THE FOCAL POINT

Vol. IV, No. VII *The Newsletter of the Atlanta Astronomy Club* **March 1992**

PROGRAM NOTES

by Bud Rosser

The March 1992 meeting of the Atlanta Astronomy Club will be held on March 20th at the Bradley Observatory of Agnes Scott College at the normal 8:00 p.m. hour.

This month, you will experience all the excitement, disappointment, agony and ecstasy of the Florida Star Party, as reported by those who experienced it: Rich Jakiel, Dave Riddle, Phil Bracken, Bill Snell and Jim Brandt. Those loquacious lackeys will, through word, picture and gesture, share with us the observed (!) state of amateur astronomy in that region. I am told that it was not a dull weekend and that there were many unusual sights...

Following up on a previous program, I have been asked by both Tom Buchanan and Frank Guyton to seek support for the final banishment of that pesky searchlight at Turner Hill Road and Interstate 20 east of Atlanta. Though it was temporarily extinguished by Dekalb county on violation of ordinances, the ordinances have been rewritten by a well-meaning county official. As it stands now, the ordinance requires that such light not be a nuisance to adjoining areas and that such people have no complaint. If you are a Dekalb county resident, please contact Mr. Jack Smith (Code Enforcement 371–2167) and tell him how this two mile beam affects your astrophotography and overall enjoyment of the night sky. The "offending party" is the U.S. Discount Gas Station, owned by Mr. Bill Cory. While Mr. Cory is assumed to be a man of honor merely trying to advertise his business (he owns several such stations), we feel that this form of advertisement is intrusive and should be restricted so as not to infringe on any residential observing.

One final note... The skies at the Barber Observatory on February 27 were spectacular (except for the ESE glow that we live with). Ask Phil Bracken about how even high school seniors can enjoy the dark and still keep their clothes on!

A SHORT HISTORY OF PERKINS OBSERVATORY

by Earl W. Phillips, Jr.

Perkins Observatory began as a vision of Ohio Wesleyan Professor of Mathematics and Astronomy, Hiram Mills Perkins (1833-1924). Shortly before his death, he gave $200,000 to Ohio Wesleyan "to build an observatory of the first magnitude." Professor Perkins insisted that the telescope should exceed in size all other telescopes in this country at that time, except the 100 inch at Mt. Wilson. The ground-breaking occurred on May 23, 1923, with Professor Perkins himself turning the first sod. Telescope construction was carried out by the Warner & Swasey Company of Cleveland; at the time among the world's best in such work. The 3000 pound, 12.5 inch thick main mirror was cast at the U.S. Bureau of Standards. After a cooling period of eight months, the mirror blank was shipped to the J.W. Fecker Company, of Pittsburgh, PA, for grinding and polishing. When completed, the main mirror was 9.5 inches thick, and achieved optical specifications of 1/10th of a wavelength of yellow light. Once installed, Perkins Observatory ranked third in size among the world's observatories; after the 100 inch at Mt. Wilson, CA, and the 72 inch at Victoria, B.C. Upon completion, it was stated that the telescope had "the light gathering power of more than 100,000 times that of the human eye, and estimated to be able to photograph faint galaxies fifty million light years distant."

The result of Professor Perkins' dream has thrived in the hands of dedicated staff and volunteers since it inception. Past directors include Drs. Crump, Stetson, Bobrovnikoff, Keller, Keenan, Slettebak, and Capriotti. Among the more well known astronomers to carry out research at Perkins, were Drs. Willem De Sitter, Jan H. Oort, and E. C. Slipher.

From its beginnings, Perkins Observatory has set marks in adaptability in technology, as well as in its administration. A telescope that started at 60 inches grew very quickly to 69 inches. It was realized shortly after the casting of the mirror at the National Bureau of Standards that the quality and size of the casting would make possible a mirror larger than the 61 inch originally planned. Thanks to the loan of a 60 inch mirror from the Harvard College Observatory, the Perkins telescope was first put into

use in January 1925. The figuring of the 69 inch mirror was begun in August, 1929, and proceeded without interruption until passing the tests of experts on November 10-15, 1931.

The tradition of adaptation and improvement led in 1961 to the relocation of the Perkins reflector to a superior observing site near Flagstaff, Arizona. This was made possible through an agreement with the Lowell Observatory. G. Keller and P. C. Keenan of the Perkins Observatory, and J. Hall and G. Putnam of the Lowell Observatory worked to make the agreement a reality.

During the Directorship of A. Slettebak, upgrading of the telescope itself culminated in its being equipped with a new 72 inch mirror of low expansion glass; and an airbag support system, the better to guarantee the mirror figure. The 69 inch mirror has not been completely retired, for it stands today as a fascinating optical display in the halls of the Center of Science and Industry (COSI), in downtown Columbus.

Telescope instrumentation has been kept at the cutting edge of astronomical research through the development efforts at the Lowell and Perkins Observatories. The telescope drive and setting mechanisms have been completely modernized.

Professor Perkins' vision included not only first class equipment, but also an inspirational setting for the pursuit of research and education in astronomy. Visitors to the observatory are impressed by the worldwide and historical scope of Perkins' vision, when they behold the names of seventeen greats engraved in gold upon the building's green marble frieze. They range from the Greek Eratosthenes, whose early measurement of the globe is well known; to Barnard, a 19th century American and sharp-eyed sweeper of the Milky Way. Another impressive aspect of the building's design, is the concave sculpture above the main entrance to the observatory. The sculpture represents the watering of the four horses of the sun. The work is a copy of the original by Robert le Lorain, executed in 1738. The original was commissioned by Cardinal Rohan, who had earlier been Bishop of Strasbourg. He brought the sculptor to Paris to help decorate the Chateau Rohan. The frieze was over the entrance to the original stables. Chateau Rohan is now Hotel Rohan, which is part of the complex of buildings of the French National Archives. The original was executed on a flat wall. The unknown artist who made the copy over our entrance was obliged to adapt the design to concave space, which he did very well. The building itself was constructed under the supervision of the architectural firm of Talmadge and Watson, of Chicago, IL.

In 1931, Ohio Wesleyan University and Ohio State University entered into an agreement, at the instigation of N. T. Bobrovnikoff, under which the observatory facilities became available also to the larger institution, which took on the operating expenses.

An integral part of Professor Perkins' dream, was to make the observatory available to members of the general public interested in astronomy. As Professor Perkins himself stated, he wished "the facilities be open at stated intervals for the educational benefit of the public." From the start, Perkins Observatory has offered monthly public programs. Monthly public programs are currently sponsored by Ohio State and Ohio Wesleyan; and the Columbus Astronomical Society has offered public programs since 1988.

The wish of Hiram Perkins to provide a suitable telescope for public education and research has been sustained at the observatory through the gifts from M. Schottland to Ohio Wesleyan, of his 32 inch reflecting telescope, 16 inch and 8 inch Schmidt telescopes, and a 4 inch Ross camera. The Schottland 32 inch reflector is housed in the main dome, and is one of the largest telescopes in use in Ohio. The larger Schmidt is in use at Flagstaff. A 14 inch telescope was recently donated to Ohio Wesleyan, which is now housed in a smaller observatory building on site. Instrumentation at Perkins Observatory includes a photoelectric photometer, as well as a low dispersion spectrograph. Both these instruments are currently being used in research programs utilizing the 32 inch telescope.

With the encouragement of G. Keller, then Director of Perkins, J. Kraus undertook in the early 1960's the construction of the "Big Ear" radio telescope, on a site east of the Perkins dome. The telescope attained a size, in its standing parabola, of 360 feet wide by 70 feet tall. Modernization of this telescope has been underway for some time, and it will be returned to full use in the very near future. Like the Perkins Observatory, "Big Ear" continues to be an important and interesting place to visit for teachers, students, and the general public. Volunteers are very active at both facilities. Tours of both observatories are offered, and are scheduled for times and dates convenient to all.

In March 1931, Perkins Observatory began publishing a quarterly review, called *The Telescope*. The first paragraph of Series 1, Number 1 reads; "With the publication of this number of *The Telescope*, there is inaugurated the first of a series of Quarterly Reviews of the work in progress at the Perkins Observatory." The observatory continued publishing this review until it became part of the now familiar *Sky & Telescope* magazine, now widely read by amateur and professional astronomers alike.

For more information on tours, or for more information regarding Perkins Observatory or "Big Ear", write to: Perkins Observatory, P.O. Box 449, Delaware, OH 43015; or call (614) 363-1257. The secretary's hours are: Monday & Friday 9 a.m. to noon; Tuesday, Wednesday, and Thursday noon to 4 p.m. If no answer, call Earl Phillips @ (614) 764-0476.

References:

OSU Professors Emeritus:
Dr. Walter E. Mitchell, Jr., Dr. Philip C. Keenan
The Telescope quarterly review; March 1931—Winter 1932.
Scientific American magazine; October 1930.

REFLECTIONS OF A DEEP SKY OBSERVER

by Richard W. Jakiel

I've been scanning the skies for nearly 20 years seeing several thousand objects through a variety of telescopes. I am still overwhelmed by the sheer number and diversity of objects visible in even modest equipment. A good eight or ten inch telescope can see nearly 2000 objects from an excellent dark site. The potential of a large amateur telescope, like the club's 20 inch, is nearly beyond belief. I have estimated that 40,000-50,000 galaxies, clusters and nebulae are within reach.

I have noticed a disturbing trend even among the more seasoned observers. Whether down at the Florida Keys for the Winter Star Party, or at our own local gatherings, most observers have a set of favorite objects they always return to. There are perhaps 2-3 dozen of these objects which preempt any other objects! It is like a mind lock, a limited self-paralysis in which we become obsessed on these few showpieces. I know a former club member who spent all his time memorizing the positions of a few dozen bright objects (he hated star charts). He was fixated on these few objects and would not look for new ones. I have heard that he has moved up to a 16 inch telescope and I wonder if he is still the same. I think old Herschel's Ghost would *slap* him on the side of the head with a set of Uranometria 2000!

This common type of observer mind set often occurs after completion of a Messier certificate (or even before), when the observer makes this strange judgment that he has seen all the best objects of the sky. David Riddle has named this condition SOTS (Same Old Tried Stuff). Good examples of SOTS are M-42, M-1, M-35, the Horsehead Nebula, and NGC 2158. W.S. Houston has written stories about his famous comet discovery. These are wonderful objects to explore with a telescope, but how many of you *really* look at these objects, not just glance at them.

For example, can you see the delicate shades of red, purple and blue in M-42, or how the faint nebulous wisps actually wrap back around to form a nearly spherical structure? How many of you have seen the *other* stars of the Trapezium? There are literally hundreds of interesting and/or beautiful objects that Messier never did see, but rival anything in his catalog. A large telescope like the 20 inch reveals marvelous detail in many large spiral galaxies, plus many lesser known planetary nebulae and clusters.

How does one get rid of SOTS? First make a list of interesting objects you may want to see. More time is wasted at the telescope deciding what to look at next. Roam through observing books and magazine articles [*March 1992* Sky & Telescope — *Ed.*] for objects you might want to find. Then, after having found each object, spend at least ten minutes examining that object before moving on to the next one. You may even be compelled to try to draw the object. Drawing isn't that hard to do, but it does take practice. It will help you develop an eye for fine detail and you'll have a permanent record. You should also record your observations in a notebook. Jot down the telescope size, magnification and filters used. This is a good habit to learn and is good practice for Messier and Herschel Club documentation.

Here are several spring sky objects which are not on the most observed object list. Many bright galaxies are overlooked by observers, such as NGC 2903 in northern Leo. It is about 9th magnitude and measures 13' x 6'. It is larger and brighter than most galaxies which are Messier objects. The spiral structure is challenging, but visible with the 20 inch telescope. Nearby and more fainter is the NGC 3190 group. Located in the sickle of Leo, this is a nice edge-on, with a low contrast dust lane visible in medium size telescopes. NGC 3193 is nearly as bright with a bright stellar core. NGC 3185 and 3187 are smaller and dimmer and are difficult to see with an eight

inch telescope. Other bright galaxies are NGC 2403, 2997, 3115 and the bright satellite galaxies of the M-81/82 group.

Open and globular clusters are in scarce supply until spring. The globular cluster NGC 2419 in Lynx is one of the most distant known. It appears as a small 4' smudge of 10th magnitude. Even with the 20 inch telescope at 315x, I could not resolve the faint swarm of stars that comprise this cluster. But the challenge of finding this object and the knowledge of its significance more than makes up for this less than spectacular view.

Planetary nebula are the most underrepresented group in Messier's catalog. Only four are listed, while over 1000 are known in our galaxy alone. NGC 3132 is a southern version of M-57, the Ring nebula. It is about the same size and magnitude as the Ring, but the central star is much brighter at 10th magnitude. Since it's declination is -40°, one needs a low southern horizon. Farther north is NGC 3242, also known as the Ghost of Jupiter (Hydra). It has the same size and shape as Jupiter and shines with a greenish-blue glow. At 8th magnitude, it is easy to see in most telescopes. The central star is magnitude 12, but the bright nebulosity makes it hard to see. A tougher object is PK 164 +31.1, also called Jones 1. This is a dim giant of 7' x 6' and 12th magnitude. A 12 inch telescope and a good nebular filter are needed to see this faint object. It looks like a faint, ghostly ring of impressive size using the 20 inch telescope. It's two dim knots round off this very difficult nebula.

These are but a small sample of objects designed to beat the SOTS syndrome, but there are many others waiting to be viewed by you and your telescope.

TOTAL OCCULTATION HIGHLIGHTS FOR 1992

by Mike Kazmierczak

We are already into March and you have yet to hear about total occultations of bright stars for 1992. My machine readable total predictions were only obtained late in February, and I was too lazy to type in all the events that occur. I talked about grazes last month, and totals are just a less special version of a graze. One merely sets up the telescope and waits for the total to occur. Travel to exotic regions of Georgia is not a prerequisite. Listed below are all totals rated a 9, which is the highest rating for observability. These events can all be seen with a 2.4 inch refractor or other similar telescope.

The column headings are described for your information. The date and time are just that, but in Universal Time. Remember to subtract 5 hours for Standard Time and 4 hours for Daylight Time. This can shift some of these events to the previous date. P is for phenomenon; D for disappearance and R for reappearance. CAT# is the Zodiacal Catalog number of the star. MAG is the star's magnitude and %SN is the percent of the moon which is illuminated. MN and SN are the altitude of the moon and sun, respectively. If the SN is blank, then the altitude is lower than -12°. CA is the cusp angle, measured in degrees from the north (N) or south (S) cusp.

DATE	TIME	P	CAT#	MAG	%SN	MN	SN	CA
MAR	26/07:48	R	2706	5.8	48-	8		88N
MAR	27/08:35	R	2851	6.0	38-	9		44S
APR	9/02:47	D	0929	5.8	35+	34		83S
APR	9/03:58	D	0942	5.7	36+	20		75S
APR	9/05:23	D	0946	3.2	36+	4		6S
APR	21/05:59	R	2500	3.2	82-	18		48S
MAY	7/01:13	D	1047	5.2	22+	39	-10	30N
MAY	7/01:30	R	1047	5.2	22+	35		-2N
JUN	6/02:50	D	1410	5.3	30+	22		40N
JUN	28/09:14	R	0664	5.4	6-	8		59S
JUL	4/01:52	D	1482	6.3	18+	16	-12	44S
JUL	20/07:38	R	3501	4.8	75-	50		67S
JUL	23/08:12	R	0317	6.4	46-	41		40N
AUG	22/07:11	R	0693	6.0	40-	25		50N
AUG	23/09:40	R	0859	6.5	29-	43		84S
AUG	23/10:15	R	0865	6.0	29-	50	-10	52S
AUG	25/10:06	R	1175	5.0	10-	22		63S
SEP	18/10:33	R	0660	4.3	65-	78	-11	26S
SEP	20/05:42	R	0946	3.2	45-	10		42N
SEP	20/08:40	D	0976	2.8	44-	45		-43N
SEP	20/09:32	R	0976	2.8	44-	56		43N
OCT	4/01:47	D	2797	3.0	55+	29		29N
OCT	19/07:51	R	1207	5.8	48-	36		89N
OCT	27/14:11	R	4001	0.0	4+	4	25	-70S
NOV	30/01:10	D	3070	6.6	29+	25		76N
DEC	1/00:32	D	3185	5.3	38+	40		66S
DEC	30/01:31	D	3371	6.4	30+	29		16S
DEC	30/01:45	R	3371	6.4	30+	26		-5S

There are quite a few occultations of bright stars this year. ZC 4001 is the planet Mercury occulted in the morning at a low alti-

tude. The planet should be easier to see than the moon! If you have any questions about observing these events from your backyard, or from Villa Rica, give myself or Bill Snell a call, and we can assist you in enjoying this fine astronomical show.

Observing Sessions at Villa Rica

Future observing sessions have been scheduled for the following dates:

March 27 and 28, 1992
May 1 and 2, 1992

It is strongly recommended that you call Bill Snell at least one week prior to any observing session to let him know you are going to attend. You can still come to the observatory if you do not call but he will not be able to inform you of changes due to weather. Also, he will have some idea how many people to expect and hopes to plan better sessions as a result.

If none of the sessions listed above are convenient because of work, school or baby-sitting problems, please let him know and he will try to work around your schedule, if possible.

Nova Cygni 1992

For those who have not yet heard, a nova was discovered in mid February in the constellation of Cygnus. Its peak magnitude was about 4.0 several days after being discovered at magnitude 6.7. Its Epoch 2000 coordinates are:

R.A . $20^h\ 30.5^m$ Dec. $+52^\circ 27.9'$

or approximately 8° north of Deneb. The magnitude of the nova as this issue goes to press is about 6.0, so go out some clear morning and look for this fading star.

Welcome New Members

We would like to welcome Tut Campbell from Smyrna as a new member of the AAC. Make him feel welcome when you see him at club functions.

AAC Notes

Congratulations go to David Coffey, who won a *Astronomical Calendar 1992* by Guy Ottewell during the February door prize drawing. Remember, we want you at the meetings, and hope the door prizes give a little extra encouragement. This is your club. If you've been missing meetings, you've been missing out on some good programs and great fellowship (and now door prizes!) We hope to see you soon!

On the rare event when it is clear on meeting nights, the Bradley Observatory telescope will be made available after the meeting to interested parties.

Recent Observations

One of the projects I have is searching for asteroids. I enjoy trying to see them when their paths are drawn in *Sky & Telescope*. I have elements for all 4800+ asteroids and a program which can

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Submissions: Article submissions are welcome and encouraged. Please deliver to the editor for consideration. Electronic submissions are preferred and accepted at `mike@beow.uucp`. The submission deadline for the next issue is *March 31.*

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calculate the ephemeris from the orbital elements. I recently noticed that asteroid 2060 Chiron was just past opposition. It is at about 9.5 magnitude in the constellation of Hydra. So I got out the telescope to look for it on February 29th. Unfortunately I don't have an atlas which shows lots of stars past 9th magnitude, so I settled for photography. Like the old days, I would take photographs on several nights and look for the moving star. Why didn't I just use the position I calculated? The orbital elements change with time, so my calculated position is probably only accurate to 1 arc minute. I wouldn't know if I was looking in the right place unless I drew a lot of stars each night and looked for a wanderer. I strapped my 500 f/8 telephoto lens (bought for the solar eclipse) and camera to the telescope for some guided photos. I don't have any fancy guiding equipment, so I had to find another way to guide the telescope. I place the viewing field so that there is a star at the northern and eastern edge of the field. If the stars disappear or move away from the edge, I make the appropriate adjustment to the slow motion controls. My exposures were for 1 minute and 5 minutes each. I calculated that the limiting magnitudes were 10th and 11th magnitude, respectively, for those exposures, my lens and ISO 64 film in the camera. While I had the camera out, I photographed M67 and M44 as well. On March 7th I looked for Chiron, and found Vesta, several new galaxies, and the Ghost of Jupiter to break my own SOTS. I'll let you know how the photos turn out when they get developed, and whether or not I 'discovered' an asteroid! — *Mike Kazmierczak*

For Sale

17.5" Coulter Odyssey telescope, used very little, ~10 years old —$950.

Kencor Model 7700 Astronomical Camera Drive with drive corrector (cost $600 new), used twice in Peru to photograph Comet Halley — $275

19" mirror blank, clear glass flint, 2 3/4" thick — $300

Optec SSP-3 photometer w/ wooden carrying case. B-V filters included, never used — $750

Offered by Tut Campbell 432-4990.

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