citation dinner. The General Electric Company Research Laboratory suite has been a rendezvous for science writers for years at AAAS gatherings. Privileges of the National Press Club were obtained for visiting active members of the National Association of Science Writers by John Troan, NASW president. The Association is grateful to these friends of its public information service for helping to make really enjoyable the intensive task of reporting a meeting of this magnitude to the general public.

Thelma C. Heatwole of Staunton, Va., was director of the pressroom. After this experience for seven consecutive annual meetings of the Association, she has become an expert as an intermediary between scientists and the press. Wayne Taylor of Austin, Tex., was again the pressroom photographer, and Foley F. Smith of Richmond, Va., served as an associate. Windsor P. Booth and Ella F. Harllee maintained their headquarters in the pressroom, the latter having a special suite at the Sheraton-Park Hotel for radio and television interviews. These individuals, with the help of William Haskell, Elly Gemmer, and Catherine Borras of the AAAS staff, arranged 15 press conferences during the week and provided source material quickly for the science writers covering the meeting. Largely to these reporters goes the credit for helping to make possible at these annual meetings one of the four principal objectives of the AAAS: to increase public understanding and appreciation of the importance and promise of the method of science in human progress.

The Association is deeply appreciative of the world-wide coverage of its meetings by members of the National Association of Science Writers and other representatives of the Fourth Estate.

Reports of Sections and Societies

Mathematics (Section A)

Section A sponsored three program meetings, all in the Statler Hotel. On Friday afternoon, 26 December, at 4:00 P.M., Einar Hille of Yale University gave his address as retiring vice president of Section A, entitled "Pathology of Infinite Systems of Linear First Order Differential Equations with Constant Coefficients." In this paper Hille showed that most of the nice properties of the system of equations $y' = Ay$, where A is a finite dimensional constant matrix, fail to hold when the dimension of A is infinite.

The meeting at 9:00 A.M. on Saturday morning was cosponsored by the Operations Research Society of America. There were two addresses. The first speaker, Merrill M. Flood of the University of Michigan, spoke on "Mathematical organization theory." He summarized a few recent mathematical approaches to organization science, including n-person game theory, social welfare theory, mathematical programming theory, economic team theory, and stochastic interaction theory. He then stressed the stochastic process model as an abstraction that seems to contain the essence of these several theoretical models and related this to management gaming as the experimental side of this developing organization science.

The second speaker was Clyde Coombs of the University of Michigan, who spoke on "Psychological measurement and a theory of data." He exhibited a mathematical model which provides a foundation for the large variety of psychological-measurement models and classified these models into eight basic classes corresponding to the basic kinds of abstract observations that can be made out of people's responses to stimuli.

The third meeting of Section A was held Sunday morning at 9:30. This was a panel meeting under the chairmanship of Richard S. Burington of the Bureau of Ordnance, U.S. Navy Department, and was built around the central theme, "The Problem of Formulating a Problem." Burington opened the meeting with a discussion of the manner in which mathematical and physical theories are constructed, using examples from the physical sciences as well as from mathematics. J. D. Nicolaides, chief astrodynamicist of the Bureau of Ordnance, Navy Department, spoke on "A substitute for catastrophic missile flight failures," suggesting that the modern science of aeroballistics, if applied to modern ballistic missiles, might minimize the unfortunate flight failures which now plague the national program.

The second speaker, Philip M. Whitman of Johns Hopkins University, expounded "The mathematician's point of view on formulating problems." D. C. May of the Bureau of Ordnance, Navy Department, discussed "The formulation of evaluation problems in engineering and weapons systems analyses," showing that probability concepts, dynamical principles, and common sense all play important roles.

Horace M. Trent of the Naval Research Laboratory spoke on "The formulation of nonlinear theories in fields and continua." In particular he discussed a problem in elasticity which was solved by the use of tensor analysis and invariant theory. John O'Keefe of the Army Map Service discussed "Formulation of problems in geodesy," particularly the problem of delineation of position of place.

The meeting closed with discussion among the panel members and questions from the floor.

C. C. MACDUFFEE, *Secretary*

Physics (Section B)

Recent advances in the frontiers of physics were summarized in four stimulating talks. M. M. Shapiro reported on the progress being made in the analyses of cosmic rays, with special emphasis on their mass spectrum. Part of the talk was devoted to the explanation of how the newly discovered extraterrestrial Van Allen electrons fit into the picture.

R. A. Ferrell gave the story of positronium. He explained how significant measurements on positronium are being made in the field of solid-state physics and pointed to their future use in the establishment of theories dealing with quantum electrodynamics. Joseph Weber in his survey on the status of our knowledge concerning the general theory of relativity was successful in giving a sense of steady but slow progress in this field. Some current tests of the theory, as well as possible future tests, were described.

More in the vein of classical physics was a report given by F. M. Defandorf on lightning. Defandorf first reviewed the accomplishments to date in our understanding of this phenomenon and then

presented his own measurements and observations on what happens near trees and buildings during lightning storms.

The speaker at the luncheon was the retiring vice president for Section B, Raymond T. Birge. He presented a critical and interesting review of one of the fields of investigative activity bordering on the field of physics. His observations dealt largely with his search for manifestations of the use of the traditional scientific methods in the investigation in this field. The title of his talk was "Science, pseudo-science and parapsychology."

J. H. McMillen, *Secretary*

Chemistry (Section C)

The sessions of Section C at the 125th meeting of the AAAS have now become a matter of the record, but to those who had the good fortune to attend these holiday sessions they will linger on because of new concepts, new scientific data, and new ideas acquired—all of which are an integral part of the backlog of information which an alert chemist requires.

The papers presented at the sessions of Section C covered areas such as the following: "Kinetics of gas phase reactions" (symposium arranged by Ralph Klein); "Frozen free radicals" (two sessions, arranged by F. O. Rice); and "Chemical effects of high energy radiation" (part 1, "Small molecules"; part 2, "Polymers"; and part 3, "Irradiation techniques") (all arranged by Leo A. Wall). The two sessions on submitted papers were arranged by Gilbert W. Castellan and George N. Kowkabany.

Specific topics considered were the decomposition of vibrationally excited species (Basil de B. Darwent); chemically induced molecular excitation (David Garvin); kinetics of some reactions of atomic oxygen (Frederick Kaufman); photooxidation mechanisms (Kenneth O. Kutschke); explorations of the elementary steps of diborane reactions (Rudolph A. Marcus); electron spin resonance of certain free radicals (G. K. Fraenkel); electron spin resonance of polymers (R. E. Florin and D. W. Brown); the imine radical (W. B. Gager and F. O. Rice); cold surface deposition of atoms from a molecular beam source (M. Scheer); small molecules (C. K. Jen and S. N. Foner); H atom reactions with solid olefins at low temperatures (R. Klein and M. Scheer); low temperature x-ray diffraction investigations (L. H. Bolz, F. A. Mauer, and H. S. Peiser); characteristic features of radiation chemistry (Milton Burton); the radiation chemistry of low-molecular-weight hydrocarbons (Leon Dorfman); the effect of linear energy transfer on radiation chemical reactions (Robert Schuler); indirect and direct action of radiation on organic compounds containing the N—C bond (Warren M. Garrison); irradiation of polyethylene, IV, oxidation effects (H. Matsuo and Malcolm Dole); the radiation-induced *cis-trans* isomerization of polybutadine (Morton A. Golub); gamma irradiation of poly-α-methylstyrene (A. M. Kotliar); radiation chemistry of polydimethylsiloxane (A. A. Miller); gamma irradiation of fluorocarbon polymers (Roland E. Florin and Leo A. Wall); gamma irradiation of collagen (James Cassel); irradiation-induced polymerization (Ed. F. Degering, G. J. Caldarella, and M. A. Mancini); monitoring irradiation effects on monomers and polymers by mass spectrometry (Charles Merritt, Jr., Degering, Maurice L. Bazinet, and Edwin F. Grey); irradiation of organic polymers in nuclear reactors (Oscar Sisman); competitive reagents and the radiolysis of glycine (Charles Maxwell); low-temperature radiation studies (Daniel W. Brown and Wall); factors governing the deposition of suspensions of nonuniform electric fields (Herbert A. Pohl and James P. Schwar); the photolysis of acetone in some fluorinated solvents (D. B. Peterson and Gilbert J. Mains); strontium-90 balance in man (E. Lenhoff, H. Spencer, J. Samachson, and Arthur R. Schulert); ultraviolet absorption measurements of some aromatic compounds in solutions in the solid state (M. Ellen Dolores Lynch and Columbia Curren); ionization constants of derivatives of fluorene and other polycyclic compounds (Preston H. Grantham, Elizabeth K. Weisburger, and John H. Weisburger); improved synthesis of amides (David W. Young and Eileen M. Paré); a possible mechanism for respiratory chain phosphorylation—the pyridine nucleotide cycle (Theodore I. Bieber); quantitative determination of adrenocortical steroids in the urine of pregnant women (David F. Johnson, Daniel Francois, and Erich Heftmann); isolation of steroids from human feces (Heftmann, Ekkehard Weiss, and Erich Mosettig); and activities of the division of chemistry and chemical technology of the National Research Council (Clem O. Miller).

The presiding officers of the various sessions were Ralph Klein, F. O. Rice, Leo A. Wall, Milton Burton, S. David Bailey, Gilbert W. Castellan, and George N. Kowkabany.

The retiring chairman of Section C is F. O. Rice of Catholic University of America, and the chairman for 1959 is John A. King, director of research, Armour and Company, Chicago. The newly elected committeeman is S. Archer, of Research Laboratories, Sterling-Winthrop Research Institute, Rensselaer, New York.

Now is the time to begin to plan for the Chicago meeting of Section C of AAAS, where another series of highly informative programs is assured.

Ed. F. Degering, *Secretary*

Astronomy (Section D)

The meeting of Section D featured an address on "Surveying the Moon" by the retiring vice president for Section D, Chester B. Watts, of the U.S. Naval Observatory. An appreciative audience of 75 persons heard Watts describe the meticulous care with which he has made a precise determination of the irregularities of the moon's limb. These results will have important applications in geodesy as well as in astronomy.

Section D also cosponsored a session for invited papers in the program of the Astronomical League and a symposium on photogrammetry in science, part of the program of the American Society of Photogrammetry (M3).

Frank Bradshaw Wood, *Secretary*

Astronomical League (D2)

For the past several years the Astronomical League participation in the annual Section D meeting of the AAAS has been devoted to reports of some of the junior members of the league from different parts of the country. These reports have been so outstanding in technical content and in maturity of presentation that they have attracted wide comment and publicity; in the minds of many, the juniors who have appeared before them constitute the sum total of the Astronomical League.

The league is extremely proud of its juniors, who form a very articulate 10-percent of the total membership, but the remaining 9000 or 10,000 adults who have been devoting years of quiet, dedicated service to amateur astronomy should not be shunted to the side when it comes to recognition. It was therefore decided that the function of the Astronomical League should be presented at the 1958 meeting by individuals who, while active amateur astronomers, are nonetheless able to speak with authority for a large group in interpreting history, problems, and purposes. Through a presentation perhaps somewhat more philosophical than technical, it was felt that a better understanding of the aims and ideals of the Astronomical League might be transmitted to the other scientists present than would be possible with any specific technical

reports on astronomical studies, whether by junior or senior members.

James Q. Gant, noted Washington physician, member of the faculty of George Washington University, president of the International Lunar Society, and so famous as an amateur astronomer that a crater on the moon has been named for him, delivered the initial paper, tracing the contributions of amateurs to astronomical discovery throughout the modern history of the science. Many of the most frequently quoted names in the history of astronomical discovery are those of men who, even in the culmination of their lives of scientific service, maintained their amateur status. There are few "greats" in astronomy—even among those who later made their living from it—who did not begin their active interest as amateurs.

Robert H. McCracken, electronic engineer with the Diamond Ordnance Fuze Laboratories of the Department of the Army, who was recently reelected as president of the National Capital Astronomers and who is one of the country's most energetic proponents of active observing programs for everyone interested in the field, traced the objectives and problems of amateur astronomers everywhere. When any individual or group begins a program designed to produce scientifically valid results on a strictly avocational basis, the fundamental problem is introduced of lack of authority and inability to issue directives. Any professional program can be more easily integrated than nonprofessional projects, yet amateurs have demonstrated their complete dependability in a variety of research projects in which they have well earned the respect and appreciation of professionals. Many of the individuals who, as amateurs, have contributed most to the advancement of astronomy are nationally or internationally famous figures in totally different fields of endeavor.

Armand N. Spitz (inventor of the Spitz planetariums, author, organizer of the "Moonwatch" program for the Smithsonian Astrophysical Observatory, and recently named as first director of the proposed National Planetarium in Washington, D.C.) discussed the opportunities and obligations of the amateur in science. Pure research—the world of abstract science—frequently can benefit by the interpretation which the well-informed nonprofessional can supply, since he is working without the limiting bonds of close alliance with progress-in-the-making. This imposes a major obligation on both sides—on the scientist to maintain a warm and appreciative liaison with the science-minded nonprofessional and on the layman (and everyone is a layman in some measure) to accept the responsibility of interpretation with dignity and caution. Through such a cooperative effort the public of the future, whose assent will be required to achieve the funds for tomorrow's scientific advances, will be better grounded than ever in the meanings of research and more sympathetic toward the inevitable need for public support to aid in securing governmental appropriations.

GRACE S. SPITZ, *Program Chairman*

Geology and Geography (Section E)

Section E held two symposia and a session for contributed papers; in addition, the section cosponsored four symposia. Attendance at these technical sessions ranged from 50 to 300.

The three-session symposium on the history of American geology, arranged by Edgar W. Owen of the University of Texas and cosponsored by Section L, included papers by both geologists and historians. As a part of this symposium, a two-hour discussion session was held which brought forth a lively exchange of ideas on a number of aspects of the subject, particularly on the rapid and early growth of geologic studies in certain areas, such as Cincinnati and upper New York State, and upon the effect of great teachers upon the early development of this specialty in the United States.

A half-day symposium on experimental geology was held. Papers had mainly to do with experimental studies in geochemistry.

A section smoker was held at which Robert R. Shrock, retiring vice president and section chairman, presented his vice-presidential address, entitled "Primary Structures in Sedimentary Deposits."

The Middle Atlantic Division of the Association of American Geographers held its annual sectional meeting to coincide with that of Section E. Two symposia were held: "Geographic Research —Broadening Horizons," arranged by Jackson E. Guernsey and G. Etzel Pearcy, and "The St. Lawrence Seaway," arranged by J. Warren Nystrom.

The section also cosponsored symposia on water and agriculture (with Section O) and on photogrammetry in science (with Section M).

Tours were arranged to scientific laboratories in the Washington area.

Howard A. Meyerhoff of the Scientific Manpower Commission was elected vice president and chairman of Section E for 1959.

At the annual meeting of the Section E committee it was decided to eliminate the contributed-paper session at the 1959 meetings because of the small number of contributed papers that have come in during the past few years. Section E at the 1959 meetings plans to have three symposia. One of these, on quantitative geomorphology, is being arranged by Warren E. Grabau and Charles Kolb of the Waterways Experiment Station, Corps of Engineers, Vicksburg, Mississippi. The subjects of the other two symposia have not yet been decided upon, but the following are being considered: diversion of water from the Great Lakes; interrelationships of the physical, biological, and geological sciences; paleomagnetism; centennial of the anticipation of the geosynclinal theory; and geological oceanography.

FRANK C. WHITMORE, JR., *Secretary*

Association of American Geographers (E1)

An account of the history, construction, and probable effect of the St. Lawrence seaway was presented by three speakers and a narrative film. Haering explained the financial arrangements by which the seaway was made a self-financing, self-liquidating enterprise rather than a taxpayers' burden. When it opens in April 1959, the seaway will provide a 27-foot depth from Lake Erie to Montreal. Danielian traced the half-century struggle of transportation and power interests in both domestic and international politics which resulted in the firm decisions and agreements of the early 1950's. The self-liquidating feature and the implications of the dwindling iron-ore supply from Mesabi were major factors in effecting congressional approval.

On the basis of studies involving many aspects of the local and national economies Thoman indicated that the probable effects of the seaway will be (i) firmer binding together of nodal economic areas, especially from Quebec to Windsor; (ii) the tapping of the Continent up to the Rockies; (iii) the isolation of British Columbia; (iv) an increasing "unity of trade" between the United States and Canada; and (v) relatively minor changes in trade with Europe.

The concluding film illustrated construction problems, showing a scale model.

During a symposium on the broadening horizons of geographic research, the panel discussed three aspects of the subject. Quam outlined the basic geographic research activities of the Office of Naval Research. Essentially, the problem is one of regional characterization and differentiation on land, air, and sea, with particular emphasis on coastal areas. Large masses of data obtained by standard methods as well as by new airborn sensing devices demand objective regional generalization for reduction to usable proportions. To better understand

and interpret foreign areas, young geographers are subsidized by the Office of Naval Research for research abroad.

Ginsburg used three currently active projects to illustrate the interests and activities of geographers in performing research from which large numbers of people can benefit. These concerned (i) cities with flood-plain problems; (ii) the distribution of underdevelopment; and (iii) the rate of urban growth of cities in underdeveloped areas. All three projects stress taxonomy, present structure, and direction of change. The research product will be a taxonomic atlas of underdevelopment. Allworth detailed some of the opportunities available to geographers through the Ford Foundation for pursuing research in foreign areas—available in particular to men with backgrounds in several disciplines. Such work could be furthered by identification on a current basis of the projects which geographers themselves feel would be most rewarding and by identification of the geographers most capable of producing superior results.

J. E. GUERNSEY, *Program Chairman*

Botanical Sciences (Section G)

The program of Section G at the Washington meeting was comprised of a session for contributed papers, a symposium on the physiology of algae, the 1958 version of the symposium on "Unsolved Problems in Biology," and the annual Botanists' Dinner.

The symposium on algal physiology included noteworthy presentations on photosynthesis, phosphate metabolism, and the growth and physiology of algae at high temperature. The meeting was well attended, about 200 persons being present, and it was marked by lively and informative discussion.

The symposium on unsolved problems continued the noteworthy success of this annual series. Both sessions of the symposium were attended by several hundred persons. The first session dealt with a discussion of problems in plant and animal behavior as exemplified by the growth of higher plants and the behavior of insects and vertebrates. The second session was concerned with basic problems of differentiation and development in plant and animal cells. The presentations were well received and stimulated a considerable amount of discussion. There is every indication that this series of symposia will be continued.

The annual Botanists' Dinner was attended by about 60 persons, who heard the retiring chairman of Section G, Oswald Tippo, speak on "Botany and the educational ferment." Tippo reported on very promising plans for the production of a series of films on biology to be used in conjunction with high-school teach-

ing. The success of the dinner was in no small measure due to the efforts of A. C. Smith and Herbert Friedmann, who supervised the arrangements.

BARRY COMMONER, *Secretary*

Anthropology (Section H)

The work of the 85 or more anthropologists who are directly employed by government agencies and the special direction of government research and facilities for research were the subjects of a symposium based upon talks by John M. Corbett of the National Park Service, Howard F. Cline of the Library of Congress, and Frank H. H. Roberts of the Smithsonian Institution, and summed up by Ronald F. Lee of the National Park Service.

A penetrating analysis of man in the process of being formed and reformed by his culture, to the point of forced self-analysis in his present crisis, was given by Leslie A. White of the University of Michigan.

J. L. GIDDINGS, *Secretary*

Social and Economic Sciences (Section K)

In continuation of the practice inaugurated at the 1957 Indianapolis meeting of the AAAS, the program of the Section on Social and Economic Sciences was developed with participation by the four major social science organizations—the American Economic Association, the American Political Science Association, the American Sociological Society, and the American Statistical Association.

The main feature of the section programs for the Washington meeting was the two-part symposium on "Research Problems in the Social Sciences," developed and arranged by Donald P. Ray (National Academy of Economics and Political Science). The section was fortunate in eliciting participation in this undertaking by a very outstanding group of social scientists, which included Harry Alpert (University of Oregon), Kenneth E. Boulding (University of Michigan), Harold D. Lasswell (Yale University), Edward A. Shils (University of Chicago), John W. Tukey (Princeton University), and Ralph W. Tyler (Center for Advanced Study in the Behavioral Sciences). Joseph J. Spengler (Duke University) and Talcott Parsons (Harvard University) served as presiding officers. Publication of the papers in the form of a AAAS symposium volume is projected—the first such volume in the pure social sciences.

The National Academy of Economics and Political Science, the American Economic Association, and Section K,

with the collaboration of the National Social Science Honor Society Pi Gamma Mu, presented a special symposium on "Major Problems of the American Economy." This symposium concluded with the vice-presidential address for Section K of Joseph J. Spengler, on "Public Economic Policy in a Dynamic Society." Other participants were Edward S. Shaw (Stanford University) and D. Gale Johnson (University of Chicago), with Edwin G. Nourse (Washington, D.C.) presiding on behalf of the American Economic Association. The papers presented were of very high quality and generated an interesting discussion concerning economic policy and problems.

The American Political Science Association and the District of Columbia Political Science Association, jointly with Section K, held a "Political Science Roundtable," which featured presentations by Karl Deutsch (Yale University) and William Y. Elliott (Harvard University). Panel discussants were David Z. Beckler (President's Scientific Advisory Committee), Roger Hilsman (Library of Congress), and Harold D. Lasswell. Howard R. Penniman (Georgetown University), who arranged the program, presided. This group represented highly qualified authorities, who discussed the central problem of the impact of scientific and technological developments on politics and international affairs.

The National Social Science Honor Society Pi Gamma Mu was host at a special invitation luncheon at the Shoreham Hotel, given in honor of the officers and the speakers on the program of the National Academy of Economics and Political Science. S. Howard Patterson (University of Pennsylvania) presided.

Two outstanding symposia were presented concurrently by the American Sociological Society, joint with Section K, on "Sociological Studies in Mental Disorder" and "Demographic and Sociological Aspects of Scientific Manpower." The sessions were arranged and presided over by August B. Hollingshead and Jerome K. Myers (Yale University) and by Robert M. Dinkel (Guilford College). Participating were Ozzie G. Simmons (Harvard School of Public Health), Edgar F. Borgatta (Russell Sage Foundation), Henry Meyer (New York University), Leo Srole (Cornell University), Selden D. Bacon (Yale University), Martin Trow (University of California), Howard S. Becker (Community Studies, Inc.), C. A. McMahon (Louisiana State University), William F. Ogburn (University of Chicago), and Talcott Parsons.

The American Statistical Association, in joint sponsorship with the Econometric Society and Section K, presented two sessions for invited papers, on "Statistical Methods in the 1960 Census" and "Some Developments in Statistical Economics." Both programs were arranged by Ezra Glaser (National Analysts, Inc.), who presided at the second session; Peyton Stapp (U.S. Bureau of the Budget) presided at the first session. Papers were presented by James L. McPherson and Robert F. Drury (U.S. Bureau of the Census), Joseph Steinberg and Joseph Waksberg (U.S. Bureau of the Census), William N. Hurwitz and Harold Nisselson (U.S. Bureau of the Census), David Rosenblatt (American University), and Stedman B Noble (George Washington University). The American Statistical Association also cosponsored an invited-papers session with the Biometric Society on "Mathematical Models in Biology."

A symposium on "Metric Implementation in Pharmacy" was held by the Metric Association. John T. Johnson (University of California) presided, and presentations were given by Robert P. Fischelis (American Pharmaceutical Association), Ralph W. Ernesberger (Eli Lilly and Company), Harry E. Sagen (Abbott Laboratories), and Paul Bolton (Public Relations Foundation). Also included in the Section K program was

the series of symposia of the American Society of Criminology, presented under the program-committee chairman, Donal E. J. MacNamara (New York Institute of Criminology).

The session for contributed papers of Section K was of high interest, balanced in terms of subject matter, and well attended. The presentations, all of high quality, were made by Betty G. Fishman (West Virginia University), Eric D. Bovet (Office of Naval Research), Reuben E. Slesinger (University of Pittsburgh), Paul Crosser (Adelphi College), Lewis A. Dexter (Massachusetts Institute of Technology), Walter Hirsch (Purdue University), and Simon D. Messing (Hiram College). Donald P. Ray, secretary of the section, presided. The interdisciplinary nature of this type of session within the social sciences is most useful, and another session or two of this type is anticipated for the Chicago meeting of the AAAS this year.

The officers of Section K appreciate deeply the assistance and efforts of all those whose contributions of one kind or another enabled the Washington sessions to pass into history as outstandingly successful. The relatively large attendance at all Section K sessions indicates, in part, the rising interest of social scientists in the work of the AAAS.

Finally, two joint sessions were held by the section in 1958 with the regular spring and fall sessions of the National Academy of Economics and Political Science at the Brookings Institution in Washington, D.C. The first series was on the general subject of "Soviet-American Relations and the Western Alliance"; the second series, on "The Strategy of American Economic Foreign Policy." The proceedings of these series have been published by the National Academy. The National Social Science Honor Society Pi Gamma Mu collaborated in these undertakings.

AAAS Section K was fortunate during 1958 in having the leadership of the distinguished economist and social scientist Joseph J. Spengler as chairman. This year the equally distinguished sociologist and demographer Philip M. Hauser (University of Chicago) will serve as chairman, and another eminent sociologist, Kingsley Davis (University of California), president of the American Sociological Society, will begin his service as a member-at-large of the section committee.

DONALD P. RAY, *Secretary*

General Systems Research (L2)

In the symposium on "Population dynamics," Elizabeth Scott provided a brief resumé of the work at Berkeley toward a mathematical theory of populations embodying a stochastic model for cluster

formation and conglomerations of clusters. Jerzy Neyman followed with a description of the methods whereby a modification of the theory could apply to cells, where a double mutation could lead to the onset of cancer. In the discussion, A. Rapoport (Michigan) pointed out that the difficulty expressed by Scott and Neyman in incorporating density minits into the model may be due to the incomparability of social space, which is made up of a network of relationships between individuals, with Euclidean space. Most measurements of density are recorded in terms of Euclidean space. L. Slobodkin reviewed the ecology of aquatic populations in terms of fishing efficiency, showing how one can maintain a steady state in an open system by taking out, at most, about 26 percent of the energy in the form of "yield," and about 13 percent if one predation is involved. These limits are ascribed to the fact that larger organisms employ the same enzyme systems in their metabolism.

The contributed papers were extremely uneven and disparate in approach. Only two will be mentioned. Henry Paynter (Massachusetts Institute of Technology) presented a fascinating description of the way in which analog computer systems can select an intermediate value presented by three or more continuous variables, making possible the construction of ultrareliable systems from relatively unreliable components. The paper "Historical-taxonomical tree of knowledge" by G. Tagliacozzo (New School for Social Research) raised a considerable amount of discussion.

In the business meeting it was decided that a conservative approach to expansion of the society is best, at least until adequate quarters are available for the central office. The finances are in fair condition. It was recommended that the first three yearbooks should be given a thorough and constructive evaluation, which should assist greatly in providing a focus for future activity by the society. The problem of assembling a comprehensive bibliography of systems theory was discussed and will be worked at during the next year.

R. L. MEIER, *Secretary-Treasurer*

Engineering (Section M)

To foster the AAAS concept of offering program material of interdisciplinary interest, the program committee of Section M (Engineering), under the guidance of Carl F. Kayan (Columbia University), prepared and offered the "National and International Aspects of Systems of Units" as the basic theme for 1958.

It was considered advisable to handle this theme as a series of related symposia, each treating a specific segment

of the recognized problem. The four segments were as follows: "Measurement Units: Present Situation in the United States and Abroad"; "Practices and Problems in Technology"; "Practices and Problems in Industry, Commerce and Defense"; and "Proposals for Unification and Simplification."

The presentations by the individual authors were detailed and defined the problems of acceptable technical communication between the various sciences, engineering, and industry (both national and international). The subject was of such interest that several authors from other countries submitted detailed papers, which were presented in abstract form at the meeting. Application has been made to the AAAS publications committee for the preparation of a symposium volume which will include all papers and a synopsis of the discussion.

There was a larger attendance at all sessions than is normally expected at a Section M meeting. Considerable discussion accompanied each symposium, indicating a definite interest in the basic subject and a desire to obtain further information and facts upon which the audience could predicate their own plans for a closer integration of systems of measurement within their own fields.

All four sections of the meeting were held at the Hotel Statler. No section business was transacted, but the audience reaction indicated a definite desire to have further material on this subject made available at the next meeting of the AAAS. This reaction will be reported to the next scheduled meeting of the Section M council. The program committee is now making tentative plans to develop this theme and make available suggested solutions to some of these complex problems through reports from recognized leaders.

E. PAUL LANGE, *Secretary*

American Society of Photogrammetry (M3)

On Monday, 29 December, the American Society of Photogrammetry, in recognition of the importance of photographic measurement as a tool in scientific study, presented an interdisciplinary program of nine papers in the fields of medicine, zoology, geology, archeology, physics, astronomy, forestry, and engineering. Paul Baker (Pennsylvania State University) described density measurements of x-rays in the determination of bone composition. Leonard Schultz of the Smithsonian Institute read a paper based on the work of W. F. Thompson at the Fisheries Research Institute, University of Washington, on the measurement of morphological features of salmon from photographs taken with paired underwater cameras. These measurement data are used in studying fish migration and associated problems.

In a related study J. Thomas Dutro (U.S. Geological Survey) discussed telecentric photography in making measurements of fossils. The parallel perspective of telecentric photography results in a photograph on which true linear and angular measurements may be made directly.

The application of photographic measurements to architecture was described in an archeological paper by Ralph M. Berry (University of Michigan), based on a joint University of Michigan–Princeton University expedition to Saint Catherine's Monastery at the foot of Mount Sinai in 1958. Photographic measurements will be used to reconstruct architectural plans.

The use of measurements from bubble-chamber photographs in studying the behavior and characteristics of minute particles was discussed in a stimulating paper by Hugh Bradner (Radiation Laboratory, University of California). The use of high-speed computers to reduce the raw data was also described. Position measurements from astrographic plates was the subject of another paper, by S. Vasilevskis (Mount Lick Observatory, University of California).

A program of periodic rephotographing of the heavens and a scheme to reduce the time required to compute celestial positions and proper motions from the photographic plates were described. Two papers dealing with photographic measurements as applied to engineering were presented, by R. A. Laflamme of the Photogrammetry Laboratory, Massachusetts Institute of Technology, and by A. O. Quinn (Aero Service Corporation, Philadelphia). Austin Hasel (U.S. Forest Service) read a paper dealing with the reduction of photomeasurement data by the regression technique in a study of forest inventories.

It is noteworthy that six of the nine papers dealt with photographic measurements quite apart from conventional aerial photographs generally associated with photomeasurement techniques by the photogrammetrist. As a tool in scientific study, the photograph, used either singly or in stereoscopic models, provides a wealth of quantitative data, as was amply demonstrated in the program presented by the society.

RICHARD G. RAY, *Program Chairman*

Medical Sciences (Section N)

Section N sponsored a symposium on the "Development of the Heart and the Origins of Congenital Heart Disease." The program was arranged by Gordon K. Moe, chairman of Section N, and Allan D. Bass, secretary of the section. The papers were arranged in such a man-

ner that anatomical and physiological considerations were presented first. These were followed by papers on cardiac pathology. The third topic considered was cardiac catheterization, particular emphasis being placed on the use of this tool in diagnostic problems. The fourth and last series of papers related to surgical treatment of congenital heart lesions.

It was made strikingly clear that we have progressed more in our knowledge of cardiac surgery and methods of diagnosis than we have in areas of fundamental cardiac embryology and physiology. An almost unexploited area is that of the biochemical events associated with the development of congenital lesions. Only recently have pharmacological studies been initiated which give some promise of aiding in the management of the pulmonary complications associated with certain cardiac lesions. It is apparent that in this area of medical interest the practical problems of disease management are closer to final solution than are the more fundamental problems of etiology.

ALLAN D. BASS, *Secretary*

Dentistry (Section Nd)

On Saturday morning, 27 December, the section on dentistry cosponsored a symposium on "Pre-Medical and Pre-Dental Education" arranged under the auspices of Alpha Epsilon Delta at the George Washington University School of Medicine. Clemens V. Rault, dean of the Georgetown University School of Dentistry, presented a talk on the education of the dental student as part of a symposium during which the new plans for medical education at Johns Hopkins School of Medicine were discussed by that school's associate dean, Samuel P. Asper, Jr. Criteria for admission to dental school, in a panel discussion moderated by Lester C. Shell, premedical and predental advisor at Central College, was explored from the point of view of a dental-school dean (R. A. Dixon, of Howard University), a dental-school admissions officer (E. G. VandenBosche, of the University of Maryland), and a senior dental student (Eugene Colao, of Georgetown University).

On Monday, 29 December, in the "blue room" of the Shoreham Hotel, the section on dentistry conducted a three-session symposium on "Calcification in Biological Systems." At the request of Russell W. Bunting, outgoing secretary of Section Nd, and George C. Paffenbarger, 1958 vice president and chairman, this symposium was arranged by Reidar F. Sognnaes, with the cosponsorship of Section N (Medicine) and Section F (Zoology), as well as that of the International Association for Dental Research, North American Division; the American Dental Association; and the American College of Dentists. A. F. Forziati (Bureau of Standards) was chairman of the local arrangements committee.

This symposium permitted scientists from many fields to take a total, coordinated look, for the first time, at the manner in which nature deposits inorganic minerals in biological tissues in normal and pathological conditions, exploring the ultimate building blocks of living nature's hardest structures—from lobster claws to human teeth.

During the morning session, moderated by Roy O. Greep of the Harvard School of Dental Medicine, the process of calcification was reviewed as it occurs in the exoskeleton of echinoderms (Bevelander, New York University); in the shells of oysters (Wilbur, Duke University); in the crayfish gastroliths (Travis, Harvard); in rodent otoliths (Belanger, Ottawa); in normal and abnormal cartilage (Follis, Armed Forces Institute of Pathology); and in the leg tendon of the turkey (Likins, Nylen, Piez, Scott, and Mosley, National Institutes of Health, and Johnson, Armed Forces Institute of Pathology).

During the afternoon session (moderated by Sognnaes), the discussion focused on higher animals and man, including the enzyme reactions in osteogenesis and odontogenesis (Burstone, National Institute of Dental Research); the ultrastructure of enamel (Frank and Sognnaes, Harvard); calcifiability of dentin (Solomons, Irving, and Neuman, Rochester); ultrastructure of bone (Robinson, Johns Hopkins); abnormal tissue calcification (Eisenstein, Trueheart, and Hass, Illinois); and salivary calculus deposition around the teeth (Leung, Pittsburgh).

The evening session, moderated by Franklin C. McLean of the University of Chicago, dealt with experimental induction of osteogenesis (Moss, Columbia); behavior of bone in tissue culture (Goldhaber, Harvard); chemical structure of the organic phase (Piez, National Institute of Dental Research, and Gross, Harvard); the crystallographic nature of the inorganic phase (Posner, National Bureau of Standards); and, finally, the molecular relationship between the organic and inorganic ingredients in mineralization (Glimcher, Massachusetts Institute of Technology).

The full titles of the presentations, speakers, and affiliations appeared in the printed program. It is hopefully anticipated that the complete transactions of this symposium will be published in monograph form.

Throughout this three-session symposium there was a capacity attendance of approximately 200, about one-third of whom also attended the group luncheon and dinner organized by the excellent local arrangement committee.

At the concluding evening session, Sognnaes thanked all who had made this symposium a success and took the opportunity to express gratitude and admiration for the wise, enthusiastic, and progressive leadership of R. W. Bunting during his eight years of service as secretary of Section Nd. Bunting expressed his pleasure in having served the AAAS and his high hopes for the future as the American Dental Association, representing organized dentistry in the United States, stands on the threshold of its centennial celebration.

It was announced that the following officers have been elected to represent Section Nd: chairman and vice president, Maynard Hine (1959) (School of Dentistry, University of Indiana); program chairman, Frank J. Orland (1959) (Zoller Memorial Dental Clinic, Chicago); committeeman-at-large, Gerald J. Cox (1959) (University of Pittsburgh, School of Dentistry); and secretary, Reidar F. Sognnaes (1959–1962), Harvard School of Dental Medicine.

REIDAR F. SOGNNAES, *Secretary*

Pharmacy (Section Np)

Pharmacy (Section Np) held eight sessions, 26 through 29 December, in Washington, D.C. A total of 30 contributed papers on original studies was reported, and two symposia were held. Over 250 persons registered as having attended one or more of the pharmacy section meetings.

The AAAS Council, the governing body of the Association, elected Glenn L. Jenkins, dean of the School of Pharmacy of Purdue University, as a vice president of the Association and elected John Autian (School of Pharmacy, University of Michigan) to serve on the committee-at-large of the section for a four-year term. Jenkins will serve as chairman of the section for the coming year and will preside at the Chicago meeting.

Of major interest to the group in attendance was a stimulating vice-presidential address on "The AAAS and Pharmacy," presented by George Archambault. Archambault set forth the major objectives of the section as follows: (i) to promote and encourage scientific advancement in the pharmaceutical sci-

ences along with, and as a part of, the general scientific progress of the nation; (ii) to secure a more widespread recognition of our profession as a science in meeting with other scientific disciplines; (iii) to provide a meeting ground for individual recognition of pharmaceutical scientists by other scientists of the nation.

Archambault stated, "I have strong hopes that through this section, researchers in the pharmaceutical industry will release some of their more important 'break-through' research papers, especially those concerned with the introduction of new drugs."

A symposium on "Advances in Conquering Cancer" attracted considerable interest outside the group of pharmaceutical scientists in attendance. Stuart Sessoms, assistant director of the National Cancer Institute, gave an introduction to the problem and presided over the session. T. Phillip Waalkes, special assistant to the chief of the National Cancer Chemotherapy Center, National Cancer Institute, gave a review of promising drugs in this field, and Milton Skolaut, chief of the pharmacy department, Clinical Center, National Institutes of Health, discussed the impact of cancer research on the hospital pharmacy program. Roderick Murray, director of the Division of Biologic Standards of the National Institutes of Health, spoke on the function and responsibility of that division. This program was followed by a tour of the National Institutes of Health.

In addition, the hospital pharmacy group had a most informative and well-attended full-day session under the guidance of Archambault and J. A. Oddis. The following organizations were represented: American Society of Hospital Pharmacists, American Pharmaceutical Association, Maryland Association of Hospital Pharmacists, District of Columbia Pharmaceutical Association, American Hospital Association, Howard University, and George Washington University. Several important subjects of direct interest were discussed, including a fluid form of meprobamate, research potential in hospital pharmacy, and statistics as a research tool. A symposium on the hospital pharmacist of the future included the following participants: William S. Apple, Charles U. Letourneau, Charles W. Bliven, Kenneth Nelson, and Oddis. Luncheon, entertainment, and dinner were sponsored, respectively, by E. R. Squibb and Sons, Mead Johnson and Company, and McKesson and Robbins, Inc.

Justin L. Powers, editor of the scientific edition of the *Journal of the American Pharmaceutical Association,* opened the contributed-papers sessions, which consisted of the presentation of results of original research. The papers presented were of unusual merit. Joseph V.

Swintosky and his coworkers at the Smith, Kline and French Laboratories in Philadelphia presented a series of three papers dealing with the problems of sustained release medication. The effect of orally administered thiourea in rats was discussed by A. H. McCreesh of Temple University. A. G. Roberts (J. B. Roerig and Company) presented a paper on the pharmacological prediction of hydroxyzine hydrochloride activity. W. J. O'Malley (Medical College of Virginia) and J. E. Christian (Purdue University) discussed the design of a continuous-recording in-vivo method of measuring sensible perspiration. Methods of determining compression characteristics of materials as an aid to tablet formulation were presented by L. L. Kaplan and J. E. Wolff of the Sterling Winthrop Research Institute. J. J. Sciarra (St. John's University) discussed the solubility of boric acid solutions and a qualitative analytical procedure for borates.

Other papers, entitled "Linear titration curves of acids and bases," "Meprobamate synergy with other muscle relaxants," "Flavor comparisons of cocoa syrups," "Water soluble carbohydrates of the opium poppy," and "A spectrophotometric assay for acetylsalicylic acid and salicylic acid" were delivered, by N. R. Joseph (University of Illinois), James W. Ingalls, Jr. (Brooklyn College of Pharmacy), M. Stutesman (Ferris Institute), Einar Brochmann-Hanssen (University of California), and L. A. Springman (Eli Lilly and Company), respectively.

The sessions ended with an evening tour of the American Institute of Pharmacy, which serves as headquarters of the American Pharmaceutical Association. The tour was arranged by Robert P. Fischelis, secretary of the association.

JOHN E. CHRISTIAN, *Secretary*

Alpha Epsilon Delta (N1)

Approximately 150 persons attended the symposium on "Premedical and Predental Education" held at the George Washington University School of Medicine on Saturday morning, 27 December. In addition to the four formal papers, presented by Samuel P. Asper, Jr. (associate dean of the Johns Hopkins University School of Medicine), Clemens V. Rault (dean of the Georgetown University School of Dentistry), John Parks (dean of the George Washington University School of Medicine), and O. C. Colclough (dean of faculties of the George Washington University), there was a spirited panel discussion on the criteria for admission to medical and dental schools.

A buffet luncheon was served in the library of the medical school, following which Aura E. Severinghaus (associate

dean of the College of Physicians and Surgeons, Columbia University), chairman of the Subcommittee on Preprofessional Education of the Survey of Medical Education, gave a lucid review of the results of the resurvey just concluded.

Following informal discussions with representatives of the professional schools in attendance at the symposium, the day's program closed with a visit to the medical school and a tea at the university hospital.

MAURICE L. MOORE,
National Secretary

American Psychiatric Association (N5)

The symposium on "Hallucinations," jointly sponsored by the AAAS and the Committee on Research of the American Psychiatric Association, was held on 27 and 28 Dec. 1958 as scheduled, with only a few minor changes in the program. A faithful audience of about 150 demonstrated keen interest, and discussions from the floor were interesting and informative.

All of the participants were gratified by the reception accorded the symposium. Individual papers were uniformly excellent, representing an appropriate blend of new experimental findings, clinical observations, theoretical considerations, and philosophical overview.

LOUIS JOLYON WEST,
Program Chairman

Agriculture (Section O)

Section O presented a two-day symposium program on "Water and Agriculture" at the Willard Hotel, 29 and 30 December. The symposium consisted of four half-day sessions: (i) "Water for the future"; (ii) "Water sources"; (iii) "Water planning and use"; and (iv) "Water control." There were four principal speakers at each of the four sessions; each speaker was selected because of his competence in handling the assigned topic and his recognized status as an expert in this field. There was a discussion leader for each session, and much interest was indicated by the participation of the audience in these discussions. The attendance averaged about 150 to 175 per session, totaling about 600 for the four sessions.

This symposium was arranged by Roy D. Hockensmith, chairman of Section O and a vice president of the AAAS. The general objective of Section O—to attempt to serve scientists interested in agriculture in ways not provided by the individual societies—was well served by this program. It crossed the boundaries of many scientific disciplines and provided for interchange of information throughout the entire field.

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. Bejuki, P. B. Marsh, and C. J. Wessel (Prevention of Deterioration Center) surveyed fungi in specification 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 attack 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; CO_2 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

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);

and archivist, Clinton L. Baker (Tennessee).

At this meeting the Academy Conference inaugurated a junior academy session which ran concurrently with the regular afternoon senior academy session. The former was ably conducted by Elnore Stoldt (Illinois). The junior academy session was offered to present the adult approach for senior members interested in, or concerned with, junior academy work and for those who anticipate beginning such work. The concurrent senior academy session was presided over by the newly elected president, A. M. Winchester. The topic under consideration was "The Academy Movement: Past, Present, and Future."

The dinner meeting was under the chairmanship of Thelma C. Heatwole (Virginia). The speaker at the banquet was John A. Yarbrough. His topic was "A New Day for Science?" Honored guests included L. H. Snyder and Paul Sears, former presidents of the AAAS.

JOHN G. ARNOLD, JR., *Secretary*

Conference on Participation of Women in Science (X2)

Featuring an address by Arthur S. Flemming, Secretary of Health, Education and Welfare, approximately 150 women participated in a conference on the problems of women in science, sponsored by the American Association of Scientific Workers and Sigma Delta Epsilon. Flemming's address stressed the fact that technical manpower shortages could not be overcome without the full participation of the female population. Barriers to technical and graduate training result from outmoded and indefensible double standards maintained by educational institutions and industry despite the grave implications of the human resources problem. Suggesting that a spirit of real urgency was required to solve the problem, Flemming offered the support of the Department of Health, Education, and Welfare for programs aimed at increasing the participation of women in science.

Discussing early training, Elizabeth Wood, of Bell Research Laboratories and former president of the American Crystallographic Association, said that instruction and example operate to convince girls that they are incapable of scientific activities and that this continues to affect their efforts even after they have chosen graduate careers in science. Anne Steinman, of Hofstra College, reported a study of 50 career-educated women, showing a general tendency to regard employment as a mere prelude to homemaking. Concealed influences from parents and husbands are strong contributors to a current retreat from

careers for women. Additional causes were sought by Annabelle Motz (University of Maryland) in the conflict between the role of women and the role of scientist.

Working panels on various phases of the problem presented numerous specific recommendations to the conference. These were referred to a continuations committee (secretary, Dr. M. V. King, Brooklyn Polytechnic Institute), with instructions to publish the verbatim conference records and arrange for future sessions.

ROBERT J. RUTMAN,
Program Chairman

Conference on Scientific Manpower (X8)

The conference program this year was devoted to the theme, "The Employment Situation for Scientists and Engineers in 1959." Nine papers were delivered at the two conference sessions on December 30.

Henry A. Barton, chairman of the Scientific Manpower Commission, presided at the morning session. Henry H. Armsby (U.S. Office of Education) predicted some increase in baccalaureate and master's degree graduates in science and engineering in 1959 and little change in the number of doctor's degrees granted. Frank S. Endicott of Northwestern University showed that industry will step up its campus recruiting program. Phil N. Scheid of Hughes Aircraft and Clarence H. Linder of General Electric Company, in two well-prepared papers, emphasized the growing industrial requirements for well-qualified scientists and engineers, particularly for engineers with broad training and scientists trained to the doctorate level. Some doubt was expressed that educational institutions will be able to train the numbers desired by industry. Ray C. Maul (National Education Association) presented the estimated requirements of higher education for science faculty and was not optimistic that requirements can be met without serious deterioration of quality.

The afternoon session was chaired by G. E. Arnold of the Engineering Manpower Commission. Robley Winfrey of the U.S. Bureau of Public Roads struck a more optimistic note in stating that large numbers of additional engineers would probably not be required in the state and local highway departments as the result of the expanded highway program. N. J. Oganovic (U.S. Civil Service Commission) expected that the Federal Government would be able to attract "its proportionate share" of the new graduates with present employment incentives. William H. Chartener of McGraw-Hill publishing Company

presented a comprehensive review of available short-run indicators of demand-supply relationships in scientific manpower. He concluded that present indications are that the market is again growing tight; the demand paralleled general business conditions in 1957 and early 1958. Finally, Irving H. Siegel (Council of Economic Advisers) noted some aspects of the intimate relationship between the market for scientists and engineers and government policy.

Papers of the conference were of uniformly high quality this year. They will be published by the National Science Foundation and should be available for distribution in limited numbers by March.

THOMAS J. MILLS,
Program Chairman

Washington Academy of Sciences (X19)

A symposium on "Extramural Science Programs of the Federal Government" was arranged by the Washington Academy of Sciences for the 125th meeting of the AAAS. Since Washington is unique in being the center of federal scientific activity, it was felt in planning this symposium that a most useful contribution on the part of the Washington Academy of Sciences would be to have representatives of the principal agencies of the Federal Government describe some aspect of the research supported by them. Since many who attend the AAAS meetings have conducted research under federal support, or may wish to, it appeared that the aspect that would be of most interest to the greatest number would be the extramural science programs each agency sponsors. By "extramural" science programs is meant programs that are conducted outside the physical facilities of an agency staffed predominantly by nonfederal employees. This covers scholarships, fellowships, grants, grants-in-aid, loans, contracts, and cooperative programs.

It was impossible in the time allotted this session to include a description of every extramural program now in effect in the Federal Government. Selected, rather, were the six federal agencies which together support the majority of extramural research and science education programs in the country. These agencies and their spokesmen were as follows: National Science Foundation, Robert B. Brode, associate director for research; National Institutes of Health, C. J. Van Slyke, deputy director; Department of Agriculture, Byron T. Shaw, administrator, Agricultural Research Service; Department of Defense, George D. Lukes, executive secretary, Defense Science Board, Office of the Assistant Secretary of Defense for Research and Engineering; Atomic Energy Commission, Charles L. Dunham, director, Division of Biology and Medicine; and National Aeronautics and Space Administration, Ira H. Abbott, assistant director of research. A. T. McPherson, president of the Washington Academy of Sciences, presided.

It is anticipated that proceedings of the symposium will be published and will be made available through the secretary of the Washington Academy of Sciences.

GEORGE W. IRVING, JR.,
Program Chairman

Meetings

Latin American Chemistry Congress

During the seventh Latin American Congress of Chemistry, to be held in Mexico City from 29 March to 3 April, a special program has been planned for the afternoons of 1 and 2 April, when there will be a Symposium on Recent Progress in Organic Chemistry. This program will consist of 1-hour lectures by the following speakers: D. H. R. Barton, Imperial College of Science and