

SOUTHERN SKIES



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Southern skies



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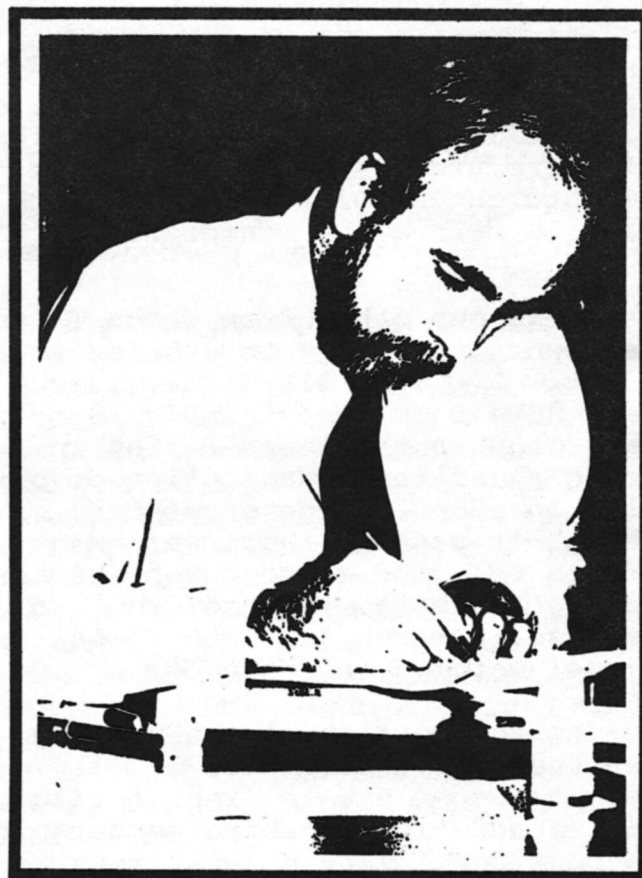
A MESSAGE FROM YOUR PRESIDENT

April 15, 1982 (April Fool's Day for the IRS)

I know that many of you are wondering what in tarnation is happening down at Howey in the Hills. I promise that I will get to that, but first let us take care of some SEPA business, first.

I most sincerely hope that many of you are making plans for the conference in Kingsport this June. Carole Groce has promised me that this area is God's country...reportedly it is that beautiful. SEPA has had a tradition of holding exciting meetings and this one has all the earmarks of being a hum-dinger.

Lest there be any doubters in the region who have looked at the registration fee and had second thoughts, may I ask you to look again at just how much you are receiving for your money...specifically FOOD! I know that Mike Chesman and company have planned long and hard to get things moving. (And if there are some purists in the association who might be holding out under the fear that Astro Bird may be making another appearance...rest assured. A.B. will be staying home. This time you may be assaulted by Father Time. Yecchh!)



On the serious side, several important considerations will be discussed during our stay at Bays Mountain Park. SEPA will be asked to elect a new set of officers at the business meeting. We have a large election committee at work seeking out prospective candidates for your consideration.

The office of Secretary/Treasurer as well as the office of Vice President/President-Elect will be decided in June. Remember that Richard and I

will end our term of office as of this coming January. The reins of the organization will be turned over to the very capable hands of Duncan Teauge.

Also remember that our SEPA dues will be coming due in June. (REMEMBER that increase Mike Ryan sneaked by last year? Now, we will be facing the exorbitant amount of \$10.)

On a different front, SEPA members will have the task of selecting a site for the 1984 conference. As of this writing, I have heard from only one person: John Hare in Bradenton who has graciously offered his facility for your consideration. If there are any others who might be interested, please get in touch with me before the conference.

There is one other item which I feel is important enough to ask for your input. If you will recall, last year SEPA took an extremely important (and controversial) step in being the first organization of our kind to adopt a code of ethics. Though it passed, there were many of you for good reasons who abstained during the vote. Some of you had some serious concerns about individual wording in the code.

During the portion of the meeting devoted to old business, I will permit any of you to present alternative additions for the membership to consider. I personally feel that our code of ethics is a fine document. However, it cannot have any strength unless the majority of us approve of it.

Last year I asked you to give the code your approval based on its principle. You were kind enough to do so. Now, we need your suggestions for improvement, if, indeed, improvement is necessary. Please consider this carefully and be prepared to present your wishes.

In a final urge with respect to the

conference, I am aware that many of you may feel that you have to make a choice between SEPA's meeting in June and the July IPS conference in Vancouver. If such is the case, may I make a prediction, the SEPA conference will cost you less and you will probably receive more of value at our regional meeting than you can elsewhere. (Believe me I understand tight finances. Since I have to be at both meetings, Sue and I will be tent camping our way across country to save on costs during July.)

So much for business. Now on to the one thing that has probably been on your minds when you think about me and the Lake County School Planetarium. No doubt, many of you were confused when you read my rather non-descript article last issue about survival and the preparation of a self-study booklet which may have been followed by somewhat of a panic letter asking for letters of support.

Let me attempt to put things in chronological order. When I wrote the last president's message it was then early in January. At that point in time, everything seemed calm. My self study was completed. The committee assigned the task of evaluating my program had finished its work and their report had me smelling like a rose.

During the month of February, the school board met in several workshop sessions attempting to find extra monies to improve teacher salaries by chopping away at existing programs. Believe me, the ax flew wildly. Teacher allocations were cut back; the teacher aid program was eliminated; drivers education disappeared; our innovative outdoor school program for 6th graders fell by the wayside; even high school trips to the west coast of Florida for marine science students were struck down. The cost savings? Somewhere in the neighborhood of \$1.2 million.

Throughout all of this hacking away, somehow, the planetarium survived.

Then in early March the same board met in formal session and adopted as policy all the cuts they had poured through before. Once again the planetarium survived.

(Perhaps it would be noteworthy at this point to clarify one issue. Does Lake County have an eroding tax basis to warrant such program devastation? Heavens no. Rather we have an ever-increasing retirement community in our citrus based region who rebel at all school taxes. The result has been that our county is BY CHOICE one of the lowest on the list of counties when it comes to the levying of discretionary millage for property taxes.)

Should I even bother to mention that the one program which had to be kept at all costs was high school athletics? Perhaps I shouldn't. That topic could get me started on a tirade which ostensibly could last for pages!

But back to the saga. It was now early March and I had the mistaken notion that all was well. What I didn't know then was that certain principals, seething over the prospect that they would be losing teachers and teacher aides, were making it known to their faculties that because the planetarium survived, they would have to assume larger class sizes and no assistance in the classroom. (In other words, blaming a \$40,000 a year program as being the culprit for the loss of \$900,000 + in these services.)

It has not been an easy time for education in our neck of the woods. Instead of everyone pulling together to see what POSITIVE things could be done to improve the quality of learning, we were (and still are) regressing to the 'me-first and to h**l with anyone else' syndrome.

When did I find out that all of this was taking place? The date was Friday, March 12th. That morning I was called in to the assistant superintendent's office and informed that a school board member who shall remain nameless insisted that the planetarium be placed on the next school board agenda for cutting purposes. Why?

At the prompting of some principals, some teachers had called the board members with complaints. To wit: "Every year I bring my kids down to the planetarium, I see the same old program."

Did this board member even have the courtesy to contact the planetarium to substantiate the charges? Of course not! It's much easier to get rid of the program.

Regarding the allegation, it has some measure of truth. Those of you who know me well and are familiar with my operation, are aware that I track lower elementary students from K-5 to insure that from one year to the next THE STUDENTS are exposed to a different planetarium experience. Most of us do the same. Unfortunately, if a teacher remains at a given grade level, that teacher will see the same concepts presented year after year. (This was explained to the school board member when he first insisted that my program be reconsidered, but such explanation fell on deaf ears.)

D-Day was supposed to have occurred on the meeting of the 23rd of March. I was instructed the morning this fell on my shoulders that if I wished for the program to continue I would have to get support behind me in advance of the 23rd.

Hence came the letters which many of you received asking for support. Not only did these letters go out to the SEPA family I know so well, there were some sent to individuals who know of my operation nationwide

The response was more than I could have ever hoped for. To each of you who spent the time and energy to make your feelings known, I am forever in your debt. Each of you deserve my groveling at your feet for the efforts you did at my request.

I think that most of you know that I am not, by nature, a political animal. But when my back was to the wall, so to speak, I had no other choice. I honestly believe that the board did not expect the sheer volume of support which descended on them. Help came locally also. The best comment from a citizen in the county who wrote said: "Do we have to throw out the baby with the bathwater?"

The 23rd arrived and I found myself sitting in the board room with stomach tied in knots waiting for the verdict. To make matters worse, the planetarium was listed at the end of the agenda. Three additional hours of waiting in agony and then it came. **THEY TABLED IT UNTIL THE MEETING OF APRIL 13TH!**

Apparently, because of the kind things you had to say about our theater, the board was having second thoughts and wanted time to conjure up alternative proposals. The only concrete thing I got out of that meeting was a plea from the very same un-named board member to "Stop the letters."

As I sit here putting this wordy composition together, the 13th of April is now two days past. The good word is that the planetarium survived, with minor budget cuts and cut-backs in days beyond contract.

I know in my heart that I should be extremely elated. But somehow, that just isn't the case. My friends, I feel wrung out.

(Oh, I nearly forgot this one. You are going to love it. After the star theater received a 5-0 vote of approval, the same board member I

have repeatedly alluded to before came up with the following slur:)

"Well. Since all these places nation-wide are in favor of the continuance of the planetarium, perhaps we should open an account at a local bank and write each one of them a letter requesting financial assistance to keep it going. Let's ask them to put their money where their mouth is." He obviously resented that you dear people cared.

Remember the Mark Twain quote I mentioned in the last issue? True!

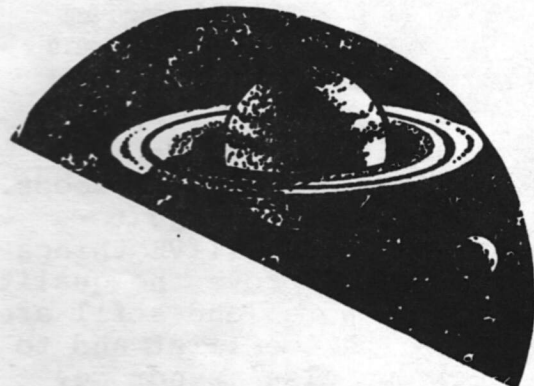
So it all boils down to this. Why do I bother to try as best as I can to offer quality presentations at the theater? Why did I even bother to go to the extent of putting together a self study in advance of this entire mess of events? Am I worried about having a job at the theater?

The answer is simple. The ONLY reason for anything that I do is for the kids. They are the ones who keep me going. They are the ones which make it all worthwhile.

The only thing which is on my mind as I close this missive is this: God, it's going to be good to be among friends this summer at SEPA!

My eternal thanks. Your efforts did the trick.

Mike



SEPA 1983

We have not yet had the 1982 conference so you are no doubt wondering why I am writing about the 1983 conference. The reason is to offer you some dates to consider. SEPA traditionally has its conferences during the second or third week of June. Charlie Smith from the Science Museum of Virginia, where the 1983 conference will be held, is considering holding the conference in August of next summer. Charlie has asked that you consider the first week of August as possible dates for SEPA 1983. Consider these dates and let Charlie know your opinion. (Charlie will be at the conference at the Bays Mountain Planetarium.)

Editor

THE PROCESS OF NOMINATION

DOUG GEGEN

GOLDEN POND MULTIMEDIA THEATER

The committee formed to nominate a slate of candidates for SEPA office was faced with a recurring problem, that of selecting qualified and willing people without overlooking anyone who might have something to offer. To this end, a group of seven members in good standing (we like to think) was appointed. It consisted of myself, Paul Campbell of the Hardin Planetarium in Bowling Green, Ky., Larry Miller of the Cumberland Museum in Nashville, Mike Hutton of Astronaut Hall in Cocoa, Fl., Charles Smith of the Science Museum of Va, Roy Young of Wetherbee Planetarium in Albany, Ga, and Tom Butler of the Aldrin Planetarium in West Palm Beach, Fl.

The basic process consisted of looking over a list of current members independently and then comparing notes by phone. Names which tended

to show up repeatedly on our various lists were given serious consideration. These folks were then contacted, and in most cases they were able and willing to become candidates for office. Listed below are those members we believe could most ably serve SEPA. The biographical sketches will acquaint you with these people if you have not had the opportunity of meeting them.

FOR PRESIDENT ELECT

John Hare
Bishop Planetarium

Jon Bell
Peninsula Nature
& Science Center Planetarium

Ray Shubinski
Memphis Pink Palace Planetarium

SECRETARY - TREASURER

Richard Joyce
Hampton Planetarium

Jimmy Westlake
Young Harris Planetarium

JOHN HARE

PLANETARIUM DIRECTOR

BISHOP PLANETARIUM

I have been involved with Planetariums since 1963, when I began working for Spitz Space Systems. In 1964, I joined the staff of Abrams Planetarium, Michigan State University, as Technical Director. While at Michigan State, I earned my degree in telecommunications, a major that allowed me the flexibility to take a variety of courses tailored to my interests and needs in the planetarium profession. During my last several years at Abrams, I served as Program Director, responsible for all aspects of public programming. I

assumed my present position as Director of the Bishop Planetarium in November 1979.

Since then, the Bishop Planetarium has undergone a tremendous expansion. Attendance has increased over 500%, and the staff has increased 100%. The schedule of public starshows has been increased by a third, the observatory has been reopened, additional school programs have been developed, and a 4-color Laser Show was produced in-house.

I have been active in both regional and international planetarium organizations, having been a member of GLPA from 1967 - 1979, IPS from 1971 - present, and SEPA from 1979 - present. I was on the organizing committee for the "CAPE" Conference at Michigan State University (1970), the founding meeting of IPS. I have participated in all the IPS meetings, several GLPA and MAPS meetings, and SEPA meetings in 1975, 1979, 1980, and 1981.

When not at the planetarium (it does happen occasionally), I enjoy sailing, the beach, and traveling to visit other planetariums. If and when I retire, I'm moving farther south where it is warm all year! (Maybe Key West will have a planetarium by then.)

JON BELL

DIRECTOR

PENINSULA NATURE
AND SCIENCE CENTER PLANETARIUM

Jon Bell received his B.S. in secondary education earth science from the State University of New York at Plattsburgh in 1977. While an undergraduate, he spent three years working with the college's

24 foot, model Spitz A3P planetarium producing and performing live and taped shows for school and public audiences.

Upon commencement, Bell interned at the Hayden Planetarium in New York City. Also at this time, he worked toward the completion of his Master of Arts in science education (1979) at Columbia University's Teachers College.

In August of 1979, Jon Bell joined the staff of the Peninsula Nature and Science Center in Newport News, Virginia, as Assistant Planetarium Director. In September, he assumed the directorship of the Peninsula Planetarium.

Some of his accomplishments in the past three years have included: a near 100% increase in school and public show attendance; design and (successful!) fabrication of a 10" heliostat for the Observatory; the development and operation of planetarium shows for the deaf and hearing-impaired.

RICHARD JOYCE

PLANETARIUM COORDINATOR
HAMPTON SCHOOLS PLANETARIUM

In June we will find ourselves presented with the opportunity to provide SEPA with leadership that will carry the organization smoothly through the coming year. I am again honored with the invitation to run for the office of Secretary-Treasurer.

My life in the star chamber began on Sunday afternoons in 1969 at the Peninsula Nature and Science Center and became a full-time occupation in 1977. For me the field offered the opportunity to fuse a long time hobby of astronomy with the skills I learned while acquiring an M.S. Ed in audiovisual technology.

Due to the budget crisis which seems to be universal these days, I was forced out of operation for ten months this year but am now in the process of reopening the facility and am looking forward to another year of stars and smiles both from the children during the day and from the adults who attend the night programs.

At the risk of sounding pedantic I wish to quote a friend of mine who said,

"Where there is a will,
there is a way, with will
and skill there is a better
way."

SEPA in my mind is the best way we have for fostering the sharing and building of skills. For that end, I am anxious to do whatever is necessary to insure the success of the association.

JIMMY WESTLAKE
PLANETARIUM DIRECTOR
YOUNG HARRIS COLLEGE

Somewhere around the age of five I became fascinated with the stars and knew that the field of astronomy was where I wanted to work. I was 14 when my local school system opened their new pride and joy, Fernbank Science Center in Decatur, Georgia. The next few years found me positioned behind the 36" telescope working on various projects. After graduating from Walker High School in 1971, I entered Valdosta State College as an astronomy major. While there, I was introduced to the Spitz A3-P projector and during the next four years performed numerous programs for kids of all ages. In 1975 I graduated from VSC with top honors and a double bachelor of science degree in

astronomy and physics. Having been offered a teaching assistantship at Louisiana State University, my wife and I moved to Baton Rouge where I later received a master of science degree in physics and astronomy. While completing my thesis at LSU, I became the planetarium director at St. Charles Parish Planetarium near New Orleans. Two years and one thesis later, we moved back home to Georgia where I became the planetarium director and astronomy professor at Young Harris College. My family and I love the north-Georgia mountains and hope to remain at Young Harris for a long time.



THE GOLDEN POND
MULTIMEDIA THEATER

By Doug Gegen

Land Between the Lakes Planetarium

"Is this where the movie was made?", is the question we are most often asked these days as visitors recall the area where Henry Fonda and Kate Hepburn had their summer

house. The answer of course is no, although there are parts of West Kentucky which might honestly be mistaken for that movie locale.

Our planetarium-theater is buried in the heart of Land Between the Lakes, a 170,000 acre national recreational area administered by the Tennessee Valley Authority. It lies on a wooded peninsula which serves as a national demonstration area for programs in natural resource management, environmental and energy education. As part of a new Visitor Center complex, a Spitz planetarium was contracted for in 1978. Equipment was to include an automated 512 system in a forty-foot hyper-hemisphere tilted at 19°. The severe tilt (standard is 10°) would make possible 35mm fisheye movie projection utilizing the new Spitz ESP-35 projector.

The theater opened officially during the summer of 1979, and from the beginning the emphasis was on a multi-discipline approach. Theater Director Dick Paterson comes from an environmental education background and has put together programs on animal life after dark as well as presentations dealing with solar energy, local history and an introduction to Land Between the Lakes for visitors to the area. All programs feature a multi-image, multi-excitement format and are the result of many hours at the keyboard of an AVL Eagle Slide programmer. Since many of our presentations are handled by a live narrator, the automatic handling of visuals is a necessity. AVL has built some nice features into the Eagle and we enjoy creating animation effects on the screen using the rapid dissolve capabilities provided. Since our fisheye movie plans were not realized, this flexibility in slide imaging takes on added importance.

We also involve live actors in our performances. In "Solar Energy, A Time Line", the characters of Ben

Franklin, Galileo and a wacky inventor all appear on stage. A narrow but effective catwalk has been built around the rear-screen projection area of the dome and spotlighted so that actors appear suddenly out of the darkness to play their roles.

Among the shows we most enjoy performing are the two seasonal programs done at Halloween and Christmas. The Halloween program comes in two flavors. Fun-scary for young children, and mashed-eyeball scary for adults. The adult version leaves me hoarse for a week. Our Christmas presentation brings to life many of the stories and songs of Christmas. The show is capped by a visit from Santa during the "Night Before Christmas". The audience is led in a series of sing-a-longs by a live choir with words projected on the dome. As part of this program, we explore the astronomical basis for the Star of Bethlehem following the line of many other facilities.

As staff astronomer here, I feel we can offer something to the visitor that is becoming increasingly rare; a good dark sky for beginners as well as seasoned sky-gazers. Much of the astronomy done here in Land Between the Lakes is done under the real sky. In addition to visiting kids at our group camps with a telescope, I've conducted astronomy workshops for teachers so that they can instruct kids under the real sky. We don't yet have a permanent observatory, but we hold the record, I believe, for set-up and take-down of a Celestron 8.

Inside the planetarium there are programs for students at all age levels covering everything from the space shuttle to the latest Voyager results at Saturn. Since many of the kids who visit have never had a planetarium experience, I derive special pleasure from the

wide eyes which gaze excitedly around the room. (Remember your first time!) Adults are not ignored. Their opportunity comes each day with "Skywalk" a live and seasonal look at the heavens with emphasis on locating objects of interest.

The entire staff here at Land Between the Lakes extends a cordial invitation to SEPA members to visit with us at the Golden Pond Multimedia Theater. And bring your telescopes!



Dear Uncle Fuzzy:

In some past issues, your answers at times have had a ring of seriousness to them. But mostly they have been a bunch of ridiculous hoey. Let's see if you can drop the wise cracks and look into your crystal ball. Oh, omniscient wonder tell us what the ultimate planetarium of the future will be. (Or is that question too tough for the one who knows it all?)

Night Dreaming

Dear N.D.:

(Whatever happened to the easy questions where I could come up with zappy replies? O K, you asked for it, so here it comes.) It's not a crystal ball, incidently; it's a mayonnaise jar. Anyhoo, I asked the jar your question. The mayonnaise cleared and the answer was spread out in front of me. (Get it? mayonnaise - spread. Oh, well.)

Let's assume two things about your dream theater. 1) you have an unlimited source of funds to invest in the place and 2) you are insistent on removing that monster in the middle of the room for unobstructed viewing.

The answer is obvious. Your planetarium of the future will have no machine anywhere in sight. Nothing under the dome but seats. Better yet, there will be no projection portals, not one single special effect machine, in fact NOTHING will be projected onto the dome. Bewildered?

Are we beaning our audience with a 2 x 4 to make them see stars? Hardly. Are we vending mind control substances to the star gazers to create a 'cosmic' experience? Never.

Our mysterious theater of the future will be able to present every feature of the best star machine on the market - but without the need for instrument. Zooms will occur without zooms, all sky movies without an Omnimax, slued space ships without moving mirrors.

How? The secret lies in the dome itself. Rather than being a passive, reflecting surface, the dome will be a luminous object. It will be studded with an infinite number of LED's arranged in miniscule clusters of the 3 primary colors of light, similar to the appear-

ance of rare earth dots on your color TV set. Each LED will be connected by wire to a computer with a memory capacity equal to that of a 'HAL'.

Think of the unlimited capacity of such a theater. Think of the image resolution. Think of the miles of wire which would be required. Think of the weight of the dome. Think of the cost.

How's that for a hazardous glimpse into the unknown?

Uncle Fuzzy

Dear Uncle Fuzzy:

In several of our cities we find a proliferation of topless bars. When are we going to have the first topless planetarium?

Person Easily Reveling
Various Entertainment
Re: Toplessness

Dear Pervert:

How soon can you have your dome dismantled? Better yet, remove your seats, star projector, etc. and go bottomless.

Uncle Fuzzy

PLANETARIUM ART

By J. Wallace Jones

Bays Mountain Planetarium
Kingsport, Tennessee

Consider the fact that besides the stars, it is the artwork which makes up the visual portion of a show: that makes the planetarium artist at least as important as the star machine! (If that didn't capture everyone's attention, nothing will.)

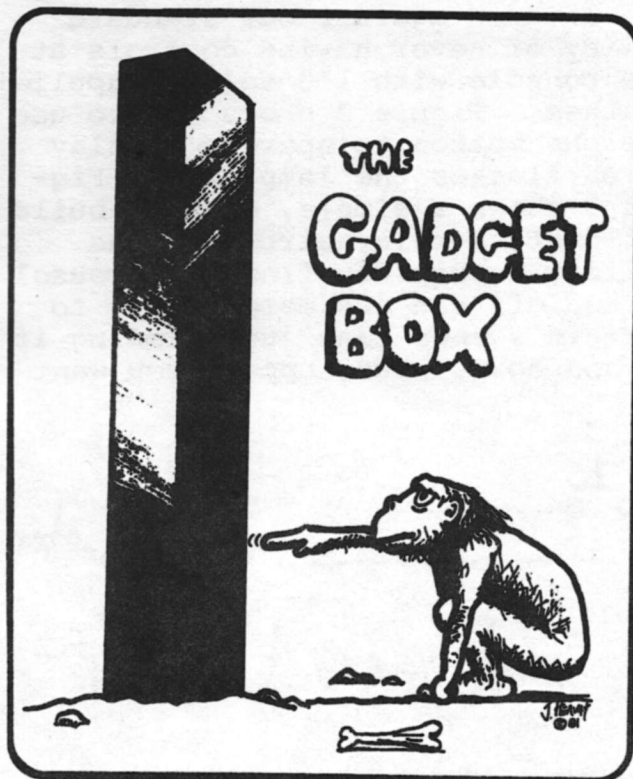
This will begin a four-part series on planetarium art. If successful, I would like to turn this into a regular feature and open up lines of communication with other planetarium artists. I welcome comments and questions from artists and non-artists alike.

By way of introduction, I have been planetarium artist at Bays Mountain Planetarium in Kingsport, Tennessee, for four years. A few weeks back Jack Fletcher (my personal favorite candidate for "Uncle Fuzzy") called to ask me to write an article on planetarium art for Southern Skies. I was glad to but upon reflection decided that a series of articles would serve better. After all, planetarium art and the broader field of space art cover a lot of ground (or, I should say, space). Space art can require thorough research of scientific phenomena and meticulous attention to carefully rendered detail. And since planetarium directors are scientists they generally demand utmost accuracy. Yet space art enters the realm of speculation so quickly that a great deal of imagination and artistic license is vital to success. The combination of wild imagination, competence in perspective and geometry, crisp execution and knowledge of display techniques make space art a very demanding field. Where do these amazing individuals whose towering intellects have mastered all aspects of art and science come from? Beats the heck out of me. I certainly am not one of them. I have perspective problems, can do mathematics no more complicated than reading a ruler and could probably not pick out more than half a dozen constellations. There just is no real training in astronomical art available to us. Most of us probably adapted the skills we learned in college or in the advertising agency and picked up things here and there from books. The point is we all have our weaknesses and we tend to gloss over them to rely on our strong points.

The purpose of these articles and possibly a regular feature is to promote and exchange ideas among planetarium artists and directors, who in some smaller institutions have to do the artwork themselves. Please write in and offer your comments and questions. We need to pool our resources in order to be more useful to our planetariums and to help one another fill in the gaps in our knowledge.

I'm sure most of you have heard the complaint that artists are not astronomers. We might require help with even basic astronomical data. By the same token, astronomers are not artists. They occasionally are oblivious to visual clues that are basic to us. Ron Miller told me he once asked Bart Bok, the famous Milky Way expert, what our galaxy would look like when viewed from out-side and at a specific angle. Bok reflected a moment, then replied, "I never thought of that before." See the problem?

In closing, I would like to encourage all planetarium artists who can, to attend the 1982 SEPA conference in June. Ron Miller will be our special guest and during the art workshop he will explain many of the geometric and perspective problems which plague us. I look forward to seeing you here. In my next article I will examine some materials for the planetarium artist.



7-PIN EUPHORIA

By Joe Hopkins
Memphis Pink Palace Planetarium
Memphis, Tennessee

In our previous two voyages into the depths of Carousel projectors, we have explored handling the basic projector functions manually and with DC remote controls. Beyond these basic functions (advancing, reversing, focusing, and dimming), several other control options exist which can help turn your Carousel projector into a more versatile piece of equipment. Flashing and animation can add sparkle to your shows, while homing can make your reset time between shows much shorter.

The most basic way to flash a Carousel projector's lamp is to hook a normally-open pushbutton across the lamp pins; pushing the switch button in and releasing it rapidly will cause the lamp to flash on and

off. This technique (shown in Figure 1) goes against our standard policy of never having controls at the console with 110 volt AC applied to them. Figure 2 shows how to use the pushbutton to operate a relay which flashes the lamp, while Figure 3 shows a simple, easy-to-build solid-state relay circuit. The ability to rapidly flash a Carousel on and off can add more impact to certain scenes than just dimming it up and down. But suppose you want

to flash one projector on while another is off, then flash the second on while the first is off (and vice-versa on to infinity) - do you have to have incredibly fast and coordinated fingers? No, you build the two-projector animation circuit of Figure 4, or the more advanced circuit of Figure 5 which uses solid state relays instead of mechanical relays to flash the projectors on and off. Presto! You've got animation!

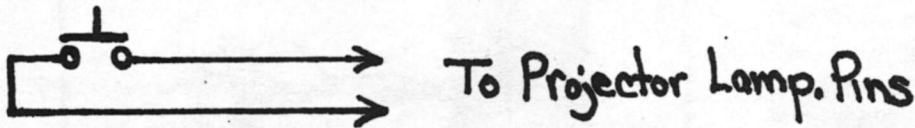


Figure 1.

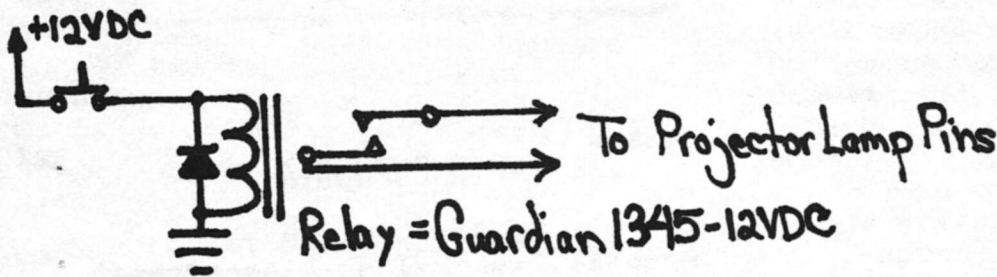


Figure 2.

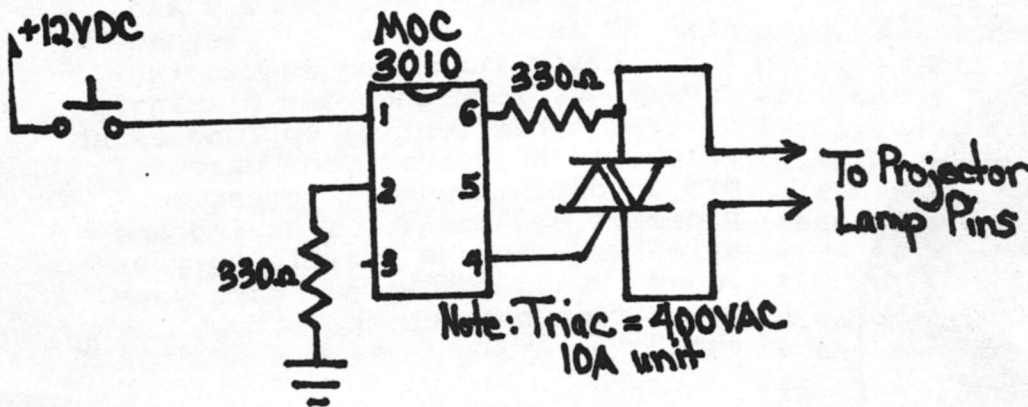


Figure 3.

Would't it be nice at the end of a show to be able to touch a pushbutton switch momentarily and have your projectors return to their starting positions automatically, while you continue to talk to those people standing there raving about your show? The circuit of Figure 6 shows a homing circuit for two Carousel projectors, but it can be expanded to control as many projectors as needed.

Operation is simple: just press the "home" button long enough for the projectors to begin reversing, and the relays will hold the reverse function in until the bumpers on the slide trays at the start positions open the switches mounted on the Carousels (indicating that the start position has been reached, and disengaging the homing circuit). A word about bumpers for the slide trays might be in order here. Rubber equipment feet, glued to the slide tray, work nicely and I have

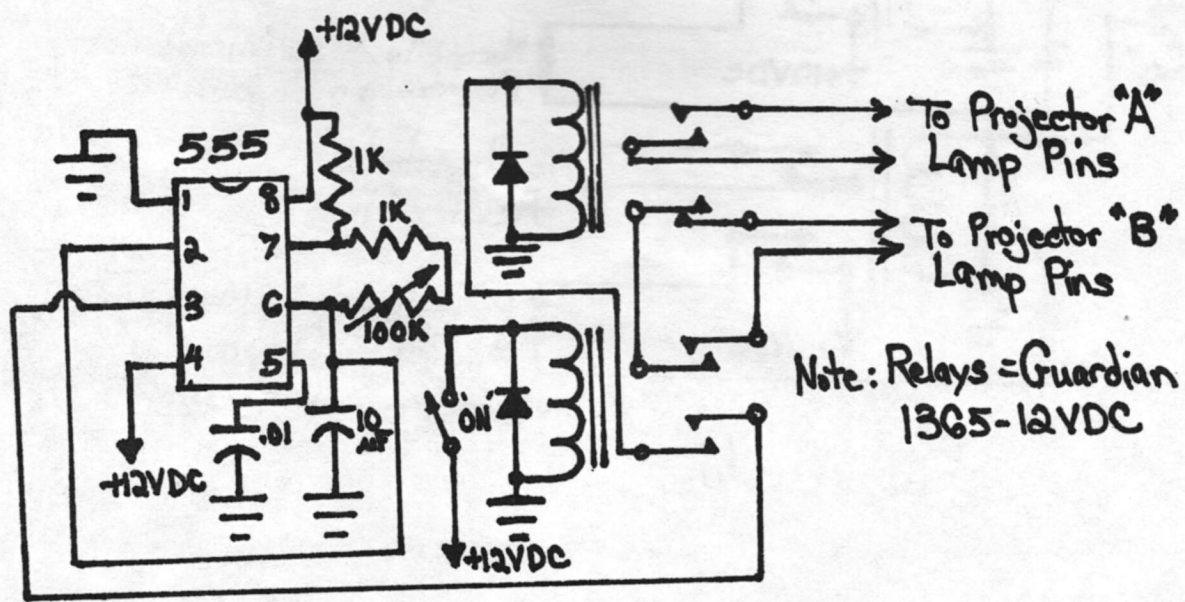


Figure 4.

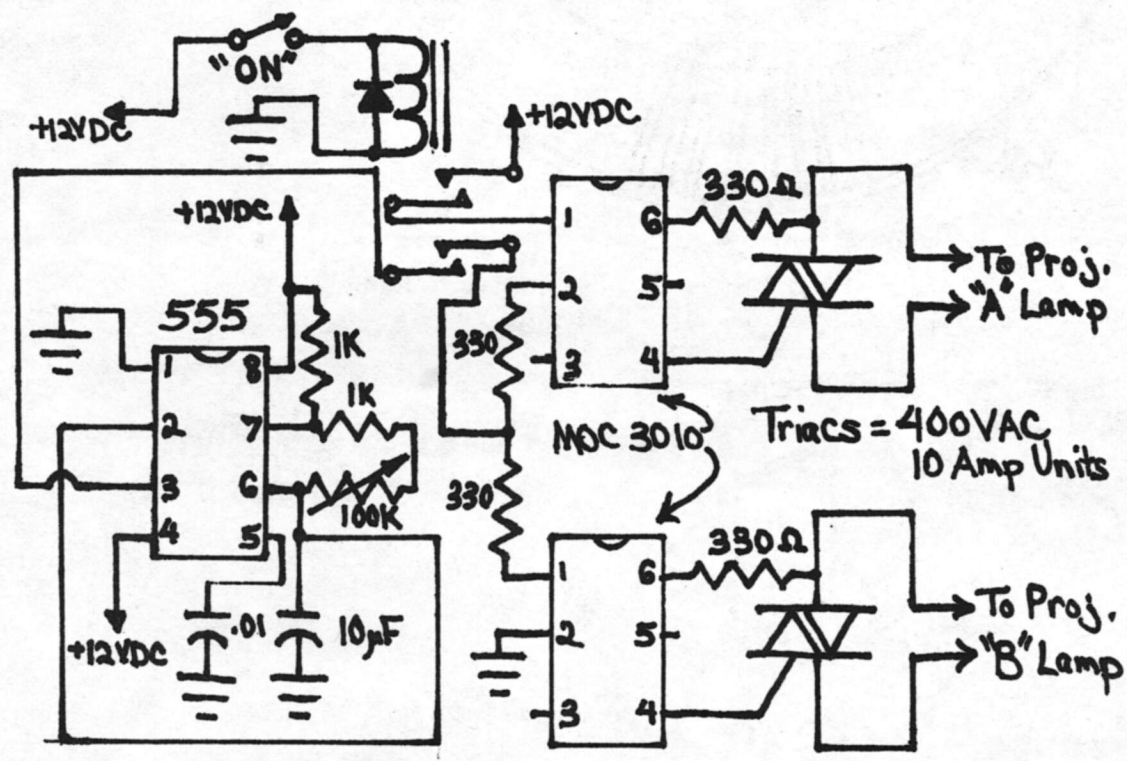


Figure 5.

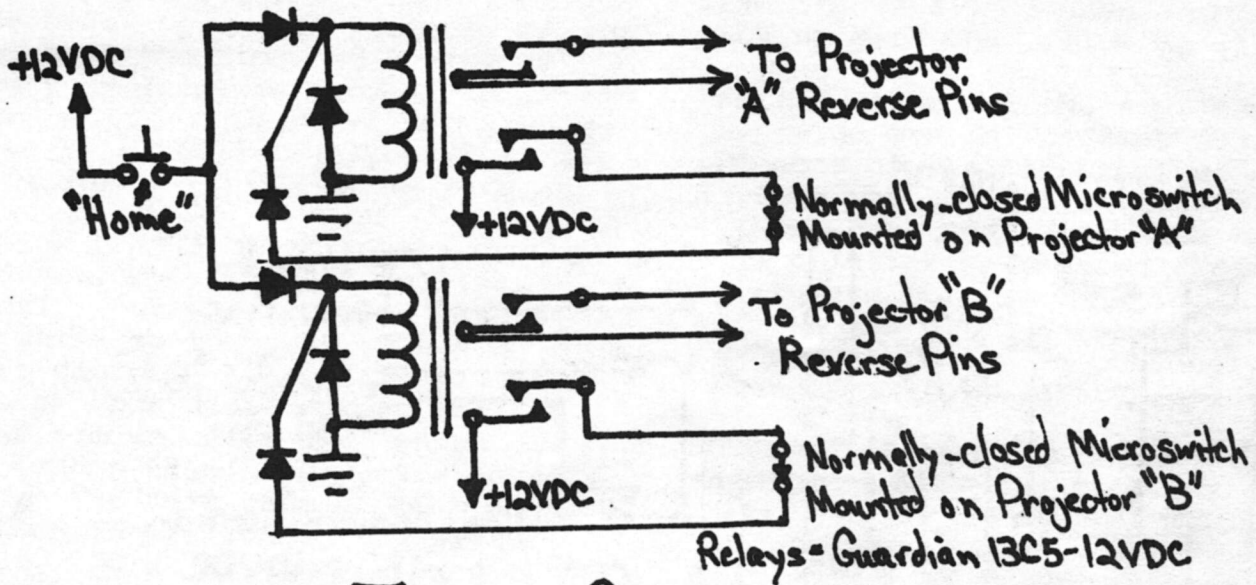
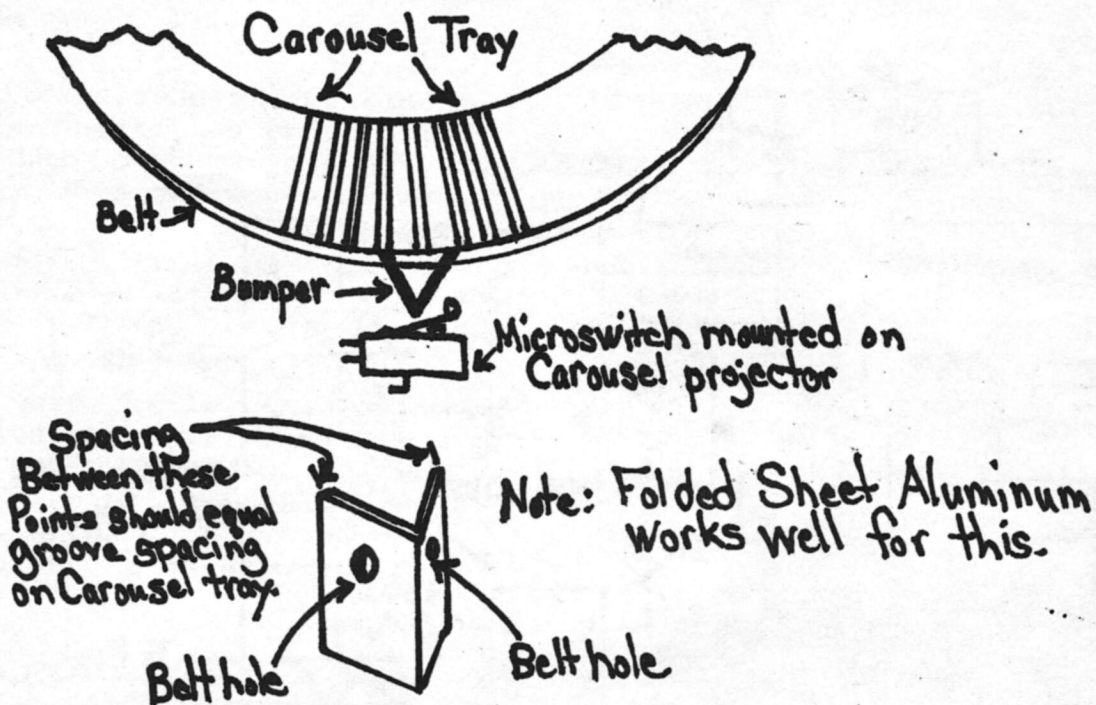


Figure 6.



Homing Bumper Construction
Figure 7.

seen bumpers made from screws threaded into the slide tray work quite nicely (rounded screw heads work the best). Figure 7 shows a design for a bumper which has positive registration, yet is easily moveable. The fold should be made such that the edges fit into the grooves on a Carousel tray, and the belt going around the tray to hold the bumper in place should be good and snug. An elastic belt permits easy movement of the bumpers from one position to another. (Also note that more than one bumper may be put on a slide tray so that homing for more than one show can be accomplished.) Note that the homing circuit is set up to reverse the Carousels; unless the distance to home is short

(15 positions or less), reversing the projectors during homing will markedly increase clutch spring retainer life in the projectors.

With flashing, animation, and homing added to your Carousel capabilities, your shows can be made more exciting and easier to put on at the same time. In our next sojourn into the mysterious inner workings of Carousel projectors, we'll explore simple but effective and reliable techniques for automating Carousel functions. At that time, we'll pass from 7-pin Euphoria, directly into 7-pin Nirvana!

ROTATING SLIDE MODULE

By John Hare

Bishop Planetarium

By installing the equatorial view mask and utilizing a slide available from the Strassenburgh Planetarium, an equatorial view rotating planet effect is created.

Slides available from Strassenburgh Planetarium (\$10.00 each).

Venus (A-84)	Jupiter (A-88)
Earth (A-85)	Saturn (A-89)
Mars (A-87)	Uranus (A-91)

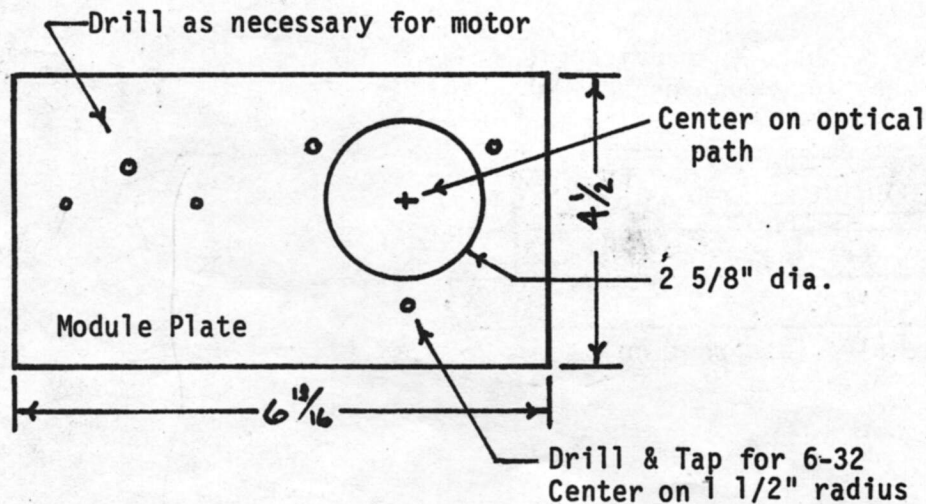
Unmasked slides will give a polar rotational view.

PARTS: Use 1/4" plexiglas for rotator ring and module plate.

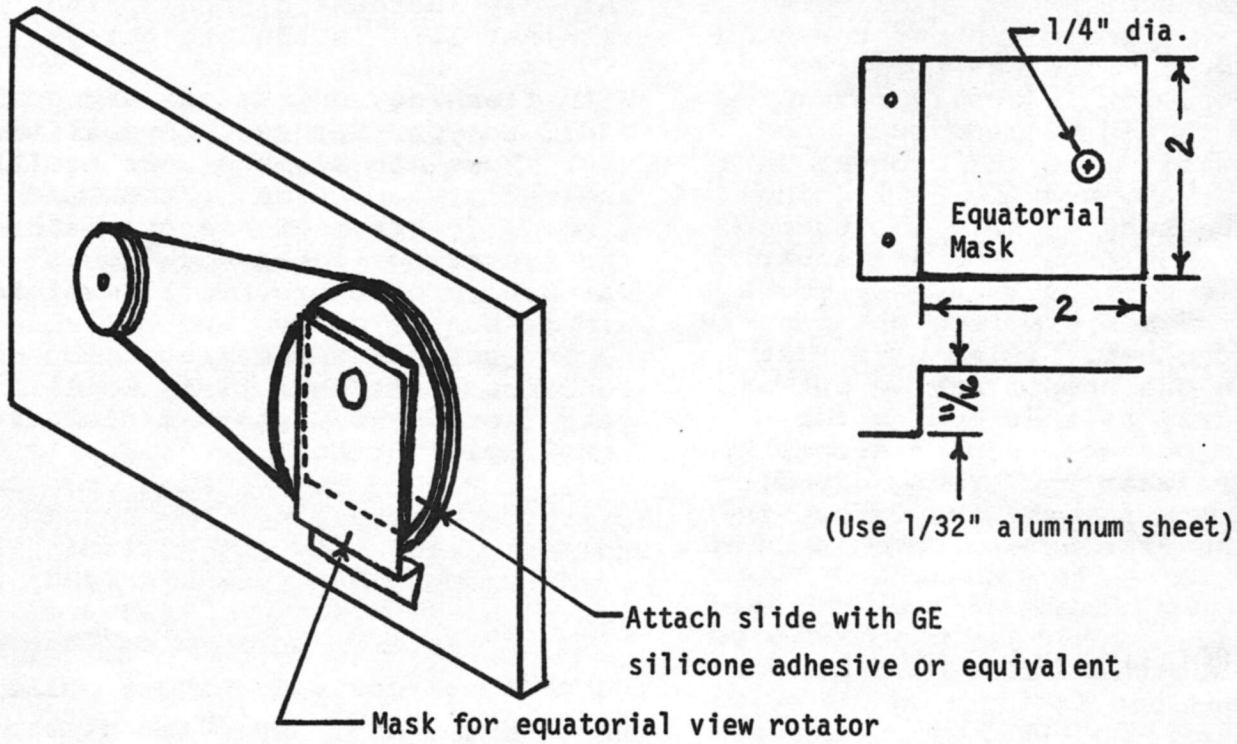
O-ring - Kodak #178837
(Any O-ring of approximate size will do.)

Bearing - Fafnir #B546 DD

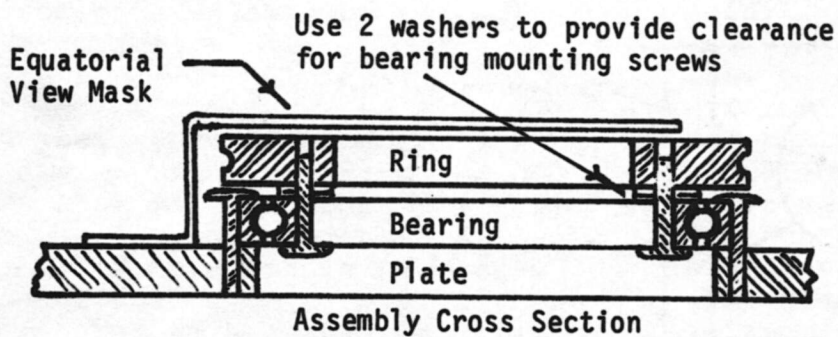
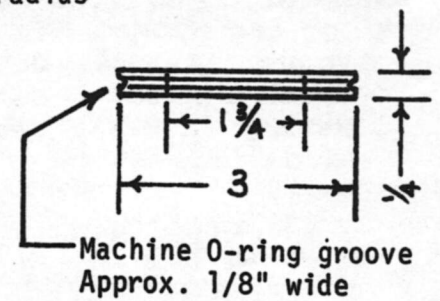
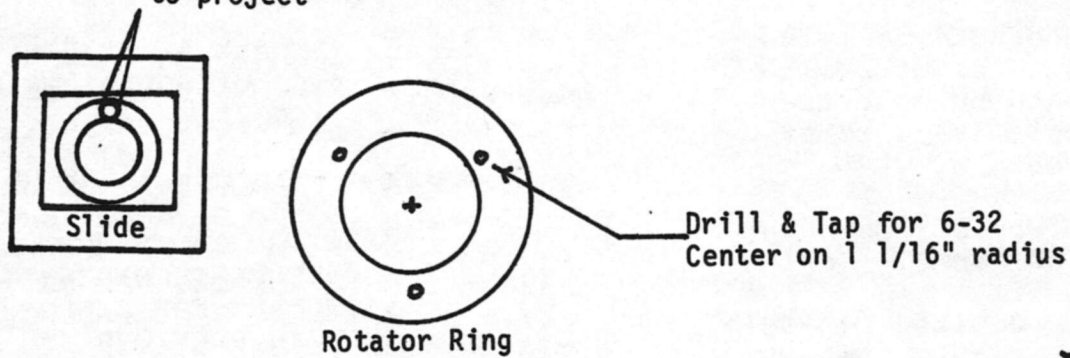
DRAWINGS NOT TO SCALE.
MODULE PLATE DIMENSIONS ARE FOR ENCLOSURE IN PREVIOUS ARTICLE (SEE "SOUTHERN SKIES" FOR NOVEMBER, 1981)



DRAWINGS NOT TO SCALE. MODULE PLATE DIMENSIONS ARE FOR ENCLOSURE IN PREVIOUS ARTICLE (SEE "SOUTHERN SKIES" FOR NOVEMBER, 1981)



Mask allows only this portion of slide to project



This column is written by Joe Hopkins who is now the Technical Director at the Bishop Planetarium, Bradenton, Florida. If you have any questions concerning these circuits, give Joe a call and he will be glad to help you. If you have any requests for future circuits, let Joe know.



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