UPCOMING EVENTS

3-26  Monday: New Moon
3-30  Friday: Venus at Greatest Elongation, Morning sky
3-31  Saturday: Groundbreaking ceremony for Twining Observatory, 1:30 p.m.
4-1   Sunday: Daylight Saving Time begins
4-10  Tuesday: Full Moon
4-13  Friday: Mercury at Greatest Elongation, Evening sky
4-14  Saturday: Monthly meeting of the Society, 7:30 p.m., at Regener Hall on the UNM Campus
4-19  Thursday: Society Board of Directors Meeting, 7:00 p.m.
4-21  Saturday: Construction begins at Twining Observatory site
        Lyrid Meteor Shower
4-22  Sunday: Construction at Twining Observatory site
4-25  Wednesday: New Moon
4-28  Saturday: Construction party at Twining Observatory site
4-29  Sunday: Construction at Twining Observatory site
5-5   Saturday: Eta Aquarid Meteor Shower
5-9   Wednesday: Full Moon
5-12  Saturday: Monthly meeting of the Society

GROUNDBREAKING FOR THE GENERAL NATHAN TWINING OBSERVATORY

That's right—We're starting! The building permit has arrived, so we have a green light to start putting up our observatory building. Our groundbreaking ceremony will be Saturday, March 31, at 1:30 p.m. Every member and friend of this Society is invited to come and be a part of this exciting event. Breaking ground for this building is a moment we've awaited for a long time, so we want to make this a true celebration. Come early and bring a picnic lunch. Bring a telescope, stay late, and test the night sky at this site. Come out and show your support for this project that means so much to our Society.

We've also scheduled the initial phases of work on the building, and will need help on two weekends in April. On the 21st and 22nd of April and the 28th and 29th, we'll be digging, laying rebar, and pouring concrete for the foundations. We need people to help with this work. The more people we have, the easier this work will be. Please mark your calendar and come on down to help out. Don't worry if you know little or nothing about construction—most of us are in that category. We have a consulting contractor and several other knowledgeable people who will be guiding us through this project. By simply showing up and being available to help, you'll be contributing to the successful completion of the building.

Many of you have volunteered to help with construction, and we'll be calling on those of you with specialized skills when we need your expertise. There are, though, some points in the timetable when we simply need people, and lots of them, to finish a particular part of the work. April 21 and 22 are two of those days—we need to finish preparations for pouring the foundations on that weekend. So please come on down and help us out.

Dave Finley, President
THE APRIL MEETING

Our April meeting will feature a lecture by a New Mexico researcher who has lived a tumultuous experience in the limelight of international astronomy for the last year and a half. Our speaker is Dr. John Middleditch, of Los Alamos National Laboratory, whose topic is *The Optical and Near-Infrared Pursuit of Pulsar 1987A*.

Dr. Middleditch and his colleagues, observing at Cerro Tololo observatory in South America, announced early last year that they had discovered a pulsar in the heart of the explosive debris of Supernova 1987A. A pulsar, a spinning beacon of electromagnetic energy generated by the intense magnetic field of a neutron star, is exactly the kind of object scientists expect to find left after a supernova explosion. However, the rotation rate of the pulsar they said they found was extremely fast, and theoretical astrophysicists began debating how this object could have been created. When other observers were unable to confirm the discovery, Middleditch and his fellow observers had to defend their techniques of observation and of analyzing their data. They did so to the satisfaction of most astronomers, and appeared in the pages of a number of prestigious professional publications, including *Physics Today* and *Computers in Physics*.

It thus came as a considerable surprise when, in February of this year, Dr. Middleditch announced at the annual conference of the American Association for the Advancement of Science that his team had traced their “pulsar signal” to stray electromagnetic interference from a television monitor at the Cerro Tololo observatory. Luck had prevented them from discovering the interference at the time of the original observations, then, a year later, luck had intervened to reveal the interference. Undaunted, though, Dr. Middleditch and his colleagues continue to seek the pulsar they are sure is there. This tale of pursuit—including success, failure, and continued pursuit—will be the focus of his presentation to our Society. This should be a fascinating and lively talk by a researcher with quite a tale to tell.

The meeting will be on Saturday, April 14, at 7:30 p.m., in Regener Hall on the UNM campus.

Dave Finley, President

THE MARCH MEETING

Members and guests attending the March meeting of the Albuquerque Astronomical Society were given an overview of comets and comet photography. The comet fever began with Dave Finley’s slide presentation and talk on comet characteristics, ancient civilizations’ interpretations of comets, early discoveries, and comet information gained from new technologies. George Dulleck continued with some basics and examples of astrophotography, with and without camera guiding. Several photographs were on display showing that comets create brilliant and extraordinary photos, encouraging even the beginner. This informative presentation inspired us all to go out early in the morning to observe and perhaps photograph Comet Austin in April and May.

SUMMARY OF THE MARCH 15, 1990 BOARD MEETING

President Dave Finley called the meeting to order at 7:07 p.m. and announced the corporate donation made to the Observatory Fund by Honeywell Corporation. Treasurer Leo Wellner reported that the Observatory and General Funds have balances of $5979.55 and $1258.33 respectively. The secretary and event coordinator reports were given. Art Jacobs talked about the public observing session for Comet Austin. *Astronomy Day* Coordinator Bill Airo confirmed the observing site for *Astronomy Day*.

The major portion of the board meeting dealt with planning and scheduling construction of the General Nathan Twinning Observatory. Construction consultant Richard Clayson discussed the different stages of construction and the types of work that needs to be done. Plans are being made for a groundbreaking ceremony and construction dates.

Additional construction related issues and newsletter items were discussed and then the meeting was adjourned at 8:50 p.m.
ASTRONOMY BOOK REVIEW

First Light
Richard Preston
Atlantic Monthly Press 1987
Available from the Albuquerque Public Library

Preston has written for The New Yorker magazine, Washington Post, and other publications, but this is his first book. It reminded me of my delight and enthusiasm when I read my first book by John McPhee. Preston is that kind of writer. He has the ability to make fascinating the most far out (sorry for the pun) material.

First Light is an in-depth study of the machinery and the people who use it on Mount Palomar. Most of the chapters are concerned with the 200 inch Hale Telescope and how it has been updated to keep on the leading edge of modern astronomy despite being over forty years old. The partisans of the Hale 200-inch refer to it as the world’s largest working telescope. The Soviets have a larger scope, but the images from it were not yet sharp when the book was written.

The other major focus is on an eighteen inch Schmidt telescope. Insiders call this one the Little Eye and the two hundred inch Hale telescope the Big Eye. Preston tells us a great deal about the Shoemakers who use time on this telescope to track comets, asteroids, and other “stuff” of the solar system which might crash into Earth. Carolyn Shoemaker had discovered 6 comets—she was aiming to find 13—more than anyone up to that time.

Preston gives the credit for the Hale’s current capacities to Cal Tech’s approach to science known as gadgeteering. This is essentially to build whatever you need to do your science out of things at hand if your machines can’t do what needs to be done. There is even a group at the school called “the wastebasket” who collect and save everything others would cast aside. Their “basket” is open to anyone who needs what they have rescued. Jim Gunn uses it often. As there are many more characters in this story of how modern astronomy operates, there are also other telescopes on Palomar. However, this is not the book to sort them out for you. It doesn’t even have an index. It does have a long list of people hardly mentioned in the 263 pages who also work on the mountain and who helped Preston understand their world. First Light gives us sharp, vital chapters on the lives and ambitions of such astronomers as Maarten Schmidt, the Principal Investigator at Palomar at the book’s writing; James Gunn, a quintessential astronomer, gadgeteer, and theoretical cosmologist; Donald Schneider, who produced the huge software program that helped discover quasars; plus many others of the numbers of professionals who toil at this center of observational astronomy.

“The world of astronomy holds 3 types of people: observers comfortable with telescopes; theorists comfortable with pencil and paper; and instrument builders comfortable with wires.” The above mentioned James Gunn is all three.

Preston uses great detail to give the reader a sense of the excitement and the boredom, the discoveries and the mistakes, and the honesty of science as it ought to be. One example of this is the day in 1963 when Maarten Schmidt and Jesse Greenstein discovered the redshift that, when it was analyzed, opened up the known volume of the universe over fifty times.

Schmidt had the humility to recognize what he was seeing as being a redshift. Greenstein had dismissed it as impossible. Greenstein had even just sent off an article on this topic for The Astrophysical Journal a “fascinating paper”, as he later said, “but it was wrong.” He had to call the Journal and tell them not to print it.

When Schmidt finally went home that night he told his wife, “Something terrible happened at the office today.” He wondered if he was overlooking some ordinary explanation for a phenomena of a redshift that would place a “bright star” over 2 billion light-years away, among galaxies at the previous limit of the Hale’s imaging power. He asked himself as he paced the living room, “Are you making a mountain out of an ant heap?” (His native language is Dutch). “He realized that night that many more of these things would be discovered. The next 25 years of his life stood in front of him (he was 33), as a straight road pointing into lookback time, and space opened before him into a gulf that sparkled with remote fires.”
He wrote a paper of 2 pages for Nature magazine “that marked the turning point in the history of astronomy; a prologue to 2 decades that would reveal pulsars, accretion disks, black holes, gamma-ray bursters, radio jets, and gravitational lenses.” A turning point to a time in which “science developed a baroque, inevitable logic of the moment of creation.” Today this part of the science is called observational cosmology.

Looking back at it, Jesse Greenstein said, “We had broken through a bubble in which we had been trapped. That is a deep feeling for a scientist. When you are working within a field and a discovery like this happens, the feeling is absolutely incommunicable; it’s organic.” Jesse was the one who then spent a good deal more money than he could afford, amassing a collection of Japanese Zen paintings. He considered his paintings not exactly a consolation for having let the redshift of the quasars slip through his grasp, but rather a lesson. His paintings are of Zen koans. One is “How does the old poet catch the geese? He has already caught them.”

Jaclyn Fuller Lane

OCCULTATION UPDATE

Note: The format for this update has been changed. The key to this new format and a discussion of what this is all about has been provided in a double-sided page in your Membership Packet—to avoid excessive repetition in this newsletter.

Correction: The page provided in March for your Membership Packet entitled “Explanation of Occultation Update Tables,” in paragraph 1, the line beginning: “A,B, and C” should read after the word “equation:” the expression: “Correction in minutes of time = A(D-106.4932),” etc. On the same page, the table headings underneath “Heading of Total Occultations Tables”, should be replaced by the headings below. Please cut on the dotted lines below and paste on top of the table headings on the appropriate page provided in the March, 1990 newsletter:

<table>
<thead>
<tr>
<th>Day/Date Time</th>
<th>P USNO O MAX PCT SN MN MN CA A B C</th>
</tr>
</thead>
<tbody>
<tr>
<td>H M S REF NO V MAG SMT AL AL AZ</td>
<td></td>
</tr>
</tbody>
</table>

1. Selected Total Lunar Occultations. (There are others at less convenient times. Call me if you wish.)

a. Your Own Observation Site

March —Mountain Standard Time

WED/28 19 52 29 D X03210 85 8.8 7+ 13 284 268 0.4 -2.6 0.5

April—Mountain Daylight Time

SUN/15 01 54 54 R 2512 95 7.4 77- 14 139 22N 0.6 -2.3 -2.8
THU/19 05 48 27 D 3079 75 4.2 38- -9 26 139-34W -1.3 2.0 1.2 \nTHU/19 06 46 14 R 3079 77 4.2 38- 3 33 153 54N -2.8 0.1 -1.2 \nTHU/26 21 03 05 D X05277 76 8.5 6+ 12 293 48S 0.3 -1.5 0.5
FRI/27 20 39 30 D X06551 77 8.0 12+ -10 29 288 -58 3.2 -0.4 -1.9
FRI/27 21 54 20 D 0780 58 6.8 13+ 15 292 76W 0.1 1.2 0.6
FRI/27 22 45 19 R 0780 51 6.8 13+ 6 297 99N 0.3 -0.9 0.7 \ PREDICTION IS FOR CENTER OF MARS !!!
b. Gran Quivira

April—MDT

FRI/27 21 55 16 D 0780 58 6.8 13+ 14 293 68S
FRI/27 22 45 56 R 0780 51 6.8 13+ 5 299-81N

c. Selected Lunar Occultations of the Pleiades

April—MDT

MON/16 05 27 03 R 2667 94 8.5 68- 27 173 19S -2.0 3.1 3.0
THU/19 04 51 23 R L24257 86 8.6 38- 18 128 34N -1.3 -0.4 -2.5
THU/19 05 48 27 D 3079 75 4.2 38- -9 26 139-34N -1.3 2.8 1.2
THU/19 06 46 14 R 3079 77 4.2 38- 3 33 151-54N -2.8 0.1 -1.2
THU/19 06 35 47 D 3086 81 6.0 37- 1 32 150-44N -2.8 -0.1 -1.6
THU/26 12 12 23 D P00067 83 4.2 4+ 66 50 100-88N -1.2 1.6 -0.4
THU/26 13 25 52 R P00067 83 4.2 4+ 68 72 122-84N -1.8 1.1 -0.2
THU/26 12 28 05 D P00110 84 3.8 4+ 67 61 103-62N -1.8 0.5 -0.6
THU/26 13 35 04 R P00110 84 3.8 4+ 67 73 127-66N -1.3 2.2 0.0

2. Selected Grazing Occultations

<table>
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<th>Day/Date</th>
<th>MST</th>
<th>Nearest Town</th>
<th>SAO #</th>
<th>Mag</th>
<th>Alt - Az</th>
<th>PM/AM</th>
<th>Cusp</th>
<th>Rating</th>
<th>Leader</th>
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<tr>
<td>MON0402 0114</td>
<td>LAS CRUCES</td>
<td>78482</td>
<td>3.2</td>
<td>13.1</td>
<td>292 40+</td>
<td>-1.38</td>
<td>FAVORABLE MORGAN</td>
<td></td>
<td></td>
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<tr>
<td>THU0405 0910</td>
<td>MORRIO MATERIAL</td>
<td>95874</td>
<td>7.1</td>
<td>50.2</td>
<td>248 78+</td>
<td>198</td>
<td>MARGINAL MORGAN</td>
<td></td>
<td></td>
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<tr>
<td>THU0426 1222</td>
<td>ALBUQUERQUE</td>
<td>76131</td>
<td>3.8</td>
<td>59.7</td>
<td>103 4+</td>
<td>-1.58</td>
<td>FAVORABLE MORGAN !BE CAREFUL!! SIX DEG. FROM SUN!!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Occultations By Asteroids  (We have more information on these. If you are interested in trying either of these, call me.)

WED0404 at 5 hrs. 3.8 minutes MILDAS occults 9.3 Mag. star No. SAO 138514
FRI0420 " 21 " 24.1 " " KLOTHO " 7.6 " " SAO 99210

Mac Morgan 296-3983

HELP WANTED!

Astronomy Day is scheduled for June 30, 1990. Events will be held at the New Mexico Museum of Natural History.

We need people, telescopes, solar scopes, computers, astronomical software, video equipment, astronomical videos, exhibits, demonstrations, astrophotographs, and ideas. Please contact me if you can assist in any way.

Bill Airo, 292-2745.
Many bright and attractive multiple stars populate Hydra. Struve 1260 (2000.0 Coordinates: R.A. 8h. 40.7', Dec. -12° 11') is easily located NE of 6 Hydrae. This pair of mag. 8.3 and mag. 8.8 stars is separated by a comfortable 5.1" in position angle 301°. The double star 17 Hydrae (8h. 55.5', 7° 56') lies approximately eight degrees west and one-half degree north of Alphard. The two bright components of this star (mag. 6.8 and mag. 7.0, respectively; spectral type A3) are separated by 4.1" and are aligned nearly N-S (position angle 21°). Struve 1348 (9h. 24.5', +6° 21') and Struve 1355 (9h. 27.3', +6° 14') are two very similar doubles that reside near the celestial border with Leo, approximately ten degrees east of Epsilon Hya. Struve 1348 consists of two evenly matched components (mag. 7.5 and 7.6, respectively; spectral type F5) separated by 1.9" and aligned in position angle 317°. Struve 1355 is slightly easier to split; this pair of mag. 7.5 F5 stars is separated by 2.5" (position angle 345°). Other interesting multiple stars in western Hydra are Struve 1370 (8h. 45.3', -2° 36'), 27 Hydrae (9h. 20.3', -9° 33'), Struve 1384 (9h. 31.5', +1° 28') and Struve 1474 (10h. 47.6', -15° 16'). While exploring in the vicinity of Struve 1474, you may want to check up on the semiregular, very red (spectral type N2) variable U Hydrae (10h. 37.6', -13° 23'). *Burnham's Celestial Handbook: Vol. 2* lists the magnitude range of U Hydrae as 4.7 to 6.2. It is definitely one of the brightest red stars in the sky.

M48 (NGC 2548) and NGC 3242 are the showpiece deep sky objects in the forepart of Hydra. With an angular diameter of 54' and a total apparent V magnitude of 5.8, M48 (8h. 13.8', +5° 48') is a large and bright open cluster. This cluster has an interesting history as one of the "lost" Messier objects. No bright object exists at the position that Messier gave for M48; however, this position is 4° north of NGC 2548 and, from Messier's description of the object, there seems to be little doubt that NGC 2548 and M48 are one and the same. Hence, the confusion appears to have resulted from a single declination error. M48 is a very nice cluster for small telescopes. Look for a serpentine chain of mag. 10 and 11 stars (Baby Hydra?) near the center of the object. NGC 3242 (10h. 24.8', -18° 38') is an impressive (mag. 7.8) planetary nebula with an angular diameter similar to that of the disk of Jupiter. NGC 3242 is, in fact, popularly known as the "Ghost of Jupiter." This object is conveniently located just south of Mu Hydrae. High-surface brightness planetary nebulae are a blessing to the amateur limited by aperture and/or less than ideal sky conditions. NGC 3242 can shine through substantial light pollution and exhibits strong color even in small telescopes. But color perception depends on the observer. Do you see the "Ghost of Jupiter" as green or blue? A much fainter planetary nebula, NGC 2610 (8h. 33.4', -16° 09'), resides in the southwestern corner of Hydra. This object has a very attractive setting—just inside a pretty equilateral triangle of bright stars.

For the most part, the galaxies in western Hydra are faint objects. NGC 2642 (8h. 40.7', -4° 07'), NGC 2713 (8h. 57.3', +2° 55'), NGC 2811 (9h. 16.2', -16° 19'), NGC 2848 (9h. 20.2', -16° 32'), NGC 3091 (10h. 00.2', -19° 38') and NGC 3200 (10h. 18.6', -17° 59') are all visible in moderate to large apertures. If you get tired of looking at dim "fuzzies," bright NGC 3115 (10h. 05.2', -7° 43', mag. 9.1) lies just "over the border" in Sextans.
May 1990 Lunar Almanac

Albuquerque, NM
Time Zone: MDT
Latitude: 35.08
Longitude: 106.65

Moon phase is shown each day at 12:00 noon in the time zone indicated.

Calendar by Ray Stermer
Johns Hopkins Applied Physics Lab
Laurel, MD 20707

May 1990 Solar Almanac

Albuquerque, NM
Time Zone: MDT
Latitude: 35.08
Longitude: 106.65

Calendar by Ray Stermer
Johns Hopkins Applied Physics Lab
Laurel, MD 20707
DUES: Please note the expiration date on your mailing label. If you are due for membership renewal, you may send your dues by mail to our newsletter return address and your check written out to The Albuquerque Astronomical Society or give your check to the Treasurer at the next meeting. Please include the membership application that is sent with your newsletter when it is time to renew. Discount subscriptions to Sky and Telescope, Astronomy, Odyssey, Deep Sky, Telescope Making and The Observer's Guide magazines, and books through Sky Publishing Corporation are available at a reduced cost when purchased by The Albuquerque Astronomical Society members through our Society. Include any of the above magazine renewal mailers and subscription payment as part of your renewal check. Membership dues are $13.00 per year and $3.00 per additional family member. Membership Packets cost $1.75 each for new members or renewing members without the Packet. Contact the Treasurer for more information.

SOCIETY COMPUTER BULLETIN BOARD SERVICE: An Astronomy BBS is available for The Albuquerque Astronomical Society members for discussion, announcements, and transfer of files and newsletter articles. The BBS is available 24 hours a day at 255-3623. Set your computer's modem to B 8 N 1 (8 data bits, no parity, 1 stop bit). Contact the Software Coordinator for more information.

NEWSLETTER ARTICLES: Personal astronomical classified advertisements and articles can be submitted within 5 days after the latest Society meeting in order to make it into the next newsletter. Business card size advertisements for businesses related to astronomy are accepted with the same deadline as articles and personal classified advertisements. Rates for business card size ads are $10/ad per issue of the Sidereal Times, $7/ad per issue for six continuous issues, and $5/ad per issue for twelve continuous issues. The Newsletter Editor reserves the right to include or edit any article or personal classified or business card size advertisement. Computer files in ASCII format (WordStar non-document mode) are preferred. Contact the Newsletter Editor for more information.

CHANGE OF ADDRESS: Note that the Sidereal Times is mailed out at non-profit bulk rate. The newsletter will not be forwarded to your new address if you move! Please provide the Secretary with your new mailing address to insure that you receive your newsletter.

Albuquerque
Astronomical
Society

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Albuquerque, NM 87153
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