The Section O program was cosponsored by Section E (Geology and Geography) and by the following societies and organizations: American Geophysical Union, American Meteorological Society, American Society for Horticultural Science, American Society of Agricultural Engineers, American Society of Agronomy, American Society of Civil Engineers, Gamma Sigma Delta, Geological Society of America, Society of American Foresters, and Soil Conservation Society of America.

At the business meeting, on 29 December, announcement was made of the selection of R. E. Hodgson as chairman of Section O for 1959 and as a vice president of AAAS. Hodgson is director of animal husbandry research for the Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland. He has accepted responsibility for developing the Section O program for the Chicago meeting of December 1959. The topic approved for that program is "Germ Plasm Resources in Agriculture: Development and Protection." This program will consist of a symposium of four to six half-day sessions, with individual topics presented by outstanding scientists.

The retiring chairman of Section O, Roy D. Hockensmith, has been elected to a four-year term as committeeman-at-large.

Howard B. Sprague, Secretary

Society for Industrial Microbiology (P2)

The Society for Industrial Microbiology and its Washington section, with cosponsorship of Section P, on 27 December presented contributed papers in the field of deterioration prevention, on subjects ranging from fundamental studies to successful application. Walter N. Ezekiel (Bureau of Mines) presided.

Dorothea E. Klemme and John M. Leonard (Naval Research Laboratory) found uptake of phenylmercuric acetate by spores of Aspergillus niger too great for monolayer adsorption and too tenacious for multilayer deposition, and they postulate efficient transportation inward. Reporting on "Electrophoresis of fungus spores," Patrick J. Hannan (Naval Research Laboratory) noted changes in velocity of A. niger spores from various treatments; the spore surface may be a starch, perhaps amylopectin. W. M. Bejuku, P. B. Marsh, and C. J. Wessel (Prevention of Deterioration Center) surveyed fungi in specific tests, considering choices of organisms, their availability and identity, ease of handling, and personnel safety. Field service tests on "Tetrachlorophenol as an effective fungicide for paint" were reviewed by S. Shapiro (Engineer Research and Development Laboratories). On wood buildings in the Canal Zone, paint containing 4-percent tetrachlorophenol is relatively free of fungus fouling after more than 3½ years, while untreated control paint surfaces showed fungus growth in 6 months and needed repainting within 1 year.

"Microbiology in Outer Space Research" was the subject of a symposium and panel discussion on 28 December, cosponsored by Section P, the American Institute of Biological Sciences, and the American Astronautical Society. Orr E. Reynolds (director, Office of Sciences, Office of the Assistant Secretary of Defense) was chairman.

Under "Microbiologic hazards to equipment reliability," Walter N. Ezekiel cited failures from fungus growth and corrosion in electrical and electronic elements of military equipment during World War II, suggested that similar attacks on units for space vehicles or associated ground equipment, might make them unreliable, and indicated preventive measures. R. D. Gafford (Martin Company, Denver) discussed "Algal research in space problems," considering algae for regenerating oxygen from carbon dioxide in a sealed space cabin with.
solar radiation. Experiments with a prototype model, in which a high-temperature alga and mice were used as subjects, suggest that a gravity-independent system can be constructed.

R. W. Krauss (University of Maryland) described 1- by 3-inch cylinders devised to use yeast in evaluating outer-space environments; CO₂ pressure from growth of the yeast was to be recorded and signaled down from the Navy satellites. “Survival of microorganism spores exposed to high vacuum” was reported by A. E. Prince and S. Bakanauskas (Wright Air Development Center), who found that fungus and bacterial spores, after freeze-drying and up to 32 days under simulated high-altitude vacuum conditions, could still germinate and produce normal growth. A paper on “Sterilization of space vehicles” was not given as scheduled, since C. P. Sonett (Space Technology Laboratories) could not attend.

In a panel discussion, the speakers mentioned were joined by Fred A. Hitchcock (Ohio State University), Frank Fremont-Smith (Josiah Macy, Jr. Foundation) and Dean Burk (National Cancer Institute). There were questions from the audience on the possibility of dangerous mutations developing in space and on whether microorganisms might have spread life through interplanetary distances. Less speculative discussion covered, for example, the higher rate and efficiency of a thermophilic Chlorella in oxygen production; problems involved in using several systems of microorganisms for converting wastes to nutrients suitable for algae; and problems involved in providing aeration and a balanced diet for personnel on space flights. It was agreed that the many microbiological problems involved required expanded and continuing research and that such research might become possible with considerably increased support, such as up to $1 million to $2 million a year for at least 10 years for the work with algae. Orr Reynolds volunteered to convey this recommendation from the panel to the Advanced Research Projects Agency of the Department of Defense and to the National Aeronautics and Space Administration.

The society joined the American Astronautical Society in cosponsoring the symposium arranged by the American Physiological Society, “Man and His Environment in Space: Part II, The Closed Ecological System.” John D. Fulton (School of Aviation Medicine, Randolph Field) discussed survival of microorganisms under simulated Martian conditions. Other papers provided data—from balloon stratosphere flights, submarine experience, and laboratory studies—on further problems in recycling materials under sealed-cabin conditions for long space flights or extraterrestrial

Books for Purchase

Oxford Scientific Texts

Expansion Machines for Low Temperature Processes
By S. C. COLLINS and R. L. CANNADAY. This is a brief description of the development of expansion machines for refrigerative purposes and of their application to many low temperature processes. (Oxford Library of Physical Sciences) 53 illustrations. $9.00

Statistical Theory of Irreversible Processes
By ROBERT KARL EISENSTICH. Micro-physical theories of macroscopic irreversible processes have now acquired a common and secure foundation in the principles of dynamics. This volume presents topics that have not been connected previously as special instances of a general theory and links the basic assumptions of the theory to macroscopic phenomena. (Oxford Library of Physical Sciences) $2.00

A History of Technology
Volume V,
The Late Nineteenth Century, c. 1850 to c. 1900
Edited by CHARLES SINGER, E. J. HOLMYARD, A. R. HALL, and TREvor J. WIlLiAMS. This final volume in the series deals with such topics as: food production, the steel industry, petroleum, electricity, chemicals, ship-building, aeronautics, fabrics, ceramics, printing, and photography. Illus. $26.90

Coordinate Geometry with Vectors and Tensors
By E. A. MAXWELL. This textbook combines a traditional course on three-dimensional coordinate geometry with vectors, rather detailed treatment of tensors, and work on the general quadric that introduces some techniques of matrix algebra. Text figures. $4.00

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habitation. The speakers agreed generally in suggesting the need for much more research and multidiscipline approaches.

WALTER N. EZEKIEL, Program Chairman

Education (Section Q)

The Washington program of Section Q was one of the most extensive in several years. Two sessions were cosponsored by Section Q and the Council for Exceptional Children; two more were sponsored jointly by Section Q and the American Educational Research Association. The teaching societies had their usual fine programs, which featured speakers, panels, symposia, and field trips to many points of interest. One of the symposia, on the National Defense Education Act, drew a substantial audience and was followed by a lively discussion.

There were five sessions for contributed papers. The papers were of excellent quality and dealt with a wide range of significant problems. Attendance at all sessions was the best to date. The topics covered ranged from current concerns such as television in education and the education of exceptional children to the more traditional problems of general curriculum in science fields.

Harry Cunningham gave an excellent vice-presidential address devoted to a consideration of some of the factors which have influenced the development of science education. A short business meeting was held, and the possibilities for planning interdisciplinary symposia were considered.

HERBERT A. SMITH, Secretary

Academy Conference (X1)

The several sessions of the 1958 annual meeting of the Academy Conference were held in the Shoreham Hotel on 28 December. The executive committee held a breakfast meeting at 7:00 A.M. to discuss items of importance at the executive-committee level and to coordinate plans for the day. The 9:00 A.M. business session of the conference was opened by the president, John A. Yarbrough (North Carolina). During the business meeting Walter Peterson, of the National Science Foundation, discussed the foundation's support for science educational projects of academies of science. In addition, the reports of committees and delegates were received.

Officers for 1959 were elected as follows: retiring president, John A. Yarbrough; president, A. M. Winchester (Florida); president-elect, John G. Arnold, Jr. (New Orleans); secretary-treasurer, E. Ruffin Jones (Florida);