PLANTETARIUM TRAINING -
A CONSORTIUM APPROACH

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(strictly: This paper was given during Session I, Education, of the ISPE Conference of November, 1972 in the San Francisco Bay Area.)

In the late 1940’s, Armand N. Spitz became the “Henry Ford” of the planetarium industry. Although he didn’t put a planetarium into every garage, he did make it possible for every school to have one. Zeiss brought the stars to the cities, but Spitz brought them to the classroom.

The development of the Spitz planetarium projector, which utilized the principle of pin-hole projection, brought the cost of the projection planetarium down to about one-tenth the cost of a major projector.

By the mid-1950’s, over 150 Spitz planetariums were installed in schools, colleges, and museums around the world. The educational possibilities of a class-room sized planetarium (dome from 16 to 30 feet in diameter) were soon realized. The planetarium became a teaching aid in astronomy, geography, mathematics, and other physical sciences. In the classroom setting, it became more versatile than ever. Stars lit up to illustrate the classics (astronomy in Shakespeare’s day); and history (stars over Athens). Imaginative teachers even found uses for the planetarium in illustrating concepts of art, philosophy, and psychology. The small planetarium was quickly adopted as a navigational training device by the Air Force, Coast Guard, Navy, etc.

In communities without a major planetarium, the small planetarium found itself wearing two hats. One for its role as a classroom of space, and the other for its role as a community planetarium. In some instances the small planetarium put on public shows which rivaled their big-city brothers in showmanship and entertainment value and, of course, with the usual educational “fringe benefits.”

What the smaller planetarium has done is to extend the planetarium experience into the classroom. Moreover, the classroom planetarium is probably the best visual aid that has been invented to illustrate many concepts of space which are difficult to understand from a textbook alone or through a lecture using a two dimensional chalkboard.

For maximum effectiveness, an educational tool needs to be placed under the direction of a teacher who knows how to utilize its capabilities to the fullest extent — even to inventing new applications. The need for teachers who are familiar with teaching in a planetarium environment is now recognized. Until recently, it has been a case of trial and error for the teacher who was told by the principal of the school, “You have been chosen to operate the planetarium.” Biology teachers, physical education instructors, even music teachers, have found themselves with the responsibility of running the school’s planetarium. The star ball was, in a sense, tossed in their lap, and they were expected to do a beautiful balancing act — much like a trained seal — before an audience of students and teachers, illustrating and elucidating the marvels of space travel and the universe. In some cases, this was a traumatic experience for the non-space-oriented teacher. It was a case of the teacher, not the projector, having the breakdown.

Various agencies have been coming to the rescue, however. Handbooks, teacher-guides, lesson plans, and supplemental visual aids are now offered by most planetarium manufacturers. The various planetarium associations have, from time-to-time, distributed guides and ideas through their newsletters and journals. Our own organization, the International Society of Planetarium Educators is effectively contributing in this area through such meetings as this and its journal, THE PLANETARIAN. The Director’s Handbook, published by Spitz Laboratories under the editorship of Mike Bennett is providing a valuable and useful resource reference for the planetarium educator. Teacher institutes held at Spitz Laboratory and other institutes at educational institutions are most valuable in assisting those new and old to the effective use of the planetarium. Some large planetariums are offering apprentice-training programs. These innovative programs need to be expanded. Several centers have been established for more formalized course training in astronomy and planetarium education.

Fourteen institutions offering coursework in planetarium education were listed in the first issue of THE PLANETARIAN (June 1972). Some of these are one or two week institutes; others are internships, or summer programs; some offer a BA or BS degree and several offer the Master’s Degree, or have such a program in the planning. One of these is our local Planetarium Institute — a consortium of Bay-Area planetariums offering a coordinated program of planetarium and astronomical education and training. This Bay-Area consortium includes:

A. F. Morrison Planetarium, San Francisco
Minolta Planetarium, De Anza College, Cupertino

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At the planetarium facility at California State University, San Francisco, we presently have four students working on a Master's program in Astronomy with a teaching emphasis. Our program at CSI-SF offers the BA degree in Physical Science with an Astronomy concentration. The Master of Arts degree is offered with an Astronomy concentration through our Dept. of Interdisciplinary Physical Science. Our instrumental facilities include a penthouse-roof observatory atop our new Physical Science building and a 48-seat capacity planetarium (27-ft. dome) with an A-4-A Spitz planetarium projector.

In March 1971, Michael Chriss, Director of Planetarium Services, College of San Mateo, called Thomas M. Gates, Director, Space Science Center Foothill and De Anza Colleges, and the author together for an organization meeting. Mr. Chriss had already instituted a planetarium training program at C.S.M. for the purpose of training Junior College students to give school shows for the many thousands of children which visit the C.S.M. planetarium each year. His philosophy was, “Why should I give all the planetarium shows, when the astronomy students in my classes could be trained to give the student shows instead. It would be a valuable educational experience for the students to prepare programs, practice, and give the shows.” Thus a pilot training program was instituted. This has now been formalized into the college bulletin of C.S.M. under the title of Astronomy 48a-48b-48c PLANETARIUM TRAINING PROGRAM with a prerequisite of Astronomy 10, the beginning course in astronomy.

The purpose of the Planetarium Institute is to act as a loose association of Bay Area colleges and planetariums with a common undergraduate curriculum in planetarium training. Students enrolled at any of the colleges of the consortium may take a three-semester course in planetarium operation in addition to courses in astronomy, physics, mathematics, science education, and history of science. Upon successful completion of the tri-semester program, the student is able to participate in the lecturing program at any of the Institute planetariums.

The parallel course sequence at California State University San Francisco, for example, consists of three 1 unit courses: Astronomy 341 – 342 – 343 (Introductory, Intermediate, and Advanced Planetarium Training).

The overall philosophy of this planetarium training program may be a bit startling. Those in the program do not have to be seeking professional planetarium careers. It is simply another way for the student to learn astronomy.

One of the best ways to learn is by doing. The student prepares, produces, and gives astronomy programs in the planetarium. It is one thing for the teacher to operate the planetarium and point out this constellation and that, to explain and to demonstrate the retrograde motions of the planets and show the sky from equator and pole. We in the profession do this every day, and sometimes effectively. But how much more effective for the student himself to learn to present the same material. The versatility of the consortium’s planetarium facilities enable the planetarium trainee to concentrate in the particular planetarium environment which most appeals to him: school, college or museum.

The planetarium at Calif. State University San Francisco is used not only as a teaching classroom for Introductory Astronomy Courses and Navigation classes, but also is operated as a tutorial facility manned by an experienced curatorial attendant some twenty hours per week. Students are assigned various astronomical tasks to solve. They go in on their own time and are taught to operate the planetarium projector to set up the astronomical situation the task or exercise calls for and then to gather the necessary data and solve the problem. This approach gives the student an “on hands” use of the equipment (overseen by the curatorial attendant for “equipment survival!”) and creates an interaction between the student and the astro-environment which far surpasses any textbook or chalkboard approach. A further advantage to this “conceptual training” is that it can be done during daytime or cloudy weather. The facility is also used as an astronomy laboratory. The students involved in this use of the planetarium may or may not be in the planetarium training program.

Those in the training program, write, produce, and present school, college, and public programs. The planetarium coordinator works with other disciplines and departments of the university to prepare programs and sessions for many diverse fields of instruction illustrating the interdisciplinary use of the planetarium.

All of the above is not really original or unique to the planetarium consortium. It’s been done before. We claim no new discovery in the planetarium concept.

Fortunately we are blessed, here in the San Francisco Bay Area, with a high planetarium density — ten planetariums within a radius of 20 miles. We strongly recommend the consortium approach. It is loose, informal, but an effective interchange between our respective facilities all united in a common purpose: a broader and deeper understanding of the astronomical universe.

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