

presents us with an array of conflicting alternatives in our search for selfhood. Our most basic role-identifications are obscure or contradictory. Sex roles, age roles, family-member roles, work roles are defined variously as we move through space and time in our open, dynamic culture.

It is little wonder that, just as the test-rat subjected to a schedule of random electric shocks becomes immobilized, some of us withdraw from voluntary choices. This may be through debilitating addiction to alcohol, drugs — or television. Others abdicate from the task of self-definition and choice-making by a mindless allegiance to simplistic, often polarized positions, such as women's lib, black power, and "don't trust anyone over 30."

Each of us desperately needs a caring community in which he can become himself.

Who is that self? What is it becoming? We can only afford to entertain these questions within a trustworthy, supportive relationship. One in which we are known and accepted. One in which we can admit to our ambivalence and anxieties. One in which we can change, grow, regress without losing identity or belongingness.

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## A PLANETARIUM PROGRAM

Many school districts now have planetariums. These can be used in the teaching of biology, not just astronomy: many of the themes in biology have cosmic dimensions.

One program that proved to be successful was a natural expansion of several basic concepts found in most biology textbooks: the origin of the universe, the solar system, and life. The visual portion of the program used color slides, both commercial and homemade, in three rotary-tray slide projectors; three Super-8 film loop projectors; and the planetarium projector. The slide projectors were equipped with manual and automatic fade-in, fade-out adjustments and automatic slide-advance timers. The audio portion, which included background music and narration, was prerecorded on stereo tape. Prerecording the sound permitted greater flexibility with the audio portion while freeing the demonstrator to concentrate on the visual effects. The narration was kept to a minimum: raising questions and proposing hypotheses. The background music, chosen to enhance the narration, was a mixture of heavy, instrumental rock, "switched on" Bach, classical music, and timely ballads. To simplify the recording procedure the music was recorded in stereo first and the narration was added later.

The program began with the lights slowly dimmed to complete darkness. Stars gradually appeared, and

with them came the sound of wolves howling in the distance. (The howls were recorded on different tracks to give the impression of the wolves answering each other.) Soft, mysterious background music was introduced as the narrator set the theme: "The sound of howling wolves—evidence of life. From where did this life come?" By means of a slide projector with a very slow manual fade, so that the pictures appeared out of nowhere, color photographs of star clusters, galaxies, and nebulae were projected on the planetarium dome as the narrator speculated on the origin of the universe.

Formation of the solar system, with emphasis on the origin of the earth, was the next topic. The slides in this section were made from color paintings that depicted the cosmic-dust hypothesis of planetary origin, the molten primordial earth, torrential rains and ocean formation, volcanic activity, and the formation of pools of "organic soup." Color photographs of the sun, moon, and planets were also used. Various hypotheses as to the origin of life were introduced, with emphasis on the heterotroph hypothesis.

The remainder of the program was without narration. The three slide projectors were used randomly to project slides illustrating plant and animal forms, from the simplest to the most complex. The three film-loop projectors were also used at this time. Loops were selected that were free of printed words and diagrams: life cycles of the praying mantis, *Daphnia*, and a sea anemone. Man was represented at first by pictures of babies and young children in natural settings. At this point the film loops were turned off and each slide projector took on a specific theme: scenes of nature, of pollution and overpopulation, and of war and the machines of war. This series of slides culminated with the sound of an explosion and a flashing stroboscope light. After a period of total darkness and silence, a new series of nature slides faintly appeared and music was again heard. The remaining time was taken up by the showing of additional nature slides at full brightness. The final scene on each projector was a portion of the same sunset.

The entire program lasted 40 minutes. When making the initial recording, it was difficult to pace the time allotted for viewing the slides and contemplating the narration. The tendency was to move too quickly: in the mood-setting atmosphere of the planetarium room a slower pace was more effective.

Students responded well to the program. Many asked if they could see it again. Others asked to help in the preparation of new programs. During the follow-up sessions the students were full of questions about what they had observed and were eager to suggest answers to questions posed during the program. A second program is now being developed with the aid of students; its theme is "Light and Photosynthesis."

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