

computer program language development to discuss current developments in program language design and the impact of these developments on scientific computing. The question of "special purpose" versus "general purpose" languages will be explored. The panel will also address themselves to the question of what the next general purpose computing language will be. Will PL/I really replace FORTRAN? The scientists in the audience will be encouraged to express their views.

Robert M. McClure, R. F. Rosin, J. C. Browne, Christopher Shaw, Richard Hamming, Jean Sammet.

Mathematics Education (27 Dec.)

Arranged by William K. McNabb.

The National Council of Teachers of Mathematics will meet in a joint session with the American Association for the Advancement of Science, with the Greater Dallas Council of Teachers of Mathematics as the host organization. Mrs. Lois Crawford is the chairman of local arrangements. The material presented will have general appeal to those interested in elementary and secondary school mathematics.

W. T. Guy, Jr., E. Glendine Gibb, James G. Anderson, William H. Johnson, Stanley E. Ball, Marie S. Wilcox, George Grossman.

PHYSICS (B)

Physics Education for the General Public (29 Dec.)

Arranged by R. N. Little and Stanley S. Ballard.

This symposium should be of interest in view of the increasing technological level of our society. Physics education in Texas is at a crossroad. Only about half of the already small number of physics teachers prepared in colleges find their way into secondary-level classrooms. High-school enrollments in physics are declining and 95% of the physics majors in college have taken high-school physics. A state-wide program of collaboration between colleges and high schools is being undertaken to improve physical science offerings. Attention is being focused on the 9th grade, and earlier. The goal is to create a corps of well-trained, enthusiastic teachers of physics and physical science. During the last decade new curriculum materials have been developed, but preparation of elementary school teachers has not kept pace and the materials are not being used to full capacity. New programs for training elementary science teachers are necessary. Professor Holton reports on a new curriculum for high school physics that has finished an evaluation period of several years and is now going into wide use. Dr. Ballard's talk will serve to integrate the components of these problems, will comment on some college-level problems, and will show how these and other developments affect the topic of the symposium.

D. A. Cowan, B. T. Slater, R. N. Little, Addison E. Lee, Gerald Holton, Stanley S. Ballard.

Bioengineering and Cabin Ecology (30 Dec.)

Arranged by W. B. Cassidy.

This symposium will present a scientific evaluation of life system technology associated with man's health and

safety in space. The academic approach to training professional bioengineering personnel, industry's method of incorporating bioengineering skills into the design of their products, and the laboratory's technique for evaluating these products have resulted in significant improvement and reliability of life supporting systems. Performance degradation resulting from man's separation from his normal environment and his exposure to artificial environments will be discussed.

Experience gained from the development and operation of ecological systems for underwater vehicles has been beneficially applied to the design of space cabin ecological systems. The design of ecological systems involves a trade-off between the physiological requirements and acceptable safety standards. Results of this trade-off are reflected in current life support system configurations and will influence the systems of the future.

Alfred Mayo, John Jacobs, Jack Kraft, Alfred I. Sibila, S. F. Singer, J. Gordon Wells, S. B. Sells, B. Thompson, William F. Arndt, C. F. Gell.

CHEMISTRY (C)

Lectures on Special Topics in Chemistry and Related Fields (26-27 Dec.)

Arranged by Ralph L. Shriner.

William B. Smith, Bruno J. Zwolinski, Morton E. Jones, Curtis C. Harlin, Jack K. Jeans, Daniel Banes, John A. Hogg, Karl Folkers, Peter R. Girardot, Harold C. Urey, David M. Kiefer, Aaron J. Ihde, Reese V. Jenkins.

ASTRONOMY (D)

George Ellery Hale Centennial Symposium— Perspectives on 20th Century Astronomy, Astrophysics, and Scientific Institutions (27 Dec.)

Arranged by Charles Weiner.

Nicholas U. Mayall, C. Donald Shane, Ira S. Bowen, I. Bernard Cohen, Lee A. DuBridge, Bengt Strömngren, Robert Howard.

In connection with the Symposium a special historical exhibit on Hale's life and work, prepared by the American Institute of Physics Center for History and Philosophy of Physics, will be on display at the Sheraton-Dallas Hotel during the Dallas Meeting.

Jupiter and the Outer Planets (29-30 Dec.)

Arranged by Tobias Owen and Carl Sagan.

Recent observations of the spectra of Jupiter, Saturn, and Uranus have indicated that large amounts of hydrogen are present in the atmospheres of these planets, in general agreement with the composition of models calculated for their interiors. These results tend to support the idea that some of the outer planets may have retained the elemental abundance ratios that existed in the original solar nebula. Studies of the atmospheres of these planets may therefore be expected to provide detailed information about the composition of the material from which the solar system was formed. Furthermore, such investigations have obvious significance for

Science

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