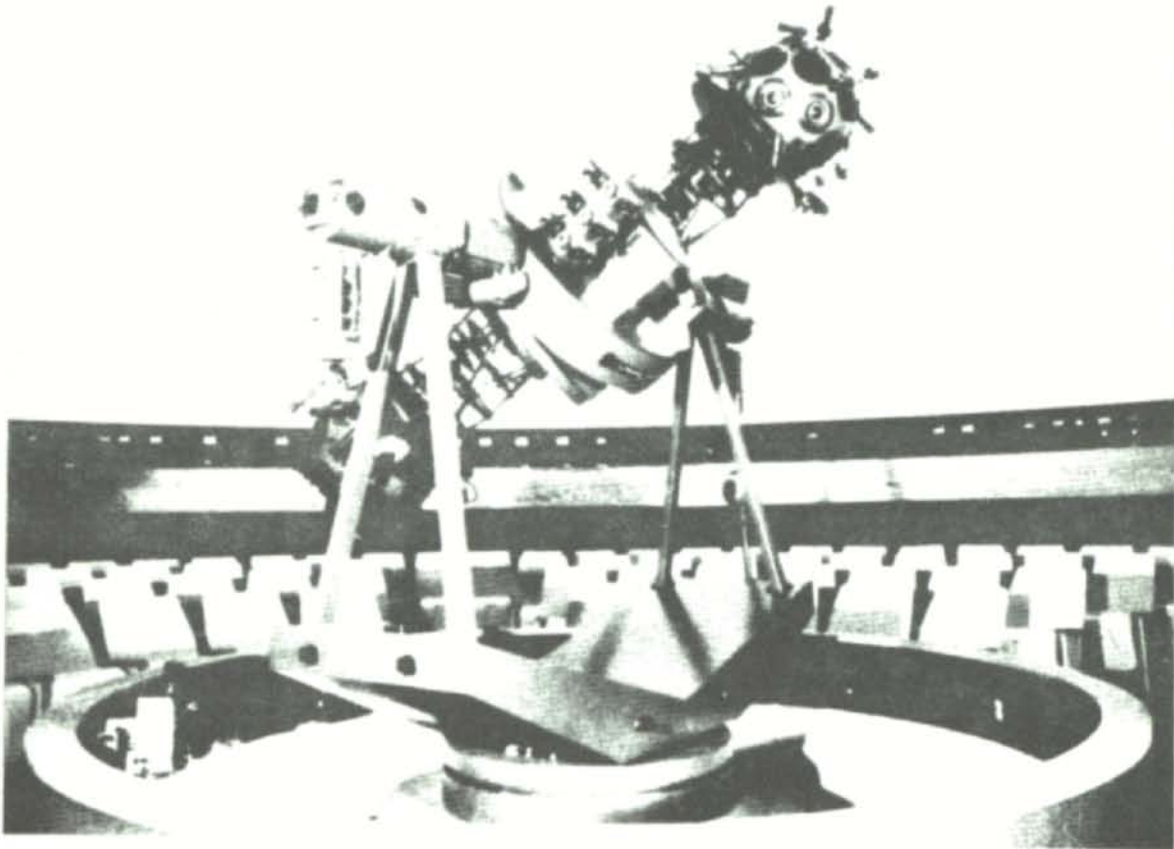


SOUTHERN SKIES



Newsletter of the Southeastern Planetarium Association

CONTENTS

A Message from Your President Michael Ryan, Earth-Space Science Center Planetarium. . . . .	.1
Slides, The Hidden Resource Michael Hutton, Planetarium, Brevard Community College. . . . .	.3
A Message from Your President-Elect Duncan Teague, Craigmont Planetarium. . . . .	.6
Ethics and the Planetarium Profession Robert Tate, Harper Planetarium . . . . .	.7
A Message from Your Secretary/Treasurer Richard Joyce, Hampton Schools Planetarium. . . . .	.10
The Care and Use of Magnetic Recording Tape Part II: What Kind of Tape Should I Buy? Michael Ryan, Earth-Space Science Center Planetarium. . . . .	.12
Virginia Planetarium Society Richard Joyce, Hampton Schools Planetarium. . . . .	.15
SEPA Membership Newsletter Editor . . . . .	.15
The Gadget Box: For Weight Watchers: A Digital Scale Fred Karr, Hummel Planetarium . . . . .	.16
More Freebies Newsletter Editor . . . . .	.17
Dear Uncle Fuzzy ? . . . . .	.20
Editor's Comments Jack K. Fletcher, Hummel Planetarium. . . . .	.21
SEPA Constitution and By-Laws. . . . .	.23
Map of Memphis and the Pink Palace Museum Planetarium. . . . .	.27

Southern skies



Vol. I, No. 2

May 1981

MESSAGE FROM YOUR PRESIDENT

If you are anything like me, you are probably wondering in amazement how fast the school year has whizzed by, how further behind you are with various and sundry tasks, and how you have somehow reconciled yourself to the fact that you will never 'catch up.' (Or is this just symptomatic of advancing age? Good gravy, I hope not!)

All of the above has me looking forward with even greater fervor to our upcoming June conference. To paraphrase Jane's conference reflections: that one glorious time of year when we can enjoy each other's company, relate stories of past accomplishments and/or failures, stay up to unheard of hours night after night talking, and return home looking like death warmed over, yet somehow refreshed by the whole experience.

If such is the case, I have some good news for you (or depending on your physical stamina--bad news.) Ray Shubinski informed me a few weeks back that there is so much planned for our Memphis meeting that he wants to start a day earlier than previously announced. Change your calendars, gang. SEPA '81 will begin Tuesday, June 16th instead of



Wednesday the 17th. You should have received complete information from Ray by now. If not, get in touch with him.

As much as I would love to excitedly go on about conference anticipation, I need to discuss with you some business which will be presented

COVER ILLUSTRATION: With this issue you see the main star projector in use at the Pink Palace Museum Planetarium in Memphis. The projector is a Viewlex Series IV. As you can see from the cover illustration, it appears that the Pink Palace has quite an exciting theater. You won't want to miss seeing it during the 1981 SEPA conference this June.

for your consideration at Memphis. There are two items relating to constitutional revision which I have talked over with the SEPA Executive Council. I would like to present these to you now so that you will have time to reflect on them before discussion in June. (You will find a copy of the current constitution printed in this newsletter for purposes of comparison.)

PROPOSED CHANGES TO THE SEPA CONSTITUTION

(1) ARTICLE THREE (The Executive Council of the Association), Section 2: President. - Delete the words "International Society of Planetarium Educators" and in their place substitute: "International Planetarium Society." Likewise delete the term "ISPE" and substitute instead "IPS."

(2) ARTICLE TWO (Membership and Dues), Section 3: Dues. - Delete all existing wording. Substitute in their place: "Annual dues shall be an amount determined by a majority vote of the Membership at the Annual General Meeting."

The first proposal is merely a housekeeping item to reflect the change in the name of the international organization. The second alteration, however, requires some explanation.

If SEPA is to broaden its services to you (i.e.--an expanded newsletter; regional survey mailings, tabulation and publication; conference expenses, etc.) it must be able to do so and remain solvent at the same time.

I hate to use the overworked expression that we have all heard so frequently of late: 'Inflation is costing us more.' The truth of the matter is that postage is

up, printing costs are up, the upcoming survey will further reduce our revenue balance. The list could go on.

Let us be honest with ourselves. In the past decade we have enjoyed the privilege of SEPA membership at a dirt cheap rate.

Neither I nor your Executive Council wishes to ram a specific amount of money down your throats. However, I sincerely believe that you as the main body of this organization should have the say-so of what dues should be WITHOUT being hamstrung by the rigid requirements of constitution revision process every time a change is evident. Think about it.

On to other matters: In the last issue I asked you to consider making nominations of people you believe to be worthy of a SEPA recognition certificate based on past accomplishments. Boy, you really hopped on this one! NOBODY WROTE. Please, my friends, I know we are all terribly busy but please don't let this opportunity slip by. Most assuredly there must be someone, somewhere out in SEPA land deserving of our attention.

The status of the survey is this: Bob Hillenbrand has been experiencing some difficulties in communication with some of the survey committee members. As such, a complete listing of possible questions is yet to be finished. Hopefully, things can be taken off of the back burner in short order.

On a personal note, many of you may recall that last June I was excitedly talking about the change of starfield expected here at Howey: discarding the NOVA plastic sphere and replacing it with the Spitz 373 star ball. The change took

Michael F. Ryan	Duncan Teague	Richard Joyce	Jack K. Fletcher
President	President-Elect	Secretary-Treasurer	Newsletter Editor
Earth-Space Science Center	Craigmont Planetarium	Hampton Planetarium	Hummel Planetarium
Box 427	3333 Covington Pike	1819 Nickerson Blvd.	Eastern Kentucky Univ.
Howey In The Hills, FL 32737	Memphis, TN 38218	Hampton, VA 23663	Richmond, KY 40475

longer than originally anticipated, but during January the kid was doing cartwheels when shipment was received. The wait was well worth it! (For those of you in multi-million dollar installations, all of this may sound trivial. Yet if you have ever had to work without first magnitude stars, you can better appreciate my rapture.)

I haven't admitted this to too many people before now, but after installation yours truly had to spend an hour and a half RELEARNING my constellations--so many more stars than what I had been living with for the past five years. My public thanks to everyone at Spitz for their work as well as putting up with an interminable amount of questions from me.

Let me close with something which will in all probability make no sense at all to most of you: BEWARE! Astro Bird is coming.

See you in June.

Mike

SLIDES - THE HIDDEN RESOURCE

By Michael Hutton
Planetarium
Brevard Community College
Cocoa, Florida

For years, planetariums have used 35mm slides to convey information or ideas which the central projector or special effects cannot do. Slides can be used to illustrate stories, produce panoramas, or demonstrate relationships. Many planetariums have special equipment to zoom slides of spaceships and planets, image rotators can be used to spin slides, revealers can make slides appear to grow across the dome, and polarizers can produce motion within the slide.

Slides are obviously a valuable tool

in the preparation and presentation of planetarium programs. It may even be safe to say that all planetariums use slides in every program they produce. Yet, with all this experience there remains much to be done concerning the use of slides in planetarium programs.

In the past 10 years, still-frame audio-visual productions have benefited from a technological explosion. Micro-processors and computerized playback modules have opened a whole new field of creative visual frontiers. These developments have been so sweeping that a whole new profession has been created.

Multi-image professionals are now generating slide shows with such impact that companies are willing to pay as much as a quarter million dollars to have them produced.

These techniques include a variety of new slide handling techniques that have enormous potential for the planetarium profession. It is these new techniques that make slides a hidden resource.

In a previous issue of the SEPA newsletter, Mike Ryan explained how an image can be zoomed effectively by a series of sequential dissolves. Of course this can be done by hand if one is smooth about the transitions. However, programmable dissolve units can be used to do this and many other effects quite effectively. To illustrate this, let's compare using multi-image techniques to achieve the same kind of visual effect as a typical planetarium special effect.

Let's say the problem is to generate the appearance of cosmic or x-rays radiating from the center of a globular cluster. Examining the equipment available, we find that the meteor shower projector can be superimposed over a globular cluster projector. The visual representation is then a series of streaks radiating from a central point.

Another option available might be to produce a slide with polarized material so that there is a smoother and more fluid appearance to the radiation.

These two options are quite satisfactory, however, each depends on the availability of certain special effects projectors. Smaller planetariums with limited budgets might try to improvise something out of Christmas tree lights or some kind of rotating cardboard tube with slits in it.

Each of these options, no matter how creative or visually exciting have one problem in common. To do these effects, the planetarium must commit special purpose projectors to do this effect and only this effect. If commercial special effects are used, we are talking about as much as \$800 in equipment for thirty seconds of program time. This is obviously unacceptable to smaller planetariums with limited budgets.

So what is the alternative? Using multi-image techniques, an animated sequence can be produced by slides and controlled by automated equipment. This effect would benefit from the high resolution of 35mm slides and contain as much color as needed. Since it is automated, it is reliable and repeatable.

But what about cost? This is the best part because 35mm slides are very cheap to produce. The equipment to project the slides is also cheap when compared to the cost of buying or building unique special effects to do the same job. This is especially true when we consider the fact that the multi-image programmer cannot only be used to produce this effect but many others as well.

For example, the same programmer could be used as a lightening projector with more diversity than any that could be built or pur-

chased. This is obviously true when you consider that the image can be changed and flashed at a variety of rates and intensities.

Other effects can include stroboscopic dissolves, explosions, animated figures, and flash zooms. In fact, this one piece of equipment can replace about 85-95% of all special effects currently found at most planetariums. More importantly though, is the ability to generate visual effects not currently available. The multi-image industry has made great progress in the area of limited and extended animations. This type of animation should not be confused with motion picture animation. After all, if our intention was to create detailed movement, we would be much better off going to 16mm film. Instead, multi-image animation is a suggestion of movement. This type of animation has the advantage of containing compound elements as well as reduced cost of production when compared to 16mm film. The overall effect can be movement in slow motion or a simple repetition of movement such as our animated cosmic rays.

Stroboscopic dissolves can also create a feeling of activity in an otherwise static visual. Consider the progressive brightening and flashing of a volcanic scene in comparison to simply turning on the visual. In the former case, the volcano can give the impression of an eruption despite the fact that it is a single slide.

Image barrages are also an effective visual element difficult to do by hand. Here visuals are flashed rapidly in order to give an emotional impact to a subject rather than allowing the audience an opportunity to study details. This technique is especially effective where violence or confusion is the desired audience reaction. We have done this on several occasions and I am happy to report that no one has reacted

to the point of throwing bottles or making threats on my life.

These effects, as well as many others too numerous to mention, depend on the equipment used. A simple Kodak dissolve unit is very limited in its ability. When evaluating programmers, certain capabilities are highly desirable. These include variable dissolve rates, cuts, variable alternate rates, and freeze functions.

Dissolves are simply the smooth transition from one slide to another. If rates from one to eight seconds are available, then a change in image flow and, consequently, a change in audience reaction to certain visuals are possible.

Cuts are a quick change from one slide to another. If an image is cut on and then dissolved off, the audience will have a predictable reaction. In this case the flashing on of the image indicates something new and important is being presented. As it fades off the audience has a chance to reflect on this new information.

Using this technique in reverse, a different kind of impression is achieved. The gradual appearance of the slide causes a triggering of our memory to relate it to past experience. When it pops off this association can then be linked to another element of the audience's experience.

The alternate function allows a slide to be shown without it automatically being advanced. This is useful when an image is to be flashed.

If this is combined with a freeze function, the brilliance of the slide can be changed and held at any desired level. This combination of effects can produce a stepping dissolve. Here the image starts to come up and then fades a certain amount followed by an increase in brilliance once

more. Repeating this many times produces an effect of growth.

Many other effects can be achieved with more advanced equipment. However, if these functions are included in your equipment, your imagination will have trouble keeping up with your equipment.

To get into multi-image techniques is not nearly so expensive as one might think. For as little as \$500 to \$2,000, programmers can be purchased with many of the capabilities mentioned here. This is extremely reasonable in light of how much mileage a planetarium can get out of one of these devices. We have found so many uses for our slide projectors that we rarely buy or build special effects anymore. Granted, we do have about \$40,000 tied up in programmers, pin registered cameras and animation stands. However, during the life of our planetarium we expect this to be one of the most economical decisions we have made.



AVL's new Roadrunner System
Photograph by Phil Groce

At this point you probably are saying that's all well and good but I don't like projecting rectangular slides on my dome, or you are curious enough about multi-image to pursue it further. The thing to do in either case is to attend a multi-image conference. I have been recommending this to planetarium directors for years and whenever one finally gets around to doing this their reaction

is as joyous as the time they first discovered kodalith film.

Two conferences are extremely worthwhile. First is the NAVA conference (which Phil Groce will report on in the next issue of "Southern Skies") and the other is the AMI conference. Information about these and other AV events can be obtained by writing to: Stokes Slide Services, 7000 Cameron Road, P.O. Box 14277, Austin, Texas, 78761. Stokes publishes a newsletter called "Stokes Notes" which will tell you about AV events and, of course, all the wonderful things they can do for you in terms of slide preparation.

This article was intended as a first exposure to the enormous potential of multi-image in the planetarium. Specific details were omitted on purpose in order to create an overall impression of anticipation. Hopefully, this anticipation will motivate you to explore what will undoubtedly become the format of planetarium programs for tomorrow.

A MESSAGE FROM YOUR PRESIDENT-ELECT

When I was new to the planetarium field, some 6 1/2 years ago, I thought you always had to develop a new program every calendar month. I spent a week writing a script, one day photographing artwork, one day recording the sound track. Usually the last slide was dropped into the carousel tray as the first member of the audience walked in the door.

Now I just sit at my desk with a cup of coffee and wait for programs to drop into my lap. Each day's mail brings a new program from Hansen, Gates, or Carl Sagan Productions. Every few weeks I'll return a postcard to New York City or to Knoxville to say, "Why, yes, I'd love to have you send me six new programs in foreign languages!",

or "Why, yes, I'd love to have you send me half a dozen star shows with captions for hearing impaired audiences!" Once a year I return a form to NASA saying, "Why, yes, keep those slides, prints, and audio tapes coming in!"



So how come this job doesn't seem any easier?

Some of those pieces of equipment I thought were so versatile now have serious limitations. That beautiful star projector which can show the night sky from anywhere at any time, etc., doesn't show enough constellation outlines. That beautiful 10:1 zoom won't pan or rotate. That neat dissolve unit won't do animation. That budget, now eleven times the size it was in 1974, just won't allow the purchase of that new \$10,000 projection orrery.

The only item in the planetarium that is more versatile in 1981 than it was in 1974 is the person at the console. You must be. The only way I see for the planetarium to survive being eliminated from increasingly tight budgets is to keep the people with the sharp pencils from regarding you as a luxury. You must be so vital a part of the community that no one can see how to do without you. The way to insure that is to offer programs which meet the needs of the entire community. If that means having to have available on short notice as many as three dozen programs...so be it.

Duncan

WHAT ABOUT THE CODE OF ETHICS?

By Bob Tate
Harper Planetarium
Atlanta, Georgia

Since its inception, SEPA has been an organization of people who are interested in the professional development of the planetarium endeavor. This feeling of professionalism is an outgrowth of our interest in doing the job the right way, helping others become competent planetarians, and establishing a body of information outlining the knowledge of the profession.

Through the years the annual SEPA conference has been a place where both formal and informal discussions have occurred on the development of the profession. Other planetarium organizations have been concurrently carrying on similar discussions. IPS meetings have given a national and international flavor to the discussions, but have pointed out the fact that there are those who see IPS as being only an information-distributing organization, with no desire to develop other traits of the profession.

SEPA has had excellent input in IPS, with dedicated council members and officers elected from SEPA region, for example, Jim Hooks, our past president. It was not surprising that Jim would do everything possible to advance the efforts toward professionalism, and in June, 1979 at its meeting in Cocoa, Florida, the IPS Council created a standing committee on ethics. I was asked to chair that committee and was charged with the task of producing a document, the Code of Ethics, which would be submitted for consideration by IPS. This document was submitted to the Council in August, 1980, in Chicago. The Council accepted the committee's report and submitted it to the various affiliates for their independent consideration and possible adoption. No action was taken by IPS other than accepting the

report for information.

The purpose of this article is to inform the membership of the process through which the Code of Ethics was produced. We will be asked to adopt the code at the June meeting in Memphis. A little background will help to understand the reasons behind the writing of the code.

Sociologists who have studied professions have produced a model describing the attributes which distinguish a profession from a job or trade. In addition, they have studied the process through which the profession develops. An examination of this model and process, as they relate to the planetarium profession, was made by Tate, 1977. One of the key points in the development of a profession, and one of the traits which sets it aside from a trade or job, is the adoption of a code of ethics. The Hippocratic Oath was one of the first codes of ethics for the medical profession. Adopting a code of ethics will not overnight turn us into a profession, but it is one of the steps we must take in our development.

Having a code of ethics does several things for us. It establishes credibility with people outside the profession who may from day to day come in contact with our members. The awarding of government grants, for example, may depend on the adoption by the soliciting planetarium of a non-discriminatory statement. Such a statement is in our Code of Ethics.

Our patrons deserve to be treated fairly and should be able to expect a certain level of performance on our part. Contained within the Code of Ethics is a section outlining how we relate to our patrons.

The Code of Ethics should give us guidelines as to how we should deal

with other planetarians, and our proposed code does just that. Finally, our code discusses the relationship of the planetarian and his employer. Both can and should expect much from each other, and often the employer is a planetarian himself, and should ascribe to the code also.

In addition to warding off undesirable situations, a code of ethics can give the professional society guidance in how to handle situations. A case in point deals with the discussions among planetarians on how to avoid paying royalties which by law and custom are the property rights of music writers and performers. These discussions have been carried out in an ethical vacuum which has kept us from recognizing that other artisans are due the "fruits of their labors" as are planetarians.

Our Code of Ethics was written after studying many codes from other professions. In rare cases these codes gave guidance as to what items should be included in our code. Each item, though, was carefully worded and placed in our code on its own philosophical merit, not as a reaction to any specific situation which developed in the past. It, therefore, is not reactionary.

Since people and situations change, it is expected that our code will be amended in the future. This will be the responsibility of an ethics committee. Changes in the code should be timeless, broad, and philosophical in nature. This will keep the code from being narrowly defined in reaction to arising situations. The committee on ethics will be responsible also for interpretation of the code and its application to specific situations.

Does this mean our membership will be regulated by an ethics committee? In the theoretical sense, this is just the function of the professional society; it happens in medicine and law. Since SEPA is a

voluntary organization, our power to regulate consists solely of denying membership on the grounds of an infraction of the Code of Ethics. Having the Code of Ethics does require some commitment by the members to act in accordance with the items set forth in the code. Still, the code does provide some degree of protection to members, for each member can expect the same ethical treatment as he extends to others.

The adoption of the Code of Ethics is a step forward in our development as a profession. After years of talk, study, and work, it is time we made this statement of ethics a part of our organizational structure.

Tate, R. C. "Development of the Planetarium Profession", 1977, Planetarian, Vol. 6, No. 4, pp. 6-13.

* * * * *

PRINCIPLES OF ETHICS OF THE PLANETARIUM PROFESSION

AUGUST, 1980

Commitment to Patrons

The professional planetarian knows that his position exists because people have a need to be served. In serving the needs of people to understand our universe, the planetarian understands that he is seen as an expert and responds by maintaining the highest standards of integrity.

In fulfillment of the commitment to patrons, the planetarian:

promotes and extends public knowledge of, and appreciation for astronomy, science, the scientific process, and the planetarium profession;

shall not on the ground of race, color, creed, sex or national origin exclude any patron from

participation in or deny him benefits under any program, nor grant him any discriminatory consideration or advantage;

shall not deliberately suppress or distort subject matter for which he bears responsibility;

shall not promote subjects and opinions not grounded upon scientific principles;

shall make every reasonable effort to protect patrons from conditions harmful to learning or to health and safety;

shall respect the rights, beliefs, and sensitivities of the patrons;

shall not misrepresent an institution or organization with which he is affiliated, and shall take adequate precautions to distinguish between his personal and institutional or organizational views;

shall seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health, and well-being of the community.

Commitment to the Profession

No planetarian can perform his duties in a professional way without interacting with others in the profession. This interaction with other planetarians nurtures both the professional and the profession, providing new developments and techniques. The professional planetarian recognizes the value of working with the professional organizations and deals equitably with others in the profession.

In fulfillment of the commitment to the profession, the planetarian:

continues professional development throughout his career;

should strive to increase knowledge within the profession and share developments with colleagues;

shall accord just and equitable treatment to all members of the profession;

shall admit and accept his own errors when proven wrong and refrain from distorting or altering the facts in an attempt to justify his position;

avoids any act tending to promote his own interest at the expense of the dignity and integrity of the profession;

shall not misrepresent his professional qualifications;

shall not knowingly distort evaluations of colleagues;

shall withhold and safeguard information acquired about colleagues in the course of employment, unless disclosure serves professional purposes;

shall not refuse to participate in a professional inquiry when requested by an appropriate professional association;

shall not use coercive means or promise special treatment in order to influence professional decisions of colleagues;

shall give credit due to others for work, contributions, discoveries, or creations;

respects the rights of other artisans and professionals to collect just compensation for the fruits of their labors;

should actively support and participate in activities and programs of professional organizations;

should establish harmonious relations with colleagues and members of other professions, and endeavor to inform members of related professions of services provided by the planetarium profession.

Employer-Employee Relations

While maintaining his position in order to serve patrons, the planetarian is rewarded with working conditions and compensation which allows him to devote his energies to his job. The ethics of dealing with one's employer is a two-way street and corporate and institutional members of the society as well as individual members are enjoined to abide by the Code of Ethics.

In fulfillment of the employer-employee agreement, the planetarian:

shall adhere to the terms of a contract or appointment, unless these terms have been legally terminated, falsely represented, or substantially altered by unilateral action of the employing agency;

shall apply for, accept, offer, or assign a position of responsibility on the basis of professional preparation and legal qualifications without discrimination on the ground of race, color, creed, sex, or national origin;

shall not delegate assigned tasks to unqualified personnel;

shall not knowingly withhold information regarding a position from an applicant or misrepresent an assignment or conditions of employment;

shall apply for a specific position only when it is known to be vacant and shall refrain from underbidding or commenting adversely about other candidates;

shall uphold the principle of appropriate and adequate compensation for those engaged in the profession;

shall use time granted for the purpose for which it is intended;

shall not accept outside employ-

ment to the detriment of his job;

shall not use equipment, supplies, laboratory, or office facilities of his employer to carry on outside private business activities without consent.

A MESSAGE FROM YOUR SECRETARY/TREASURER

I recently hauled the old reliable eight-ball off the shelf and asked it a few questions. (One must do this after 200 first graders in one day!)

The great spirit within the orb (not to be confused with the Indians' Great Spirit) used his own special form of kodalith to reveal the answers.

The first encounter with the omniscient wonder (a twin of "Uncle Fuzzy") went something like this.

Me: "Should SEPA continue to offer the current level of services on its limited income, or reduce services, or increase revenues?"

8-Ball: "Maybe"

The second encounter was equally enlightening.

Me: "Should the planetarium profession adopt minimum standards of essential skills for its members and define what a planetarium facility should be like to become acceptable?"

8-Ball: "Try me again."

I did and got the same reply.

Gloating over my success with my silent friend I posed the most pointed question yet.

Me: "In view of dwindling financial support of non-critical services, should SEPA become aggressive on the political front?"

8-Ball: "Sucker"



Encouraged by the promptness of the words of wisdom, I fired another query.

Me: "Should SEPA encourage the private sector to fund the development and distribution of planetarium programs that will meet SEPA member needs and help us reduce operating costs within our installations?"

Unshaken by the length of the question the 8-ball delivered its reply:

8-Ball: "Yes"

Wow, the 8-Ball and I are in perfect registration with each other. I might even ask it about some of those wildcat oil company stocks I have been eyeing.

Phone rings; "Yes, Mrs. Baker, your class should be here for the 10 o'clock program tomorrow." My God! Two hundred nineteen first graders are scheduled for tomorrow!

Me: "Hey spirit, what's tomorrow going to be like?"

8-Ball: "Same time, same place."

Something happened, I can't remember what, but I dropped my

prized forecaster on the floor. It shattered. My hopes for a big profit on Wall Street oozed out through its fractured surface. I picked my friend up for a close inspection of its remains and a tiny cube fell to the floor. Imprinted on it were the answers I had been trusting to guide me for so long. I wasn't shocked at what I found but rather at myself for not making a sincere enough effort to chart my own course. I had been too content to let someone else do it.

I have been a SEPA member for four years now. It seems to me that during those years we, the members, have constantly been relying on the same few persons to make the decisions and carry out the actions necessary to run the organization. I commend them for their efforts and wisdom. Alas, the pattern may continue but we, the members, have the opportunity in June to bring our concerns before the group, to be heard, to seek advice, to give it. Many of us are facing doubtful futures as the financial presses extract the last drop of green blood from our governmental turnips. From this squeeze a host of individual and collective needs may arise. Now is the time for each of us to analyze our future needs and wants and organize our thoughts.

We should come to the convention prepared and not do our preparation during the business meeting. We only gather once a year so let's make the most of it.

Memphis is going to be great!

Richard

LOOK ON PAGE 27 FOR A MAP THAT SHOWS YOU HOW TO FIND THE PLANETARIUM WHEN YOU ARRIVE IN MEMPHIS.

THE CARE AND USE OF
MAGNETIC RECORDING TAPE
PART II: WHAT KIND OF TAPE
SHOULD I BUY?

By Michael F. Ryan
Earth-Space Science
Center Planetarium
Howey In The Hills, Florida

In the last issue we discussed tape storage and the problem of 'print-through' signal transfer. At the end of that article, we mentioned that 'print-through' could either be enhanced or diminished partly based on the type of tape you use. We shall dwell on that topic in this installment. First, however, a little history.

When tape recorders first appeared in the latter 1880's, the signal was stored on a wire which ran from one spool onto another. The resulting sound was extremely poor, but of course, back then the term high fidelity was non-existent. Furthermore, wire recorders were considered second banana compared to the popular, Edison cylinder phonographs of the period.

Prior to and during World War II, German engineers made serious attempts to improve the caliber of taped sound. It was learned that the fidelity of recordings could be vastly improved by broadening the surface passing by the recorder heads. This surface consisted of tiny, iron oxide particles glued onto a paper backing. Paper tape, however, had many inherent problems: the strength just wasn't sufficient, weakening further if subjected to humid conditions.

Just as the wire recorder gave way to paper tape, likewise this second improvement fell by the wayside with the development of acetate as a backing material. In the latter fifty's and early sixty's acetate was considered to be the ultimate solution. It was strong; it would not stretch; and it was unaffected

by humidity. You could yank at a piece of acetate tape and it would break before it would stretch.

Acetate seemed to be perfect--that is, until you observed what happened to a reel of acetate-backed tape stored for a couple of years. Acetate, unfortunately, with age becomes brittle. The operator of a recorder would find himself reaching for the tape splicer virtually every time he rewound or fast-forwarded an old reel of tape.

Because of this problem tape backings were changed to mylar and, most recently, polyester. These materials are pliable, yield long shelf life, but are somewhat lacking in the strength acetate once afforded. Thus the operator of a tape machine should be on guard. The relatively new polyester (and somewhat older mylar) backed tapes will stretch under pressure. If you don't believe me, take an unused piece of tape and try it.

For this reason, if you are the owner of a 3-motor tape recorder (generally one which has solenoid push buttons instead of a turned lever to control rewind, play, stop and fast forward) heed the following caution: NEVER press 'stop' as you near the beginning of your tape when rewinding it. The internal brakes of these machines exert tremendous pressure and can PERMANENTLY stretch a section of your tape.

Instead, as the counter indicates the approach of the show's beginning press 'Fast-Forward'. The reels will slow down much more gradually this way, enabling you to press 'Stop' before the reverse motion takes over. It may take a little practice to know when to precisely hit the 'Stop' button. However, this one procedure will insure against irreparable harm to your tape.

If, on the other hand, you do not have solenoid controls for the

transport mechanism, my best suggestion for you is to allow the tape to completely rewind off the take-up reel, rethreading for the next show.

So much for history and handling tips. Now let us consider the tapes available to you on the current market.

Magnetic recording tape can be purchased in one of three thicknesses: 0.5 mil, 1.0 mil, or 1.5 mil (one mil is equal to .001 inches). Obviously, the thinner the tape is, the more of it can be fit on a reel and the longer the playing time will be. The chart below is based on the use of 7" reels at a playing speed of 7 1/2 ips, one direction only.

THICKNESS	LENGTH OF TAPE	MAX. REC. TIME
0.5 mil....	2400 feet....	one hour
1.0 mil....	1800 feet....	45 minutes
1.5 mil....	1200 feet....	30 minutes

While the novice might be tempted to get the most for his/her money and opt for a one hour tape, there are other considerations to be remembered: specifically, our topic of the last article - 'print-through'. Thinner tape is more prone to exhibit the problem. Nor does the answer lie in the opposite extreme: 1.5 mil tape. While this thickness might be the best to minimize the signal transfer dilemma, 1200 feet of this tape affords only 30 minutes of recording time. Since most planetarium shows range from 40 to 45 minutes in length, we would recommend the middle tape thickness: 1.0 mil, 1800 ft., 45 min. one direction.

If, after digesting all of the above information, you now consider yourself to be an expert and are prepared to descend on your unsuspecting local HI-FI dealer armed with all these neat facts, be prepared for two slaps in the face:

(1) professional, studio-quality magnetic recording tape is EXPENSIVE, and (2) additional 'jargon' such as: 'bias,' 'equalization,' 'back treatment' and 'calendered tape.' Read on, my friends. There is more to learn. Let's simplify the 'jargon' first and then attempt to solve the 'expensive' problem.

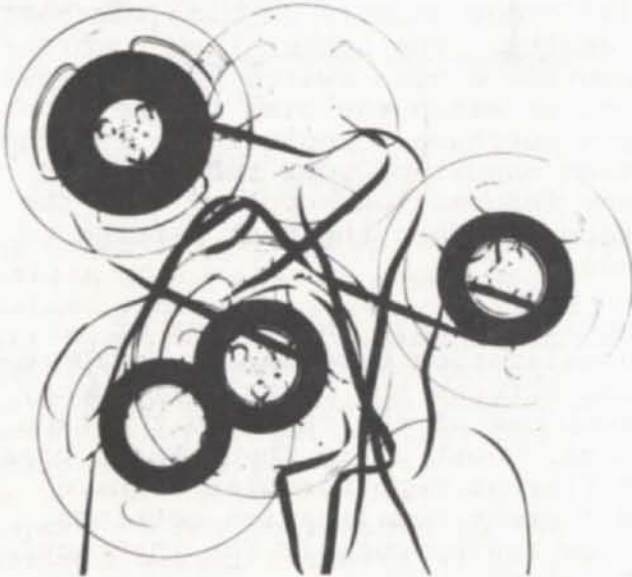
BIAS: is a very high frequency AC signal that is applied to a tape during recording to improve the recording capabilities of the tape. The amount of bias affects the signal-to-noise ratio, distortion and frequency response of the tape. Different tape formulas require different amounts of bias for best results. The better tape recorders provide a bias switch which allows you to match the bias to the tape you purchase. Consult the instruction manual of your recorder and any information supplied with the tape to learn the best setting to use.

EQUALIZATION: the amount of equalization used during a recording affects the overall frequency response of the tape and the tape deck. Just as in the case of bias, different tape formulas require different equalization settings. Once again, consult the instruction booklets.

Before getting into the specifics of the last two terms listed above, let me preface this information with a few comments. Ten to twenty years ago it was fairly easy to understand which side of the tape was supposed to face the heads of the machine. The plastic back of the tape was generally shiny and the emulsion side of the tape, which contained the magnetic particles, was usually dull in appearance. The rule of thumb used to be: dull side of the tape towards the head. With the newer tapes on the market, all of this has changed and the reverse may be true. The change is due to the next two terms: 'back treatment' and 'calendered tape'. Since there are both the older and newer types of recording tape now

available, there is no longer any rule of thumb.

BACK TREATMENT: This is usually a dull appearing, lubricating substance applied to the back of the tape. Manufacturers claim that this addition will accomplish the following: (1) eliminate the accumulation of electrostatic charges which attract dust, and in turn, can cause high frequency dropouts; (2) assure friction-free running, preventing uneven winding on the reel, and (3) prevent slipping in the tape drive, helping to eliminate wow and flutter.



CALENDERED TAPE: All that this term means is that the emulsion side of the tape containing the magnetic particles has been polished by a special process, giving this side a shiny appearance. Manufacturers of this type of tape contend that emulsion with a mirror like finish will result in less head wear on the machine as well as reduce the tendency of oxide shedding (the wearing away of the emulsion particles from the friction of passing by the heads.) Calendered tape is said to minimize frequency drop-offs and assure a smooth-running operation.

Finally, we come to tape cost. As you might surmise, all of these good-type characteristics do not come cheaply. Many tape enthusi-

asts who first start shopping around for premium quality tape are surprised when they see a price tag of \$15 - \$20 or more for an 1800 ft, 1.0 mil, 7" reel of blank tape. On top of that, when one considers the volume of tape a typical planetarium will go through in a year's time, especially if that theater operates on a thin budget, one can easily understand how tape cost can take a big chunk out of one's funds.

Still there is an answer, one which will not require a sacrifice in quality due to high cost. Before we suggest this alternative, we need to mention another caution. Never invest in what is termed either 'house brand' or 'white box' tape. These are usually tapes which are offered at ridiculously low prices. The come-on sales pitch usually states: "We are not permitted by regulation to reveal the manufacturer of this tape, but we consider it to be of very high quality." Don't believe a word you read or hear. 'White box' tape is usually an inferior product, rejected by the manufacturer originally and sold as seconds, or of cheap quality produced by second rate concerns. Avoid it at all costs.

Studio grade, premium quality tape is available at reasonable costs. The trick is that you usually have to buy it in bulk quantity. And when you purchase tape in this manner, it will be shipped to you in a format you might not be able to use. I know this sounds confusing but let me explain by using our own theater here in Howey as an example. (Incidentally, all of the credit for this should go to Phil Groce in Jacksonville. It was he who first let me know about this method.)

Our vendor is an organization known as Vaughn Associates, P.O. Box 5808, Sarasota, Florida 33579. In the fall of 1980 we purchased a case of studio quality, back coated, calendered tape, Ampex 407 mastering tape for the price of \$107.63.

Before you shrink back at what appears to be an outlandish price, let me tell you what you get for that amount.

The case contains ten reels of what is called pancake tape: 3600 ft. wound on a center hub--no reel. This format is normally used by tape machines having a 10 1/2" reel capacity. Unfortunately, none of the recorders in our theater have that ability; we are limited to 7" reel capacities. As such, I made contact with one of our local radio stations which has a 10 1/2" machine in their production studio. At no charge to me, I take the case to the station along with twenty blank reels and wind down. Each pancake will fill two 7" reels. When you divide 20 reels of tape into the total cost, you suddenly discover that you are paying the equivalent of \$5.38 per reel, plus the cost of the blank reel itself (which, I should add, you can purchase much cheaper from Vaughn than you can locally.) Not bad, eh? Studio quality tape less than a third or a fourth of the normal cost.

The only stipulation that Vaughn places on your order is that you have to order the full case. They will not break open a package to handle smaller quantities. Essentially, you are receiving the case just as Ampex packed it.

Two final notes: if your theater uses a larger format than 1/4 wide tape--say 1/2", 1", or 2"--we still recommend that you contact this company and ask for their catalog. You are bound to save money. Finally, we suggest this company to you only in the event that you cannot find a wholesale house like this near you.

VIRGINIA PLANETARIUM SOCIETY

By Richard Joyce
Hampton, Virginia

Virginia Planetarium Society members gathered in Hampton and Newport News, Virginia, for their annual convention, November 11-13. The event was co-hosted by Jon Bell, director of the Peninsula Planetarium and Richard Joyce from the Hampton Schools Planetarium. Three visitors from afar, Rachel Fitch from New Cannan, Conn., Rita Fairman from St. Petersburg, and Bill Dishong from Miami joined the twenty plus planetarium types for close encounters of several kinds. NASA Langley Public Affairs director, Hal Mehrens graciously provided us with wide screen viewing of the Voyager Saturn encounter and many Jupiter slides, which were duplicated on site. More earthly encounters occurred in the outer space environments of five area planetaria. Herb Teuscher in Va. Beach, let us experience part of the Poetry Under the Abrams Planetarium. In Portsmouth, Mike Nold entertained us with clips from "Cosmic Mysteries" from the Strasensburgh Planetarium, and Bruce Hanna at Old Dominion University demonstrated a wide variety of homebuilt special effects. The two hosting institutions presented programs produced in-house.

Next year VIPS will meet in Alexandria with Lee Ann Hennig and the other area directors acting as hosts.

SEPA MEMBERSHIP

In the last issue I reported to you that SEPA had an active membership of 101 members. I am happy to report that since the last issue our Secretary/Treasurer informs me that SEPA's active membership has now risen to 122 members. Don't forget to pay your dues for next year.

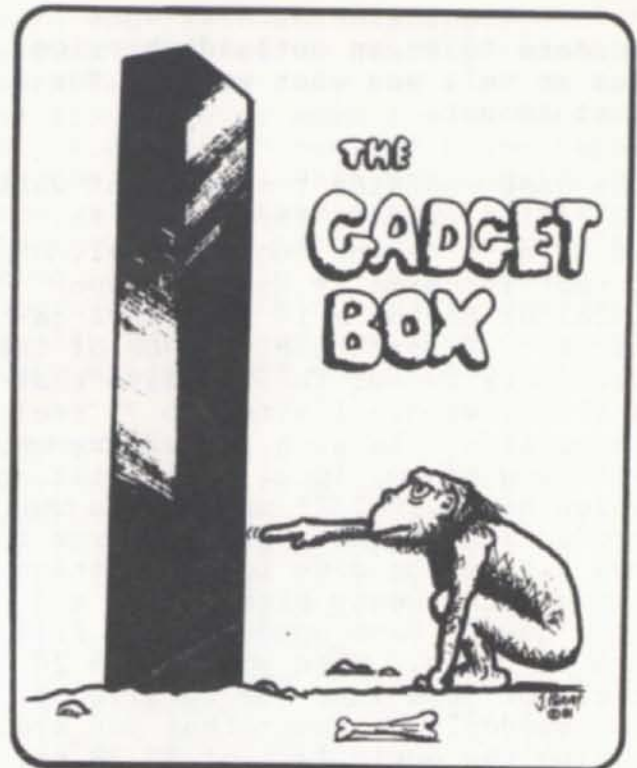
EDITOR'S NOTE: The Gadget Box is a column that will run in each issue of the newsletter. This column will be devoted to technical and artistic aspects of your planetarium. Please send your incredible ideas to the Newsletter Editor so that all members of SEPA may become as crafty and cunning as you are. Appearing this month in the Gadget Box is a tremendous article by Fred Karr of the Hummel Planetarium, who tells how easy it is to convert a digital-type bathroom scale to a scale that will measure your weight on each of the nine planets and the earth's moon. Fred constructed a prototype of this scale for an exhibit here at the Hummel Planetarium a couple of years ago and it is still in use. I believe you will find this article interesting and written in such a way that you too can easily build your own scale to obtain weight on different bodies in the solar system. If you have any questions on the construction of this scale, please write to Fred.

FOR WEIGHT WATCHERS: A DIGITAL SCALE

By Fred H. Karr
Hummel Planetarium
Richmond, Kentucky

When visitors first enter a planetarium lobby, they are frequently entertained and subtly educated by an area of exhibits which promote astronomy and the various space sciences. One rather common exhibit involves the use of two mechanical weight scales, one of which has had its springs properly modified, to demonstrate the relative difference in body weight between an individual standing on the earth and the same individual if standing on the lunar surface.

The principle of relative weights could be extended to include the



remaining eight planets in our solar system, but the resulting set of ten scales might prove to be either too large for the available exhibit space, or too tedious for the average viewer since each change in body weight could only be seen by moving to a different scale. The obvious solution is to, in some manner, incorporate the information for all ten celestial bodies into one scale, and to allow the viewers to select the earth's moon or one of nine planets as the surface upon which they are "standing." This would reduce by a factor of ten the needed space for the scales exhibit; it would increase, by nearly the same factor, the time of interaction between the viewers and the exhibit since they would then be required to linger long enough to manipulate the selection buttons, knobs, or levers. The only hurdle at this point would be the necessary mechanical engineering required to include such modifications in the typical bathroom scale which is usually utilized for such exhibits. A viable solution is to utilize the versatility, compactness, and relatively low cost of electronic circuitry.

Recently introduced to the consumer market, electronic scales are now available from a variety of manufacturers. These units are no larger than their mechanical cousins and offer several distinct advantages: high reliability due to a lack of moving parts; greater accuracy as a result of digital quantizing of the analog input which eliminates the inherent parallax of a pair of human eyes attempting to read a metered analog scale; high readability through the use of bright red, high-contrast digital light-emitting-diode displays; and most important in an exhibit application, ease of modification.

The modification of any electronic device requires information in the form of wiring diagrams and schematics of the unaltered device to enable the user to ascertain which wires route which signals to what locations. Unfortunately, most consumer products do not include any technical information in their user manuals, and requests to the manufacturer of the product for such information very often yield no results. Electronic kits, however, are marketed specifically for those individuals who wish to not only possess the consumer product, but to also know its technical aspects. Such kits contain detailed instructions which will step the non-technical layman through the assembly of a very technical device; they also contain the necessary technical drawings and operational theories which would be of interest to those individuals who are more oriented towards the various electronics fields.

Heathkit Company of Benton Harbor, Michigan, markets a digital-electronics scale costing less than one hundred dollars which can easily be modified to fulfill the requirements of the aforementioned exhibit.

The modification involves changing the fixed-gain feedback loop in an operational amplifier to one in which the gain is discretely selectable through a range of fixed values.

MORE FREEBIES

In the last issue of "Southern Skies" I told you where you could write for a free subscription to Technical Photography, Audio-Visual Communications, and Photomethods. Since then I have run across two more free publications, and Mike Ryan has sent me information concerning an additional two free publications. I am sure that all of these publications could be of some value to you in your production work. Why not write to the addresses below and subscribe while it still only costs 18 cents to mail your letter. Why wait for stamps to go up to 20 cents.

Industrial Photography
475 Park Avenue South
New York, NY 10016

Industrial Equipment News
J. Giles
One Penn Plaza, 250 West 34th St.
New York, NY 10117

Technical Information for
Photographic Systems
Eastman Kodak Company
343 State Street
Rochester, NY 14650

Suny Skies
John F. Maier
Physics Department
State University College
Oneonta, NY 13820

This will provide a series of constants which will be electronically multiplied by the input variable (the object's analog weight). Each selectable constant will be representative of the ratio of the gravitational pull of a given celestial body relative to earth.

Referring to Fig. 1, the feedback/gain loop of operational amplifier IC3 is shown as a bold line. It contains two fixed resistors and one potentiometer. These components should be removed from the

original circuit at points A and B as shown, and replaced with a series of resistors. These resistors should then be connected through a ten-position rotary or slide switch which will be controlled by the exhibit viewer. The modification will cause the operational amplifier to multiply its input signal by a different constant for each selected resistor.

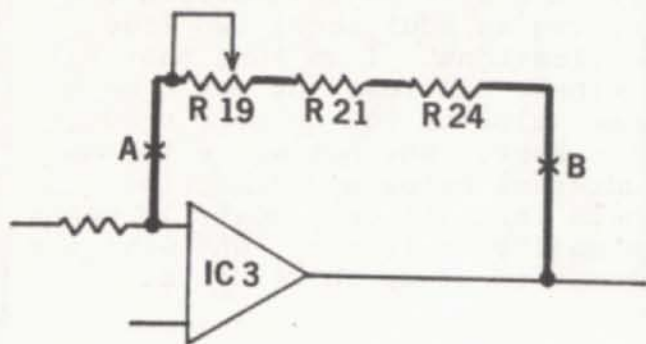


FIGURE 1

As illustrated in Fig. 2, the needed values of resistance could be obtained from a chain of resistors, arranged in such a manner as to facilitate tapping successively larger TOTAL resistance values as used for the least through the greatest relative weight factors. Note that the individual resistances do not correspond to the various weight factors; it is the TOTAL resistance at each tap-off point which carries this relationship. Also note that the same point in the network is used for both Mercury and Mars, since their relative weight factors are equal. Since the earth is the basis of comparison, the scale should be calibrated with the earth-weight resistance. For this reason, the sixth resistance in the series is a potentiometer; this would allow the setting of the digital display to reflect the known weight of an object which would be placed upon the transducer platform for calibration purposes.

The selector switch which would be used with the resistor chain could be any small, ten-position, single-wiper rotary or slide switch. The

wiper contact must be connected to the output of the amplifier, pin #6; the low resistance end of the resistor chain would be connected to the input of the amplifier, pin #2.

The resistors which are used in the circuit in Fig. 2 were chosen with two objectives in mind: the accuracy of the exhibit should not be excessively degraded; and the cost of components should not be prohibitive. Since precision value resistors are expensive, standard values should be utilized whenever possible. Utilizing these standard values will induce a small error in some of the readings of weight on bodies other than earth. To reduce component costs, this error is considered acceptable. Table I reflects the calculated and nominal resistances which would be necessary to produce the various weight factor constants.

The only significant limitation with this exhibit is that due to the inherent limitations of the electronic counter circuits which were used in the original digital-scales'

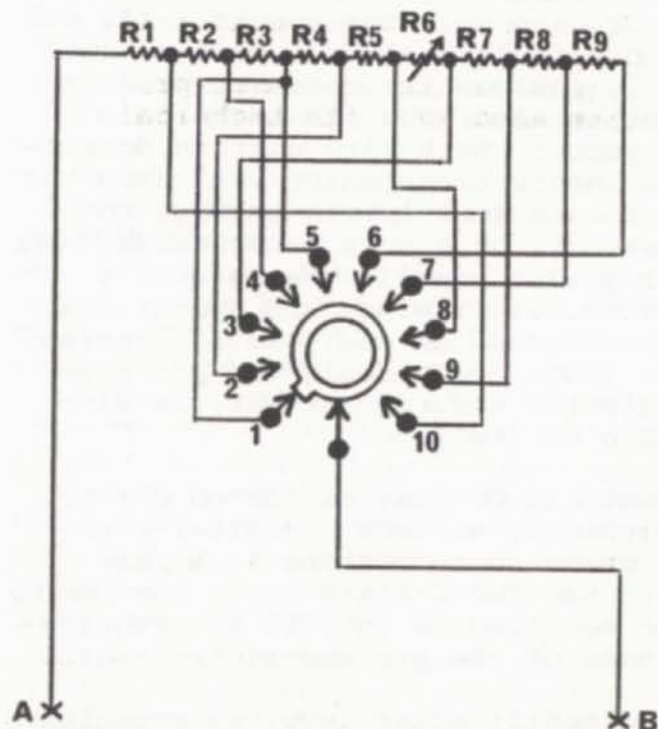


FIGURE 2

design by the manufacturer, the scale reaches its readout limit at

about 425 on the digital display. This factor will only be significant when attempting to read an earth weight of over one hundred fifty (150) pounds while "standing on Jupiter." Due to the large number of children (at less than 150 pounds) who would use this exhibit, this factor is also considered acceptable.

The parts which are necessary to produce this modification can be obtained from the following sources.

- A. Resistors R1-R5 and R7-R9 available at \$.06 each from

Jameco Electronics
1355 Shoreway Road
Belmont, CA 94002.

- B. Resistor R6 is the same resistor which was removed from the unmodified scale (R19).

- C. The multiposition rotary switch

is available as stock #25F2039 (cost \$9.95) from

Newark Electronics
10170 Linn Station Road
Louisville, KY 40223.

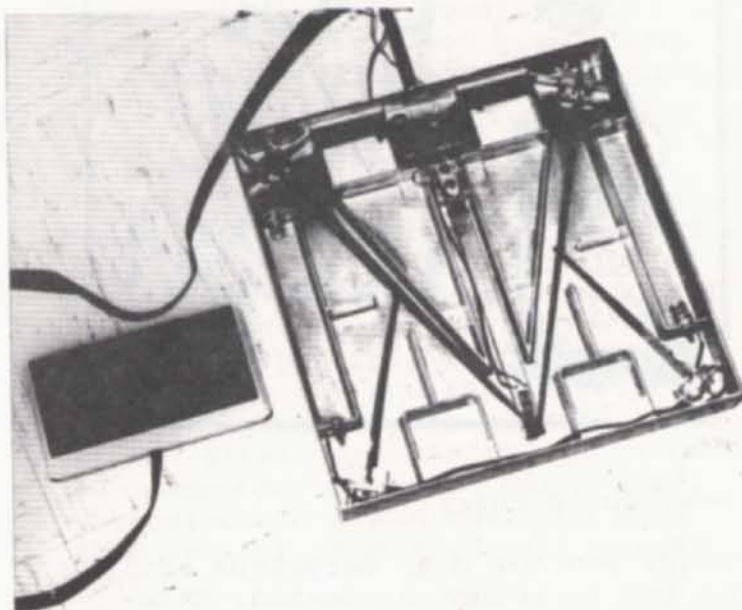


TABLE I

Body	Relative Weight Factor ¹	Total Resistance Needed ²	Standard Resistance Value Used ³	Cumulative Resistance Obtained (R_t)	Relative Weight Factor Produced By Selected Resistors ⁴
Pluto	.027	.47K ohm	R1=.47K ohm	.47K ohm	.0267
Moon	.16	2.81K ohm	R2=2.4K ohm	2.87K ohm	.163
Mercury	.38	6.67K ohm	R3=3.9K ohm	6.77K ohm	.385
Mars	.38	6.67K ohm	---	6.77K ohm	.385
Venus	.9	15.80K ohm	R4=9.1K ohm	15.87K ohm	.903
Uranus	.93	16.34K ohm	R5=.47K ohm	16.34K ohm	.929
Earth	1.0	17.57K ohm	R6=2.0K ohm (variable)	17.57K ohm	1.0
Neptune	1.2	21.08K ohm	R7=3.6K ohm	21.17K ohm	1.20
Saturn	1.32	23.20K ohm	R8=2.0K ohm	23.17K ohm	1.318
Jupiter	2.87	50.43K ohm	R9=27.0K ohm	50.14K ohm	2.854

¹"Observer's Handbook, 1981", Royal Astronomical Society of Canada

²Based upon a calibrated value of 17.57K ohms for proper "Earth" weight

³1/4 watt, 5% tolerance resistors

⁴17.57K ohms/ R_t



that tray. Incidentally, I would hope by now that you have abandoned the use of cardboard slide mounts. The 'dog-earring' problem of cardboard corner fraying can create the sickest sound any planetarian will ever hear: the unmistakable 'clack' of a slide jamming inside an Ektagraphic, refusing to index smack in the middle of a show.

If, however, the above situation does not apply to you, the other problem may be: (2) the bending and curling of the film as a consequence of using Kodak opaque for masking purposes. The solution here would be to go to a more expensive plastic mount, one with glass plates to hold the film absolutely flat. Wess mounts are an example. If you use Wess mounts, you will, as a consequence, be required to go to the use of Kodak's Universal slide tray. Other trays cannot accommodate the increased thickness.

Dear Uncle Fuzzy:

Thank you for your marvelous advice on how to reduce automated, Ektagraphic bulb brilliance. Your answer worked extremely well with one exception. You said that masking the front of the projection lens would deliver greater image sharpness. Unfortunately for us this did not happen. Some slides are in focus, but others in the same tray are a blurry mess. What gives?

Happy But Still Confused

Dear HBSC:

Your problem is most likely due to one of two situations. (1) Check the slide mounts in that tray. Are you using a combination of cardboard and plastic mounts? Are some of your mounts thicker than others? Varying thicknesses of mounts will position the slides at different planes inside your Ektagraphic projector, resulting in some slides being in focus; others out of focus. Unless you are using an auto-focus Ektagraphic, the projector can't correct from one slide to the next. The solution is to use only one type of mount for all slides in

Uncle Fuzzy

* * * * *

Dear Uncle Fuzzy:

Can you please give me a hint where I might locate this planetarium with the problem of the beautiful assistant? I have some star lore by Braille which might be worthy of investigation.

Highly Interested

Dear HI:

Thanks for the kind offer but the situation is now well in hand!

Uncle Fuzzy

* * * * *

Dear Uncle Fuzzy:

In our last attempt to duplicate the Big Bang during a recent show, we encountered a problem with light leaks which have developed in our building. The 500 db explo-

sion is impressive, but we keep having this problem with the dome tilting, mortar falling out of the walls, and pin-registered alignments. We want to keep the sequence in the show. What should we do?

Stupified Technician
Enamored with
Extreme Devastation

Dear STEWED:

Are you sure this letter didn't come from Jacksonville? And I thought only Mike Hutton had this problem with his 100 watt laser! Continue your spectacular performances until everything finally collapses. Erect dry ice fog machines around the perimeter for projection screen surfaces and run shows only at night under the real sky. (Talk about your recycling time for a sunrise effect!) If, as I expect, you find yourself at odds with your administration over this, consider a change of employment. A wrecking company should love to get a hold of your services.

Uncle Fuzzy

* * * * *

Dear Uncle Fuzzy:

We have rigged up a squirt gun at the entrance of the planetarium which aims a jet of CCl_4 into the mouths of students to dissolve gum, thus speeding the clean-up process. This is rather drastic. Can you give us a better solution? (No pun intended.)

Clearly Hates Extra Work

Dear CHEW:

Brother, you really had me chomping on this problem. In our theater we have a special aerosol spray which we use on the carpet to freeze left behind elastic munchies,

thus facilitating removal. You might try using this substance in your spray gun which, of course, would enable you to literally proclaim that all your classes are frozen in attention during your shows. Obviously, the head of Medussa would work equally well. However, you might not wish it to be known that your entire audience is 'stoned.'

If I can serious-up for a minute (a terribly difficult task, since I'm having almost too much fun with this column) my best suggestion to you is the use of a warning PROMISE to students before entering the theater of possible ostracism if caught with gum and then a swift follow through on the promise aimed at the first nurd who thinks he can pull one over on you. Believe me, when students learn that you mean what you say, the word will spread fast.

Uncle Fuzzy



This issue has turned out to be a lot longer than I had planned thanks to so many of you responding to my request for sending information. I hope with your help that I will be able to continue to put together a worthwhile newsletter.

I want to encourage each of you to carefully read the article by Bob Tate concerning ethics in the planetarium. Included with Bob's article is the "Principles of Ethics of the Planetarium Profes-

sion" as written by Bob Tate and Jim Summers. Bob is proposing that SEPA accept these principles of ethics for our society. Your President, Mike Ryan, informs me that during SEPA's business meeting in Memphis, a discussion will take place concerning these principles of ethics and the membership will be asked to vote as to whether they would like to include them as part of our society or not. Please be familiar with these principles of ethics and be prepared to discuss and vote on the issue.

As Mike Ryan stated in his message, he will present two proposed changes to our constitution and by-laws during the business meeting. In order that each of you have an opportunity to see SEPA's most recent constitution and by-laws, I have enclosed one at the end of this newsletter. I would like to thank Mike Ryan for providing a typeset copy of the constitution for me to print.

You should also be ready to express your opinion as to where you would like the 1984 conference of the International Planetarium Society to be held. During the IPS meeting in Chicago last summer, there were five invitations extended to the Executive Council. They were: the Davis Planetarium, Jackson, Mississippi; the Science Museum of Virginia, Richmond, Virginia; the Burke-Baker Planetarium, Houston, Texas; the Alfa Cultural Center, Monterrey, Mexico; and my own facility, the Hummel Planetarium, Eastern Kentucky University, Richmond, Kentucky. Because of so many invitations, the IPS Executive Council postponed making a decision on which site to select until the council meeting which will take place sometime this summer. The IPS president encouraged each affiliate representative to poll their organization in order to ascertain where their members would like to meet in 1984. This would allow the

representative a base of information on which to cast his vote. Mike Ryan again informs me that there will be a short discussion concerning the 1984 conference site for IPS. A vote will be taken (which will not be binding) to let the IPS representative know where the majority of our society would like for the 1984 IPS meeting to take place. Please give some consideration to the sites listed and be prepared to listen to the discussion and vote on the site of your choice.

In the last newsletter I said that Phil Groce would present an article entitled "NAVA and the Planetarium." Unfortunately, Phil's article did not arrive in time for this issue; therefore, it will be presented to you in the next issue of "Southern Skies."

At the present time I am planning on having a box in a prominent location at our conference this summer, where you may anonymously drop in notes for Uncle Fuzzy. At the end of the conference, at Uncle Fuzzy's request, I will gather all of the questions and forward them to him in the usual manner (sealed mayonnaise jar). Several of you did write to Uncle Fuzzy since the last issue of "Southern Skies", but Uncle Fuzzy was afraid that many of you have been too shy to write. You will have the opportunity during the SEPA meeting to query Uncle Fuzzy, in a completely anonymous fashion, concerning the mysteries of the universe.

I again want to thank the entire staff of the Hummel Planetarium for all the effort they have put into the production of this newsletter. Without their help there is no way I could have produced this newsletter alone.

I hope to see you all in Memphis this summer.

CONSTITUTION AND BY-LAWS OF THE SOUTHEASTERN PLANETARIUM ASSOCIATION, INC.

SOUTHEASTERN PLANETARIUM ASSOCIATION INC.

CONSTITUTION

STATEMENT OF PURPOSE

1. To promote the spread of knowledge of astronomy and related disciplines in the school curriculum and among the general public at all levels of age and interest.
2. To encourage planetarium and educational institutions in planning the development of the planetarium as an effective educational and cultural medium.
3. To seek to improve professional standards among our members, and to provide assistance to those wishing to improve their knowledge and skills in this field.

STATEMENT OF METHODS

1. To provide a forum for the exchange of ideas at an annual meeting to be held at a convenient location.
2. To issue periodic newsletters dealing with current ideas and issues within our profession
3. To provide information and encouragement to those interested in establishing new planetariums.

RATIFICATION

This document was ratified by a majority of members of the Southeastern Planetarium Association on the 9th day of June 1977 in Atlanta, Georgia.

BY-LAWS

ARTICLE ONE

Name of Association, Situation of Offices, and Seal

- Section 1. Name - Southeastern Planetarium Association Inc. (SEPA). Our name shall hereafter be called the "Association."
- Section 2. The Association shall be a non-profit organization.
- Section 3. Situation of Offices - The head office of the Association shall be the Gibbes Planetarium, 1519 Senate Street, Columbia, South Carolina 29201 and any other Offices designated by the President.
- Section 4. Seal or Insignia - The President, Vice-president, Secretary-Treasurer, or other such officer of the Association as the Council may appoint, shall have the authority to affix the Seal of the Association to any document requiring the same.

ARTICLE TWO

Membership and Dues

- Section 1. Conditions of Membership - The members of the Association shall consist of:
- A. Full membership is extended to persons engaged in the administrative, professional, educational or technical activities at a planetarium in Kentucky, West Virginia, Virginia, North Carolina, South Carolina, Tennessee, Georgia, Florida, Louisiana, Mississippi, Alabama, and all U. S. Territories off the southeastern coast of the U. S.
 - B. Associate status can be granted to those persons or institutions interested in the aims of the Association but who do not fulfill the above requirements.
 - C. Patrons - Individuals not necessarily in the planetarium field whose interest and support is beneficial to the Association.

Section 2. Election of Members - Applications for all classes of membership shall be subject to approval by the Council. The Council shall review the membership roll annually and shall exclude institutions or individuals which no longer meet the requirements of membership.

Section 3. Dues

- A. Full Membership - \$5.00 per annum
- B. Associate Membership - \$5.00 per annum
- C. Patrons - \$25.00 or more per annum

Section 4. Privileges of Membership - All members shall be entitled to all benefits of the Association, but only those individuals described in paragraph A of Section 1 shall be entitled to vote and to hold office.

Section 5. Use of Funds - All dues and monies received by the Association shall be used to accomplish the statement of purpose and methods as set forth herein.

Section 6. Dissolution - In the event of dissolution, the residual assets of the Association shall be turned over to an organization which is exempt from federal income tax under Section 501 of the Federal Internal Revenue Code as amended from time to time, which organization appears most likely to carry out the purposes of this Association.

ARTICLE THREE

The Executive Council of the Association.

Section 1.

- A. Councillors - The Council shall consist of three or more persons: The President, the Vice-president, the Secretary-Treasurer, the Past President, (hereinafter referred to as the "Officers") and any other members designated by the President.
- B. All members of the Council shall be elected for a two-year term ending on the 31st of December of even numbered years. The Vice-president, however, shall serve as President for the following two years. No member, except the Secretary-Treasurer, is eligible for re-election to the same position for a consecutive term.
- C. The affairs of the Association shall be managed by the Council, who shall exercise all such powers of the Association not delegated to the general meeting.
- D. The Council shall have power to authorize expenditures on behalf of the Association from time to time.
- E. Transfer of a member of the Council out of the geographical areas described in Article Two, Section 1, paragraph A, or transfer to an occupation not described in Article Two, paragraph A of Section 1 shall terminate that member's Council for the remainder of the term.
- F. In preparing a slate of officers, the Nominating Committee shall insure that at least two planetariums are represented.
- G. Meetings and Notices
 - (1) Immediately after the Annual General Meeting of Members in each year there shall be held a meeting of the Executive Council provided they shall constitute a quorum, without further notice, for the purpose of transacting such business as may come before the Council.
 - (2) Meetings of the Council shall be called by the President at his discretion, or by written request of two Council Members. Meetings may be held by telephone or through the mail, if all Council Members are polled on each issue.
 - (3) A quorum of Council shall be three members, one of whom must be the President or Vice-President.
 - (4) Questions arising at any meeting of the Council shall be decided by a majority vote of those present.

- H. Remuneration of Council Members - Members of the Council as such, shall not receive salary for their services.
- Section 2. President - The President shall preside at all meetings of the Association and of the Council and shall have the second or casting vote in the event of a tie vote upon any resolution. The President shall represent SEPA on the Council of the International Society of Planetarium Educators, if possible. The President will appoint a representative to the ISPE Council if the President is not able to serve. He shall, jointly with the Secretary-Treasurer, sign all written contracts made in the name of the Association.
- Section 3. Vice-president - The Vice president shall in the absence or demise of the President, perform the duties of the President, and when so acting he shall have all the powers and be subject to all responsibility hereby given to or imposed upon the President.
- Section 4. Secretary-Treasurer
- A. The Secretary-Treasurer shall attend to and record the minutes of all proceedings of the Association, shall give and service all notices of the Association and Council and shall be the custodian of all records.
- B. The Secretary-Treasurer shall be responsible for the proper keeping of the books of account and such other records as may be prescribed by law and as may be required by the Council; shall deposit any funds of the Association in a bank or banks approved by the Council, and shall not invest them without due authorization by the Council. The Secretary-Treasurer shall, in advance of the annual General Meeting, provide an audited statement of accounts for the perusal and approval of the Members of the Association.
- C. The Secretary-Treasurer shall be the Custodian of the Seal of the Association.

ARTICLE FOUR

Annual Meeting

- Section 1. The Annual Meeting of the Members of the Association shall be held at such place and at such time as may be fixed from time to time by resolution of the Council; to receive the Annual report of the Council and report of the Secretary-Treasurer; to sanction, if approved, decisions and actions of the Council since the preceding Annual General Meeting; to elect members of the Council; to consider and, if deemed fit, to sanction and confirm the repeal, amendment or re-enactment of any By-Laws; and to transact such other business as may properly come before the Meeting.
- Section 2. Notice of Meeting - At least thirty days notice in writing of any General Meeting, specifying the place, the date and hour of meeting, and, in case of special business, the general nature of such business, shall be given to the Members, but the non-receipt of such notice by any Member shall not invalidate the proceedings at any General Meeting.
- Section 3. Quorum and Voting
- A. Quorum - The presence in person of one-fourth of the voting Members shall be necessary to constitute a quorum at General Meetings.
- B. Voting
- (1) Each Member is entitled to one vote, subject to Section 4 of Article Two, to be cast either in person or by written proxy.
- (2) The election of Members of the Council may be by acclamation unless there is more than one candidate for a particular office. In that event, a secret ballot shall be used for each such office.
- (3) A simple majority of the votes cast by Members in good standing at a General Meeting shall constitute a decision of the membership of the Association except where the vote or consent of a greater proportion of the members is required by the By-Laws.

ARTICLE FIVE

Fiscal Year, Accounts and Audit

- Section 1. Fiscal Year - The Fiscal Year of the Association shall end at the close of the annual conference.
- Section 2. Accounts - The Council shall cause to be kept proper books of account with respect to:
- A. All sums of money received, donated, or expended by the Association and the particulars in respect of which the receipts and expenditures take place.
 - B. All sales and purchases by the Association.
 - C. The assets and liabilities of the Association.
 - D. All other transactions affecting the financial position of the Association.
- Section 3. Audit - At the end of each fiscal year the accounts of the Association shall be examined. If deemed necessary by the Council, the correctness of such accounts and of the balance sheet shall be certified by an auditor approved by the Council. Such accounts shall be presented to the Annual General Meeting of the Association for scrutiny and approval.
- Section 4. All the necessary tax returns; corporate forms and any other necessary returns or information shall be filed in their proper and respective places.

ARTICLE SIX

Contracts, Checks, Drafts and Bank Accounts

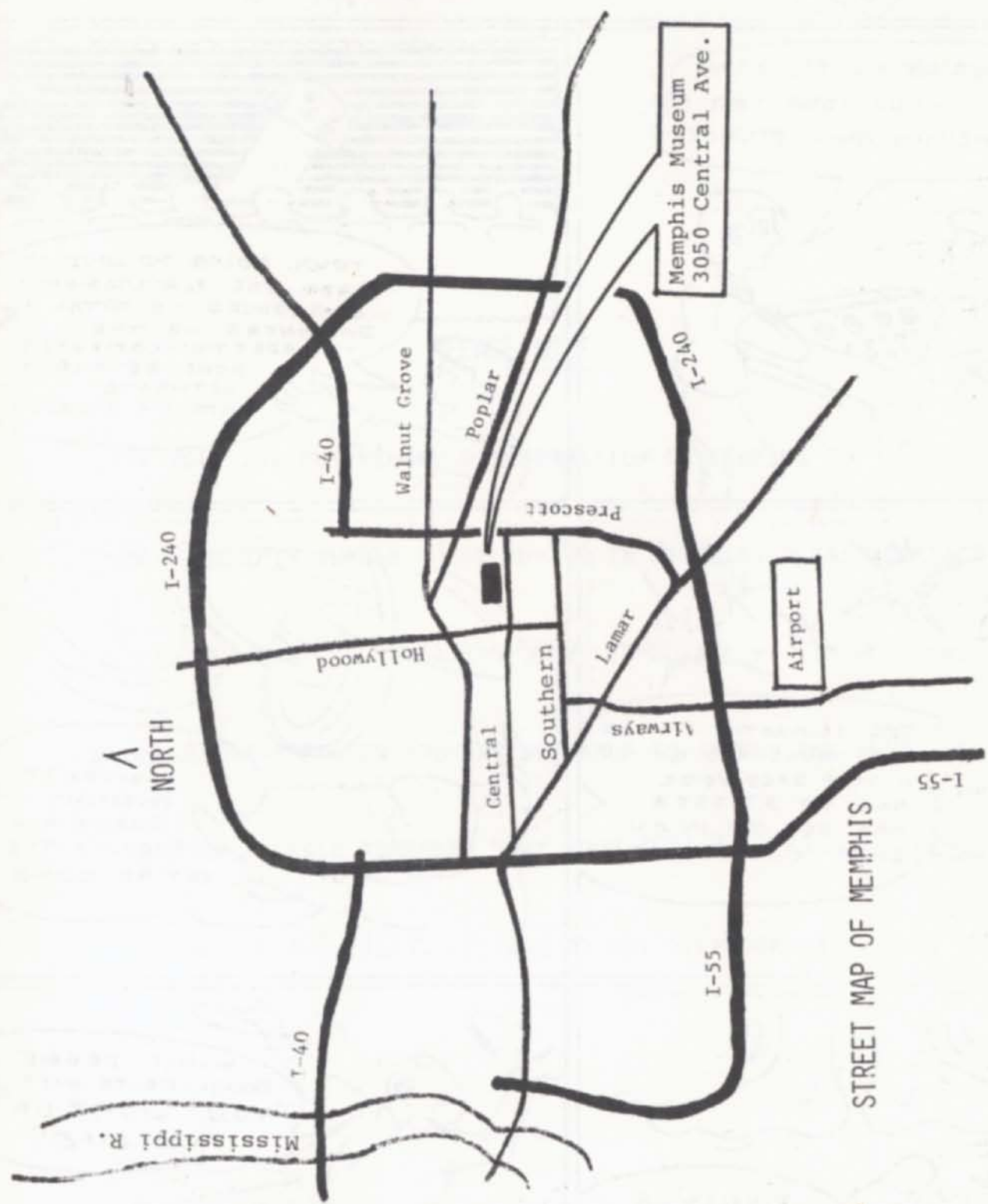
- Section 1. Contracts - Any and all deeds, documents, investments and writings signed for and on behalf of and in the name of the Association by the President or Vice-president and Secretary-Treasurer with the authorization of the Council, shall be binding upon the Association. Save as aforesaid or as otherwise stipulated in these By-Laws, no Officer, agent or Member shall have any power or authority to bind the Association by any contract or engagement or to pledge its credit.
- Section 2. Checks and Drafts - All checks, bills of exchange or other orders for the payment of money, notes or other evidences of indebtedness issued, accepted or endorsed in the name of the Association shall be signed by the Treasurer. Only the Treasurer or Council Member approved by the President may arrange, settle and balance all books and accounts between the Association and its bankers and may receive all paid checks and vouchers and sign all the bank's forms of settlement of balances and release or verification slips.
- Section 3. Deposits - All funds of the Association shall be deposited from time to time to the credit of the Association in such banks or trust companies as the Council may approve.

ARTICLE SEVEN

- Section 1. Authority - The Council may appoint by resolution such committees as may be required from time to time.
- Section 2. Terms - All Committee memberships shall terminate at the Annual Meeting. It shall be the duty of Council to reconstitute such committees as required.

ARTICLE EIGHT

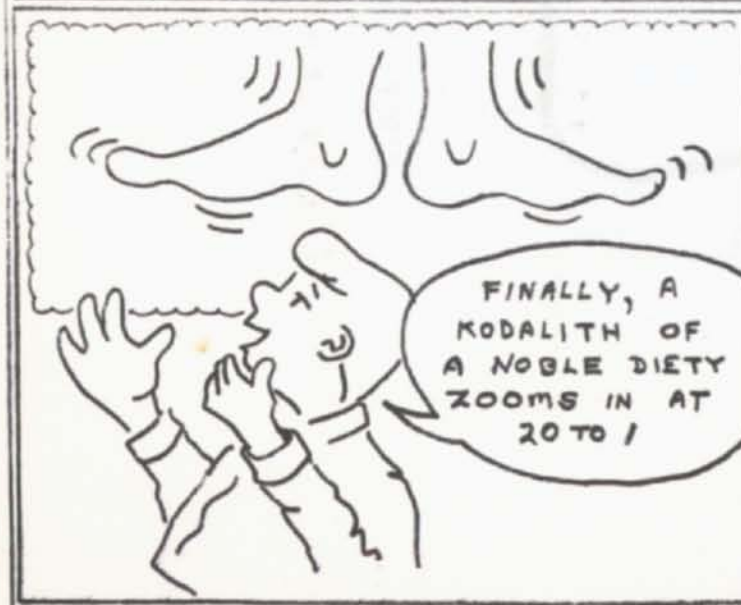
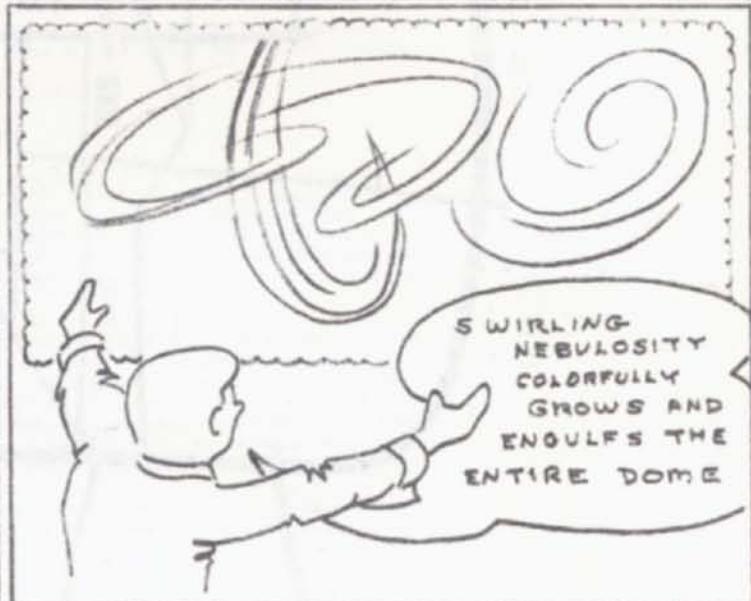
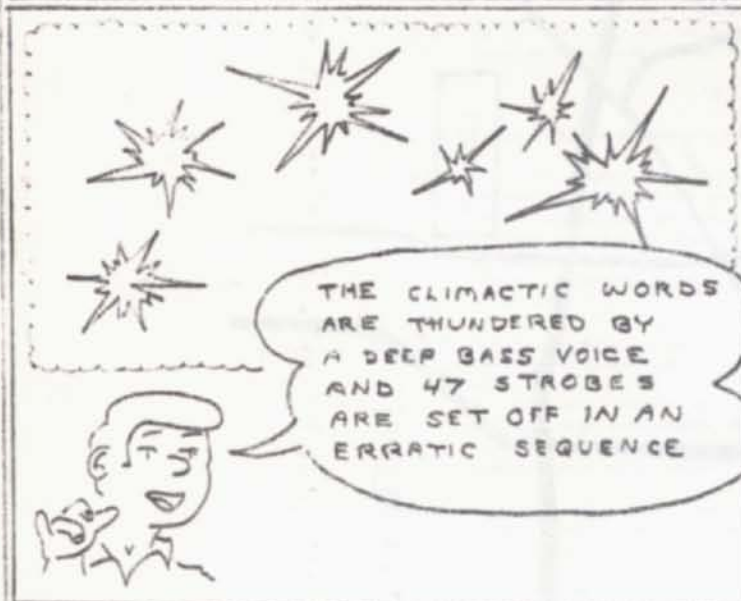
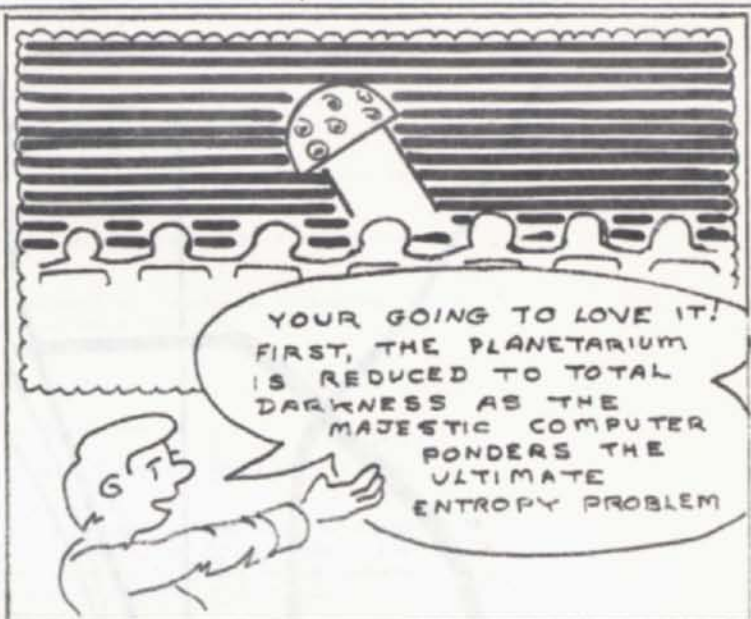
- Amendment. These By-Laws may be amended by a majority vote of the voting members present at any regular meeting, if the proposed amendment has been sent to every member at least thirty days prior to the meeting at which it is to be voted upon.



STREET MAP OF MEMPHIS

ASTRO GAG

With apologies
to the gentle authors
of so many great
works. Mike R



PLEASE NOTE

IF YOU HAVE NOT RECEIVED INFORMATION CONCERNING THE SEPA MEETING THIS SUMMER, JUNE 16-20, IN MEMPHIS, PLEASE CONTACT RAY SHUBINSKI AT (901) 454-5609, IMMEDIATELY. IF FOR SOME UNFORTUNATE REASON YOU ARE NOT ABLE TO ATTEND THE SEPA MEETING, PLEASE REMEMBER THAT YOUR 1981-82 SEPA DUES ARE PAYABLE JUNE 1, 1981. PLEASE DO NOT OVERLOOK THIS.