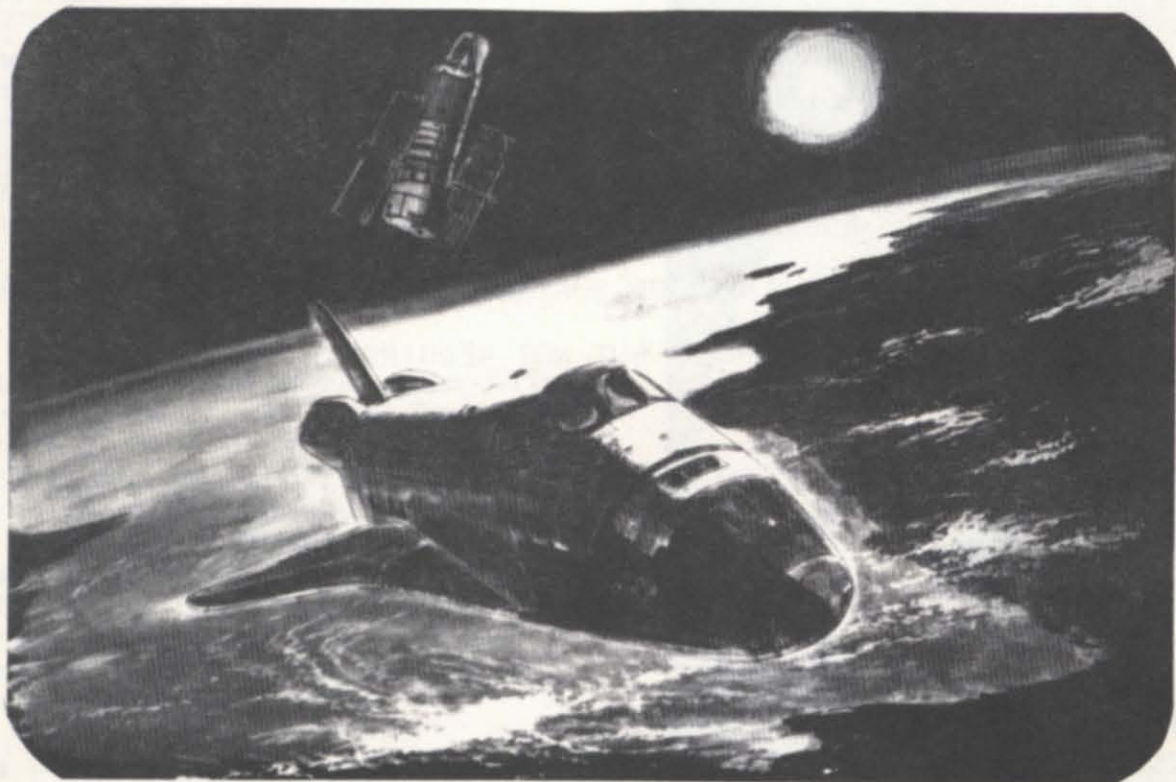


SOUTHERN SKIES



Newsletter of the Southeastern Planetarium Association

PLEASE NOTE

PLEASE CAREFULLY CHECK YOUR MAILING LABEL. IF ANYTHING IS MISSPELLED OR IF ANY PART OF YOUR ADDRESS IS INCORRECT, PLEASE NOTIFY THE NEWSLETTER EDITOR AT THE HUMMEL PLANETARIUM, IMMEDIATELY. A CORRECTION TO YOUR ADDRESS WILL BE MADE FOR THE NEXT ISSUE. YOUR BUSINESS ADDRESS IS PREFERABLE BUT NOT REQUIRED.

Southern skies



Vol. I, No. 1

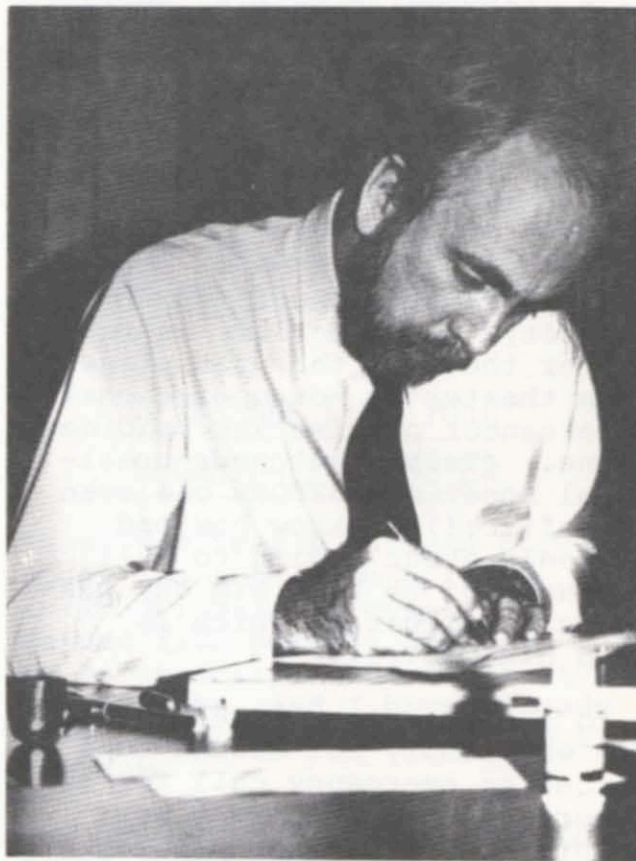
February 1981

A MESSAGE FROM YOUR PRESIDENT

For those of you who know me well (especially members of the Florida group who have put up with four years of my newsletter) the following statement may appear somewhat odd. I am having a terribly difficult time composing this message. So far four drafts have wound up in file 13.

Normally, I can write about anything at the drop of a hat. Yet, somehow I feel that in the role as your president you expect from me pearls of wisdom and philosophy. That just isn't Mike Ryan. Thus, if what follows suffers in comparison to the magnificent outpourings of our illustrious past leaders, please understand that I am much more at home with things concrete.

Let me begin by thanking those of you who voted for me in the special election last January. Filling the shoes of Jim Summers, and before him Bill Lazarus, is a monumental task. SEPA has indeed been fortunate to have so many outstanding individuals who have volunteered to stand at the helm of this organization and have succeeded in so doing. This association is great because of their efforts. I would be remiss if I did not include the name of Phil Groce in this listing. To all of you, on behalf of SEPA, thank you for a job well done.



But let us be honest. It is not just your past officers who have turned this group into one of the best, if not the most outstanding regional association in the country. SEPA is great because of each and every one of you; because of your generosity and willingness to help others in a unique and unselfish manner. I hope with all my being that this spirit does not diminish with time.

COVER ILLUSTRATION: "ST Delivery". The Space Shuttle prepares to return home after deploying the Space Telescope. With the maiden voyage of the Shuttle finally at hand, the public's attention will again be focused on space, presenting a challenge for innovative planetarium programming. Original watercolor copyright 1981, James Hervat.

For a while last June, I thought that I had detected some cracks in our halo when I observed the relatively disappointing attendance at the Jackson conference. Though I have not heard from those of you who opted not to come, the eternal optimist in me decided that many of you were plagued with the decision to choose between SEPA '80 and the later IPS meeting in Chicago. Tight budgets can affect us all. Unfortunately I, too, was faced with the choice. Kindly do me the favor of proving me right this coming June. We miss the pleasure of seeing you when you aren't there.

Speaking of conferences, I have something sad and then something happy to report. This last December, Jack Fletcher was forced to withdraw his offer to host our 1981 conference at Eastern Kentucky University. His facility is ready save for the fact that the planetarium theater is not operational and he cannot promise its readiness by June. (Talk about your presidential honeymoon BEFORE one even takes office!) I know how bad Jack feels about having to pull out. None of us bear him any malice over a situation which is beyond his control.

Due to the urgency of the situation, there was simply not enough time to mail out an emergency call for help to everyone. The requests were made by word of mouth and phone calls to facilities likely to step in as a substitute host.

(Remember what I said before about the generosity of the SEPA membership? Once again I was proved right.) Over the holidays firm offers came in from three locations: (1) The Daytona Beach Planetarium - Daytona, (2) The Fernbank Science Center - Atlanta, and (3) The Pink

Palace Museum Planetarium - Memphis. Instead of having no where to go, we were pleasantly faced with the task of making a choice. I am deeply indebted to Bob Hillenbrand, Jim Summers and Ray Shubinski for their eagerness to help us out of what could have been a tight spot.

Your Executive Board met via a conference phone call the afternoon of January 5th. After a thorough discussion regarding the positive aspects of all three offers, the board in a final, unanimous vote chose to accept the offer from Memphis. Ray Shubinski and his staff are extremely excited about hosting our June meeting and, I am sure, will do an excellent job despite the constraints of preparation time. As of this writing, the Memphis conference is tentatively scheduled to run from Wednesday, June 17th through Saturday, June 20th, 1981.

When Ray puts out a call for paper submission, presentations or help, I would earnestly request that we have the fullest cooperation from the general membership. Please start thinking NOW as to how you might wish to contribute to the conference.

Other items of interest: Under the authority granted me in the charter, I have asked Phil Groce, Jacksonville, to serve on the Executive Board as a full, voting member for the next two years. With the exception of Jim Summers, who is named to the board, I have sent letters to each of the past presidents of SEPA, requesting that they sit on the board in a non-voting advisory capacity. Their input will be invaluable.

I am happy to report to you that under the guidance of Bob Hillenbrand, your survey committee (as

Michael F. Ryan President Earth-Space Science Center Box 427 Howey In The Hills, FL 32737	Duncan Teague President-Elect Craigmont Planetarium 3333 Covington Pike Memphis, TN 38218	Richard Joyce Secretary-Treasurer Hampton Planetarium 1819 Nickerson Blvd. Hampton, VA 23663	Jack K. Fletcher Newsletter Editor Hummel Planetarium Eastern Kentucky Univ. Richmond, KY 40475
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authorized at the general meeting last June), is functioning well. Since the IPS survey did not cover items of interest to us, I have instructed Bob to continue full force. His committee is now drafting suggested questions which will be evaluated in a manner similar to the Delphi method. According to Bob's timetable, the final questionnaire should be mailed to you around April 5th with a request that it be returned no later than May 1.

Jack Fletcher has kindly offered the use of his University's computer for tabulation. Bob has told me that he hopes to have a preliminary analysis available at the June meeting with the final results mailed in published form by August 1st of this year.

Let me now ask you to think back to 1977. If you remember at our June meeting then, SEPA awarded several certificates to people whose outstanding work in the planetarium field deserved a recognition of achievement. Somehow the awards have been forgotten in the past few years. I would like to revive these awards for presentation this June.

Kindly do me the favor of giving serious consideration as to who, in your opinion is deserving of same. Within the next month I would like the general membership to send in a written nomination along with a statement as to why a particular individual should be cited. These nominations can be submitted to any member of the Executive Board: Jim Summers, Phil Groce, Duncan Teague, Richard Joyce or myself. The board will then go through the nominations, narrowing down the list to one or two with presentation of certificates to be made in June.

Finally, I would like to make some comments about this newsletter. I think you will find that Jack Fletcher has done an outstanding job as editor. This newsletter

will be, along with succeeding issues, one which is not just to be read and then thrown away. We hope that you will find the articles will serve to be valuable reference material to be filed for future use. There is only one thing which I want to know (and Jack is not revealing any secrets). Who in the world is Uncle Fuzzy?

My best wishes for every success in the coming year to each of you. I am looking forward to seeing everyone in June at Memphis.

Mike

* * * * *

EDITOR'S NOTE: Do you recall paragraphs one and two of Mike's message? It doesn't seem to me that he has any trouble with words.

A MESSAGE FROM YOUR SECRETARY/TREASURER

Alas, New Year's Day has come and gone. So have some of those resolutions I made to myself. I have gained five pounds, not lost them; my first script went to the typist a week late, and I have already been using slides before the film was dry.

One promise I do not intend to break is my promise to you to carry out the duties of the office of Secretary/Treasurer. I am looking forward to working with Mike Ryan, Duncan Teague and the other members of the Council in insuring that SEPA continues to offer the services you want at a price we can afford.

Richard



A CHANGE IN THE SEPA

CONFERENCE SITE FOR THIS SUMMER

It was with great regret that during the early part of December, the Hummel Planetarium at Eastern Kentucky University withdrew its offer to host the 1981 SEPA Conference. This was done because even as of this mailing, the Commonwealth of Kentucky has not accepted the STS planetarium equipment being installed by Spitz Space Systems in the Hummel Planetarium on the campus of Eastern Kentucky University. A planetarium conference is not a planetarium conference without a fully operational planetarium. After discussing this problem with your new president, it was decided that the best interests of SEPA members would be served by selecting a new conference site for this summer. What could have been a problem, because of such a late date, proved to be no problem at all, for three planetariums immediately submitted invitations to host SEPA this summer. (See the President's message.) The staff of the Hummel Planetarium hopes this change in conference site presents no problems for any SEPA member in attending the 1981 conference. In the future, when the planetarium equipment in the Hummel Planetarium is fully operable, a new invitation will be extended to the SEPA membership to hold an annual conference on the campus of Eastern Kentucky University.

SEPA CONFERENCE 1981

MEMPHIS, TENNESSEE

By George Brown and
Ray Shubinski

Planetariums and their families attending this year's SEPA conference will be hosted by the staff of the Memphis Pink Palace Museum Planetarium in Memphis, Tennessee. From both a business and an entertain-

ment point of view, the 1981 conference should prove to be a great success.

Beginning June 17th, the conference attendees will be welcomed to the Pink Palace Planetarium. With a Viewlex Series IV star projector and seating for one hundred and sixty-five people, the Pink Palace Planetarium does a wide variety of public and school presentations. In fact, during the SEPA conference the planetarium, along with the rest of the city of Memphis, will be honoring the country of Egypt with a special presentation on ancient Egyptian Astronomy. Also while in Memphis, SEPA members will visit Craigmont Planetarium. This facility, operated by the Board of Education and directed by Mr. Duncan Teague, utilizes a Spitz 512 projector housed in a forty foot dome.

Besides the planetarium, the city of Memphis has many things to offer the conference goer. Within two miles of the planetarium, those interested will find Overton Square. With numerous specialty shops and restaurants, "The Square" should be of particular interest to spouses and families attending the meeting. For those persons interested in venturing from the immediate vicinity of the planetarium, downtown Memphis should prove interesting. Here visitors will find numerous eating establishments ranging from the Rendezvous with its barbecue ribs, to Number One Beale with its location on Beale Street, the birthplace of the blues. At the western edge of downtown Memphis, the land gives way to the father of waters, the Mississippi River. There are several large parks along the banks of the Mississippi, and it is even possible to take a two hour boat trip.

Memphis is a fascinating city with a wealth of things to do and see, and we feel that whether you are representing a planetarium at the SEPA conference or if you are just

coming along for the ride, you will enjoy your stay in our city.

* * * * *

EDITOR'S NOTE: You will find a tentative agenda for this summer's conference on page twenty-one of this newsletter.

CALL FOR PAPERS

A call is now being made for papers to be presented at this summer's SEPA conference in Memphis, TN. If you are interested, and we hope everybody will want to present a paper, please send an abstract to Ray Shubinski at the Memphis Pink Palace Museum Planetarium no later than May 1, 1981.

THE ORIGINS OF SEPA: AN INTERMITTENT FAMILY OUTING

By Jane P. Geoghegan
Richmond, Virginia

I go home from a SEPA conference, but something is different. I feel tired, yet refreshed. There are people out there like me, who understand that "dissolve" does not necessarily involve sugar and hot water, and a "pan" is not necessarily what you "dissolve" in. I have a pile of notes tucked into a manila folder which has "Jim - Room 3, Jack & Gloria - Room 6", scribbled in the corner. By next Christmas, I may have done all the things the notes inside tell me to: "write Doris and get the 'Astronomy in the Bible' script, send Bill Nixon at NASA my school address", etc.

This "moveable feast" called the Southeastern Planetarium Association began in February, 1970, when Jimmy Hooks invited a bunch of planetarium people to Lumberton, North Carolina. Their names had

been given to him by planetarium salesmen who roam the Southeast. Twenty-seven people showed up from ten planetariums. We had speakers: John Calabrisi from Chatham, Va., showed us how to do Kodalith slides; we heard a local astrologer tell his side of the story. We had lunch together (meal, tax, tip was \$2.00). But best of all, we decided to meet again. There was no regional association for our part of the country at the time; everyone else in the U.S. was covered. There was talk of a national organization, or maybe even international, forming.

We did meet again, in Atlanta, at Fernbank Science Center, in June of that year. This time, only 18 people came. But more importantly, we picked three officers and told them to get this thing moving. Selected were: Jim Hooks, President; Jack Gross, Vice-President; and Jane Geoghegan, Secretary-Treasurer.

Nineteen hundred seventy was a busy year for SEPA. In September, the three selectees got together and hammered out all the details we could think of that go into the formation of a new organization. We wrote a constitution, including by-laws, for an as-yet-unborn organization. Now we had a document. We needed someone to see it, to approve it. We arranged to hold a regional meeting during the CAPE conference in East Lansing, Mich., in the Fall, to "try out" our ideas. Ten Southeast people came and we began to feel like a real group. Jack Horkheimer was added at this time as liaison to any national publications which might emerge from the CAPE meeting. Jim Hooks became our regional representative from SEPA.

In February and March of 1971, we began to announce that we did, indeed, exist. We sent letters to every State Department of Education in the Southeast, asking for the location of every school planetarium. We told the planetarium

salesmen to begin their missionary work. We sent an announcement to Sky and Telescope magazine.

By the end of March, our list of potential members had grown to 88. When we gathered in June of 1971, in Atlanta, we had 54 people. We had arrived! The unofficial officers from the last Atlanta meeting were made official, adding Jack Horkheimer as Newsletter Editor. At our business meeting, we selected Jim Hooks our official SEPA representative to ISPE. Our first committee, on "Professionalism" was formed. We had an impressive list of special guests and member speakers: "The Creation of the Universe", by Dr. Wesley Krogdahl, University of Kentucky; "Oceanography in the Planetarium", by Jack Gross; "Planetarium Approach to Navigation", by Roland Jones; "Conceptual Astronomy: An Emotional Method", by Jack Horkheimer; "A Standardized Test in Elementary Astronomy", by Edward Guilbert; "Planetarium Presentations for the Deaf", by John Burgess.

If you're new to SEPA, maybe you don't know all these people, and I certainly don't intend to run down a yearly list of speakers in this recount of the "early years of SEPA", but just note the topics. They represent what these SEPA people were "into" at the time; just as now, they tell us "where we're at" when we "do our thing".

That's how we got started. With a viable constitution approved after a mailed balloting, and with a few bucks to tide us over from year to year, we were in business. Early on, we realized that the most important reason for our existence was to keep in touch. It's that simple. Our first newsletters, Jack Horkheimer's three twenty-five page "Southern Skies", highlighted our facilities and us, along with interesting articles. In 1972, Jack Gross agreed to act as a clearing house for job information. Like any organization, we began to establish what we now call "SEPA

traditions". In 1973, in Miami, the first slide copier appeared at a conference, and we had our first "special effects" workshop. We established a Professional Ethics Committee. We discussed having SEPA and ISPE together in even-numbered years, when ISPE meets. We rejected the idea; we wanted our own meeting, just us!

In fact, sometimes we just can't let one meeting a year do. Richard Knapp had a mini-workshop in Chapel Hill for us; Jack Gross hosted one at Bays Mountain in Tennessee. The Florida folks and the Virginia folks have begun to have their own regular meetings; 25 people came to Hampton, Va., in November of 1980 to watch the Voyager Saturn pictures at Langley-NASA come in.

Our main supportive vehicle, however, was, and is, the ANNUAL MEETING. Sometimes the conference chairman packs the time schedule really tightly. But we love it. Our most famous SEPA tradition is: WE SHOW UP FOR ALL SCHEDULED ACTIVITIES, NO MATTER HOW LITTLE SLEEP WE HAVE HAD THE NIGHT BEFORE. Jim Seebach, conference chairman in Charlotte in 1976, was made embarrassingly aware of this tradition. We had had an extremely long day: all-day meetings, a dinner, and an after-dinner speaker. It was 11:00 P.M. Jim had scheduled a planetarium show after the dinner speaker, not realizing how late we would be. We were to drive in our cars to the planetarium and meet him there for the show. Jim figured that no one would show up, as it was so late, so he dallied around, leisurely helping the speaker put equipment in his car, etc. He then decided that maybe he should drop by the planetarium to see if anyone was there. He found 30 people, patiently waiting, sitting on the curb in front of the planetarium! From then on, we have said that this SEPA tradition is a "midnight planetarium show", to be scheduled at the conference. Actually, there's more to it than that. Those 30 people showed up

because they knew Jim had planned something for them, and SEPA people don't let each other down. Besides, one never knows if he might miss something; a special adventure arranged by the planetarium conference chairman.

And such adventures! If you were there, you won't forget:

*touring Mammoth Cave, in Kentucky, June, 1977, with the Bicentennial Martian and Don Hall;

*nine, count them, nine planetarium shows at Cocoa Beach in 1979, complete with live monsters, unbelievably realistic and scary as hell;

*the state of the art: a fish-eye view of the desert, shown in Jackson, Miss., in 1980;

*downtown Atlanta: a gee-whiz adventure all by itself. The fabulous "Midnight Sun" restaurant. We like Atlanta so much we keep coming back: 1970, 1971, 1972, 1977. Remember the Zebra Lounge?;

*one hundred grown people running their fingers around the rims of water glasses to hear them "ring" during the elegant formal meal at the "Cascades" restaurant in Williamsburg, during the joint NASA-MAPS-SEPA meeting in 1974, while the high-level NASA guest speaker, next on the program, wondered if he should leave, then, before his speech;

*fifty, yes, that's fifty Spanish girls playing guitars in the courtyard of a fantastic Italian Renaissance palace, in Miami, in 1975. Frank Jettner being upstaged by a raccoon. How about "Moon over Miami", a three-hour boat ride on the Island Queen in 1973?

If you missed some of these adventures, don't let it happen again. You're a SEPA person now.

SEPA people are SEPA people even

before they know it. Consider this: the first meeting in February, 1970, in Lumberton, before we were SEPA. I had driven there, alone. I didn't know but two other planetarium people in the world. I checked into the motel around dark (conference was the next day). I decided to try to get something to eat. It was 7:00 P.M., the Holiday Inn restaurant was closed for the evening. Several of us ran into each other in the lobby. We were hungry. Jim Hooks, our conference chairman, showed up. "I will take you to this neat place to eat," he said. We went with him. It wasn't open. Undaunted, he said, "I know where there's a place". We went. We ended up at the only open door in Lumberton: the bowling alley-pool hall-hangout for all of Lumberton's late night (after 8:00) finest. We sat on stools at the lunch counter watching the cook-waitress-cashier draw heavily breaded, frozen chicken legs out of the freezer and plunk them into the ancient grease ("only hot food I got", she said). I thought: "What am I doing here?", followed by, "What is the meaning of life?".

It's ten years later now, and I know "what I'm doing here", (I'm still working on the second question). I'm one of the SEPA people, and that's what we do. We get together occasionally in all sorts of bizarre and interesting settings and "do our thing". The settings change, the personnel change, the scenario remains the same. I sincerely hope that twenty years from now, SEPA people still find an excuse to get together and share: our ideas, our frustrations, our profession, our fun, us.

* * * * *

EDITOR'S NOTE: It was during the 1977 conference in Atlanta that the SEPA membership voted to change the constitution to allow officers of the organization to hold office for two years instead of one, and the

term of office to begin in January of odd years rather than during the June conference. This was to allow the President and other officers more time in office to accomplish their goals and also to allow the President (who is SEPA's representative to the IPS Executive Council) to serve a term of office consecutively with the IPS term of office. It was at the 1977 meeting that the membership voted to have Bill Lazarus look into the possibility of SEPA becoming incorporated. Through a lot of work on Bill's part, SEPA became incorporated in South Carolina on May 15, 1978.

FOR YOUR INFORMATION:

Past Presidents

Jun 1970 to Jun 1972 - Jim Hooks
Jun 1972 to Jun 1973 - Jack Gross
Jun 1973 to Jun 1974 - John Burgess
Jun 1974 to Jun 1975 - Paul Campbell
Jun 1975 to Jun 1976 - Dick Knapp
Jun 1976 to Jun 1977 - Jack Fletcher
Jun 1977 to Jun 1978 - Bill Lazarus
*Jun 1978 to Jun 1979 - Jim Seebach
Jun 1979 to Jun 1980 - Jim Summers

*Jim left the planetarium field to take a job with TRW.

Past Secretary-Treasurers

Jun 1970 to Jun 1973 - Jane Geoghegan
Jun 1973 to Jun 1975 - Jim Summers
Jun 1975 to Jun 1977 - Bob Tate
Jun 1977 to Jun 1978 - Tom Fleming
Jun 1978 to Dec 1980 - Phil Groce

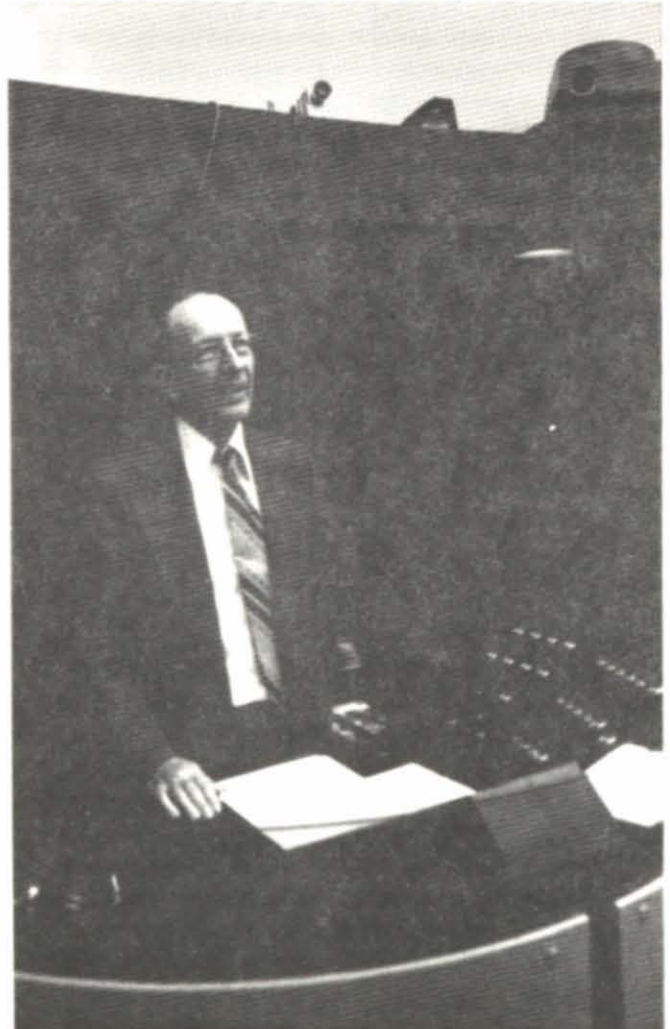
PLANETARIUM NAMED FOR
JOHN C. WELLS

Recently the planetarium at James Madison University was named in honor of SEPA's own John C. Wells; an honor that anyone associated with a planetarium would hold in high esteem. John joined the faculty of James Madison University in 1947 and was head of the Physics

Department from 1956 to 1974. John remained a professor on the faculty at James Madison University until he retired in 1979. But, do you think retirement could keep John out of the planetarium? No way! John, who is responsible for the development of the planetarium, and who opened the thirty-foot Viewlex Mark II facility in 1975, remains at James Madison University today as the full-time curator of the John C. Wells Planetarium.

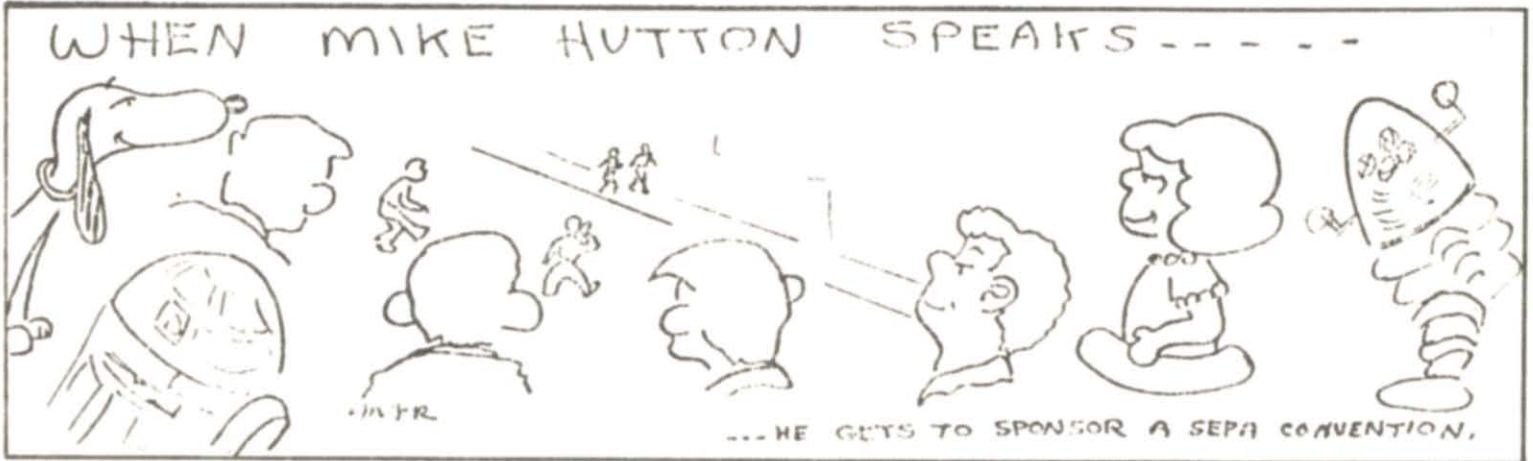
John's enthusiasm for planetarium work and his steadfast support of SEPA over the years is an excellent example to us all.

John, to you from the members of
SEPA--C O N G R A T U L A T I O N S
on such a high honor!!



John Wells at the console of the newly named John C. Wells Planetarium, Harrisonburg, VA

A SPECIAL TRIBUTE... By Jane Geoghegan, Richmond, Virginia



from "Flor-Plan" Newsletter

To the staff and chairmen of our past SEPA conferences who have given blood and smiled at us all as they secretly thought, "Why did I volunteer to host this conference? If I had known how much work...". We honor you as really special people of SEPA for having done such an enormous amount of work that has greatly contributed in aiming the direction in which SEPA has progressed.

Past Conference Sites and Chairmen

- 1970 Atlanta, GA - Andrew Olsen
- 1971 Atlanta, GA - Julius Staal
- 1972 Atlanta, GA - John Burgess
- 1973 Miami, FL - Jack Horkheimer
- 1974 Hampton, VA - Jack Fletcher
- 1975 Miami, FL - Jack Horkheimer
- 1976 Charlotte, NC - Jim Seebach
- 1977 Atlanta, GA - John Burgess
- 1978 Bowling Green, KY - Paul Campbell
- 1979 Cocoa Beach, FL - Mike Hutton
- 1980 Jackson, MS - Dick Knapp

EDITOR'S NOTE: *The Gadget Box is a column we hope to run in each issue of the newsletter. This column will be devoted to technical and artistic aspects of your planetarium. Please send your incredible ideas to the Newsletter Editor so that all members of SEPA may become as crafty and cunning as you. This month in the Gadget Box there are two ideas that can save you a lot of headaches and work. The first is by David Miller of the Hummel Planetarium, who tells us how easy and simple it is for anyone to weld aluminum with a blowtorch and a special rod that he has discovered in the marketplace. The second article is by Mike Ryan telling us how we can use a dissolve system of slide projectors to produce a zoom effect without expensive equipment. I believe you will find both of these articles quite useful.*

WELD DONE

By David Miller
Richmond, Kentucky

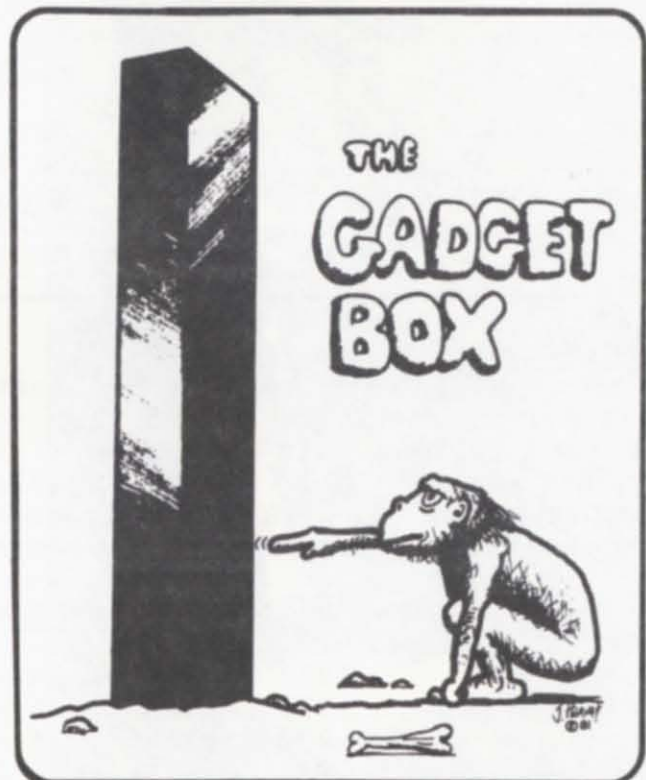
One of the best metals to use in fabricating gorps and gorpettes is aluminum. It can be drilled, tapped, sawn, bent, hammered, filed, and worked into shape easier than any other metal that is as economical to use. About the only drawback to aluminum has been its inability to be welded or soldered without exotic inert gas welding equipment. Or so I thought.

It is now possible to weld aluminum with a propane torch, Lumiweld welding rod, and a special procedure that is simple enough that even a semiliterate orangutan can master it in one hour or less.

The fine details and variations on the procedure are described in a brief but concise instruction sheet that is included with an order for the welding rod. With a little practice you can make surprisingly strong welds on most alloys of aluminum and 'pot' metal.

There are two main reasons why welding aluminum has always been considered so difficult: temperature control and the oxide layer that aluminum forms when exposed to air. The Lumiweld process overcomes the temperature problem by using an alloy rod that "dissolves" aluminum at 730°F. Aluminum melts at about 1100°F so there is little danger of melting through even

thin stock accidentally. The oxide layer problem is solved by first cleaning the weld area with a stainless steel brush, coating the weld area with Lumiweld rod in a manner similar to soldering, then scratching through the oxide layer under the Lumiweld with a stainless steel wire. This allows the Lumiweld to alloy into the aluminum creating a weld which can be stronger than the aluminum itself.



The potential uses of Lumiweld in the planetarium are almost endless. Besides welding two pieces of aluminum together, you can: build up a worn surface, repair damaged threaded holes, repair breaks and cracks in aluminum and pot metal,

reinforce weak areas, weld together complex parts from simple pieces, and even take advantage of Lumiweld's hardness for bearing areas.

Lumiweld can be machined like, and is as hard as, mild steel. It is nontoxic and works at, what is for welding, a low temperature making it relatively safe to use. However, be careful of hot pieces as heat conducts quickly through aluminum and wear safety glasses--they're cheap insurance.

Lumiweld is available by mail from:
 Alumasmiths Inc.
 Department H
 P.O. Box 517
 Deland, FL 32720

The current prices are:

72" of 1/8" rod	\$12.00
360" " " "	21.00
720" " " "	35.00
Stainless Steel Wire	
Brush	5.00
Two Lumibrades (Stainless steel wire)	1.00

Take five minutes to walk around your planetarium and notice everything that is made out of aluminum. Think--with Lumiweld--you could be master of it all.


ZOOMING WITHOUT A ZOOM PROJECTOR

By Michael Ryan
 Howey In The Hills, Florida


One of the obsessions I have had in the past few years that I have been in this unique profession, is the search for new and different special effect apparatus for the star theater. (Perhaps to a fault. Last year one of my Florida colleagues jokingly accused me of having collected so much 'stuff' that seating under my 20 ft. dome had been reduced to 3!) In that search I have found, more often than not, that a home grown device can present as pleasing an image AND at hundreds of dollars less than a similar piece of professional equipment. For example, I have yet to see a northern

WELDING WITH LUMIWELD


1. Clean area with a stainless steel brush.




2. Heat joint and coat with rod.





3. Scratch through oxide layer with stainless wire. Lumiweld can then "dissolve" into the aluminum.



4. Let cool to room temperature.



 Oxide Layer
 Lumiweld

lights projector as effective as Mike Hutton's rotating Coke bottle.

Before we delve into the specifics of the poor man's zoom, permit me to make a few assumptions:

(1) you don't have a budget which can afford one of those nice \$1,000+, 6-1 rotating zooms sold by you-know-who;

(2) perhaps you do have that kind of money, however, necessity dictates that you spend it on re-

placement of your ten year old E-2's that have been sporadically indexing slides at a time of their own choosing and have fan bearings so worn that the resulting noise approaches the threshold of pain; or,

(3) you lucky dog, you! You've got one of those 6-1 machines but have grown tired of its one slide limitation.

If any or all of the above applies to you, read on. The way out, of course, is to simulate a zoom through the use of slides in a cross-fade arrangement with each successive slide containing an image progressively larger or smaller. Already I can hear your objections.

"Hey, wait a minute! For this to work properly don't you need that fancy Nikon camera with the \$3,000 pin-registered back?"

Certainly that would be nice, but it is not absolutely necessary. Remember, we are assuming that if you have read this far, you have a limited budget and can't afford that degree of elaborate equipment. Admittedly, without pin registration in the camera, a certain amount of error is built in. Still the system we have used works quite well.

First, consider the equipment employed here at Howey:

- (1) a tripod;
- (2) a Pentax MX, non-automatic camera;
- (3) pin-registered slide mounts.

There are a few reasons why the Pentax MX was chosen for copy stand work. The camera is relatively inexpensive, but more importantly, it has the capability of interchangeable focusing screens. An extra \$20 can purchase a grid pattern screen which helps tremendously when lining up copy.

While story-boarding a cosmic

concert last year for middle and high school chorus students, it was decided to show an astronaut zooming large at the beginning of Abba's Moving On, reversing the sequence at the song's conclusion. The figure in the original painting was no larger than six inches tall. Yet, by the time the 13 slide sequence was finished, the projected astronaut towered over the audience. (Our E-2's have 4" lenses.)

Photography for the sequence was easier than originally suspected. The painting was taken outside in bright sunlight and mounted on a building at a height level to the camera lens. The tripod and camera (camera mounted vertically, rather than the usual horizontal position) were moved in until the image of the astronaut literally filled the viewfinder. (That, incidently, is another nice feature of the MX. The 1:2, 50mm lens allows focusing as close as 1.5 ft. without the need of adapters.) At this close position, two shots were taken since the sequence was to be shown twice.

At such a close range, one notices that moving the camera back by a matter of just inches results in a dramatic reduction of image size. Thus, the next five or six pictures in the series were taken with a MINIMUM of back tracking. Once again, the grid pattern helped tremendously while deciding how much shrinking one wishes to have from frame to frame.

As you might suspect, as the image became progressively smaller, greater and greater distance changes were required to accomplish the same degree of shrinking. The next to the last shot was taken 25 feet away with the last picture photographed 50 feet away.

(For those of you who might be jumping ahead of the game and are wondering how one masks a speck of an image on a 35mm slide--the answer to this and other fascinat-

ing questions will appear in a future article entitled, "How To Go Blind Using Kodak Opaque".)

There is a matter of perspective which should be discussed. When moving the tripod from one position to the next, make sure that one spot on your artwork remains at the same position in the viewfinder for all pictures taken. In the case of the astronaut series mentioned before, some detail in the center of the portrait was chosen to be lined up with the cross hairs in the center of the viewfinder.

You can, of course, pick any stationary reference point you wish. However, be cognizant of the effect you are trying to create. If, for example, you position the feet of the painting near the bottom of the viewfinder for all shots taken, you will probably wind up with a sequence of the incredible shrinking astronaut rather than the illusion of depth change.

Finally, we should mention the need for pin-registered slide mounts. Before we mentioned that the camera is not pin-registered and, as such, there is bound to be a slight shift from frame to frame. This you have to live with. However, it makes no sense whatsoever to put all that hard work in aligning your photography only to have the film jump around in its mount to any degree it chooses. Pin-registered mounts are the only way to travel.

The effect is quite pleasing, having the added bonus of seeing one slide fade into the next--a bit of magic the 6-1 zoom cannot accomplish.

It's simple. It's cheap. But most importantly, it is effective.

MOVES

During the latter part of December, Ray Shubinski left the Charlotte

Nature Museum Planetarium in Charlotte, NC, to become the Director of the Memphis Pink Palace Museum Planetarium in Memphis, TN.

As of January 1, Sue Griswold (formerly Sue Smith) left the Settlemyer Planetarium in Rock Hill, SC, to become the Director of the Charlotte Nature Museum Planetarium.

As of January 15, Louise Morris, formerly Sue Griswold's assistant at the Settlemyer Planetarium, became the Director of the Settlemyer Planetarium in Rock Hill, SC.

Would you believe! As of January 30, 1981, Bill Lazarus has terminated his employment at the Gibbes Planetarium. He has established his own computer consulting services, known as AA Computer Services, and is devoting all his efforts to this venture. When asked what AA stood for, he said, "Nothing! AA just gets me first listing in the telephone book." Sounds like Bill, doesn't it.

* * * * *

EDITOR'S NOTE: If you have made a move, had a change in planetarium staff members, or know of anyone who has, please let the Newsletter Editor know so everyone in SEPA may be made aware of the changes.

GUESS WHAT?

Paul Campbell, Director of the Hardin Planetarium at Western Kentucky University, on January 3rd, married his "college sweetheart". Paul's new wife, Eugenia Goodman, who also goes by the name of Jean, was Paul's college sweetheart while they both attended Western Kentucky University in Bowling Green, KY. His wife is originally from Timber Ridge, VA, and was working in Richmond, VA. Paul will continue as Director of the Hardin Planetarium at Western Kentucky University and Jean is relocating to Bowling Green. Paul

tells me that Jean likes to travel as much as he does, so we'll all look forward to seeing Paul with his new wife at the SEPA meeting this summer in Memphis. Congratulations, Paul!

Dear Bedazzled:

Though you failed to mention which automation system you have, I will assume that it is not one of the top-of-the-line models such as the AVL Eagle (which has programmable intensity control.) Fear not! There are a number of possible solutions.

First, if your Ektagraphics are of the older generation (those which normally require a 500 watt DAH bulb), there is a substitute bulb, a DCY lamp which is rated at 150 watts. If, on the other hand, your Ektagraphics are newer and normally use an ELH, quartz-halogen bulb, the solution is not merely a matter of bulb substitution. True, there is an ENH bulb which is lower in brilliance and can be used in place of the ELH, however, the corresponding intensity drop-off may not be as much as you desire.

The most practical solution is for you to mask the front of the projection lens with a piece of black construction paper, cutting out a small hole in the center. Try various size holes until your image is as bright or dim as you desire.

This solution, incidently, yields an unexpected benefit. If, for example, you find that a 3/8" hole works best on a 4" focal length lens, that lens will be stopped down from f/2.8 to f/11. Since you will be using light rays from only the center part of the lens, your images should sharpen up considerably. Try it and let me know how it works.

Uncle Fuzzy

WHO IS UNCLE FUZZY
ANYWAY...?



EDITOR'S NOTE: The following column is dedicated to those of us who, at times, feel utterly lost in our planetarium. Uncle Fuzzy (who for some obscure reason prefers to remain anonymous) will gladly tackle any question. Simply mail your problem to Jack Fletcher, Newsletter Editor, and it will be forwarded pigeon class in a sealed mayonnaise jar to our omniscient wonder.

* * * * *

Dear Uncle Fuzzy:

Before we automated the Ektagraphic projectors in our 30 ft. theater, it was relatively easy to balance the intensity of the image against the starfield. Now our automation system brings each projector bulb up to full brilliance, completely washing out all but first magnitude stars. Can anything be done?

Bedazzled

Dear Uncle Fuzzy:

I have a problem which I share with all the other male technicians in our planetarium. There is this cute, shapely assistant who recently has been giving all of us the eye, so to speak. Unfortunately, our director has been keeping all of us so busy that none of us have enough energy left at day's end to even think about romance. What can be done?

Droopy Eyes

Dear Droopy Eyes:

There is an answer to your dilemma. Send me her phone number and mention this problem to no one else.

Uncle Fuzzy

WHO MAKES UP SEPA

As of this mailing, SEPA has 101 active members, i.e., those who have paid their June 1980-May 1981 dues. Of the 101 active members, 82 are full members (those being in the southeastern region) and 19 are associate members (those lying outside the southeastern region). The number of SEPA members listed by states is as follows:

FULL MEMBERS

FL - 23	NC - 4
TN - 10	LA - 3
VA - 10	SC - 3
GA - 9	AL - 2
KY - 9	WV - 1
MS - 8	

ASSOCIATE MEMBERS

MI - 4	MD - 1
OH - 2	MN - 1
TX - 2	NE - 1
CA - 1	NM - 1
CO - 1	NY - 1
IN - 1	PA - 1
MA - 1	WI - 1

1981 ASTRONOMY DAY 1981

On May 9th of this year, the United States and Canada will jointly celebrate Astronomy Day. Astronomy Day is a cooperative activity of The Astronomical League, the Astronomical Society of the Pacific, the Astronomical Society of Northern California, and the Royal Astronomical Society of Canada. In New Zealand, Astronomy Day will be celebrated on March 14th, and in England, National Astronomy Week will be celebrated April 20-26.

What will you be doing for Astronomy Day? Have you thought of asking the governor of your state to declare May 9th Astronomy Day for your state? It is unbelievably easy to get this done in most states. Call the governor's administrative assistant and see what you can do. You had better start planning now for May will be here soon.

After you celebrate Astronomy Day in your planetarium, why don't you send a story to "Southern Skies" telling us all about what YOUR planetarium did. Include black and white photos. We will all be waiting to hear from you!

FREEBIES

There are several magazines sent to planetaria, free of charge, because we are in the audio-visual business. All you have to do is write the following magazines stating how you incorporate audio-visual work into your daily programs and the magazine will send you back a small card to fill out. If you qualify for a free subscription, and chances are real good that all of you will, then you will start receiving the magazine on a monthly basis, absolutely free. Frank Palma, of the Owens Planetarium in Pensacola, sent me the address for Technical Photography and said he had been receiving it free of charge for eight years. I found out

about Audio-Visual Communications during the Cocoa conference in 1979 from Phil Groce. I wrote to the magazine and have been receiving Audio-Visual Communications, free of charge, for the past two years. I received a letter in the mail one day asking if I would like to receive a free subscription of Photomethods. I replied that I would, and I have been receiving this magazine, free of charge, for the past three years. I find these three magazines to be most helpful in many ways, especially the advertisements that help keep us up-to-date on the latest audio-visual equipment available and how to use it. Why not write to these magazines and see if you qualify for a free subscription! It costs you nothing to ask and if you do qualify, I am sure the magazines will be quite helpful to you.

If you know of any other free publications that may be of some value to the members of SEPA, please send the information to the Newsletter Editor, so it can be published in the next issue of "Southern Skies".

THE CARE AND USE OF MAGNETIC RECORDING TAPE

PART I: TAPE STORAGE

By Michael F. Ryan
Howey In The Hills, Florida

EDITOR'S NOTE: This is the first in what we hope to be a series of articles on tape recording techniques. If you would desire to have a specific aspect of this field discussed, please contact Mike Ryan.

* * * * *

No matter how you use recording tape in your star theater--as a medium for walk-in music, background music for live presentations or the heart of totally 'canned' shows, how you treat your tapes can make or break any presentation. There are some

WHERE TO WRITE FOR FREE PUBLICATIONS

Technical Photography
250 Fulton Avenue
Hempstead, New York 11550

Audio-Visual Communications
Medio Horizons, Inc.
475 Park Avenue, S.
New York, New York 10016

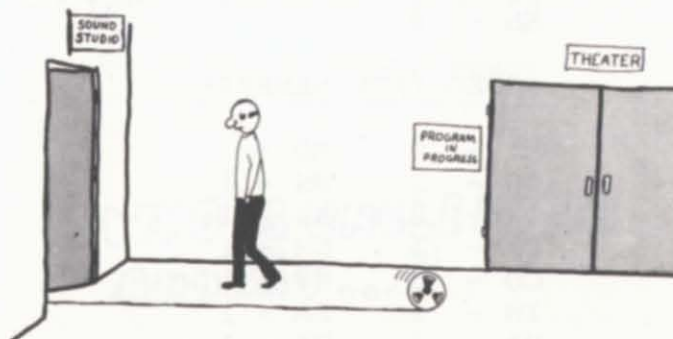
Photomethods
P.O. Box 5860
Cherry Hill, New Jersey 08034

simple rules which should be followed, regardless of how inexpensive or sophisticated your equipment is.

Mind you, I am not trying to pass myself off as an expert in the field, even though my dealings with the medium go back to the early 60's in a Buffalo, N.Y. radio station. Despite my background, I am still prone to some outstanding goofs, one of which will be related to you in a future issue of this newsletter.

Before we get into specifics, let us make one assumption. The planetarium industry format is mostly reel-to-reel. Though some theaters still use cassettes and fewer still 8-track, we will restrict our discussions to the reel format because of its almost universal popularity and versatility.

Now, let us consider the simple matter of tape storage. Let us assume that you have just finished the run of a pre-recorded show and are ready to put the tape on the



shelf until it is needed again a year in the future. NEVER--I repeat--NEVER use the rewind button on your machine prior to storage. If you do, you will be laying yourself wide open for a problem which the industry calls "Print-through".

To understand this problem, let us consider first the nature of the signal stored on the tape. Recording tape is made up of--for want of a better term--tiny little magnetic particles (each having a north-seeking and south-seeking magnetic pole) embedded in some form of emulsion on the tape backing. These particles on a reel of blank, unrecorded tape are scrambled in an infinite pattern so that the net effect is there will be no predominant accumulation of north magnetic poles in any one direction. The results of this is no sound.

When a blank tape passes by the recording head while the machine is in the 'record' mode, this head sends out a strong magnetic field which, in turn, 'instructs' or 'commands' the tiny particles to line themselves up in a certain direction. If you could see the way in which these particles line up, it would probably be like watching a large group of soldiers on a marching field. In one small section all the 'soldiers' are facing one way; but in an adjacent section the 'soldiers' face the opposite direction.

If the signal being recorded is from a low, bass note, you would probably notice that the bank of one-way 'soldiers' is quite thick before a reversal of magnetic poles takes place. However, if a high, treble note is being recorded, the thickness of the respective ranks would have fewer 'soldiers' lining up in a given direction and the appearance of the whole 'field' would look like thin, alternating stripes.

Once a tape has been recorded, these magnetic particles remain fixed in their positions. Since we have

several ranks of microscopic particles with all the particles within a given rank facing the same direction, each rank collectively behaves like a bar magnet, possessing a magnetic field which permeates the space around and above the tape.

Now we come to the 'print-through' problem. When a tape is rewound or, for that matter, goes through fast forward, the motors spin the reels at a much faster rate than when in the play mode. The effect is more pronounced in machines with three motors. (Tape recorder manufacturers, I guess, strive for faster and faster speeds so that the user is not bored to death waiting.) As nice as this may seem, there is a nasty side effect.

More tension is applied to the tape and the whole reel is wound with each layer more tightly packed against its neighbor. If this tape is then stored for any extended period, the magnetic field from one layer extends into space and induces the particles of the adjacent layer to re-arrange themselves slightly.

The effect is similar to an experiment many physical science teachers demonstrate in class. An unmagnetized screwdriver is placed against a strong magnet. The longer it stays in place, the more metal particles in the tool are induced to turn around according to 'instructions' from the magnetic field. Soon the screwdriver itself becomes magnetized with the strength of its own field somewhat determined by the length of time it had rested against the original magnet.

On a smaller scale, the same is true for tightly wound magnetic tape stored for a time. The signal or 'sound' of one layer is slightly transferred to an adjacent layer and can be distinctly heard on playback but, of course, at a much lower sound level. As in the case of the screwdriver, the longer the tape is stored in this tight condition, the louder will be the resulting 'print-through'.

So what can you do to minimize the problem? There are two alternative solutions:

(1) when a show tape has had its final run, let the tape completely wind off the feed reel onto the take-up reel. (Do NOT use fast forward for this.) Simply take the filled take-up reel off the machine and store it in the tape box. The tape is said to be wound 'tail-first' in this condition. The result: less tension, less print-through. Or,

(2) fast forward the tape until it is all on the take-up reel; switch both reels on the machine and rewind the tape using only the play mode. This alternative, of course, takes more time. Your tape will then be stored 'head-first'.

A few ending notes.

There are several planetarium people who are so cognizant of the 'print-through' problem that they refuse to rewind a tape at the end of a day's operation, doing so only a few minutes before the first program the next day. This is not a bad idea, since the signal transfer can take place even if the tape is stored tightly just overnight.

Finally, 'print-through' is a problem inherent with the medium. It can be minimized, but there is no way to completely eliminate it, even with the above precautions. It should also be mentioned that signal transfer between layers can either be enhanced or diminished based on the type of tape you use. This aspect, however, will be covered in a forthcoming article.

TAPE
LIBRARY



A TILT WITH A LILT: NEW PLANETARIUM PLANNED FOR ROANOKE, VA

By Michael Bentley
Roanoke, Virginia

An exciting new planetarium-theater is being developed for the Roanoke Valley Science Museum in Roanoke, Virginia. The planetarium project was funded in 1980 by the Virginia General Assembly as part of a major expansion of the Museum. The Museum now occupies an old six-room schoolhouse, but in late 1982 it will move to a downtown Roanoke location which is easily accessible to all residents of the community. The Museum will occupy some 30,000 square feet on two floors of the Center in the Square--the Western Virginia Center for the Arts and Sciences. Other cultural institutions located in the new Center include the Roanoke Museum of Fine Arts, the Roanoke Valley Historical Society, the Mill Mountain Playhouse and the Roanoke Valley Arts Council.

The Center will be located in Roanoke's historic Market Square, the site of one of the nation's few remaining viable farmer's markets. Part of the Center will be renovated from a large turn-of-the-century farm machinery warehouse. The planetarium-theater, a community theater, and a parking garage will be constructed adjacent to the older building.

Nave Fortson Nicholson Design Associates of Haddonfield, New Jersey, who designed the "Hall of Balloons and Airships" at the National Air and Space Museum and the Tennessee State Museum, has been awarded the contract for the exhibits. Donald Lunetta has the contract to produce the first planetarium program for the Museum.

The planetarium-theater will feature a 40 ft. tilted dome and, because of its unusual design, will have

150 fixed seats. The audio-visual capabilities will include a Spitz 512 planetarium, 16mm and 35/70mm motion picture projection facilities, and special effects projection. A panoramic projection system consisting of eight banks of three slide projectors will enable the projection of panoramas of astronomical and earthbound topics in both the horizontal and vertical formats. The facility is being designed to be more than a setting for astronomy programs, being adaptable for plays, musical concerts, dance, lectures and films. These activities are provided for by a performing stage within the dome and a scrim stage to be located outside the dome.

One of the important new features of the planetarium will be its automation. The Spitz automation playback system is being modified in such a way that the control information can be stored on the Spitz cassette and/or on the same tape being used for the sound track and special effects controls. We think this will prove to be a simpler and more reliable system.

The seating platform is thrust up into the dome. The raised seating platform allows the planetarium support space to be located under the seating platform, convenient to the console located in front. As with the tilted dome planetarium built at Ogleby Park in Wheeling, West Virginia, the rear of the theater is a flat floor area where seats can be added for films or special programs. The stage will provide a sprawl space for students that will allow the planetarium educator to offer interactive, personalized astronomy programs to school groups.

The new planetarium-theater, the first ever in the Roanoke vicinity, promises to be an integral component of the education programs of not only the Science Museum, but of all cultural organizations in the Center.

The director of the Roanoke Valley

Science Museum is Dr. Thomas Krakauer. The Museum is located at 2323 Overlook Road, N.E., Roanoke, Virginia, 24012, (703) 563-2891.



Now that you have read the newsletter, what do you think? I would appreciate your comments, good or bad, and suggestions for future newsletters. Don't be ashamed to write!

I am really pleased with the response I received when I requested particular articles from certain people. No one let me down. I still, however, would like to receive unsolicited articles for up-coming issues of "Southern Skies".

I can't believe I only received two letters to be forwarded to Uncle Fuzzy. As SEPA members, you have a tremendous opportunity to ask one of the greatest sages of all times the very questions that are on your mind. I hope you won't continue to be shy. Uncle Fuzzy promises me he will have an answer for every one of your questions. I am also surprised that I did not receive a single, unsolicited article from someone telling me about their planetarium. I know there must be a lot of you out there who are proud enough of your facility to let us know about your facility. As a planetarian, you know you are always interested in what everybody else is doing, so why not share with us what you are doing.

Come on, send me an article about what you do everyday!

In the next issue we are going to hear from Phil Groce and Mike Hutton, who have just recently attended the National Audio Visual Association (NAVA) meeting in Dallas. In Phil's article he will "...reveal the latest in new projectors and projector control systems... tell about 9, 15, and 21 projector shows from AVL, Clearlight, Arion, Spindler-Sauppe, and Electrosonics ...tell about new sources for single slide and special effects projectors..." and much more. Phil sums up his visit to NAVA by saying, "In short, it was a valuable meeting for anyone in the planetarium trade." Mike, in his article entitled "Slides, the Hidden Resource", "...will deal with the lack of creativity with using slides in the planetarium..." and will tell how "...slides can be used to generate visual effects that are not possible with zoom projectors, coke bottles, or the ever resourceful Duco cement and masking tape." Mike is a great believer in "...why kill yourself inventing or looking for a special effect when someone has probably figured out how to do it with slides." I am sure both of these articles will be quite useful to everyone in the planetarium business.

Also in the up-coming issue will be a copy of SEPA's constitution and by-laws with some suggested changes that will be voted on at the SEPA conference this summer. Bob Tate is writing an article concerning professionalism in the planetarium, which will include a code of ethics for planetarians. The adoption of this code of ethics for SEPA will also be voted on at the conference this summer.

It has been a lot of fun putting this newsletter together, but I had no idea how much work I was getting into. I understand now why Mike Ryan accepted my offer to be editor of the newsletter so quickly.

I want to thank all of the members of the Hummel Planetarium staff who have contributed a lot of time and effort in helping me assemble this newsletter. This newsletter is, and future newsletters will no doubt be, a group effort.

Between now and May, be sure to write to me about what's on your mind.

JUPITER-SATURN TRIPLE CONJUNCTIONS

(IN LONGITUDE), 7 BC to 3000 AD

Year of triple conjunction	Waiting Time in years
7 BC	338
332-333 AD	79
411-412 AD	41
452 AD	257
709-710 AD	258
967-768 AD	40
1007-1008 AD	298
1305-1306 AD	120
1425 AD	257
1682-1683 AD	258
1940-1941 AD	40
1980-1981 AD	258
2238-2239 AD	41
2279 AD	376
2655-2656 AD	139
2794-2795 AD	119
2913-2914 AD	

List of conjunctions compliments of Robert C. Victor, Abrams Planetarium

TENTATIVE AGENDA
1981 SEPA
CONFERENCE

Wednesday, June 17

10:30 am - 4:00 pm.....Registration
1:00 pm - 4:00 pm.....Exhibitors set up in Exhibits Hall
3:00 pm - 4:00 pm.....Planetarium Show
5:00 pm - 7:00 pm.....Feed ur self
7:30 pm - ?Wine, Cheese, Beer Party/Open House
9:00 pm - "Shuttle Service
10:30 am - 4:30 pm through Friday.....Gaming Room

Thursday, June 18

8:30 am - 9:00 am.....Coffee & Doughnuts, Bagels
9:00 am - 9:45 am.....Opening Remarks/Welcome
9:30 am - 10:00 am.....Family Orientation
10:00 am - 12:00 pm.....Guest Speaker
12:00 pm - 5:00 pm.....Exhibit Hall
12:00 pm - 1:30 pm.....Feed ur self
1:30 pm - 2:45 pm.....Paper Session I
2:45 pm - 3:15 pm.....Break
3:15 pm - 4:30 pm.....Paper Session II
4:30 pm.....Shuttle to hotel begins
5:45 pm.....Shuttle pick-up at hotel
6:30 pm - 7:45 pm.....Group supper/menu to include pizza & beer
8:00 pm - 10:30 pm.....Evening session at Craigmont Planetarium
11:00 pm.....Shuttle returns to hotel

Friday, June 19

8:15 am - 9:00 am.....Breakfast/eat with us
9:00 am - 10:30 am.....Business meeting
10:30 am - 10:45 am.....Coffee break
11:00 am - 11:45 am.....Planetarium Show
11:45 am - 1:15 pm.....Lunch/feed ur self
12:00 pm - 4:00 pm.....Exhibit hall open
1:30 pm - 2:15 pm.....Workshops
2:15 pm - 2:30 pm.....Break
2:30 pm - 3:15 pm.....Workshops
3:15 pm - 3:30 pm.....Break
3:30 pm - 4:15 pm.....Workshops
4:30 pm.....Shuttle to hotel
5:00 pm.....Exhibits Hall must be cleared
6:00 pm.....Shuttle arrives at hotel
6:00 pm - 10:30 pm.....Banquet and speaker
10:30 pm.....Shuttle returns to hotel

Saturday, June 20

9:00 am - 9:30 am.....Coffee and doughnuts
9:30 am - 11:00 am.....Discussions and final comments/door prizes
11:00 am - 12:00 pm.....Shut down and conversation
12:00 pm.....SEE YA'LL LATER