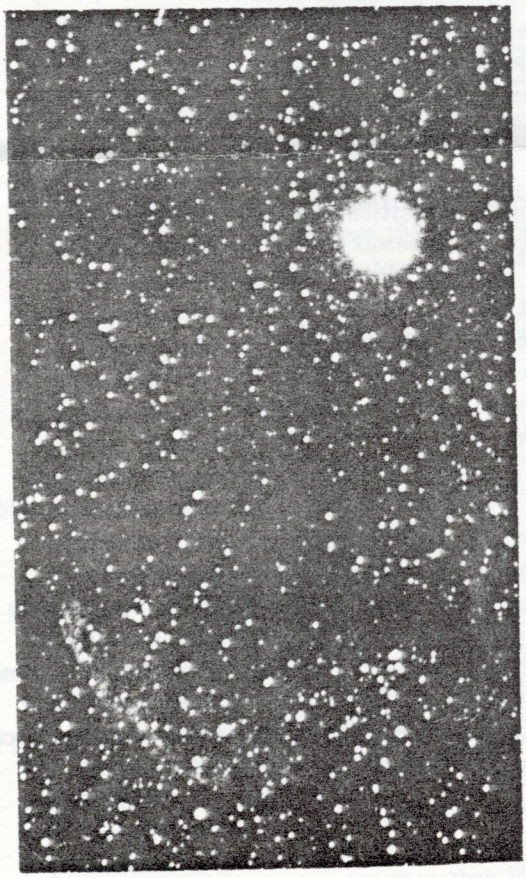
The work is divided into 20 sections dealing with observation of all the major solar system objects, binary and variable stars, and aurorae. Sadly, he devotes less than one page to observation of deep sky objects, which most of you know is my favorite subject. Sedgwick covers solar observations in depth, discussing observational methods along with some limited information about equipment. He even covers spectroscopic observation, as well as eclipses and radio observations of the sun.

The sections on observations of the moon and planets are good, except that a map of the major albedo features of Mars should have been included. The book is filled with mathematical formulae enabling the experienced amateur to calculate a number of useful but sometimes obscure quantities. For those wishing to calculate the positions of the planets, the book includes the standard Keplerian orbital elements of the planets for epoch 1950 except for the Earth. Sedgwick does not include a method for calculation of planetary positions, but he does provide an excellent appendix telling where the details my be found. The section on variable stars outlines the major methods of visually estimating magnitudes and their limitations. The section on binary star observation is confined mainly to measuring separation and position angle.

This book is definitely not for the beginner, as it is targeted toward the scientifically minded amateur who looks upon his hobby as a research project. It will help the observer make observations that would be useful to the science of Astronomy, as well as providing some useful information for the casual amateur. It should be purchased with it's companion book, The Amateur Astronomer's Handbook to be of the most use since the appendices often refer to the handbook.

At The Next Meeting....

Astronomy Day will soon be upon us, so initial plans will be made to make this the best day ever! Also, since the Midstates Convention will be held in Kansas City this year, the membership hopes to have a large Prairie Astronomy Club attendance. Lee would like the club to have a presentation concerning our new observing site ready for the convention. (At the date of this writing, the Editor did not yet have access to when the Midstates Convention would be held). Rick Johnson will provide the program concerning what's happening in the Space Shuttle program these days. Please try to attend!



Back in the Good Old Days

This installment begins a column some of you might find enjoyable. I am now at the point where I have access to PAC newsletters published 10 years ago, and so I thought I would include some of the highlights as to what the club was up to back then...

JANUARY 25TH, 1977

The January Meeting of the PAC will be held at Olin Hall, Nebraska Wesleyan University, at 7:30pm. Orders for posters and postcards from the Hansen Planetarium will be taken (cash up front). The Astronomical Calendars have arrived and are available for $3.95 per copy, but we are still waiting for the RASC Handbooks.

There is a possibility that club dues will have to be raised. Here is how your present $9.00 membership dues are used for club expenses...

Sky & Tel Subscription		$6.00
Astronomical League dues		$1.00
Newsletter:		
Paper	.49	
Ink	.25	
Stencils	.90	
Postage	1.56	
		$3.20
Expenses per member		$10.20

The deficit so far has been absorbed by the cushion in the club's treasury, which is rapidly dwindling, and by family memberships which contribute $2.00 to the treasury over the regular dues.

Also at the meeting, Carroll Moore will bring us up to date on the Community Observatory for which fund raising has now been completed. Construction is planned to begin this spring, with a summer 1977 opening!

brightest galaxy (an edge-on spiral) and

OBSERVING CHAIRMAN'S REPORT by David Knisely

THE NEXT SCHEDULED STAR PARTIES ARE ON JANUARY 30TH AND FEBRUARY 27TH. For openers, those of you with six or eight inch instruments should try the faint open cluster NGC 2420, located about 3.5 degrees east and 0.5 degrees south of Delta Geminorum. It is only partially resolved in an eight inch, showing about 10 bright stars with many other faint ones intermixed.

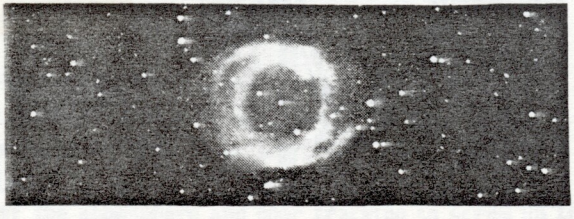
In southern Lynx is the interesting edge-on spiral galaxy NGC 2683. Located about a degree south and five west of alpha, this galaxy should be easy in a four inch, showing as a fuzzy needle of light. An eight or ten inch should show a small amount of mottling near the object's center.

In Cancer, take a look at the open cluster M-44 with the naked eye and see if you can see any of its stars. I have heard reports that several observers have seen as many as six of them near the center. I have only seen two or three with any certainty, but the Skalnate-Pleso Atlas shows about nine that are brighter than magnitude 6.5. For those of you new to amateur astronomy, M-44 is located about two degrees south-west of Gamma Cancri, and is a particularly nice object for binoculars or rich field telescopes. Also in Cancer is the fainter open cluster M-67, located about two degrees west of Alpha. It is visible in fairly small instruments but its stars are fainter and somewhat more compressed than those of M-44.

In western Leo are a number of interesting galaxies, the brightest of which is NGC 2903. It can be found by going about 1.5 degrees south of Lambda and should be visible in a 2.4 inch refractor under low power using averted vision. An eight inch should show some mottling across the galaxy with a ten inch showing a wealth of dark detail and hints of the spiral structure. As a challenge to those of you with eight inch and larger apertures, try the group of five galaxies about 1.5 degrees south and 0.5 degrees east of Zeta Leonis. None are brighter than 12th magnitude but all can be placed in a one degree field of view. NGC 3190 is the brightest galaxy (an edge-on spiral) and the others are NGC 3193 (small elliptical), NGC 3187 (a nearly edge-on barred spiral), and NGC 3185 (a small barred spiral).

Moving south into Sextans, look about three degrees east and 0.5 north of Gamma for the "Spindle Galaxy", NGC 3115. It should just be within range of a 2.4 inch and appears as a fuzzy ellipse that is pointed on the ends and fat in the middle.

As a final target, look for NGC 3234, also known in club circles as "Ricky's favorite planetary", about 1.75 degrees south and 0.25 degrees west of Nu Hydrae. It should appear as a faint fuzzy star in small telescopes. Larger instruments show it as a blue-green disk about the size of Jupiter with an inner elliptical shell and an 11th magnitude central star.



At The Last Meeting:

The December PAC meeting started at 7:33pm with the new president, L. Lee Thomas presiding. 21 members were present as well as one guest, Les Meyers. Lee started the meeting with a big thank you to Andy Corkill for all his work in the past year, and a wish that he drop us a line once in awhile from Colorado.

The major part of business meeting dealt with the proposed Atlas Observing Site. Lee went over what he had stated in the December newsletter, highlighting the fact that because of some very generous pledges ($1,660) the club would still be in good shape were it to give the asking price of $1500 for the land. The pro's and con's of the site were discussed including topics such as would enough people use it, there would be lots of work to clean up the site, the club needs a project to focus upon as to avert stagnation, etc..

A motion was finally made and seconded that the club purchase the land at a price of $1500. The motion passed, 22 for vs. 0 against. Lee said he would call the Firth CoOp and make a verbal agreement that the PAC would purchase the land in the spring when action could be taken to cover the silo entrance.

The remaining part of the business meeting dealt with what the club would consider priorities in the coming year. Besides the obvious project involving the Atlas Observing Site, everyone agreed that the PAC should focus on getting new members into the club, especially young members. Possible attractions were mentioned, including opening the telescope room for observing after meetings, occasionally holding meetings at one of the planetariums, and using public access services to further advertise the club.

Finally, Dave announced that Astronomy Day was on May 9th this year (a wrong date was given in the Reflector). There was no program.

THE PRAIRIE ASTRONOMER
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1987

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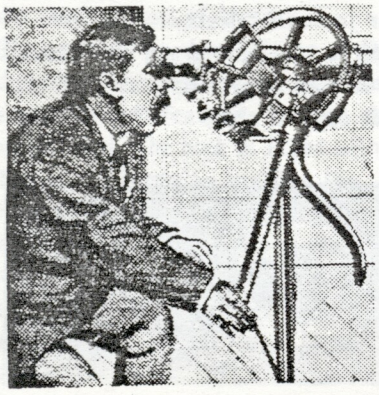

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Next PAC Meeting
January 27th, 1987