

# SOUTHERN SKIES

Volume 8 Number 2 Spring 1988



## Table of Contents

A Message From Your President.....	1
Editor's Message.....	2
1988 IPS/SEPA Conference Announcement.....	2
Astronomers Migrate South.....	3
1988 SEPA Attendees.....	4
Featured Planetarium.....	8
Small Talk.....	9
Young Astronauts.....	11
Basking in the Moon's Shadow.....	12
Planetariums in South East Asia.....	14
Doctor Strange's SEPA Circuit Clinic.....	16
Calendar.....	17
Announcements.....	17
Positions Available.....	18
SEPA News.....	19
Domesbury.....	19

*Journal of the Southeastern Planetarium Association*

**PRESIDENT**

Jon Bell  
Peninsula Planetarium  
524 J. Clyde Morris Drive  
Newport News, VA 23601

**PAST PRESIDENT**

John Hare  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

**SECRETARY-TREASURER**

Sue Griswold  
Kelly Planetarium  
1658 Sterling Road  
Charlotte, NC 28209

**PRESIDENT-ELECT**

Dave Hostetter  
Lafayette Natural History Museum  
637 Girard Park Drive  
Lafayette, LA 70503

**EDITOR**

Linda Hare  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205  
(813) 746-4132

**ASSISTANT EDITOR**

Mark Callen  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

**MAILING LIST****CHANGE OF ADDRESS**

Sue Griswold  
Kelly Planetarium  
1658 Sterling Road  
Charlotte, NC 28209  
and  
Linda Hare  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

**SUBMISSION GUIDLINES:**

Articles should be submitted in one of the following formats:

- 1) mailed on a Macintosh disk (400 or 800k)  
(preferable)
- 2) mailed as **double-spaced** typed or printed copy on paper

Articles submitted on disk should be accompanied by a printed copy that notes italics, boldface, accent marks, and any other formatting instructions. On the disk have two files—the formatted file, and a text-only file. If you use any special fonts please include them by including a copy of your system file.

All articles should be accompanied by author's name, mailing address, and telephone number, as well as a statement to the Editor granting or refusing permission to reprint the article in other forms. Accompanying art must be labeled.

**DEADLINES:** Submit all copy and artwork to the Editor in accordance with the following deadlines:

Winter Issue (No. 1) January 1  
Spring Issue (No. 2) April 1

Summer Issue (No. 3) July 1  
Fall Issue (No. 4) October 1

# Southern Skies



Volume 8

Number 2

Spring 1988

## A MESSAGE FROM YOUR PRESIDENT

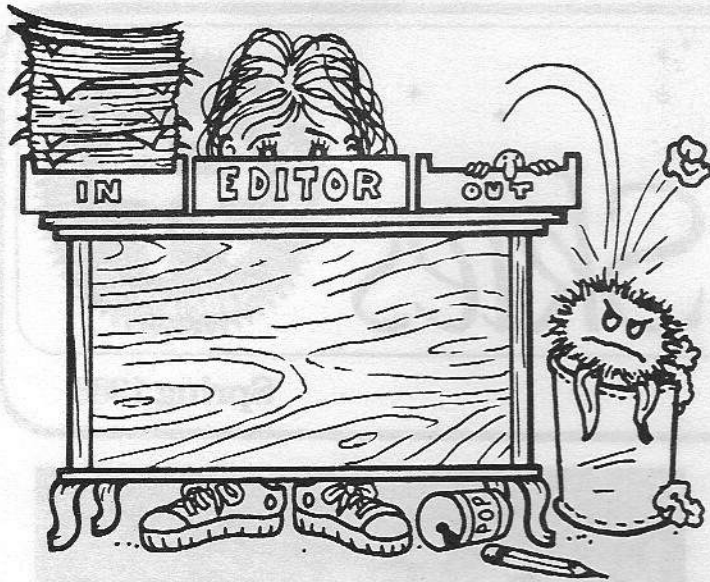
The room was simply yet elegantly appointed with tables, chairs, paintings of well-known Virginia gentlemen, and a rich old grandfather's clock from the mid 1800's. All very nice, just the sort of thing you'd expect to find in a prestigious bank's dining facilities. But the view out the windows was the best, for much of Richmond lay beneath us, from the James River to the industrial manufacturing center and Shockoe Slip, as well as some of the more modern buildings and highways. This place, I thought, would be a wonderful choice for the SEPA banquet and business meeting during the IPS conference in July.

Jane Geoghegan Hastings of Richmond's Jefferson High School Planetarium thought so too; she had discovered the room in her search for our SEPA dinner arrangements, and had dragged me up there to look at it, and to see if I ooh'd and ahh'd enough. I did, so she knew this was the place. Seating in the main dining area was our only concern – it will only hold a hundred or so, so if we get substantially more folks for this dinner, alternative arrangements will need to be made – not to worry – Jane's already got Plans B, C and D ready, just in case.

But, just in case...you can help SEPA out by getting your IPS registration in real early (in fact, if you're reading this now and you still haven't sent in your forms, drop this and go register for heaven's sake!) This'll let Jane know just how many people to expect.

Hope to see a lot of you there. As you know, elections are coming up, and we've got some fine candidates running. Coming to this dinner meeting will let you get to know them better, and will also help all of us in determining SEPA's future activities. And there's one more reason for coming to Richmond this summer: A SEPA facility has not hosted an IPS conference since 1978. So let's make this a good turnout for our organization!





I had one of the most memorable events, and THE biggest surprise of my life occur at SEPA '87. I hope you will indulge me by allowing me to put in a personal "Thank You" to a fellow SEPAite.

For those few of you who are reading this journal who were not at SEPA '87, a brief explanation. When Mike Hutton held preliminary meetings in preparation for the conference, one of the subjects discussed was who to get as the guest speaker for the banquet. Since I hold the opinion that Mike Hutton can do absolutely anything he puts his mind to, and since I do have a hero in the space program, I made a suggestion (if you can call chanting the same name over and over again a suggestion). When Mike said, "I doubt that it is possible, but I'll try", I knew it was in the bag.

Mike managed to keep the identity of the speaker a secret from most people, including me, right up to the day of the banquet. When I found out that Mike had managed to do the "impossible", I was delighted. Mike promised to introduce me to our speaker, and I was ecstatic.

When we got to the banquet room, Mike Hutton (who when he decides to run for King, has my vote) took me by the hand, and instead of simply introducing me to the gentleman, led me to the head table and seated me next to John Young. Mike gave up his chance to sit at the head table next to John Young simply because he knew what a thrill it would be for me. MICHAEL - THANK YOU!!!!

When I tried to explain to my two teenage daughters how I felt when I was introduced to John Young, the best example I could come up with was for them to imagine meeting their favorite celebrity in person (for one it would have been Randy Rhodes, for the other Jon

Anderson). When I said that John Young was my Randy Rhodes and Jon Anderson wrapped up into one person, they got the idea.

The entire conference was fantastic. Kudos go to the "Mikey Crew" - Jon Frantz, Greg Tubbs, Wade Richardson, and Joanne Aquiar.

My apologies to all for neglecting to include the list of those attending the conference in the last journal. You will find the list as well as photos in this issue. I hope you will find them useful and enjoyable.



## 1988 I.P.S./S.E.P.A. Conference Update

The IPS conference begins with an open house/reception at the Ethyl Universe Planetarium Space Theater of the Science Museum of Virginia on the evening of Wednesday, June 29th. The conference continues through Sunday, July 3rd. SEPA will be holding it's annual business meeting/banquet on Friday night, July 1st.

**Absolute deadline for registration form and payment is May 31st! (May 1st for discount) No registrations will be accepted after this date and there will be no registrations at the door.**

The Major Planetarium Executives Conference will be held in conjunction with the I.P.S. meeting. The "Big Domes" will be meeting on June 29th from 9 A.M. until 5 P.M.

For further information please contact Ken Wilson at the Science Museum of Virginia (804) 367-0457.

Don't forget this is an election year for SEPA officers. The following is a slate of candidates selected by the nominating committee.

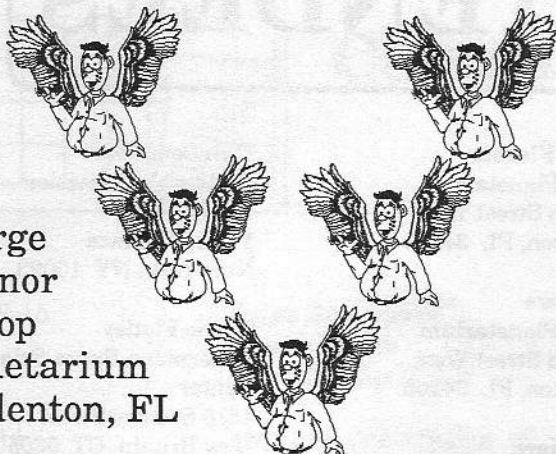
President-Elect: Mike Chesman, Lee Golden, and Bob Tate.

Secretary-Treasurer: Sue Griswold.



# Astronomers Migrate South for Winter Observing

by  
George  
Fleenor  
Bishop  
Planetarium  
Bradenton, FL



The fourth annual winter star party was held February 18-22 in the magnificent Florida keys on the beautiful Spanish Harbor. Over 300 of the most serious amateur astronomers in North America gathered to meet and exchange ideas on telescopes, viewing techniques, and astrophotography. The warm climate of the Florida keys offered unique opportunities to observe the winter skies from a tropical environment. The site selected at Camp Sawyer is the southern most dark sky site in the United States. The next city to the south of this site is Havana, Cuba over a hundred miles away. We were offered a spectacular view of the southern horizon, and an unobstructed panoramic view covering over 160 degrees with seeing down to -65 degrees south! Such beautiful celestial treasures as the Southern Cross, Eta Carinae, and Omega Centauri could be observed with ease. Formerly held in the Everglades this new site offered better accommodations such as camping at the observing site, showers, restroom facilities, and electricity. Also a slight breeze allowed observers a comfortable atmosphere relatively free from the annoying state bird, THE MOSQUITO!!

Nighttime observing was available through telescopes 2.4 inches to 20.5 inches in size. This year's star party attracted not only large reflectors but large refractors. Several Astrophysics refractors (a 6 inch F8, a 6 inch F12 Superplanetary, and 7 inch F9 Starfire) were available for inspection. The longest lines naturally gathered at the big guns, Bryan White's 20.5 inch F5, Tom Clark's 18 inch F6, and Tim Kember's 20 inch F7, all from the "Local Group" from Bradenton/Sarasota, Florida. Many observers from the Northern part of the continent treated each other to first class views of the beautiful southern skies.

Daytime activities included talks, and paper sessions on such topics as Spectroscopy, TV and video photography, collimation techniques, astrophotography, occultation observing, and Teachers in Space. Dr. Don Parker gave an outstanding presentation on

astrophotography and the up coming Mars opposition and "The Mars Watch Program."

Other daytime activities included the natural attractions of the Florida Keys such as boating, fishing, diving, nature trails and habitats, and touring the interesting environment of Key West.

In closing, the fourth annual Winter Star Party was an outstanding success. Having attended 2 of the 3 previous Star Parties in the Everglades, I found that although the skies were not quite as dark, the comfortable atmosphere of the keys more than made up for it. I feel that Tippy D'Auria of the Southern Cross Astronomical Society of Miami has made this one of the best Star Parties in the country. I hope that in the future this Star Party receives more recognition in the astronomical community, and that more of my colleagues will attend and find it to be as fun and informative as I did!!



## Planetarium Sniglet

Those dark moisture bubbles that appear on glass-mounted slides when projected are known as Gray Holes.

**Congrats! Abrams Planetarium's sky calendar received an award for excellence in educational journalism from the Educational Press Association and a Special Commendation from the Astronomical Society of the Pacific.**

# 1987 SEPA ATTENDEES

John Appledoorn  
6 Turtle Lane  
Savannah, GA 31411

Katherine Becker  
5103 Burt Street  
Omaha, NE 68132

Robert Coulter  
6037 Wingate Driv  
New Orleans, LA 70122

Robert Gardner  
1438 Logan Circle  
Marietta, GA 30062

Keith Goering  
1201 N. Kentucky  
Iola, KS 66749

Allan McCall  
5099 Linbar Drive  
Nashville, TN 37211

Kim McColman  
3408 A Elmhurst Road  
Columbia, SC 29203

Richard McColman  
3408 A Elmhurst Road  
Columbia, SC 29203

Michael F. Ryan  
525 Georgia Avenue  
Howey-in-the-hills, FL 32727

Thomas C. Stec  
Central Bucks School  
49 Townview Drive  
Doylestown, PA 18901

Rita Fairman  
Akima Planetarium/Students'  
Museum  
P. O. Box 6204  
Knoxville, TN 37914-0204

Gary Bogner  
Aldrin Planetarium  
4801 Dreher Trail North  
West Palm Beach, FL 33405

Kai K. Eng  
Hayden Planetarium  
81 Street At Central Park West  
New York, NY 10024

Bill Gutsch  
Hayden Planetarium  
81 Street At Central Park West  
New York, NY 10024

C. Langridge  
Hayden Planetarium  
81 Street At Central Park West  
New York, NY 10024

Brian Sullivan  
Hayden Planetarium  
81 Street At Central Park West  
New York, NY 10024

Steve Smith  
Arlington Planetarium  
1426 N. Quincy Street  
Arlington, VA 22207

John O. Williams  
Astral Projections  
P. O. Box 9242  
Fort Worth, TX 76107

Clayton Hopper  
Astro-Tec Mfg, Inc.  
231 Locust Street  
Canal Fulton, OH 44614

Mike Chesman  
Bays Mountain Planetarium  
Route 4  
Kingsport, TN 37660

Charles Ferguson  
Bays Mountain Planetarium  
Route 4,  
Kingsport, TN 37660

Smith Powell  
Berea College, Physics Dept.  
CPO 1630  
Berea, KY 40404

Mark Callen  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

George Fleenor  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

John Hare  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

Linda Hare  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

Joe Hopkins  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

Carol Hopkins  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

Karen J. Malesky  
Bishop Planetarium  
201 10th Street West  
Bradenton, FL 34205

David H. Menke  
Buehler Planetarium  
3501 S.W. Davie Road  
Ft. Lauderdale, FL 33314

Arnold Pearlstein  
Buehler Planetarium  
3501 S.W. Davie Road  
Ft. Lauderdale, FL 33314

Michael West  
Calloway Johnson Moore  
1 Salem Towers 119  
Brookstown  
Winston-Salem, NC 27101

Larry Toy  
Chabot College  
25555 Hesperian Blvd.  
Hayward, CA 94545

Tish Sommers  
Children's Television  
Workshop  
1 Lincoln Plaza  
New York, NY 10023

Carrie Flatley  
Copernican Space Science  
Center  
1615 Stanley Street  
New Britain, CT 06050

Lenard Jenkins  
Davis Planetarium  
P. O. Box 22826  
Jackson, MS 39205

Jeri Panek  
Evans And Southerland  
580 Arapeen Drive  
Salt Lake City, UT 84108

Carolyn C. Petersen  
Fiske Planetarium  
P. O. Box 3023  
Boulder, CO 80307

Jonn Serrie  
Future Music  
924 #C Amberly Court  
Norcross, GA 30093

Nancy Van Schaik  
Garland Planetarium  
3505 Hayman Drive  
Garland, TX 75043

Harold Van Schaik  
Garland Planetarium  
3505 Hayman Drive  
Garland, TX 75043

John C. Pogue  
Grand Prairie Schools  
Planetarium  
301 Warrior Trail  
Grand Prairie, TX 75051

Von Del Chamberlain  
Hansen Planetarium  
15 South State Street  
Salt Lake City, UT 84111

Jeff Pace  
Hansen Planetarium  
1098 South 200 West  
Salt Lake City, UT 84101

Ronald Pierce  
Hansen Planetarium  
1098 South 200 West  
Salt Lake City, UT 84101

Barbara Pierce  
Hansen Planetarium  
1098 South 200 West  
Salt Lake City, UT 84101

Larry Koller  
Hansen  
Planetarium/Publication  
1098 South 200 West  
Salt Lake City, UT 84101

Paul Campbell  
Hardin Planetarium  
Western Kentucky University  
Bowling Green, KY 42101

Bob Tate  
Harper Planetarium  
3399 Collier Drive N.W.  
Atlanta, GA 30331

Jane Hastings  
Jefferson Planetarium  
4100 W. Grace Street  
Richmond, VA 23230

Wayne Blankenbeckler  
John Young Planetarium  
810 E. Rollins Street  
Orlando, FL 32803

Mike Murray  
John Young Planetarium  
810 E. Rollins Street  
Orlando, FL 32803

Neal Smith  
John Young Planetarium  
810 E. Rollins Street  
Orlando, FL 32803

Sue Griswold  
Kelly Planetarium  
1658 Sterling Road  
Charlotte, NC 28209

Mark A. Trotter  
LA Nature & Science Center  
11000 Lake Forest Blvd.  
New Orleans, LA 70127

Dave Hostetter  
Lafayette Natural History  
Museum & Planetarium  
3922 Avenue Bonne Terre  
New Iberia, LA 70560

Bob Riddle  
Lakeview Museum  
Planetarium  
1125 W. Lake Avenue  
Peoria, IL 61614

Sheldon Shafer  
Lakeview Museum  
Planetarium  
1125 W. Lake Avenue  
Peoria, IL 61614

Mark C. Petersen  
Loch Ness Productions  
P. O. Box 3023  
Boulder, CO 80307

Philip Groce  
Mark Smith Planetarium  
4182 Forsyth Road  
Macon, GA 31210

Mike Hussey  
Mark Smith Planetarium  
4182 Forsyth Road  
Macon, GA 31210

Bill Peck  
Mark Smith Planetarium  
4182 Forsyth Road  
Macon, GA 31210

Kosuke Sasaki  
Minolta Corporation  
90 Arch Drive  
Holbrook, NY 11741

Thomas Hocking  
Morehead Planetarium  
CB#3840 Morehead Bldg.  
University of North Carolina  
at Chapel Hill  
Chapel Hill, NC 27599-3480

James Horn  
Morehead Planetarium  
CB#3840 Morehead Bldg.  
University of North Carolina  
at Chapel Hill  
Chapel Hill, NC 27599-3480

Stephen R. Nichol  
Morehead Planetarium  
CB#3840 Morehead Bldg.  
University of North Carolina  
at Chapel Hill  
Chapel Hill, NC 27599-3480

Lee Golden  
Museum Of Arts & Science  
Planetarium  
1040 Museum Blvd.  
Daytona Beach, FL 32014

Leon N. Perry  
NASA HQ  
400 MD Avenue S.W.  
Washington, DC 20546

Charles Connor  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Steve Franklin  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Linda Jacobson  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Jim Jacobson  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Ed Konowal  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Manuel J. Mon  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Willard Payne  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Brian Risley  
Nature Center Planetarium  
P. O. Box 06023  
Ft. Myers, FL 33906

Scott Pohl  
Nimitz H.S. Planetarium  
100 W. Oakdale  
Irving, TX 75060

Carole Groce  
Patterson Planetarium  
2900 Woodruff Farm Road  
Columbus, GA 31907

Jon Bell  
Peninsula Planetarium  
524 J. Clyde Morris Blvd.  
Newport News, VA 23601

George Brown  
Pink Palace Planetarium  
3050 Central Avenue  
Memphis, TN 38111

James Hooks  
Robeson Planet & Science  
Center  
P. O. Box 1328  
Lumberton, NC 28358

Charles D. Smith  
Rollins-Hobbs Assoc., Inc.  
6311 112th Avenue  
Temple Terrace, FL 33617

Laura Lawton  
Savannah Science Museum  
4405 Paulsen Street  
Savannah, GA 31405

Vickie Psillos  
Savannah Science Museum  
4405 Paulsen Street  
Savannah, GA 31405

Peter Domville  
Schiele Museum  
P. O. Box 953  
Gastonia, NC 28053

James Lynn  
Schiele Museum  
P. O. Box 953  
Gastonia, NC 28053

Lawrence McAdam  
Seminole Community College  
Sanford, FL 32771

Mitchell Bauer  
Sky-Skan  
51 Lake Street  
Nashua, NH 03060

Ty Bloomquist  
Sky-Skan  
51 Lake Street  
Nashua, NH 03060

Steven Savage  
Sky-Skan  
51 Lake Street  
Nashua, NH 03060

Ben Taylor  
Sky-Skan  
51 Lake Street  
Nashua, NH 03060

Roger J. Reede  
Southwest State University  
Planetarium  
Southwest State University  
Marshall, MN 56258

Tim Harrington  
Spar Planetarium  
844 Natchez  
Shreveport, LA 71105

Neal Woodall  
Spar Planetarium  
844 Natchez  
Shreveport, LA 71105

Charles Holms  
Spitz  
P. O. Box 198  
Chadds Ford, PA 19317

George Reed  
Spitz  
P. O. Box 198  
Chadds Ford, PA 19317

Regina Cates  
Stars Planetarium  
13720 Highway 57  
Ocean Springs, MS 39564

John W. Pickering  
Stellar Studies, Inc.  
36 Frankfort Street  
Rochester, NY 14608

Gary J. Meibaum  
St. Charles Parish  
Planetarium  
P. O. Box 949  
Luling, LA 70070

Isadore Inman, Jr.  
St. Martin Parish Planetarium  
P. O. Box 42  
St. Martinville, LA 70582

Kenneth E. Perkins  
St. Petersburg Jr. College  
6624 12th Avenue North  
St. Petersburg, FL 33710

Kris McCall  
Sudekum Planetarium  
800 Ridley Blvd.  
Nashville, TN 37203-4899

Larry Miller  
Sudekum Planetarium  
800 Ridley Blvd.  
Nashville, TN 37203-4899

Kathy Summers  
Summer Nights  
661 Paden Mill Trail  
Lawrenceville, GA 30245

James E. Summers  
Summer Nights  
661 Paden Mill Trail  
Lawrenceville, GA 30245

Barry Hayes  
Universe Planetarium  
2500 West Broad Street  
Richmond, VA 23220

Eric Melenbrink  
Universe Planetarium  
2500 West Broad Street  
Richmond, VA 23220

Ned Van Sant  
Universe Planetarium  
2500 West Broad Street  
Richmond, VA 23220

Ken Wilson  
Universe Planetarium  
2500 West Broad Street  
Richmond, VA 23220

Robert Allen  
University Of Wisconsin  
Cowley Hall  
Lacrosse, WI 54601

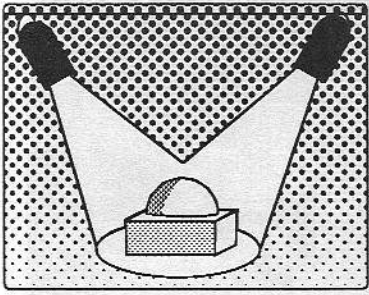
Mike Dimuzio  
Ward Beecher Planetarium  
410 Wick Avenue  
Youngstown, OH 44555

Tim W. Kuzniar  
Ward Beecher Planetarium  
410 Wick Avenue  
Youngstown, OH 44555









# Featured Planetarium

## Renovations At The Planetarium Of The New Virginia Living Museum

by Jon U. Bell

A year ago this May the new Virginia Living Museum in Newport News, Virginia, opened to the public after a three and a half million dollar renovation project. Since 1966 the facility has undergone a few improvements and name changes, starting as the Peninsula Junior Nature Museum and Planetarium, then becoming the Peninsula Nature and Science Center, and now finally, a vastly improved facility that blends the best aspects of nature centers, natural history museums and zoological parks, using living plants and animals for the bulk of display and programming needs. There are only a handful of "living museums" in the country, one of the most notable being the Arizona-Sonora Desert Museum outside of Flagstaff; and none of them have planetariums. It was our job to incorporate the existing planetarium, which has always enjoyed a popularity among our Nature Center visitors, into the living museum concept. Roughly \$300,000 was spent to improve the planetarium and its theater and production areas. This is what we've done with our 30 foot "universe".

After much research and discussion (and my thanks to Don Hall of Rochester, N.Y.'s Strassenburgh Planetarium, Phil Groce of Macon, Georgia's Museum of Arts and Sciences, and Joe Hopkins of Bishop Planetarium in Bradenton, Florida for their exceptionally good advice on all aspects of the refurbishment project), we decided to keep the 20-year old Spitz A3P projector rather than replace it with a new one (we had considered the Spitz 512, the Zeiss 1015, the Minolta MS 10 and even the Evans & Sutherland Digistar as suitable replacements). But the fact was the A3P was simply in very good shape, and with a reasonable amount of overhauling and "souping up", could easily last another 20 years. Thus we began by saving the VLM project at least a quarter of a million dollars.

Improvements to the planetarium included a new high density starball, a new planet cage, a Spitz 512 moon projector, repair and replacement of the planet analogs, some necessary rewiring, and specially designed shoes (courtesy of John Hare and Eric Melenbrink of Ash Enterprises, Richmond, Virginia) that attached to the planetarium support legs and thereby raised the projector enough to assure that our A3P never snagged on the wires coming out of the pedestal template when we sent it to the

North Pole – probably the worst design flaw of the original A3P. We also put the projector on an elevator, purchased from and installed by Spitz. In 1966 the original planetarium's builders had dug a deep pit in the center of the room for an elevator system, but there wasn't enough money to buy one at that time. So a couple of decades later we found the money for this improvement (in the museum's archives, this episode is known as "the pit and the planetarium"). We then installed dual control systems for the main functions of the projector.

Why dual controls? Well, our thinking went like this: we had already decided to automate our slides, lighting and special effects systems, leaving the console operator to worry only about the A3P. We also knew that we had a fairly small dome, and it looked like we were going to lose quite a few seats when we went from the concentric benches (75 to 85, depending on how tight we packed the audience) to individual unidirectional chairs (only 62). Then we realized that if we had automation, there was no earthly reason why the control console had to be taking up the best seating area in the dome! So we fabricated a new console (Joe Hopkins Engineering of Bradenton, Florida—JHE served as our main contractor for the planetarium refurbishment and did a really superlative job) and relocated it just outside the dome proper (in what was to become the main projection gallery). At the same time we built a small dual control console (Ash), containing basic star, planet, sun and moon lamp and diurnal, annual and latitude motor functions, that would be located at the projector, very much like the old Spitz A1's and 2's. By doing this we were able to put in 72 seats (American Desk Company in Temple, Texas) and leave room for 4 wheelchair slots and still make the planetarium operation a smooth one; in fact, with the remote console we had the added benefit of being able to make eye contact with our audience and thus maintain an interactive presence during live shows.

The automation system that was installed (JHE) consists of 2 Apple IIe computers, tone programmers for the soundtrack tape, interface and enable boxes, and some wiring to hook everything together. One computer runs



JHE's Screen Master, which is devoted to 4 slide projector stacks, with 3 projectors to a stack, and power/motor switches for special effects, while the other computer runs Microstar II (available from the Westar Corporation in Shell Beach, California), which handles the lighting, panoramas, and special effects banks. A couple more pushbuttons installed at the projector allowed us to advance the computer cues during live shows, so that we can call upon our entire repertoire of slides, lighting and special effects for highly affective and effective lectures.

In addition to the usual complement of panorama, xy, zoom and whatnot projectors, we also obtained an Aquastar 300 Esprit video projector with a Pioneer LD-700 videodisc player, a JVC HR-D18OU half inch VHS and JVC CR6060U three-quarter inch decks. Mounted in the projection gallery, the videoprojector casts a 24 foot image onto the main viewing section of the dome.

Because the theater now had a definite "front," we designated that part of the dome as South (although for programs dealing with the northern constellations we can easily use latitude motion to flip the projector's orientation). And since there was now unidirectional focus for the entire audience, we could treat the room as a standard auditorium, allowing us to install a small stage for lectures, concerts, plays, or movies. We did not tilt our dome (it was cleaned and repainted instead), but we did install large panels of rear screen glass as a backdrop of the stage, which allows for a variety of slide and special effects projections.

A new sound system, employing JBL 4430 loudspeakers, a Tascam M30 mixing board, Peavey CS400 amplifiers, DOD R-835 crossover units, DBX 150X, Tascam 34B reel to reel, JVC KDV6 cassette and Yamaha CDX2 compact disc decks were installed in the theater, with volume controls in the projection gallery and at the projector.

A production area was built adjacent to the theater as well, which includes an office, a graphics and electronics room, a machine shop, a darkroom (we used to have to do all our processing in the staff bathroom!) and a recording studio. In this way we were able to cut down on the amount of "dome time" needed to produce a show, since we no longer had to be in one of the theater's corner pocket areas to work on slides, effects, or soundtracks, which was all that the old facility had in the way of production space.

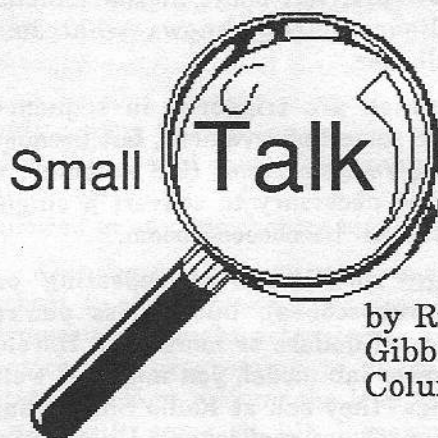
The reopening of the Museum and Planetarium in May of 1987 was attended by thousands of visitors and officiated by the Governor of Virginia. Since then the Virginia Living Museum has attracted a large audience, and the Planetarium has shared in that harvest of the community's attention. Attendance figures have more than doubled from the previous year, with the month of August showing a phenomenal seven-fold increase in visitation. Planetarium audiences alone for the first fiscal year will probably be well in excess of 42,000.

The Museum's Astronomy Department continues to offer

a wide range of programming for school and public groups—from the opening sky show "Lifetide", (an in-house production about space, the earth environment, and the ecology of the eastern seaboard of the United States) to "What's Up?" (live presentations on the stars, constellations, and current night sky) to special talks and slide shows about the forest, as was done during National Wildlife Week in March of this year. Additionally, the Museum's Abbitt Observatory is staffed every Thursday night for guided views through the 14" Celestron telescope; and safe telescopic viewing of the sun is also provided with white light and hydrogen alpha filters after any of the daily planetarium shows.

All in all, we're extremely happy with the outcome of our renovation project—it turned out even better than we planned. The planetarium refurbishments required us to close our facility for 9 months, from September 1986 until May 1987. Out of that gestation period came a hopeful and promising beginning, as more and more people are beginning to discover a brand new universe at the Virginia Living Museum's Planetarium.

EDITOR'S NOTE: The Virginia Living Museum is about an hour-and-a-half drive from the IPS conference site in Richmond. If you're interested in seeing this facility during or after the conference, please call Jon at (804) 595-1900.



by Richard McColman  
Gibbes Planetarium  
Columbia, SC

One thing about the universe which is a constant is its dynamic character. Meteors collide with planets and moons, magnetic fields fluctuate, comets' trajectories are changed by the gravity of gas giants, and planetary ring systems form out of the remains of impacting bodies—only to accrete into new satellites later.

It is our job as planetarians to inform our visitors about such cosmic metamorphoses, and to do it visually. Some of these events we depict quite well, while with others, we can fall dismally short—usually due to the lack of good, specific technical devices.

One area that I have always felt needed considerable

improvement in starshows is the depiction of massive stellar or cosmological cataclysms (supernovae, Big Bangs, etc.). I'm not referring to the "distant supernova/grain of wheat bulb" genre of effect here, but instead, the "close-range explosion effect." (This is the type which can be used in conjunction with a zooming image of a red supergiant.) After all, it's a pretty tall order to simulate anything remotely approaching the desired sensory impact of these cosmic phenomena. And the local fire marshall doesn't usually take kindly to the use of fireworks in the theater.

In response to this problem, we at Gibbes searched quite some time for a suitable alternative. There are, we felt, a couple of general characteristics of cosmic explosions that are important to visualize...

-They are extremely bright.

-They sustain a high brightness level for an appreciable time span.

Electronic strobes are usually associated with Big Bang and supernova effects, but there are some problems inherent with them. "Single shot" strobes (like camera flash units) are very bright, but with a duration of a few microseconds, they hardly provide a sustained source of illumination, and therefore, fall short in the realism category. The audience barely knows what has happened before it's all over.

Ganged strobes which are triggered in sequence "rapid-fire" can provide some improvement, but because of their relatively long re-cycle times (3-8 seconds), a dozen or more would be necessary to convert a single "pop" into a good sustained "boooooooooooooom."

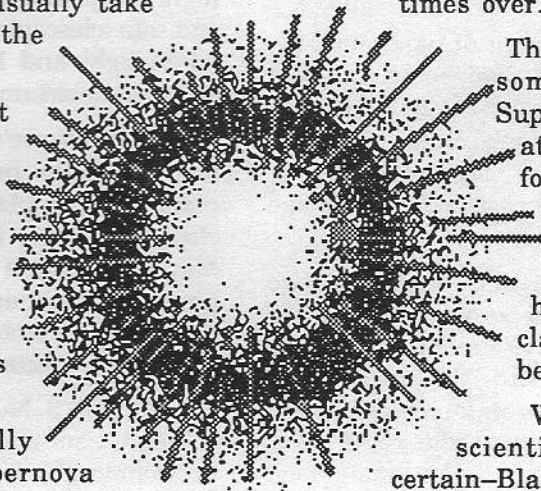
Of course, there are such things as "repeating" or "pulsating" strobes(stroboscopes), but unless you're ready to drop hundreds of dollars or more on a Harold Edgerton-style high-power lab model, you might as well forget it. Those "things" they sell at Radio Shack that are billed as "party lights" are real jokes. Unless you want to dance in a tiny pitch-black closet, you shouldn't even expect to get the stroboscopic effect that the device is ostensibly intended to provide. Open one up and you'll see why. The capacitor is miniscule. So much for creating a supernova effect with one of these. Better to save it for your "distant lightning effect." Very distant!

So what's left?

Actually, there is a gadget on the market that can give spectacular results, and it doesn't cost much more than the party strobe (about \$35 to \$40, depending upon supplier).

It's called "Q-Beam Black Max" (made by the Brinkman Corporation), and is available in auto parts

and sporting goods stores. (Lest this come across as an advertisement, let me say that, while there may be another comparable product on the market, I have yet to find one). Basically, Black Max is a roadside emergency light, which plugs into an automobile's cigarette lighter. But, it's by no means your ordinary K-mart special. This monster has a rated light output of 400,000 candlepower, and is so intense that it is capable of truly obliterating any slide image on the dome many times over.



The ad hype on this bugger also makes some wild-sounding assertions. Supposedly, the Black Max can be used at night to illuminate objects over four miles away, and its beam can be spotted from a distance of twenty miles. Also, while possessing an intensity ten times that of a high-beam car headlight, it is claimed that Black Max can actually be used as an aircraft landing light!

Whether or not these claims are scientifically accurate, one thing is certain—Black Max is extremely bright.

With that said, let me hasten to point out that an audience's dark adaptation IS NOT seriously affected as long as the light isn't turned on for more than a second or two—plenty of time to blast them with a supernova or Big Bang.

Several other characteristics of Black Max should be pointed out as well. The beam is highly focused—so much so that an image of the lamp filament is normally projected onto the surface at which it is aimed. However, this problem is easily solved by placing a ripple wheel in front of the lamp. Furthermore, if the wheel is rotated, the dynamic quality of the effect is increased greatly, adding an undulating character to the glow.

Ideally, the wheel should have only a minimal degree of "ripple"—just enough to break up the sharp focus of the filament's image. Too much ripple will exaggerate diffusion, and will scatter the light evenly all over the dome—eliminating the desired "spot" of light and dimming the glow overall. A controlled effect can be achieved easily by coating a thin plexiglass disk with epoxy, and stirring the mixture around a bit with a nail before it begins to thicken. Gravity will then cause the epoxy's ripples to "relax" a bit, giving the desired amount of diffusion. Finding a spot to attach the ripple-wheel motor (16 rpm should do nicely) onto Black Max's plastic case is fairly straightforward.

Now comes the electrical hookup. First, remember that the unit was originally intended to be powered by a 12-volt car battery. Since incandescent lamps don't care whether they're run off of AC or DC, you can clip the cigarette lighter plug away and connect the two

conductors to the secondary of a 12-volt stepdown transformer (or 12-volt outputs from a 24-volt CT). The transformer must have a 10-amp or higher current rating, as Black Max draws quite a hefty load. This setup will allow you to control the lamp with standard 120-volt AC via a toggle switch, manual dimmer, or even automated control.

Black Max is fairly easy to mount and air. Using a drill press, slowly drill a quarter-inch hole through the plastic handle. However, as the power cord runs through the handle, you'll want to be very careful not to damage it. The hole will allow you to bolt Black Max to an upright wooden block, and this arrangement also conveniently facilitates adjustment of light-beam elevation.

Black Max puts on quite a magnificent show. We have ours cove-mounted and aligned with the center-point of our 10-to-1 zoom projector, which places the central light-beam at about 70 degrees altitude. This gives us an effective throw-distance of about 20 feet (in a 26-foot dome). Folks with domes 40-feet or larger may want to mount Black Max at the star projector, or use two units in tandem. Real heart-attack freaks can even employ the two methods simultaneously.

As a final note, it is suggested that a camera flash, or equivalent (if available), be triggered at the same time that voltage is applied to Black Max. Because the lamp possesses both low-voltage and high-wattage ratings, the response time of the filament is about one-half-second or so. The flash will, therefore, provide the sharp "attack" needed to complete a spectacular Big Bang or supernova.

Happy Blasting!

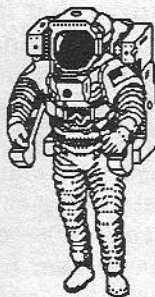
Send Small Talk Contributions to:

Richard McColman  
Gibbes Planetarium  
1112 Bull Street  
Columbia, South Carolina 29201



## Young Astronauts

by David S. F. Portree  
John Young Planetarium  
Orlando Science Center  
Orlando, Florida



Intense community interest...hundreds of children and their parents talking about you at school and work...media attention...a supply of volunteers to

mine...and a better understanding of the space and science interests of your area public. All of these things can be gained by launching a Young Astronauts Program (YAP) chapter at your planetarium.

As president of the Central Illinois Space Group, a small space advocacy club, I helped start a YAP chapter at the Illinois State University Planetarium in Normal, Illinois. My original plan was to get area teachers to start YAP chapters to encourage our future astronauts, our kids. I remembered what it felt like to be the only junior space cadet in my grade school.

It happened that Carl Wenning, the director of the ISU Planetarium, was seeking some way of working with the enormous response he had had from kids to a show he had run on the demise of the dinosaurs, and with the many questions on spaceflight he was receiving from children and parents alike in the wake of the CHALLENGER accident. We got together and in January, 1987 got our YAP chapter rolling with thirty 4th and 5th graders.

We outlined an ambitious publicity campaign to promote our planned chapter. To start, Carl got a local paper to run an article on our plans. He was immediately flooded with requests for information. Our other publicity ideas were ditched. We hurriedly created an application form to let us sort through the interested kids and parents.

After this we began thinking of our chapter as a pilot which might spin off other chapters into the schools through publicity and through the kids in the chapter. The "area" I speak of covered a lot of ground; we had kids coming in from up to fifty miles away. We hoped that this would meet the demand we had discovered, since we could not. The maximum number of kids allowed in any one chapter is just thirty.

Our chapter met just once a month for two hours after school, in part because many kids had a long distance to commute. I taught astronautics subjects, starting with basics and progressing to space shuttles and space stations before making the leap to the moon and Mars. Carl built some of his lessons around curriculum materials provided by Young Astronauts headquarters in Washington, D.C. He gave physics demonstrations, telescope and computer demos, sky lectures, and truncated versions of the public shows to the kids. We also did units on meteorology, physical fitness, and biology. Sometimes we just answered the endless questions the kids had on space. We brought our areas of expertise together when we took the kids to the top of the ISU Library to view a pass of Mir.

Two hours a month wasn't really enough, so in July, 1987 we held a 2-day "Summer Institute." We received funding for this from local businesses. This money later led to funding from the same source for a full-blown public planetarium show.

We involved area teachers. We also videotaped the Institute to create a promotional tape for consumption by area educators.

Young Astronauts chapters can be organized in many ways. After moving to Orlando, Florida I was introduced to a chapter at Glenridge Middle School started by a parent interested in encouraging her son's interest in science. The ISU Planetarium YAP chapter is "loose" in terms of discipline and the kids "passive" in terms of running the chapter. The Glenridge Young Astronauts are more responsible for their chapter's activities, earning new responsibilities and acknowledgment through a point system. Much of this has to do with age range; the ISU group comprises 4th and 5th graders, while the Glenridge group is made up of 6th, 7th, and 8th graders. It also has something to do with the infrequency of ISU's meetings — the Glenridge group meets weekly. You will need to take such factors into account when you organize your group.

YAP headquarters (write to: Young Astronauts Council, P. O. Box 65432, Washington, D.C. 20036) provides a start-up kit and periodic curriculum packets for only \$20 per year. This sum can easily be handled by most planetarium budgets, allowing individual memberships to be free. A network exists for sponsors and members with access to a computer. There are also YAP conferences held around the country, which have hosted Young Cosmonauts and other important space-related guests.

Investment in time and materials can be as large or as small as available staff-time and funds permit. Local people can be found to help stretch both resources. The ISU group had help on several occasions from members of the Central Illinois Space Group and the local amateur astronomy club, the Twin Cities Amateur Astronomers, as well as local teachers. Planetaria unable to be directly involved with the highly popular spaceflight "camps" (like that in Huntsville or the new one at Kennedy Space Center) can get a piece of the action by starting a YAP chapter.

The planetarium, with all its possibilities for multi-media presentations, is an ideal setting for sponsoring a YAP chapter. By helping our children to learn about science and space we help in a small way to build future space programs. And, because many people consider it endearing if you work closely with kids, a YAP chapter will build a supply of good will and generate positive exposure which can be drawn upon for funding and increased attendance for other planetarium offerings.



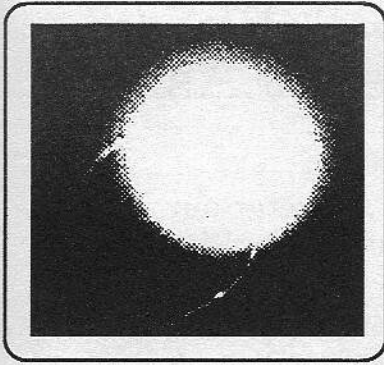
# Basking In The Moon's Shadow – A Personal Account

by John Hare  
Bishop Planetarium  
Bradenton, Florida

It's March 28 and I'm at 30,000 feet somewhere between Hong Kong and Tokyo. For the past two and a half weeks I've been part of an Astronomical Adventure that will remain as one of my fondest memories. It all began over two months ago. I received a call from Dave Menke of the Buehler Planetarium in Fort Lauderdale asking if I could possibly accompany him and others as part of the Astronomy Staff on an ocean cruise to view the total Solar Eclipse in Southeast Asia. When learning of the details and the fact that it was only two months away and would entail being gone for nearly three weeks, I figured it would be out of the question to consider. Two days later, after talking with my wife, my staff, and my Board of Directors, I called Dave and discovered to my delight that the offer still stood.

What followed was two months of planning, preparation, and anticipation. On March 9, I departed Tampa arriving some 28 hours and 12 time zones later in Bangkok, Thailand. There I rendezvoused with the rest of the Astronomy Staff consisting of Dave as Leader/Coordinator, Carrie Flatley of the Copernican Space Science Center in New Britain, Connecticut, and Suzy Gurtin of the Griffith Observatory. We boarded the M.S. Ocean Pearl, of Pearl Cruises, on March 12 and headed south. The eclipse was only six days away, but just like young children waiting for Christmas, it seemed like a month.

Each night the Southern Cross loomed higher as we made our way to where we were to view the eclipse. By the second night, Polaris had become so low to the horizon that it was no longer possible to see. A strange and interesting sky presented itself to the south, Gemini and Leo appeared high to the north, and Scorpius rose as it does when somebody offsets latitude to an unfamiliar setting. The nights remained encouragingly clear, but daytime conditions were quite variable. The meteorological data suggested that we could expect around 40% cloud cover. This was based on contour lines drawn from averages at widespread locations so it was really anybody's guess. A dry run with equipment one day prior to the eclipse was cause for more apprehension as we had over 40% cloud cover with the sun obscured at the time totality was to occur. A further concern was how the passengers might react if we were clouded out.



The Ocean Pearl was one of at least four cruise ships sailing to the path of totality. Three, including the QE2, were to view the eclipse from the Celebes Sea to the southwest of the Philippines. We were going to view it from an anchorage near Karimata Island

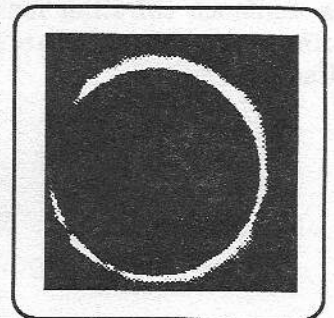
about 50 miles to the west of Borneo. The various cruises had been advertised as Eclipse Cruises for up to a year in advance. Executives at Ocean Cruise Lines, parent company of Pearl Cruises, made the commitment October 1, 1987 when they were informed by Menke that the timing and location of the eclipse would coincide closely with their "Great Cities of Asia" itinerary. Ocean Cruise Lines, through the efforts of Dave Menke, agreed to offer a comprehensive astronomy experience by furnishing an Astronomy Staff of four who would give lectures, conduct observing sessions, assist with the eclipse observing, and interact with the passengers on an ongoing basis. Many passengers booked the cruise with the primary purpose of viewing the eclipse and were pleased to learn of the additional activities. In fact, on the last leg of the flight to Bangkok, I encountered a couple who, upon discovering my involvement with the eclipse, told me how they were relieved to find space on the Ocean Pearl. [They booked several months beforehand and were unable to find space on any of the other cruises.] They hadn't realized that there would be other astronomy activities and were almost ecstatic when I told them of the plans. Some of the passengers were serious amateur astronomers and many others had experienced one or more total eclipses. Another professional was on board too, but was not involved directly with the staff Dave Menke had assembled. Ron Oriti, astronomy instructor and planetarium director at Santa Rosa Junior College (California), was aboard, accompanied by his wife, Barbara, and a group of his astronomy students. Ron would prove to be of tremendous assistance over the coming days. On the other hand, as the eclipse day neared and we had opportunities to interact with the passengers, we learned of the extreme displeasure of a very small and vocal minority. The cruise itinerary had been altered slightly for the eclipse and consequently the ship would not visit Brunei as it originally would have. Passengers argued that this point was not brought out clearly in the cruise literature, which may have led to their misunderstanding. Their anger manifested itself through direct and indirect remarks intended to make us, the other passengers, and the crew aware of their feelings. This situation however, was more than offset

by the positive feedback we received from passengers and crew who were getting caught up in the excitement that was building as eclipse day neared.

We gave lectures on Solar Eclipses, How to Observe and Photograph the Solar Eclipse, The Sun's Family (a talk on the Solar System), Seasons (the vernal equinox fell in the middle of the cruise), and Chinese Astronomy (the ship would visit two ports in China). The two nighttime observing sessions were well attended as were impromptu observing sessions and hundreds of questions were asked in planned and unplanned situations by crew and passengers alike.

On eclipse day, the alarm awakened us as dawn broke to a calm sea off Karimata Island. We retrieved equipment which had been left on the bridge overnight so as to acclimate to the humid outdoor conditions and made our way to the uppermost level of the ship...an area above the bridge normally restricted to passenger access. As the sun rose we could see some distant cumulus clouds, probably over Borneo, and some very thin high cirrus. If it would/could only hold for two hours! By now the ship was alive with passengers and crew busily setting up equipment and taking advantage of the breakfast service furnished on deck by the ship's staff. Mylar solar filters had been given to the crew in a final briefing the night before and were now being distributed by them to the passengers. We learned later that some passengers sat inside and adamantly refused the offer of the filters to underscore their displeasure over missing Brunei!!!! They deliberately missed the eclipse!

First contact occurred close to our calculated time of 7:30 AM and the event we had all so eagerly awaited had begun. The weather continued to hold as the moon crept slowly across the sun's disc. A noticeable darkening occurred to the west as totality drew near. We instructed the observers to remove their camera filter at 8:30 AM and reminded them not to directly observe until the moment of totality. Shadow bands were not evident, but the shadow itself, appearing dark and unfocused, could be seen quickly approaching. The diamond ring occurred precisely on schedule at 8:32 AM and then we were immersed totally in the moon's shadow. For the past week, and up to the very moment, I had directed my time and efforts to my responsibilities of the various activities. The next two and a half minutes were to be all mine. A quick look for Mercury, Mars, and any bright stars proved fruitless as ambient light conditions remained relatively bright. The horizon twilight was quite spectacular with the



distant cumulus clouds accentuating the effect, but the star of the show was hovering 25 degrees above the eastern horizon. The video camera that had accompanied me was dutifully capturing the event while I tried to pace my photography to include the necessary range of exposures and keep in mind the need to document the end of totality. Two large prominences were visible to the upper left and lower right while others of lesser magnitude shown in that eerie pinkish color that seems so unreal. The corona, against a lighter than usual sky, seemed smaller and less imposing than I remembered it from Manitoba in 1979. In what seemed like a minute or less, suddenly there was a brightening of the western limb and the diamond ring appeared briefly. Then just as quickly, it was over. A later replay of the video showed that we had experienced just over two and a half minutes of totality. The final hour was filled with post totality interviews, much conviviality, and an occasional glance as the moon exposed more and more of the sun. One final look through mylar filtered binoculars signaled the end of the eclipse for us and I almost immediately began thinking forward to Finland in 1990 and Mexico in 1991.

The follow-up interviews were the icing on the cake. The reactions ranged from "it was interesting" to "it was almost as good as sex". Many passengers who previously had only a casual interest in astronomy were now hooked. Some wanted to accompany us on future eclipse sojourns while others were looking forward to dusting off that old telescope or binoculars. Photographs of the eclipse taken by the ship's photographers sold out as quickly as they were displayed, as were several subsequent batches of prints. Eclipse and astronomy discussion continued to be a focus of conversation for the remainder of the cruise. I found this somewhat surprising considering the exotic post-eclipse competition...Borneo, the Philippines, mainland China, and Hong Kong.

From a personal perspective, we had experienced and realized a number of dreams and goals. Here were four Planetarians removed from our usual environment and halfway around our planet, yet doing what we do best...communicating astronomy. This was the ultimate Planetarium Show - one where we had a captive audience for a two and a half week production, an audience thirsting for what we had to offer, and culminating with nature's most spectacular special effect.



# Planetariums of Southeast Asia

by

David H. Menke

Buehler Planetarium

Ft. Lauderdale, FL

and

Carrie E. M. Flatley

Copernican Space Science Center

New Britain, Connecticut

We had the privilege recently to participate in an eclipse program aboard the M. S. Ocean Pearl while sailing through the South China Sea. With us on that endeavor were two other planetarians: John Hare, director of the Bishop Planetarium in Bradenton, Florida, and Suzy Gurton, of the Griffith Observatory in Los Angeles. During the almost three weeks of our trip, we had the chance to visit several major planetaria that are rarely seen by westerners.

Our first port of call was Bangkok, Thailand. We arrived there from the U.S. late on Friday, March 11. The following morning we joined John and Suzy by taking a taxi from our hotel to the Bangkok Planetarium. Only a short distance from the hotel, the planetarium in effect was a taxi ride that took over half an hour due to the always congested city streets. Most of the ride was bumper to bumper at a snail's pace. Adding to our confusion, the drivers use the left side of the road. With so much traffic (cars, trucks, bicycles, motorcycle-taxis) it was amazing that no accidents occurred, or that horns were not continually blaring.

We arrived at the Center for Educational Museums complex, where the Bangkok Planetarium is located, at about 11 AM. From the outside, the planetarium building was easy to identify, with its large dome feature quite evident. There was also a small observatory for public viewing. Upon our arrival, we immediately identified ourselves as western planetarians. Since no one spoke English, it took a few moments for the staff to decide what to do. Finally, someone realized that we were planetarium people like themselves, and they gave us a quick tour of the planetarium building. We were surprised that no one there had heard of the International Planetarium Society.

We were invited to see the theatre which is a 20 meter dome with a Zeiss IV and 470 seats. We then saw part of the current show about the upcoming solar eclipse - all in Thai, of course. The planetarium sky over Bangkok was wonderfully displayed as is typical of a Zeiss instrument - except that the stars all looked a bit red. From what we could ascertain, the show was rather



austere, with the live lecturer pointing out objects in the sky with his green arrow. Generally, the speaker tried to remain at the level of his school-age audience.

After giving profuse thanks to our gracious hosts, we bid them adieu and hastily struggled through more traffic by taxi to our hotel, arriving just in time for our bus tour of the city.

Our cruise ship departed Bangkok at 6 PM on Saturday, March 12, and we steamed toward Malacca, Malaysia. After a hot day of touring Malacca, we docked the following morning in one of the most interesting cities on earth, Singapore. Each of us was asked to serve as a tour escort for the many buses of passengers visiting that city. Thus, we helped the tour guides by counting heads and helping people on and off the buses.

When the tours were completed, we met John and Suzy at the Raffles Hotel and grabbed a taxi for the magnificent Singapore Science Center. This sprawling edifice has two levels of science exhibits, a bi-level book and gift store, and even a Burger King – right in the museum! One of the most remarkable parts of the museum included the use of the air conditioning ducts as part of an outerspace exhibit. The ceiling was painted black, and the air conditioning ducts were painted a dark gray with strips of phosphorescent material placed along sections of the apparatus – in the shape of windows. Paper plates and cups, blinking lights, and other paraphernalia were added, along with black lights for the appearance of the depths of space, and space craft were suspended from the ceiling, to give one the feeling of a true working space station. It was simply marvelous. It was so well done that, had the staff not pointed it out, we never would have recognized it as part of the air circulation system. Brian Sullivan (an expert model builder at New York's Hayden Planetarium) would have loved it.

We briefly toured the facility (noticing a Spitz STS planetarium projector as an exhibit!), ate a quick lunch at the fast-food eatery, and then entered the planetarium to see a first-rate planetarium program. The planetarium/omni theatre consisted of a 75-foot tilted dome with 450 seats, a Spitz STS projector, and an Omnimax projection system. After the show, we saw a short Omnimax presentation about Singapore.

Dr. Kim Chia, assistant director of the Singapore Science Center in charge of planetarium programming, greeted us following the show and we chatted for quite some time. We invited him to attend the biennial IPS meetings and to share with the rest of the planetarium world many of the exciting things that the SSC has to offer, including a most ingenious computer software program dealing with astronomy. Kim then countered with a suggestion of holding a future IPS conference there; we readily agreed that it was a marvelous idea. Kim then escorted us to a waiting taxi that whisked us back to our hotel of the sea.

The next day we were at sea, followed by the morning of the total solar eclipse observed on Friday, March 18. The solar eclipse was a truly spectacular astronomical and emotional event, and is the topic of another treatise.

We spent a day in Kota Kinabalu, Malaysia (on the island of Borneo) snorkeling, swimming, hiking, and having fun. We then set sail for Manila.

Upon arrival in Manila, Suzy joined us on a river canoe ride to a water fall while John toured the city of Manila. The river ride in itself was a really memorable event. After returning to the ship late in the day, and after an evening of a great dinner and a show at the Manila Hotel, we retired for the night.

The next morning we had planned to walk the short distance from the port to the Manila Planetarium. Before we left, however, about a dozen of the ship's passengers and crew decided to join us, so we had quite a party when we arrived at the astronomical

facility.

The director of Manila's planetarium, Maximo Sacro, Jr., was a most gracious host and made us feel right at home. He took us on a brief tour of the austere facility. There were many attractive, wall-mounted photos dealing with astronomy, mythology, early astronomers, modern technology and the solar system. After his guided tour of the museum, Mr. Sacro showed us the Goto projector in the 16-meter diameter dome. The dome itself was made of plaster, sported many cracks, and was very dark. Prior to the severe political problems, Imelda Marcos was most generous in supporting cultural facilities such as the planetarium. However, there has been little support recently for this nationally-run planetarium.



Mr. Sacro was rather proud to point out that he had attended the 1978 IPS conference, but was disappointed that he had yet to return to another one. Sacro was looking forward to once again attending, but noted that the annual \$20,000 income from the government was barely enough for the operation to survive.

After a round of photographs, cool sodas provided by the planetarium, and warm good-byes, we once again returned to our ship; it weighed anchor and sailed for Canton, China, about an hour after our return.

It was a long day's sail in choppy waters to Canton, but we finally arrived and enjoyed an interesting day there. Although we did not visit a planetarium in Canton, we did spot an observatory dome while riding through the town. We eventually reboarded our ship and sailed for Hong Kong.

Early the next morning we docked in Hong Kong and disembarked. While our luggage was being sent to the hotel, we toured the city via coach.

Finally, on Sunday, March 27, we had the chance to walk two blocks from the hotel to the Hong Kong Science Center. This museum complex is one of the most munificent ones on earth. A Zeiss VI with a very advanced auxiliary system amazed us. We met some of the staff who were very friendly and showed us the entire facility. The museum has two levels, many exhibits, a nice gift shop, and, of course, the large Zeiss planetarium theatre. From the outside one can see a huge exterior dome; initially one expects that this dome must house the planetarium theatre. In fact, the 23-meter (75-foot) planetarium dome with 316 seats is within this dome, as well as are many other fascinating exhibits. Exhibits included constellation identification, a fiber optics star exhibit for locating and naming the brightest stars, models of old telescopes, an observation exhibit that enabled one to peer through a telescope within the museum only to see a projected image of the moon on the distant wall of the museum (very realistic), a gravity well, a hall dedicated to solar astronomy, weight scales for other "worlds," and quite a few others. One impressive aspect of this science center was that the planetarium shows were in Cantonese – but headphones were available for simultaneous translation into English! This place is a must for any serious planetarian!

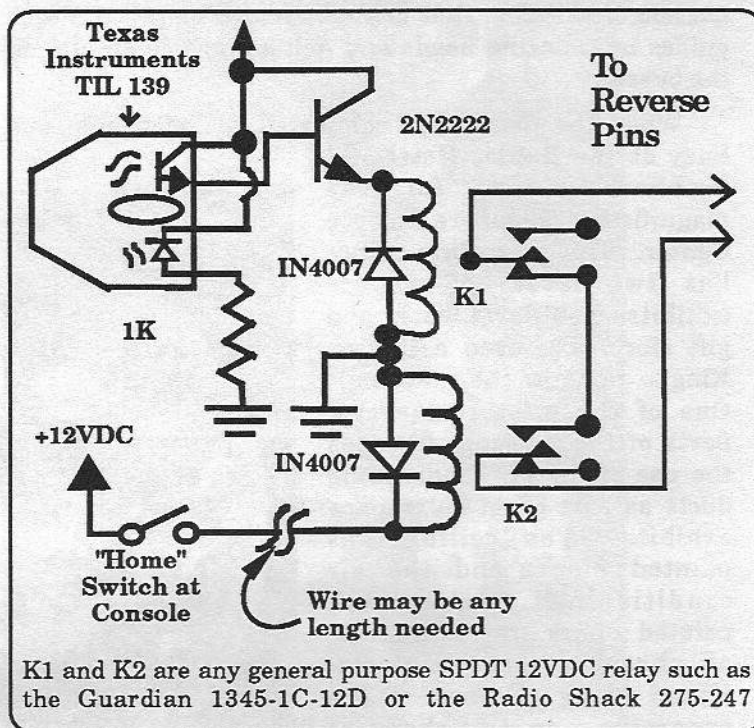
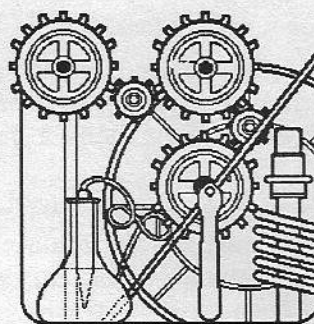
With our trip virtually at an end, the two of us joined John and Suzy in last minute shopping in Hong Kong before getting some much needed rest in preparation for our return to our own worlds in the western hemisphere of the planet.

It would seem only fair that since these four major world planetariums are located in Southeast Asia, that they should become at least honorary members of the Southeast Planetarium Association.

## Doctor Strange's SEPA Circuits Clinic

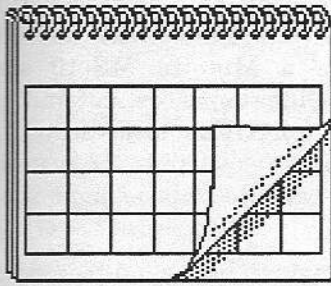
by Joe Hopkins  
Bishop Planetarium  
Bradenton, FL

### Ektagraphic II Homing Circuit



In our last Circuits Clinic we saw that the zero-position switch on the Ektagraphic III projector was very handy, indeed! Those of us still using the Ektagraphic II-series projectors face the problem that this switch is non-existent on those models and we must mount an external circuit to tell our system when these projectors have reached a desired position. Often, this was a simple switch mounted on the side of the projector activated by bumpers glued to the slide tray. The circuit presented here represents a simple, more elegant solution to the problem. The opto-coupler (which can be nicely mounted right at the slide gate) sends out infra-red from the LED inside which only gets to the base of the photo-transistor inside when a piece of shiny opaquing tape is placed on the desired tray position(s) thereby stopping the reversing action. With one opto-coupler, two diodes and relays, one resistor and one transistor you can build an easily-mounted circuit to enhance the performance of your older Ektagraphics and Carousels!





## Calendar

May 9-15	Texas Star Party Prude Ranch near Ft. Davis, TX
May 14	Virginia Association of Astronomical Societies Convention South Hampton Roads, VA
May 27-30	7th Space Development Conference Denver, CO
June 5-9	172nd Meeting of the American Astronomical Society Kansas City, MO
June 25 - July 2	100th Annual meeting of the Astronomical Society of the Pacific Victoria, British Columbia, Canada
June 29 - July 4	International Planetarium Society (SEPA) Conference Richmond, VA
July 5 - 9	8th Productions Techniques Seminar, Strasensburgh Planetarium Rochester, New York
August 17 -19	1st DORK Automootion Workshop Astronaut Memorial Hall Cocoa, Florida

## Announcements

The Brevard Community College Foundation and the Astronaut Memorial Hall Planetarium, Cocoa, Florida, are pleased to announce the first DORK Automation Workshop. This workshop is provided free of charge to anyone interested in learning more about this system. The three day workshop will begin Wednesday, August 17 and conclude on Friday, August 19. A tentative schedule includes...

### Day 1:

**Theory of Operation** - How does it do what it does?

**System Description** - How do you set the system up?

**Introductory Programming** - "But how do I get the lamp on?"

### Day 2:

**Advanced Programming** - Simultaneous events, loops, programming with the time code, interpreting the system self-diagnostics, etc.

**System Troubleshooting** - "But I just spilled my coffee on it..." Software can't break, but hardware is another story.

**Introduction to the ZITT** - Interface and operation of multi-axis slue-zoom systems under software control.

### Day 3:

**Introduction to the NERD** - Interface and operation of the star projector under software control.

**Manual Control** - "But I just hafta work that knob!" Joe Hopkins describes manual control interfacing with the DORK system.

If you need assistance in finding accommodations, or have any other questions, please contact Mike Hutton at (305) 632-1111 Ext. 3500



### Planetarium Artist/Photographer

**General:** Under the general supervision and reports directly to the Planetarium Director to produce artwork and photographic images for planetarium programs, exhibits and printed materials.

**Qualifications:** Two year degree in art or a related area of study. Minimum of two years experience in illustration, commercial art or related field.

Previous planetarium experience desirable.

Knowledge of astronomy, experience in photography and darkroom techniques and materials, cartooning skills and experience using pen and ink, airbrush, acrylics, experience creating multi-image slide sequences a plus. Must be creative, like to tinker/experiment.

### Planetarium Technician

**General:** Under the general supervision and reports directly to the Planetarium Director to maintain the theater and all equipment and to provide technical support for all productions.

**Qualifications:** Two year degree in electronics. Minimum of two years experience maintaining/repairing sophisticated electronic equipment. Previous planetarium experience preferred.

Knowledge of optics, mechanical systems, shop equipment, and computer programming. Must be creative and like to experiment.

Applicants should send resume and supporting materials to:

Sharon K. Parker  
Planetarium Director  
The Children's Museum  
P.O. Box 3000  
Indianapolis, IN 46206

Supporting material will be returned to applicants upon request.

**Application deadline is June 15, 1988.**

The Orlando Science Center's John Young Planetarium is seeking a knowledgeable professional to serve its technical needs. Duties will include maintenance and repair of a Minolta MS-10 star projector, special effects and slide projectors, automation control hardware, and an Argon/HeNe laser scanning system. The person will also be responsible for systems development and will play a key role in laser-light show production and operations.

The John Young Planetarium has a 40-foot dome with a cove projection system, 160+ special effects, 36+ slide projectors, JHE automation, and recording and visual production facilities. The planetarium is rapidly growing, serving over 140,000 people last year in public shows, school programs, and laser shows. Staff is currently at four full-time, four part-time, and 5-8 volunteers. These figures for attendance and staff represent a two to three-fold increase over just three years, with similar development expected for the future. The planetarium is part of the Orlando Science Center, a private, non-profit facility with participatory displays, traveling exhibits, school demonstrations, and special programs.

Preference will be given to those with past experience in planetarium operations and electronics. Starting salary is \$12,738 to \$19,107, depending on qualifications and experience. Additional income opportunities exist with laser show operations. Benefits include major medical, dental, vacation, life insurance, and conference travel.

Send resume and a complete list of any applicable skills to:

Mike Murray, Director  
John Young Planetarium  
810 E. Rollins Street  
Orlando, FL 32803 (407) 896-7151

**Applications will be accepted until a suitable candidate is found.**

The Museum of the Rockies, Montana State University, Bozeman, Montana is looking for a planetarium director. This new 100 seat planetarium is currently under construction and will have a 40-foot dome featuring the Digistar Computer Graphics Projection System.

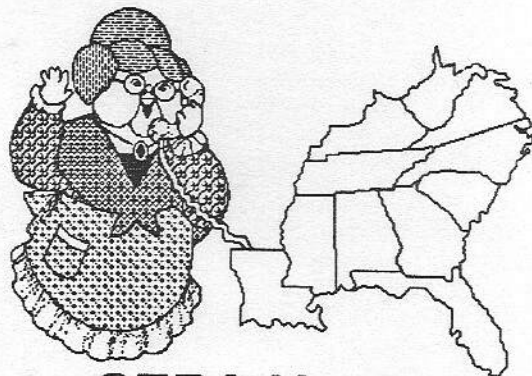
Responsibilities include researching, developing, and implementing educational planetarium programs; preparing and administering annual budget; supervising daily operations, maintenance and technical staff; grant writing and membership development.

Required qualifications include a Master's Degree in Astronomy or a related field and three years

experience in planetarium work of which one was in a supervisory capacity. Preferred qualifications: budget management experience, grant writing experience, and excellent verbal and written communication skills.

Screening of applications will begin on May 15th and continue until a suitable candidate is found. Salary range is \$25,000 to \$35,000 depending on qualifications. Interested individuals should write to:

Michael W. Hager  
Museum of the Rockies  
Montana State University  
Bozeman, MT 59717

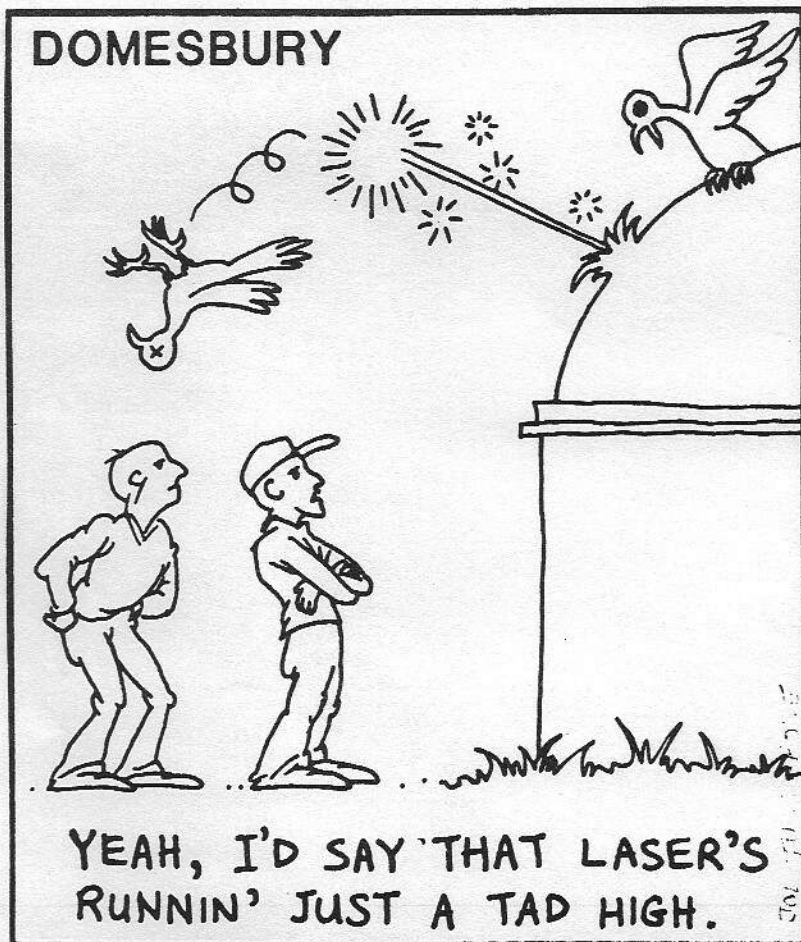


## SEPA News

A new addition at the John Young Planetarium in Orlando, Florida. David Portree comes to SEPA from Champagne, Illinois. David has a Master's Degree in History from Illinois State University, and did his thesis on the Space Program. David has already submitted an article to Southern Skies, it can be found on page 11. **THANK YOU DAVID!**

We have heard rumors about happenings in Bays Mountain, Eastern Kentucky, and Cocoa. I do hope that someone out there will be kind enough to share some of their good news with us so that we may in turn share it with the entire membership of SEPA.

A terrific traveling show of Space Art is now open at the Museum of Science and Industry in Tampa. Joe Tucciarone of the Bishop Planetarium in Bradenton, Florida is one of the featured artists.  
**CONGRATS JOE!**



# —Notes—

SEPA NEWS



DOMESBURRY

YEAH, TO SAY THAT LASER'S

The advertisement is a large rectangular block. At the top, the word 'DOMESBURRY' is written in a bold, sans-serif font. Below the text is a large illustration. On the left, a bird is shown in flight, holding a long, thin object (possibly a laser beam or a stick) in its beak. In the center, a person is depicted in a dynamic, possibly dancing or performing, pose. On the right, a child is shown standing and looking towards the other figures. At the bottom of the advertisement, the text 'YEAH, TO SAY THAT LASER'S' is visible, though the rest of the text is cut off or illegible.