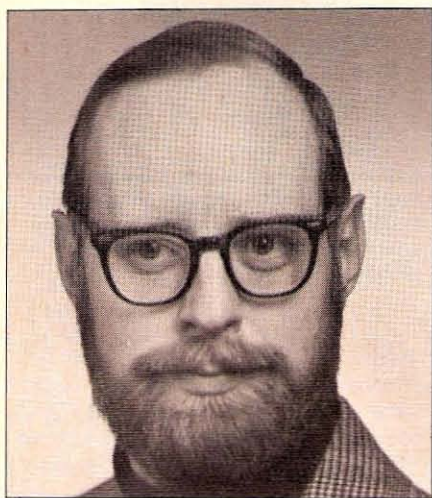


the physics community

AAPT elects Fuller as vice-president

Robert Fuller, professor of physics at the University of Nebraska, Lincoln, has been elected the new vice-president of the American Association of Physics Teachers. Fuller took office at the annual meeting of the AAPT, held 22-26 January in conjunction with The American Physical Society in San Francisco. He succeeds James B. Gerhart of the University of Washington in the post. Gerhart now becomes the president-elect, succeeding Albert A. Bartlett of the University of



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Colorado, Boulder. Bartlett in turn ascends to the presidency, held the previous year by Robert Karplus of the University of California, Berkeley.

Fuller received both master's (1958) and, following a three-year experience teaching high school in Burma, a doctorate from the University of Illinois, Urbana. He was a physicist at the Naval Research Laboratory from 1965 to 1969, when he was appointed to the faculty of the University of Nebraska as an associate professor of physics. While at Nebraska he became involved in the development of a new system of physics instruction: the Keller Plan.

The Keller Plan, or Personalized System of Instruction, is a self-paced teaching method in which the student shares the responsibility for his or her own learning. Lectures are rarely used in this method, with the individual student proceeding from study unit to study unit as he or she masters the content revealed in each new step. Fuller has used this system of physics instruction since 1971 at the University of Nebraska and has participated in the creation of study guides and examinations for the system. In more recent years, Fuller has become interested

in the developmental psychology of Piaget and the use of physics to develop reasoning skills in college students.

Apart from his interests in new ways of teaching physics, Fuller's research area, solid-state physics, includes work on diffusion and pulse radiolysis in ionic solids and the electrical conductivity of ionic solids.

Physicist tries to soothe science anxiety

The "science avoidance syndrome," found in otherwise healthy, intelligent students, now has a determined opponent by the name of Jeffry Mallow, professor of physics at Loyola University in Chicago. Mallow, using counseling and psychological "desensitization" techniques, has established a "science anxiety clinic" at Loyola that appears to be getting good results from those afflicted with the above-mentioned syndrome.

Funded through a grant from the Carnegie-Mellon Foundation, the clinic accepts good students, including a sizable percentage of science majors, who experience difficulty with physics to a degree not commensurate with their abilities. Many students professing a disinterest or even an antipathy to physics or science in general find that this reaction springs from basic insecurities about their ability to reason scientifically.

"The movement to overcome students' problems with science began with attempting to neutralize fears about mathematics," Mallow stated. "This in turn was initiated at several women's colleges in the United States when it was realized that 'mathematics fear' was foreclosing career opportunities to women possessing the skills required to make significant contributions in the sciences. We noted the very same reactions in physics students and wondered: What can we do to alleviate this?"

Mallow focusses on three techniques to help students with science blocks. First, he reteaches basic science skills from the standpoint of logical reasoning rather than cookbook formulas or memorization. Second, he organizes the clinic class into smaller groups to allow the students to share their common experiences with science anxiety. Students cited early bad experiences such as failure in science or math, peer pressure in the form of negative images about those proficient in science and the non-science teacher who may hold a grudge against science for its perceived lack of emotion, mechanistic approach to life or connections with militarism and industry as contributing to their difficulties.

The third approach utilized by Mallow in the clinic is psychological desensitization. The students set up a hierarchy of negative, science-oriented stimuli (walking into a physics classroom, being asked a question by the instructor, taking an examination, etc.) from the least objectionable experience to the most objectionable. Beginning at the low end of the scale, Mallow seeks to relieve the tension surrounding the event bit by bit. When no anxiety is perceived by the student, the next more unpleasant experience is worked on. Eventually, the top rung of this ascending ladder of anxiety is reached and the student, now "desensitized," proceeds back into the normal science curricula.

Though a psychological research study that could directly measure degrees of anxiety neutralization as a result of the clinic is not quite complete, preliminary findings indicate a significant reduction in tension (as measured by galvanic skin response to verbal "science" stimuli) in individuals who have completed the clinic's course of activity.

Another measure of success may well be the fact that the program receives two applications for each of the 24 positions at the science-anxiety clinic.

in brief

Results from the Employment Survey taken by the Manpower Statistics Division of the American Institute of Physics are being published separately for the first time and are now available. The 1976 Employment Survey, directed at 1975-76 graduates in physics and astronomy who were interested in employment, was compiled through responses received from 1504 physics and 97 astronomy graduates. Copies of the report may be obtained by writing Susanne D. Ellis, American Institute of Physics Manpower Statistics Division, 335 East 45th Street, New York, N.Y. 10017.

The computerized Registry of Women in Science and Engineering published by the Association of Women in Science is being expanded. For information write: AWIS Registry, Suite 1122, 1346 Connecticut Ave NW, Washington, DC 22236.

Andrew J. Stofan has been appointed deputy associate administrator for the National Aeronautics and Space Administration's Headquarters Office of Space Sciences. He succeeds Anthony J. Calio, who has become associate administrator for the Office of Space and Terrestrial Applications at NASA. □