Thelma C. Heatwole, technical editor for Armour and Company, Research Division, was director of the press room. After this experience for eight consecutive annual meetings of the Association, she has become an expert among science writers of the country as an intermediary between scientists and the press. She arranged 17 press conferences during the meeting. Allen H. Center and Patricia Hanson maintained their headquarters in the press room, and the latter had a special suite at the Morrison Hotel for radio and television interviews. These individuals, with the help of Foley F. Smith of Richmond, Mrs. Hjalmar W. Johnson and Marion E. Pretzal of Chicago, C. W. Hoerr and Jean D'Ottavio of Armour and Company's Research Division, John Jacoby of Flushing, New York, and William Haskell and Eleanor O'Hara of the AAAS staff, provided source material quickly for the science writers covering the meeting. Largely to these reporters goes the credit for attaining, through these annual meetings, one of the four principal objectives of the Association: increasing public understanding and appreciation of the importance and promise of the method of science in human progress.

The Association deeply appreciates 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 had three meetings. At 4 P.M. on Saturday, 26 December, R. H. Bing (University of Wisconsin), retiring vice-president, gave his address, "Topology of Euclidean three-space," discussing the present state of knowledge in this field.

On Sunday at 9 A.M. there were four invited addresses on "The New Look in Mathematical Education." G. Baley Price (University of Kansas and the California Institute of Technology) reported on the work of the Committee on the Undergraduate Program, giving a brief statement of the background of this committee, what it wishes to accomplish in modifying the mathematical curricula in American colleges, and the success that has so far attended its efforts. Henry Swain (Winnetka, Ill.) spoke in particular of the new ninth grade course devised by the School Mathematics Study Group, of which he is a member, and emphasized the success that pilot classes have had with this curriculum. Morris Kline (New York University) objected to the present trend of curriculum planning committees and made a plea for teaching the applications of mathematics to physics and engineering. William M. Duren, Jr. (University of Virginia), stated that analytic geometry is now being required for entrance by most eastern colleges, and he predicted (without endorsement) that before long elementary calculus will be so required.

On Monday at 9 A.M. there was a symposium on Trends in the Applications of Mathematics cosponsored by Section A and the Society for Industrial and Applied Mathematics. Mina Rees (Hunter College) presided, and opened the symposium by emphasizing the increased use of modern mathematics by industry. R. F. Drenick (Bell Telephone Laboratories) spoke on random processes in control and communications. He stated that the theory of random processes utilizes many modern concepts (sets, measures, spaces of infinite dimensionality) and leads to results which hold true on the average. Its application has been strikingly successful in control and communications engineering, and in statistics. Philip Wolfe (Rand Corporation) spoke on mathematical programming and the allocation of resources. An allocation problem and a problem from the biological sciences were described and formulated as mathematical programming problems, and it was indicated how the theory of these problems leads to computer techniques for their solution. The final paper, on computers, computation and computer languages, was presented by Francis V. Wagner (North American Aviation). Computing languages are classified according to the techniques that the machines use to understand them. More significant is the fundamental nature of the languages, whether oriented toward the machine itself or toward the problem to be solved. There are several problem-oriented languages now under development, some of which were described and illustrated.

C. C. MACDUFFEE, *Secretary*

Physics (Section B)

A series of reports on recent advances in physics was the major theme of the 1959 program for Section B. David Inglis summarized progress on the subject of nuclear structure and pointed out some of the remaining unsolved problems. New ideas developing throughout the world on multi-Bev accelerators were presented by Keith R. Symon. Marcel Schein reported on current advances in high energy cosmic rays. After first presenting an analysis of what is meant by problems in theoretical physics, Harold W. Lewis reviewed some of the major unsolved problems in theoretical physics still extant. On behalf of the atomic structurists, Richard H. Sands reported on recent experiments concerned with the orientation of atoms, electrons, and protons. Walter L. Hyde gave a review of recent discoveries made on the physical and geometrical processes occurring in filament optics. The retiring vice president, Robert B. Lindsay, discussed, with a philosophical orientation, possible connections between ethics and thermodynamics.

J. H. MCMILLEN, *Secretary*

Chemistry (Section C)

Many thanks to our chairman, John A. King, director of research, Armour and Company; to our program chairman, Sidney Archer, Sterling-Winthrop

Research Institute; to the symposia chairmen; and to the officers of the Chicago section of the American Chemical Society for the unusually good programs of Section C at the 7th Chicago meeting of the AAAS.

The symposium on the Structure and Metabolism of Collagen (arranged by Jerome Gross of Massachusetts General Hospital) included the following papers: "Structure of collagen" (Alexander Rich); "Collagen-gelatin transition" (Peter H. Von Hippel); "Unusual linkages in collagen" (Paul M. Gallop and Albert Einstein); "Biosynthesis of collagen" (David S. Jackson); "Collagen defect in vitamin C deficiency" (William B. Van Robertson); "Collagen defect in lathyrism" (Jerome Gross); and "Immune reactions of collagen" (Sidney Rothbard). These papers added to the holiday enlightenment of about 150 scientists.

A symposium session on Some Recent Developments in Organic Chemistry (arranged by Sidney Archer of Sterling-Winthrop Research Institute) included the following: "Organic chemical models of enzymatic hydrolysis" (Myron L. Bender); "Practical procedures for the sodium-ammonia-alcohol reduction of aromatic compounds" (Hugh L. Dryden, Jr., Gayle M. Webber, Robert R. Burtner, and John A. Cella); "Mechanism of proton transfer processes" (Howard E. Zimmerman); and "Specific solvent effects in the alkylation of enolate anions" (Harold E. Zaugg). If you were not present, you missed an opportunity for "Adventure in Learning."

The symposium on Some Recent Advances in Inorganic and Nuclear Chemistry, also timely (arranged by J. J. Hatz of Argonne National Laboratory), covered the areas of: "Recent experimental studies of nuclear fission" (John R. Huizenga); "Current problems in mechanisms of complex ion reactions" (Henry Taube); and "Rates of mechanisms by magnetic resonance" (S. I. Weissman) —another good program you missed if you did not attend the 126th meeting of the AAAS.

A follow-up to the preceding symposium was one on High-Energy Radiation Chemistry of Proteins and Amino Acids (arranged by W. D. Bellamy of General Electric Research Laboratory), with the following: "Introductory remarks" (W. D. Bellamy); "Physiological changes in irradiated proteins" (Virgil L. Koenig); "Chemical changes in irradiated proteins" (D. M. Doty); "Analytical methods used in the study of irradiated proteins" (C. Merritt, Jr.); and "Irradiated amino acids" (Charles Maxwell). This symposium presented the current status of irradiation studies on amino acids and proteins.

In addition to these four symposia sessions, the chemistry program included 17 submitted papers (arranged by Edmund Field and E. K. Fields, both of Standard Oil Company of Indiana) covering the topics: "Polarizability of valence electron groups" and "A new approach to the classification of the low-valence ions" (Henry Tolkmith); "Association constant of nitroethane" (Boris Musulin and Roy Lee Foley); "Potentiometric titration and equivalent weight of humic acid" (Alfred M. Pommer and Irving A. Breger); "Potentiometric titration and electrolytic behavior of montmorillonite" (Alfred M. Pommer and Dorothy Carrol); "Sodium ozonide" (Irvine J. Solomon); "Selective liquid adsorption with alkali metals on active carbon" (W. F. Wolff, Philip Hill, and G. D. McLeod); "A radioactive tracer study of reactions at the surface of a metal undergoing wear" (A. I. Snow); "Unusual reactions of a highly conjugated lactone system" (Robert Filler and Edmund J. Piasek); "Organic iso-octenyl alcohol esters" (R. L. Foster, S. H. Patinkin, and D. W. Young); "Relationship between structure and diuretic activity in the 1,2,4-benzothiadiazine series" (James H. Short, Ursula Biermacher, Leonard E. Brady, Warren J. Close, Leo R. Swett, and Maynette Vernsten); "Effects of diethylstilbestrol upon pituitary tissue" (Birute M. Baltrusaitis and Jacklyn B. Melchior); "Urease and citrate production by pathogenic gram-negative bacilli" (H. Seneca, J. K. Lattimer, H. H. Zinsser, O. K. Troc, and P. Milner); "New specific activities of ultraviolet light in the catabolism of tryptophan and serotonin" (Anwar A. Hakim); "Irradiation 'factor-dependency': some vinyl monomers" (Ed. F. Degering, G. J. Caldarella, and M. Mancini); "Lipid biosynthesis during frozen storage of plant tissue" (J. S. Blair); and "Mechanism of the Diels-Alder reaction" (M. J. S. Dewar).

Under the guidance of our new chairman, R. W. Schiessler, technical director of the Central Research Division of Socony Vacuum Oil Co., and S. L. Meisel of the same laboratory, who is the new four-year committeeman of the Chemistry section, we can look forward to a good, interesting, and informative program at the 127th meeting of the AAAS in New York, 26–30 December of the current year.

Now is the time to begin to formulate your plans for attending the New York meeting and for giving careful consideration to the presentation of a top-rate paper before the Chemistry section.

ED. F. DEGERING, *Secretary*

Astronomy (Section D)

The program of Section D consisted of two well-attended symposia and the address of the retiring vice president. On the morning of 26 December a symposium on the solar system, cosponsored by the American Astronautical Society, and arranged by Gerard P. Kuiper, was held. This symposium is described in the next report.

The afternoon session included a symposium on "astronomical photoelectric photometry, cosponsored by the Astronomical League. The first section was arranged by Arthur D. Code and was comprised of the following papers: "History and development of astronomical photoelectric techniques," by C. M. Huffer (Washburn Observatory); "Studies of variable stars and galactic structure by photoelectric methods," by F. B. Wood (University of Pennsylvania); "Ultraviolet detectors for Astronomical photoelectric photometry," by C. Childs and L. Dunkelman (Goddard Space Flight Center); and "Future advances in photoelectric techniques," by T. E. Houck (Carnegie Institution of Washington). The second section was arranged by Edward A. Halbach of the Astronomical League. This included papers on "Designing a good photoelectric photometer to meet the amateur's budget," by Walter L. Moore (University of Louisville); "Flare of AD Leonis observed by photoelectric photometer," by Donald Engelkemeir (Argonne National Laboratory); and "Photoelectric program of the AAVSO," by John J. Ruiz (Dannemora, N.Y.).

The final event of the program was the address of the retiring vice president, with vice president Ira S. Bowen of Mount Wilson and Palomar observatories presiding. The retiring vice president, Dirk Brouwer, of Yale University Observatory, spoke on "The needs of astrometry in the Southern Hemisphere."

FRANK BRADSHAW WOOD, *Secretary*

The Solar System

The proceedings of the symposium on the solar system followed the printed program. All speakers were present in person and presented their papers in the

order listed. Because I had a cold, it was arranged that I. S. Bowen would preside over the meeting, but I gave my own paper as scheduled.

Anders presented important information on the argon losses of meteorites depending on temperatures from which it followed that the meteorites are fragments of bodies kept at very low temperatures during nearly all of their lives. This is compatible with their origin from the asteroid ring, but not compatible from their origin as fragments of the moon. Sinton presented his new material on lunar heat maps which showed that the maria are somewhat hotter than the uplands. Arthur gave a critical review of the present status of lunar cartography and stated conditions which must be met in future mapping programs such as are now being undertaken. Kuiper presented his thoughts on the Moon, based on a series of photographs taken from the material incorporated in the new photographic lunar atlas now in press. Drake reviewed the recent radio observations at wavelengths 3 cm to about 1 m for the planet Jupiter and showed that two emissions are present, one thermal, corresponding to a temperature of about 130°K, and one nonthermal which he interpreted as due to the equivalent of a Van Allen belt around Jupiter. This implies the presence of a magnetic field of the order of 5 gauss at the surface of Jupiter. He also reviewed the Venus measurements which appear to leave no alternative but to assume that the surface of that planet has a temperature of about 300°C.

The symposium was well attended by scientists representing many different fields.

G. P. KUIPER, *Symposium Chairman*

Geology and Geography (Section E)

Section E held two symposia, one on quantitative terrain studies and the other on the Great Lakes Basin, and cosponsored three others on economic changes in underdeveloped areas (organized by the Illinois Geographical Society), on the origin and development of limestone caverns (organized by the National Speleological Society), and on the geographers' role in transportation studies (organized by the Association of American Geographers).

Since World War II, a trend toward quantitative study of landforms has been much accelerated, with research in the subject going on at a number of institutions. The symposium on quantitative terrain studies brought many of the workers in the field together for the first time to discuss statistical analysis of terrain and the important related subjects of sampling techniques, methods of map presentation of data, and the influence of scale on the type of data derived from the study of topographic maps. Speakers also described several recently developed techniques for terrain study such as the use of radar and spectral reflectance.

The best attended session of Section E was the symposium on the Great Lakes Basin, which attracted an audience of about 150 to each of its three half-day sessions, which included discussion of the characteristics of the basin, based upon its geologic setting; its water circulation and the influence of climate thereon; the changes in chemical composition of the lake waters as a result of man's activities; and man's adaptation in the basin.

Besides the symposia, the program included four papers on Southwest Asia, arranged by the Association of American Geographers. These papers were concerned with the contributions of mammalogy, botany, and glacial geology to archeological studies.

Byron N. Cooper presented, as his vice presidential address, a paper entitled "Rôle of subsidence in the origin and evolution of the Appalachian Mountains," in which he pointed out the far greater thickness of sediments in synclines as compared to anticlines which, with other evidence, points to a mechanism of subsidence resulting in folding and faulting.

FRANK C. WHITMORE, *Secretary*

Association of American Geographers (E1)

The Association of American Geographers sponsored two sessions: (i) a symposium on the geographers' role in transportation studies, and (ii) a session of papers on Southwest Asia and North Africa.

The transportation symposium was opened by Edward J. Taaffe (Northwestern University), who indicated that the session was essentially a discussion of applied geography with the Chicago Area Transportation Study as a case study. The first three participants, E. Wilson Campbell, John R. Hamburg, and Robert Sharkey, then presented, in order, the history, scope and purpose of a transportation study, and methods of obtaining and compiling factual information on land use, floor inventory, and travel within the area. Garred Jones then presented methods of using this information by means of punch cards and magnetic tape in the preparation of maps, models, and other aids to be used in planning Chicago's highway system.

The second session, chaired by Alden Cutshall, contained four papers. H. E. Wright, Jr. (University of Minnesota), in discussing late Pleistocene glaciation in Southwest Asia, indicated that cirques are found as low as 5000 feet and morainal deposits in valleys as low as 2500 feet. Charles Reed, an environmental zoologist (University of Illinois Professional Colleges), traced the continuity of animal life during the late Quaternary in northern Iraq as recorded in the archeological sites of the area. Both speakers indicated that the incipient cultivation and animal domestication which began in this area some 10,000 years ago cannot be correlated with any discernable end-of-the-Pleistocene climatic change. There appears to be no environmental stimulus, or challenge.

Karl Butzer (University of Wisconsin), speaking from his studies in Egypt, further emphasized that there is no scientific basis to the theory of progressive desiccation—that is, there is no evidence of negative environmental anomalies invoking positive human reactions. Neither in Egypt nor in Mesopotamia, then, can Toynbee's physical challenge theory be applied.

Marvin Mikesell (University of Chicago) presented a stimulating inductive approach to plant ecology with examples from northern Morocco. After studying clumps of forest preserved on sacred sites, along with other evidence, he concluded that the potential vegetation of northern Morocco should be a wooded ecotone.

ALDEN CUTSHALL, *Program Chairman*

Illinois Geographical Society (E3)

The Illinois Geographical Society cosponsored, with Section E, a symposium on economic changes in underdeveloped areas. Helen L. Smith described some problems in the development of Thailand's agricultural economy. Agriculture is the means of livelihood for 84 percent of the people of Thailand. Commercial rice production is centered on the Central Plain, where natural conditions are far from ideal. Conditions of alternating drought and super-abundant rainfall are being somewhat overcome by irrigation projects. Diversification of agricultural crops, especially "upland crops," is taking

place as a result of improved transportation facilities and water control.

Robert O. Johnsrud discussed postwar economic changes in Nigeria. Nigeria has predominately a subsistence economy but there has been an increase in the commercial economy, especially in the south-central, southwest, and north-central regions. There has been more of a commercial revolution than an industrial revolution. Groundnuts, palm kernels, and cocoa have been grown more intensively in the old producing areas. The welfare type of government has tended to restrict the economy.

Floyd F. Cunningham discussed recent changes in the economy of Egypt, United Arab Republic. Land reform has been concerned with limiting the size of holdings. The country has 6 million acres of arable land. There are great possibilities for developing additional arable land in the "New Valley," a series of five large oases with much underground water extending northwestward from Aswan. Plans have been made to expand irrigation and hydropower, transportation, and industrialization.

The Philippines, described by Alden Cutshall, are a patchwork of old and new patterns. New, are the beautiful modernistic buildings, housing projects, highways, Japanese diesels for the railroads, and the use of the Jeepny and bus. Power stations, steel mills, fertilizer plants, and petroleum refineries represent industrial progress. Cottage industries produce wooden shoes, rice pots, and textiles. In general, farming methods are still primitive. New, are threshing machines, storage facilities for rice, improved cattle types, and crop diversification. Old, are the rice terraces of Luzon. Philippine progress is conditioned by the problems of the newly independent; nevertheless it is noteworthy.

Robert L. Carmin described economic changes in the region of Brazil's new capital, 1945–59. In anticipation of the move of the capital of Brazil to a new site in the state of Goiaz, scheduled for early in the 1960s, government buildings and housing projects are under construction. The railroad has been completed as far as Anapolis. A paved road to Brazilia is in use, and its extension to Belim is proceeding. The population has increased 47 percent in the past decade. Pioneer settlements follow the highways, and squatters are often a problem to owners. Truck transportation promises to exceed in importance that of the railroad. Pioneer agriculture consists of livestock raising and subsistence farming.

MARY GRANT, *President and Program Chairman*

Zoological Sciences (Section F)

The program of Section F included five sessions of contributed papers in the areas of cell studies, development biology and morphology, endocrinology and physiology, and two symposia. The symposium on the organization of the cell arranged by Norman G. Anderson (Oak Ridge National Laboratory) and cosponsored by Section G, the American Society of Zoologists, and the Botanical Society of America continued the series on "Unsolved Problems in Biology." A second symposium of eight papers on the impact of electron microscopy on biology, arranged by E. L. Powers, B. R. Nebel, and F. Wassermann (Argonne National Laboratory) was made possible through the sponsorship of Argonne National Laboratory and the Atomic Energy Commission. This symposium, cosponsored by the American Society of Zoologists and the Electron Microscope Society of America, is separately reported below. Both symposia were interdisciplinary in nature and presented stimulating discussions of the directions of current research.

Zoological groups in the Chicago area were cordial hosts to zoologists attending the meeting. They generously contributed funds for the Biologists' Smoker, and through the splendid work of the local committee (Albert Wolfson, A. L. Rand, and Orlando Park), made arrangements for the Smoker and the Zoologists' Banquet. The banquet was a particularly pleasant occasion. Albert Wolfson was master of ceremonies. Herbert Friedmann, chairman of Section F, addressed the group on "Current changes in the environment of zoological research," and this was followed by invited comments by Paul Weiss.

KARL M. WILBUR, *Secretary*

Impact of Electron Microscopy on Biology

A two-session symposium on the Impact of Electron Microscopy on Biology, sponsored by the Electron Microscope Society of America, the American Society of Zoologists, and the Atomic Energy Commission through Argonne National Laboratory, was held on 29 December. The symposium was arranged by F. Wassermann, B. R. Nebel, and E. L. Powers, chairman, of Argonne. It was attended by about 700 persons. The papers demonstrated that the quick acceptance of the techniques of electron microscopy by biologists, in contrast to the slow development that was the history of light microscopy, has profoundly influenced concepts concerning biological mechanisms and functions in a brief period of time. The origin of organization of connective tissue; the structure and structural relationships of certain cellular constituents such as the Golgi apparatus, the chromosome, and the DNA molecule; the ultramicroscopical behavior of cells in experimental conditions; the relationship between the virus and the cell; the organization of hierarchies of organelles in the many kinds of cells; and the ultrastructural basis of function in nerves were among the subjects examined. In the introduction and summary it was stressed that while the electron microscope is another tool to be used with existing ones, and while the new knowledge must be correlated with the old, the importance of this instrument in recent biology and its great promise in the biology of the immediate future were demonstrated frequently and forcibly in this symposium.

E. L. POWERS, *Program Chairman*

Ecological Society of America (FG6)

The program of the Ecological Society of America consisted of three sessions of contributed papers, on animal ecology, plant ecology, and general ecology. Symposia included a two-session program on sand dune systems arranged by Jerry Olson and cosponsored by Section E, and a four-session program on interactions in nature arranged by Arthur D. Hasler for the American Society of Naturalists. An all-day field trip to several areas of the Indiana sand dunes concluded the program.

The contributed papers on plant ecology varied in subject from algae in Antarctica, to alpine tundra in New Zealand, to revegetation of lava and ash from a volcano, to several studies from forests. The papers on animal ecology dealt with crickets, crabs, mammals, birds, a bestiary, and further topics. Attendance at these sessions ranged upward to approximately 100.

Physical and biological aspects of dune development were discussed in a

symposium. Speakers in the first session presented data and illustrations of dune systems taken on a world-wide basis. In the second session various facets of dune environments and of dune plants studied in this country were presented. About 150 persons attended these sessions. On the field trip, attended by 16 persons, major stops were made at three areas in Indiana which illustrate differing developmental and vegetational stages of dunes.

The symposium on interactions in nature, attended by perhaps 300 persons, dealt with the place of ecology among the sciences, insect populations, community functioning, energy relationships and adaptation to environment, and animal behavior and ecology. All sessions at the meetings were marked by good audience interest and participation. A paper not included in the published program for Monday morning's session on animal ecology was, "Age at weaning *Peromyscus maculatus bairdii*," J. A. King, John C. Deshaies, and G. Doyle (University of Chicago and Roscoe B. Jackson Memorial Laboratory).

WILLIAM C. ASHBY, *Local Program Chairman*

Sand Dune Systems

The symposium on sand dune systems, cosponsored by Sections E, F, and G and the Ecological Society of America, demonstrated how physical sciences (geology, geography, meteorology) and ecological sciences (especially plant ecology and pedology) depend on each other in the study of natural landscapes.

J. Harlen Bretz, H. T. U. Smith, David Simonett, Albert M. Laessle, and William S. Cooper analyzed the processes and chronology of "Origin of dune landscapes," on the morning of 30 December. These and later papers (especially that of Charles Laing) emphasized the role of vegetation in building and stabilizing dunes. In the afternoon session, Laing's analysis of grass morphology, William Martin's quantitative analysis of environmental gradients (for example, salinity and moisture), William Gillis' experimentation on seeds and seedlings, and the discussion by Jerry Olson and Howard Odum of the mathematical budget of sand, of plant and animal populations, and of soil nutrient elements revealed complementary approaches toward "Understanding of dune communities."

Historical comments by Charles Olmstead, president of the Ecological Society of America, recalled the early leadership in such intensive studies of George Damon Fuller, whose 91st birthday (26 January) was honored by the symposium and by a reception in the University of Chicago's department of botany. The recurring theme relating physiography and ecology also commemorated the 60th anniversary of Henry Chandler Cowles' classic dissertation on the world-famous Lake Michigan dunes. An informal evening meeting at the University of Chicago expressed unanimous concern for the historic, educational, and scientific importance of preserving these dunes in a proposed Indiana Sand Dunes National Monument and also of preserving a larger area of spectacular Oregon dunes as one of the proposed national seashore parks.

The urgent need for conservation of areas for scientific research and education was reiterated on a field trip taken by 20 of those who attended the Chicago AAAS meeting. On 31 December they visited portions of the proposed Indiana Dunes National Monument site which are being bulldozed in spite of protests by Senator Douglas and Senators Gruening and Moss that this destruction should be delayed pending action on their respective bills currently under consideration by Congress. Members of the Save-The-Dunes Council attributed the bulldozing to efforts of local speculators to make partially true their claim that the natural value of the dunes has been destroyed by industry—a claim which was cited in hearings last spring but clearly refuted by visiting senators of the Committee on Interior and Insular Affairs, by several regional and national scientific field trips last summer, and by the AAAS visitors.

AAAS members were told that the prolonged and much-criticized lobbying for public funds for a dunes harbor for private industry was currently being scrutinized by the U.S. Army Engineers. Since engineers long ago indicated technical advantages for harbor and industrial development outside this dune area, public objection to the harbor speculation as well as to the destruction of parts of the monument site should get a fair hearing by the Army Engineers as well as by the Senate committee.

JERRY S. OLSON, *Program Chairman*

National Association of Biology Teachers (FG9)

The 1959 convention and program was highly successful and well received. Attendance at sessions averaged 170, the largest to date. The program on space medicine, highlighted by Dietrich E. Beischer's presentation on the Jupiter bioflight program, included films of successful space tests with animals by the United States and the U.S.S.R. The session on streamlining biology, which featured papers on the block of time idea in instruction, the AIBS film series, and advanced placement in biology, was well received. The sessions on planning biology teaching facilities and methods in teaching senior high-school likewise proved popular. Paul F. Brandwein's lecture on tactics and strategy in dealing with the gifted students in biology attracted an overflow audience. The address of Herman J. Muller, who spoke on life forms to be expected elsewhere than on the earth, and the presidential address of Paul Klinge, who spoke on biology's bright future, received standing ovations.

Membership has grown to more than 4500, and recent increases in dues will make it possible to undertake more ambitious projects and offer increased services to members. Publication of special editions of the journal has been approved. The board of directors also voluntarily doubled its financial support of AIBS. The board was unanimous in its desire to see high-school biology retained in the 10th grade, with provisions made for advanced placement.

Brother G. Nicholas of Notre Dame was commended for his excellent service on the Cooperative Committee on the Teaching of Science and Mathematics. He is succeeded by H. Seymour Fowler of Pennsylvania State University. Brother Charles of Saint Mary's College was appointed to replace George Jeffers on the AAAS Council.

Memorial resolutions were read on behalf of Dr. Harvey Stork and Dr. Richard Armacost. They will be honored in the *American Biology Teacher*.

The new officers for 1960 are: Howard E. Weaver (University of Illinois), president; Paul V. Webster (Bryan, Ohio), president elect; Philip R. Fordyce (Oak Park, Ill.), 1st vice president; Phyllis Busch (Brooklyn, N.Y.), 2nd vice president; Herman C. Kranzer (Temple University), secretary-treasurer; and Joan Hunter (Aurora, Ill.), recording secretary.

HOWARD E. WEAVER, *President*

Nature Conservancy: National Committee for Natural Areas for Schools (FG10)

The work of the National Committee for Natural Areas for Schools during the past year was briefly reviewed. There are 30 members, in 25 states, with varying programs. A survey of educational use of school grounds has been or is being actively carried on in five states by means of a questionnaire distributed through school administrators, and the survey is being pushed in other states as fast as possible. This device is locating exemplary schools to be held up for others to emulate and is calling to the attention of school administrators the need for outdoor science laboratories and control areas.

Publications written wholly or in part by committee members in 1959 include: *Natural Areas for Schools*, by Verna Johnston (State Department of Natural Resources, Sacramento, Calif.); *The Site for the New School* (Nature Conservancy Bulletin 26 revised), *Checklist of Educational Environments*, and *Indoor Equipment for Outdoor Education*, by J. Brainerd; and *Manual for Outdoor Laboratories*, prepared by the National Association of Biology Teachers in cooperation with Nature Conservancy (Interstate, Danville, Ill.).

Printed material or consultation was provided schools in several states, and articles were written or lectures given for various other organizations.

New business discussed included the following suggestions: (i) that a steering group be appointed within the committee to assist the chairman; (ii) that colored slides with tape recordings should be updated and promoted; (iii) that increased attention be given to college and university natural areas for scientific research and instruction of teachers; (iv) that cooperating organizations in the AAAS be urged to promote the theme of Natural Areas for Schools at the New York meeting in 1960; (v) that more articles be submitted to journals.

JOHN BRAINERD, *Chairman*

Botanical Sciences (Section G)

Sessions sponsored by Section G at the Chicago meeting were few in number but uniformly successful. The fifth annual session of the continuing symposium on "Unsolved Problems in Biology" marked a new high point in interest and attendance. The symposium, jointly sponsored by Sections F and G, was held in two sessions. The presentations elicited considerable interest on the part of the audience, which completely filled the room at all times. In fact, the occasion was marred only by the inability of the room to accommodate all those who were interested in attending this symposium.

This year's Botanists' Dinner was an unusual occasion in that it combined the dinner of the American Society of Plant Taxonomists with that of Section G. The occasion was marked by the presentation of two absorbing talks by W. C. Steere, retiring president of the ASPT and F. W. Went, retiring chairman of Section G. By all signs the botanical program at Chicago appears to have been a success.

BARRY COMMONER, *Secretary*

American Society of Plant Taxonomists (G1)

The American Society of Plant Taxonomists held its 1959 annual meeting 28–29 December in Chicago with Section G of the AAAS. In addition to two sessions of contributed papers, the society held its annual business meeting and a dinner meeting. There was also a brief meeting of the ASPT council. Officers of the society for 1960 were announced as follows: Lyman Benson (Pomona College), president; C. Ritchie Bell (University of North Carolina), secretary; Richard W. Pohl (Iowa State University), treasurer; Mildred E. Mathias (U.C.L.A.), chairman of the council; Charles B. Heiser (Indiana University), new council member; David D. Keck (National Science Foundation), retiring council member.

A paper entitled "Cytological evidence on the relationship of *Krigia* and *Serinia*," by Kenton L. Chambers, of Yale University, received the ASPT Cooley Award of $100 for the best taxonomy paper presented at the annual meeting of the society. A paper by Julian A. Miller, J. E. Giddens, and A. A. Foster, "A survey of the fungi of forest and cultivated soils of Georgia" [*Mycologia* **49**, 779 (Nov.–Dec. 1957, but actually published in March 1958)], was selected for the ASPT $500 Cooley Award for the best taxonomic paper, concerning southeastern plants, published in 1958.

The 1960 ASPT meeting will be held in August, with the American Institute of Biological Sciences, at Oklahoma State University.

C. RITCHIE BELL, *Secretary*

Anthropology (Section H)

The 3-day presentation of Section H consisted of two sessions of contributed papers ranging from ethnological theory to linguistics, and four sessions of symposia on archeological advances and new technological aids.

A symposium on biology and history in their contributions to archeology, arranged by John C. McGregor, included specific applications of studies of freshwater mollusks and food plants to archeological chronology and cultural interpretation, together with more general papers on tree-ring dating, special areas of zoological research, and the methods of history as adjuncts of archeology. In his opening address, as chairman of the section, McGregor treated North American archeology in view of its latest accomplishments and expressed concern about the future of salvage archeology, as it becomes more extensive and urgent, in keeping pace with various earth-moving agencies.

A remarkable three-session symposium on technology as a backstop to anthropology and archeology, arranged and closely integrated by Ray Winfield Smith, brought together scientists who are currently developing techniques in various fields with a view to learning of special new archeological and museum applications. Among the techniques reported as already applicable, or nearly so, were those of trace-element geochemistry, neutron beam and other microscopy, x-ray spectroscopy, and thermoluminescence. The latest advances in radiocarbon analysis were reviewed. Studies of art objects by electron microbeam probe and other methods were defined and discussed by several of the participants. Papers on the progress of archeological technology in the Boston Museum of Fine Arts and in the Research Laboratory for Archaeology and the History of Art, Oxford University, suggest a more scientific future for large museums of the world.

J. L. GIDDINGS, *Secretary*

Psychology (Section I)

The program at Chicago, like that of recent years, consisted of a vice presidential address and several symposia on research of current interest. Frank A. Geldard (University of Virginia) delivered the vice presidential address on "Some neglected possibilities of com-

munications." Four of the symposium sessions were arranged by the American Psychiatric Association but were cosponsored by Section I. Their general subject was Roots of Behavior; specific topics were "Genetics of behavior," "Early experience," "Instinctual behavior," and "Free-ranging behavior of primates and nonprimates." In addition, Section I presented symposia on "Verbal learning and meaningfulness," "Unconscious processes," and "Brain function and learning." The section plans a similar kind of program, but on different topics, at the New York meeting in 1960. The vice president for 1960 is C. T. Morgan (University of Wisconsin). Frank W. Finger (University of Virginia) was appointed to a 4-year term (1960–63) as the new secretary of the section.

CLIFFORD T. MORGAN,
Retiring Secretary

Social and Economic Sciences (Section K)

Section K again enjoyed the cooperation of its principal behavioral science organizations which are section affiliates, the American Economic Association, the American Political Science Association, the American Sociological Association, and the American Statistical Association.

The American Economic Association, together with the National Institute of Social and Behavioral Science and the Population Association of America, cosponsored the symposium on World Population and International Relations, which included the outstanding vice presidential address for the section by Philip M. Hauser (University of Chicago). William S. Vickrey (Columbia University) presided on behalf of the American Economic Association. The session had an attendance of over 200 social and natural scientists.

The American Political Science Association held a session for invited papers on the subject of "Scientific knowledge and public policy-making." Papers were presented by Richard L. Meier (University of Michigan), H. Burr Steinbach (University of Chicago), and Eugene Rabinowitch (University of Illinois). Discussants were Marbury B. Ogle (Purdue University), Duncan MacRae (University of Chicago), and Harold D. Lasswell (Yale University). James A. Robinson (Northwestern University), who arranged the program, presided.

The American Sociological Association held two symposia at the Chicago meeting. The first was on the Use of Computers in Simulation of Social Behavior, arranged by James S. Coleman (Johns Hopkins University), who presided. The second was on Trends in Family Formation and Structure; Irene B. Taeuber (Princeton University) arranged the program and presided. These symposia attained a high degree of professional excellence and were especially contributive to their respective subjects.

The American Statistical Association also held a program of two-session symposia, one on Descriptive Statistics and the other on Statistical Techniques. The papers given and the comments of the discussants of both sessions provided a penetrating and incisive course of intellectual fare for the subjects under review. For this achievement, the participants and Robert F. Winch (Northwestern University), who arranged the program and served as presiding officer, deserve much credit.

The American Society of Criminology held four general sessions under the general program chairmanship of Donal E. J. MacNamara (New York Institute of Criminology). The society also held two luncheons, one of which was an award luncheon for the Most Reverend Bernard J. Sheil, auxiliary bishop of Chicago.

A round table discussion on "Converting to metrics in the pharmaceutical industry" was held by the Metric Association. Discussants were J. T. Johnson (Metric Association), Fred J. Helgren (Metric Association), L. A. Feiertag (Abbott Laboratories), and Harry E. Sagen (Abbott Laboratories).

A session of invited papers, "The underdeveloped areas," was held by the National Academy of Economics and Political Science. Participants were Philip M. Hauser (University of Chicago) and Sidney C. Sufrin (Syracuse University). Amos E. Taylor (Pan American Union) presided.

Two sessions for contributed papers concluded the general Section K program. Very contributive presentations in all behavioral fields were offered by Erwin L. Linn (National Institutes of Health), Nathaniel S. Lehrman (Albert Einstein College of Medicine), Richard C. Bernhard (University of California), Reuben E. Slesinger (University of Pittsburgh), Stoyan Gavrilovic (Dickinson College), Simon Rottenberg (University of Chicago), James C. Scurlock (Foundation for Normal Accounting), Latheef N. Ahmed (Howard University), Peter R. Senn (Wright Junior College), and John T. Blue (Virginia State College). Donald P. Ray, secretary of Section K, presided.

Section K served as cosponsor of the above described sessions of the American Economic Association, the American Political Science Association, the American Sociological Association, and the American Statistical Association, and also as cosponsor of the four-session symposium of Section N–Medical Sciences, on Aging.

The section committee and the officers of Section K appreciate deeply the assistance and efforts of all those whose contributions enabled the Chicago programs to achieve outstanding success. It is gratifying to note an increasing interest in the activities of the section, not only on the part of social scientists but also on the part of natural scientists.

Section K was fortunate to have the leadership during 1959 of the distinguished demographer and sociologist Philip M. Hauser (University of Chicago). This year the equally distinguished political and social scientist Pendleton Herring (Social Science Research Council) will serve as chairman, and the eminent economist, Kenneth E. Boulding (University of Michigan), will begin a 4-year term of service as a member-at-large of the Section Committee.

DONALD P. RAY, *Secretary*

American Political Science Association (K2)

The American Political Science Association panel discussed "Scientific knowledge and public policy-making." H. Burr Steinbach (chairman of the department of zoology at the University of Chicago) emphasized the nonspecialist roles of scientists and discussed various normative proposals for making science more readily available to policy-makers. He emphatically opposed creation of a department of science in the national government. Eugene Rabinowitch (research professor of biophysics at the University of Illinois) reported on recent trends among scientists for injecting knowledge of crucial scientific developments into governmental decision processes. He referred especially to matters relating to nuclear power and international relations. Richard L. Meier (Mental Health Research Institute, University of Michigan, and department of city and regional planning, Harvard University) presented a model

of advice-giving roles applicable to scientists and others in governmental decision-making and discussed the relative merits of a recent proposal for a Science Service (correspondent with the Public Health Service) and an alternative for developing information- and decision-theorists who would be middlemen between producers and consumers of knowledge.

The discussion of these papers was led by three political scientists noted for interdisciplinary work. Marbury B. Ogle, Jr. (chairman of the department of history and political science, Purdue University), pointed out that the absence of a common value pattern among scientists, as among other elements of the population, leads to policy differences even among those who agree upon the "facts." He suggested that discussions of this sort should also note the importance of political-legislative sources for influence as well as those in the executive branch. Duncan MacRae, Jr. (political sociologist, University of Chicago), drew upon political science research to suggest that scientific knowledge might be brought to bear on the policy process indirectly through the education of elites and "attentive publics." He noted the difficulty in encouraging scientists to hold elective office in view of the uncertainty of such positions and the risks of losing pace in rapidly changing scientific professions.

Harold Lasswell (Law School and political science department, Yale University) argued for developing more effective means of presenting images of the future which are required if policy is to plan for future contingencies. He urged physical and natural scientists to join social scientists in clarifying societal goals. While Lasswell was more optimistic about the rate of penetration of scientific knowledge into the policy process, he joined others in urging consideration of how penetration might be expedited.

No consensus was found on means of improving the relation of science to policy, and there was general agreement that research on the roles of science in policy processes is lacking.

JAMES A. ROBINSON, *Program Chairman*

American Society of Criminology (K3)

Papers presented at the sessions of the American Society of Criminology emphasized that psychiatry has contributed tremendously to the formulation of criminological theory and the development of crime-study techniques (Karl Menninger); that smaller case-loads and intensified supervision by specially selected and trained parole officers dramatically reduced the incidence of recidivism among New York state parolees over a 3-year span (Meyer Diskind); that the charge leveled against the Puerto Rican population of New York's metropolitan area that they contribute disproportionately to the city's crime rate is inaccurate, growing out of a manipulation and distortion of crime statistics by prejudiced and intolerant observers and is similar to the hate campaigns directed against the Irish, Italians, and other immigrant groups in past decades (Donal E. J. McNamara); that interrogation under hypnosis and narcosis is feasible, can overcome inhibitions and memory blocks, and when carried on by qualified and ethical practitioners in a nonpunitive setting can contribute to the true administration of justice (Ralph Banay); that the exchange of police officers between countries under the ICA program has immeasurably strengthened law enforcement and has contributed solidly to its professionalization (Russell Snook); that chemical tests for intoxication are well accepted as basic to a sound drunk-driving control program (Oliver Schroeder, Jr.); that overspecialization, proliferation of police units, and duplication of responsibility and jurisdiction are recurrent organizational problems in many police departments (George Eastman); that the dissemination of obscene and pornographic materials among teen-agers is a factor in delinquency causation (Lois Higgins); that the gravitation of power into the hands of the unintelligent, immoral, and irresponsible gives new support and importance to Lord Acton's thesis (Walter Lunden); that deprivation of normal sex life is one of the basic problems in penology, leading to sex perversions, attempted escapes, and institutional tensions—Mississippi has attempted to meet this problem by authorizing conjugal visits, other prison systems by furloughs to prisoners who behave well, still others by the family picnic system, but the vast majority of American prison systems still stick to sex repression (Clyde Vedder); that the study of police in historical perspective can cast new light on solutions to current police and crime problems (David Monroe); that the Social Defense Section of the United Nations is engaged in continual studies of crime and cognate phenomena and in the reporting of comparative crime statistics (Manuel Lopez-Rey); that there have been marked increases in both the illegitimate birth rates and venereal disease rates among American teen-agers during the past five years, indicating increases in casual sexual promiscuity at the junior and senior high school levels, probably due to more permissive or tolerant attitudes among parents and teachers, less emphasis on moral restraints, exaggeration of the efficacy of the penicillin treatment program, and failure of society to understand the adolescent need for affection, example, instruction, control, and discipline (Donal E. J. MacNamara); that police, probation, parole, and institutional personnel must be given opportunities to observe, experience, and understand the objectives and problems with which each is concerned (William Melnicoe); that the therapist must be able to recognize conduct patterns which are irreversible (Jacob Chwast); that the study of the individual offender is basic to an understanding of criminal phenomena (Arthur Belley); that the development of training programs in criminology, particularly at the college and university level in the United States, has followed no coherent pattern and discloses little evidence of an integrated philosophy of crime control (Peter Legins); that parole of convicted felons to the military services in time of great manpower need (for example, in World War II) creates problems but can be accomplished with some degree of success (Hans Mattick); that the controversy between those who advocate a punitive, repressive, law enforcement approach to the narcotics problem and those who support some variety of public-health-oriented control system is unresolved because the disputants on both sides approach the problem emotionally rather than scientifically and from divergent basic premises —in the discussion there was no agreement on the definitions, statistics, objectives, and accomplishments of either school, and the spirited debate about the existence or nonexistence of the so-called "English system" of control indicates a need for more observation, objective analysis, and solid reporting of factual data before public discussion of conclusions and opinions.

The society elected the following officers for 1960: Marcel Frym, Hacker Psychiatric Foundation, president; Morris Caldwell, University of Alabama, Canio Zarrilli, New York Institute of Criminology, William Dienstein, Fresno State College, and Don L. Kooken, Indiana University, vice presidents; Donal

E. J. MacNamara, New York Institute of Criminology, secretary-treasurer and AAAS Representative; Vernon Fox, Florida State University, member-at-large; and Howard Leary, deputy police commissioner of Philadelphia, editor.

The 1959 Annual Award of the American Society of Criminology was presented to the Most Reverend Bernard J. Sheil, D.D. Telegrams and letters congratulating Dr. Sheil were received from President Eisenhower, Vice President Nixon, Adlai Stevenson, Harry Truman, Eleanor Roosevelt, and several score criminologists and criminological organizations.

DONAL E. J. MACNAMARA,
Secretary-Treasurer

American Statistical Association (K5)

The American Statistical Association held two symposia, one on descriptive statistics and one on statistical techniques. The papers on descriptive statistics were concerned with the population statistics of the Ch'ing dynasty of China (Irene B. Taeuber and Nai-Chai Wang); an analysis, based on census data, of marital instability and its relation to education, income, and occupation (Karen G. Hillman); voting in Illinois from 1888 to 1958 (Duncan MacRae, Jr., and James A. Meldrum); and the estimation and use of production functions in agriculture (Earl O. Heady and Luther Tweeten).

In the second symposium, the following statistical techniques were discussed: "Beyond factor analysis" (R. Darrell Bock); the use of forced choice questions and the power function (Robert McGinnis); the repeated measurements problem (John W. Cotton); and a comprehensive model for reliability theory (Lee J. Cronbach and Goldine C. Gleser).

ROBERT F. WINCH, *Program Chairman*

History and Philosophy of Science (Section L)

I am delighted to report that the sessions of Section L were outstandingly successful. Many enthusiastic congratulations reached me during and after the Chicago meeting. Encouraged by Raymond L. Taylor's helpful and suggestive ideas on "Symposia in utopia" [*Science* **123**, 253 (17 Feb. 1956)] I had organized a 4-day conference consisting of two symposia on Theory Construction in Logical and Historical Perspectives and one symposium on each of

the following topics: Law and Convention in Physical Theory; Induction, Probability, and Simplicity; The Logic of Constants and Variables; Philosophical Issues of Quantum Theory; and Methodological Problems of Psychology and the Social Sciences.

I am deeply grateful to all the participants for their splendid contributions. The meetings were extremely well attended. The size of the audience varied from about 50 to over 200. The Lincoln-Douglas room of the LaSalle Hotel, in which all our sessions were held, was filled nearly to capacity at the symposia on quantum theory and probability and on the occasion of my vice-presidential address. The enthusiasm of the audience was impressive. On Tuesday, 29 December, morning, afternoon, and evening sessions were held, all well attended, with long and intensive discussions, also from the floor. Most remarkable in this respect was the symposium on the philosophy of quantum theory. An audience of 200 people listened with rapt attention (and participated) in this session which lasted without interruption for 4 hours. I don't think that there were more than three or four people who left the room during the symposium.

I wish it were possible in this all-too-brief report to summarize at least the highlights of the conference. But practically *all* speeches were of extraordinarily high quality, and space permits me to say only that a great number of the scientists and philosophers present in the audience told me that they had never witnessed a more "meaty and exciting" conference. Philosophy and history of science are now fully recognized in their important and indispensable role in the world of scholarship. The logic and methodology of the sciences, based on an adequate grasp of the crucial junctures in the history of scientific ideas, devoted to an analysis of the basic concepts, assumptions, and procedures of the sciences, were well reflected (even though only in a few areas of concentration) in the symposia held at the meeting.

It was very difficult to choose from the excellent set of lectures those papers which should be submitted for the Newcomb-Cleveland prize. Upon consultation with several of my most experienced colleagues I decided to submit six papers, each superb in its own way, as candidates for this honor.

Three publishing firms have already asked me for the rights of publication of the entire set of proceedings. It is our

intention to publish not only the main papers, but also those of the discussants as well as the rejoinders by the authors of the initial papers. In some cases even brief discussions from the audience will probably be included in the volume (to be edited by the Minnesota Center for Philosophy of Science).

Since the History of Science Association held its meetings simultaneously and in a different place, it is a matter of regret that there was only a very limited interchange between the two groups during the Chicago meeting. As currently planned, this defect will be remedied in the program of Section L in the New York meeting in 1960. The history of science will loom large in that program, and philosophy of science, having had such a full and rich representation at the Chicago meeting, will plan only for a smaller part of the New York sessions. In view of the interest in interdisciplinary communication, emphasized at the luncheon of the officers of the AAAS, I have suggested a symposium on comparative methodology of the sciences for New York 1960.

I wish to express my sincerest thanks to the officers of the AAAS, especially to R. L. Taylor, Mr. Streeter (secretary of Section L), and to the participants in the Chicago symposia on philosophy and history of science for their splendid cooperation which helped make our meeting one of such uniquely superb quality.

HERBERT FEIGL, *Chairman*

Philosophy of Science Association (L2)

William Alberts (University of Chicago) read a paper concerning the theory of "the public interest." The paper was criticized by Lewis Zerby (Michigan State) and Wayne Leys (Roosevelt) and provoked a lively discussion in which various members of the audience participated.

Most of the participants were inclined to the view that "the public interest" is a concept with theoretical significance, despite the fact that the words are often used for propagandistic purposes. To this extent there was disagreement with the conclusions reached by several political scientists in recent studies.

The issue that divided the symposiasts was the question whether "the public interest" should be conceived as an aggregate of interests or as the outcome of decision-making institutions when proper procedures are followed. This was the issue that had been defined by Leys and Perry in the investigation which they conducted last year for a committee of the American Philosophical Association.

Alberts took the "proceduralist" position, although he recognized several difficulties in this conception of "the public interest": (i) it undermines our faith that scientific knowledge can be used in any direct or simple fashion to determine "the public interest," since social problems (controversies regarding the public interest) cannot be viewed as the finding of efficient means for achieving common goals; (ii) it does not easily explain the consensus that seems to exist in a free society even when the decision-making procedures themselves are in dispute. Alberts suggested that this consensus is an agreement about the relevance of values, underlying debates over particular combinations of values to be realized by public policy.

Zerby and several speakers from the floor ably defended the "aggregationist" position, but their arguments cannot be included in the space allowed for this report.

WAYNE A. R. LEYS, *Program Chairman*

Medical Sciences (Section N)

Section N held its annual symposium organized along the conventional patterns of an interdisciplinary approach to a discussion of a subject of current interest and importance in the medical field. The subject for the symposium this year was Aging—Facts and Theories; the symposium was divided into four half-day sessions.

The first speaker, John W. McConnel (New York State School of Industrial and Labor Relations at Cornell University) emphasized the complexity of the economic problems arising from efforts to provide adequately for the aging population. He emphasized that a large portion of people over 65 do not have economic stability and that their total annual income is at a level which provides no more than the basic necessities of life. Moreover, the very real and important effect that inflation has upon the operation of the economy as a whole is reflected to a greater degree on incomes dependent upon current fixed pension systems.

Joseph T. Freeman (Philadelphia) reviewed the diseases of the aged and pointed out that although diseases of the young are also seen among the

aged, there are such diseases as osteoporosis, heart disease, cancer, and others which are found with much higher frequency in the older age group. He emphasized particularly the importance of the physician as a biologist in studying the aging problem, as aging is a phenomenon of all biological species; by studying aging in various species, answers to fundamental problems may be found. Robert J. Havighurst (University of Chicago) discussed the problems of work and retirement, emphasizing the importance of preparing psychologically for the retirement period. He also emphasized that a change in our retirement program should be permissible to allow the individual who is capable of working beyond a mandatory retirement age to do so. James Ebert (Carnegie Institution of Washington) discussed the very beautiful studies which have been performed with Rous sarcoma virus grown on chick chorioallantoic membrane mixed with crude fresh muscle extract derived from the adult chicken or 18-day-old embryo. He was able to show that, when the isolated Rous sarcoma microsomes and heart microsomes are applied in combination to the developing chick embryo, growths are produced on the chorioallantoic membranes which contain striations similar in character to those in cardiac tissue.

Abraham White (Albert Einstein College of Medicine) employed the method of studying the balance between antibolic and catabolic phenomena. He was able to show very beautifully that the influence of a hormone may be in opposite directions, depending upon the age of the host from which the particular tissue is taken.

Milton Landowne (Levindale Hebrew Home, Baltimore, Md.) stressed the importance of the changing nature of connective tissue ground substance accompanying the aging process. He discussed in particular those changes related to the cardiovascular system.

Gregory Pincus (Worcester Foundation for Experimental Biology) reviewed the current status of the steroid hormones in the aging of man, pointing out such observations as the increased somatropic hormones in postmenopausal women and of men of increasing age.

Bentley Glass (Johns Hopkins), in discussing the relationship of genetics to the aging process, very masterfully reviewed the theories of aging, indicating their weaknesses and strengths. He indicated that such significant contributions as those of Strehler, for example, contribute toward positive thinking in this field.

In the fourth and final session of the symposium consideration was given to the current facts relating to aging, and some of the theories which will, hopefully, offer a guide for future investigation. Nathan W. Shock (vice president of Section N) discussed in some detail the physiological changes which accompany the aging process. He emphasized in particular, those functions which decrease during the development of senescence and pointed out that these functions do not all decrease to the same extent. For example, changes in the heart and kidney are much greater than functional changes in the nervous system and enzyme activity of tissue. He presented evidence which indicated that performance associated with advancing age in human beings is due to three factors: (i) the dropping out of functional units in key systems; (ii) impairment in the functional capacity of the cells remaining; and (iii) the breakdown of integrated function in the individual.

Prioreschi (University of Montreal) discussed a stress theory of aging, arguing that the rate at which the initial amount of "adaptive energy" present at birth is finally expended contributes to the length of life of a species.

The symposium was closed by Samuel

E. Stumpf (Vanderbilt University) who entitled his discourse "The expanding new world of second-story people." He raised very interesting and provocative questions concerning the reasons for maintaining the aged, and the factors which have led to an increase in this so-called second-story, or postretirement population. He emphasized the necessity for maintaining in the aged the feeling of status, dignity, prestige, authority, and pleasure, which so frequently are significantly modified when the individual comes to the age of his retirement.

When viewing the status of current research in this field, it is clearly evident that solutions to problems of the aged, from a sociological, economic, and biological point of view are in their infancy. The reasons for aging are at the present time not clearly understood. It can be anticipated that the critical testing of the theories presented may give new clues to the reasons for senescence. Investigators reporting at this symposium are clearly to be congratulated on their adventurous approaches into this very important and complicated area of biological and sociological interest. (This symposium was in part supported by grant RG-6789 from the National Institutes of Health.)

ALLAN D. BASS, *Secretary*

Dentistry (Section Nd)

Section Nd held two symposia at the Chicago meeting arranged under the direction of the program chairman, Frank Orland (University of Chicago).

The first symposium, on the oral aspects of aging, with R. F. Sognnaes as moderator, covered various levels of observations from gross morphology to ultrastructure with the following subtopics:

S. Pruzansky (University of Illinois) reported on aging of the face as observed by means of cephalometry of the craniofacial growth pattern, with special reference to the syndrome of progeria in which the affected child resembles a very aged person.

E. O. Butcher and J. Klingsberg (New York University) reported on histological aging changes in the supporting tissues of the teeth in rats, hamsters, and monkeys of different age groups, and noted various differences in the susceptibility of these animals to gingival inflammation versus alveolar bone destruction.

J. R. Ring (Washington University) applied histochemical techniques to the

study of subepithelial connective tissue of the mouth, noting age changes which may be responsible for an impeded interchange of body fluids and the connective tissue cells.

A. A. Dahlberg (University of Chicago) presented a comparison from an anthropological point of view of the aging pattern in teeth from different population groups, noting variations in physiological response, wear and tear, in the aging pattern from group to group.

John Nalbandian and R. F. Sognnaes (Harvard) discussed the microstructural age changes in teeth of contemporary man, focusing primarily on the microradiographic and electronmicroscopic nature of dentin in connection with the increasing sclerosis of the root dentin with age.

David Weisberger (Harvard), in absentia, projected certain areas of oral age manifestations warranting further study in the future.

The second symposium arranged by Section Nd represented the final commemorating event of the 100th anniversary of the American Dental Association entitled "American Dentistry at the Centennial Crossroad."

G. C. Paffenbarger (National Bureau of Standards) reviewed the development and application of the varied types of dental materials employed in restorative dentistry over the past 100 years.

H. Trendley Dean (American Dental Association) discussed the use of the epidemiological method in dental research, illustrating its importance by reviewing the development of water fluoridation as a public health measure.

R. M. Stephan (National Institute of Dental Research) illustrated the antiquity of many so-called "modern" ideas and emphasized the need for making quickly available to investigators the latest world-wide research information.

S. Peterson (American Dental Association) reviewed the importance of dental education in the growth of dentistry as a profession, stressing the recent rapid extension of graduate and postgraduate studies, hospital internships, and residencies.

L. W. Morrey and N. C. Hudson (American Dental Association) presented a complete review of the periodical literature from the time of the publication of the first *American Journal of Dental Science* in 1839, up till 1958 when 173 dental publications were issued in the United States, versus 192 dental journals in 49 other countries.

B. S. Hollinshead (director, Survey of Dentistry) discussed certain philosophical problems of dentistry in its 100th year, including the relation between the profession and the public and the role of dental education and research in the progress of dentistry.

At the conclusion of these two formal scientific gatherings of Section Nd, resolutions were made on the death during 1959 of two distinguished contributors to dental science: Dr. Edward Hatton, past president and for many years secretary-treasurer of the International Association for Dental Research; and Dr. Frederick McKay, pioneer in the epidemiological research on mottled enamel which led to the use of fluoridation as a public health measure.

At the conclusion of the meetings, Paul Jeserich (University of Michigan), president of the American Dental Association, addressed a concluding luncheon meeting of Section Nd, emphasizing the need for coordinated efforts among the dental groups representing practitioners, educators, and research workers.

In addition to its own program, Section Nd cosponsored three other programs: the large symposium on aging arranged by Section N (Medicine); the extensive symposium on germ plasm resources in agriculture arranged by Section O (Agriculture); and the annual meeting of Alpha Epsilon Delta, national premedical honor society, which arranged a symposium on premedical and predental education. At the latter, L. R. Gribble, national president of Alpha Epsilon Delta, presided, and I. Schour, dean of the University of Illinois College of Dentistry, gave the welcoming remarks. The first two papers reviewed the usefulness and pitfalls of aptitude tests as predictions for success in medical and dental schools, C. F. Schumacher discussing the MCAT and Grace Parkin discussing the ADA aptitude test. The third speaker reviewed the recent Frank Bane report (U.S.P.H. Publ. No. 709) emphasizing the greater need for medical and dental practitioners at present and in the future, and the financial predicament of professional students. This part of the meeting was followed by panel discussions centering around the qualifications of students and specific approaches used by certain schools to select students. A luncheon meeting followed, during which H. E. Longenecker (University of Illinois) spoke on applicants in future years.

At the concluding Council meeting of the AAAS was announced the election of two new officers of Section Nd: for vice president and chairman, 1960, Joseph L. T. Appleton, professor emeritus and former dean, School of Dentistry, University of Pennsylvania; for councillor-at-large, 1960–63, John Hein, dean, Tufts University School of Dental Medicine.

REIDAR F. SOGNNAES, *Secretary*

Pharmacy (Section Np)

Section Np held eight sessions in Chicago. Forty-eight contributed papers on various studies were presented, and one symposium was held. Over 300 persons registered as having attended one or more of the section meetings.

The AAAS Council, the governing body of the Association, elected Joseph Swintosky (Research Division, Smith, Kline and French Laboratories) as a vice president of the Association and Don E. Francke (University Hospital, University of Michigan) to serve on the committee-at-large of the section for a 4-year term. Swintosky will serve as chairman of the section for the coming year.

Of major interest to the group in attendance was a most stimulating vice-presidential address on "Professionalism and the pharmaceutical scientist" presented by Glenn L. Jenkins. A symposium entitled "The Scientist's Part in Protection of the Public, Part I: Food, Drug, Cosmetic and Hazardous Chemical Problems; Part II: Food Additive Legislation" also attracted considerable interest, not only on the part of the pharmaceutical scientists in attendance, but also by many individuals from other scientific disciplines. Joseph Swintosky and Glenn L. Jenkins gave introductory remarks and served as presiding officers. Bernard E. Conley (secretary of the Committee on Toxicology of the American Medical Association) gave a discussion of the labeling of hazardous chemicals. William F. Bousquet (Purdue University) presented the problems of legislation on pharmaceutical ingredients and approaches to solving them. Bousquet emphasized the importance of radioisotope techniques in studying food and drug residues and formed metabolitis. The role of the cosmetic scientist in protecting the public health was covered by Raymond E. Reed (Toni Company). John H. Rust (University of Chicago) spoke on the applications of radioactive isotope tracer techniques to studying the food additive problem. He emphasized the need for edu-

cation in isotope tracer techniques to supply trained personnel for food research now necessary under present food additive legislation. Problems in evaluating the safety of intentional food additives and unintentional food additives were set forth by O. Garth Fitzhugh and Arnold J. Lehman (Food and Drug Administration). Edward J. Matson (Abbott Laboratories) explored the philosophical question of scientific judgement in law and regulation. He emphasized the need for sound scientific judgement based on known facts in arriving at conclusions regarding levels of toxic and carcinogenic substances in foods for human consumption. The role of the scientific expert under recent food laws was summarized by Bernard L. Oser (Food and Drug Research Laboratories). The symposium was terminated with a question and answer session on current food, drug, and cosmetic problems.

In addition to the above-mentioned program, the hospital pharmacy group had a most informative and well-attended full-day session under the guidance of George F. Archambault and Joseph A. Oddis. The meeting was held in the recently completed facilities of the American Hospital Association. The following organizations were represented: American Society of Hospital Pharmacists, American Pharmaceutical Association, Illinois Society of Hospital Pharmacists, American Hospital Association, National Association of Boards of Pharmacy, U.S. Public Health Service, Illinois Hospital Association, and the National Institutes of Health. Luncheon, entertainment, and dinner were sponsored by E. R. Squibb & Sons, Mead Johnson and Company, and McKesson and Robbins, Inc., respectively.

George L. Webster (University of Illinois) opened the sessions of contributed papers. Egil Ramstad and his co-workers (Purdue University) presented a series of six papers describing work done on plant biogensis and metabolism using radioactive tracer techniques. C. T. Peng (University of California) discussed quenching of fluorescence in liquid scintillation counting and in a second paper the fate of tumor implants in rats. The distribution of C^{14} meprobamate in rat brain was discussed by J. L. Emmerson, T. S. Miya, and G. K. W. Yim (Purdue University). Herbert Schriftman (Wyeth Laboratories) spoke of the applications of paper chromatography and electrophoresis to the assay of pharmaceutical products. An improved 4π, whole-body liquid scintillation counter was described by B. G. Dunavant and J. E. Christian (Purdue University), and J. P. Vacik and J. E. Christian (Purdue) described the application of neutron activation analysis to the micro analysis of gold-containing pharmaceuticals. G. Levy (University of Buffalo) described the physical-chemical basis of the buffered aspirin controversy; D. E. Guttman (Ohio State University) discussed the solubilization of riboflavin; J. Autian (University of Michigan) discussed the binding of drugs by plastics; and M. L. Eichmann (Ohio State University) presented information concerning the interactions of xanthine molecules with serum albumin.

Other papers presented were "methods of synthesis of tetrahydroquinolizonium salts," "Color-coding of drug dosage forms," "Hydration of procaine base," "Evaluation of suppository bases," "The social psychology of prescription writing," "Effects of physostigmine on chick eggs," Pharmacological prevention of acute heart failure," and "Spray-drying of tablet granulations." These papers were delivered by D. M. Stuart (Oregon State College), R. G. Brown (University of Texas), W. A. Strickland, Jr. (University of Arkansas), J. Anschel (Warner-Lambert Research Institute), E. J. W. Hall (University of Texas), V. A. Green (University of Texas), J. W. Ingalls, Jr. (Long Island University), and A. M. Raff (Smith, Kline and French Laboratories), respectively.

This meeting proved to be one of the most successful meetings of Section Np of the AAAS in recent years and was exceedingly well attended.

JOHN E. CHRISTIAN, *Secretary*

Agriculture (Section O)

The Section O program consisted of a symposium on Germ Plasm Resources in Agriculture; Development and Protection. This program was arranged by the chairman of the section, R. E. Hodgson; it was co-sponsored by AAAS sections F, G, N, and Nd, and by 15 scientific societies. Of these societies, nine are affiliated with Section O, and six are affiliated with other AAAS sections.

The symposium was arranged in five half-day sessions as follows: (i) origin of germ plasm; (ii) the need for, and

utilization of, additional sources of germ plasm; (iii) developmental programs in crops and livestock; (iv) new approaches in the use of plant and animal germ plasm; (v) perpetuation and protection of breeding stocks. There were 26 invited papers and five discussion papers.

The entire program was very well attended, with a grand total of about 600. Interest and attendance were sustained to the very end of program, attesting to the excellence of the papers presented. The symposium topic dealt equally with plants and animals, and it accomplished the objective of providing interdisciplinary knowledge, techniques, and concepts to scientists concerned with many phases of germ plasm resources and their development and protection.

The chairman designated for Section O for 1960 is Firman E. Bear, of Rutgers University. A theme for the 1960 symposium program in New York has been selected: Rural land zoning for agriculture and forestry and for urban and industrial development. Bear will have responsibility for the development of the program. R. E. Hodgson (1959 chairman), has been elected as a committeeman-at-large for Section O, for a 4-year term.

HOWARD B. SPRAGUE, *Secretary*

Industrial Science (Section P)

The total impact of modern science on the food industry provided the central theme for Section P. In a half-day program, the present and potential future contributions of the biological, physical, social, and behavioral sciences to the food industry were assessed respectively by: Walter L. Obold (Drexel Institute of Technology), John R. Matchett (U.S. Department of Agriculture), Ross A. Kelly (University of Illinois), and Leonard Kent (Needham, Louis and Brorby, Inc.).

In introducing the symposium, Earl P. Stevenson, vice president for Section P, observed that modern technology has a practical concern for reconciling man's productive potential with his reproductive potential. While we must be mindful that the balancing of the two cannot be achieved through production alone, the realistic approach is not the control of population growth, necessary as this may prove to be, but the fullest utilization of existing resources to increase production. He stated that, while two-thirds of the people of the world are hungry and struggling to survive on minimum or insufficient diets, obesity is the principal nutritional affliction of America.

Frank C. Croxton (Battelle Memorial Institute; retiring vice president for Section P) spoke at a luncheon following the symposium on the topic, "Scientific man and unscientific society." He observed, "The individual of today, having the ability to be objective, selfless, and unhampered by group pressures, has the capability to be scientific in thought and approach. Today, society being essentially subjective, harried by group pressures and necessarily guided by nationalistic egoism, is rarely able to be scientific. . . . It is important for each one of us to encourage individual creativity, the scientific method and the incorporation of both into the behavior of society. . . . The constantly and rapidly increasing importance of science in the lives of men and nations imposes on us the absolute necessity of assuring the position of aspiring man in our conservative or even antiscientific society. . . . The scientist must be provided with the freedom necessary for creative research. He in turn must continually be aware of society's problems and his potentialities for improving human welfare."

The 1959 Industrial Science Achievement Award of Section P was presented jointly to Armour and Company and Swift & Company in recognition of the accomplishments of their respective research departments in finding practical applications of scientific knowledge in the development of a wide variety of foodstuffs and chemical products.

ALLEN T. BONNELL, *Secretary*

Institute of Management Sciences (P1)

The Institute of Management Sciences, recently affiliated with the Association, held a special program at the Chicago meeting. The symposium, "Management science," with Abraham Charnes as chairman and Allen Newell, Anatol Rapoport, and Harold Guetzkow as speakers, ran smoothly throughout and was entirely successful.

MERRILL M. FLOOD, *Program Chairman*

Society for Industrial Microbiology (P2)

A Chicago section of the Society for Industrial Microbiology was organized. There was a fine representation of local industrial microbiologists. The section is already functioning with what we hope will be an interesting program for our colleagues in the Chicago area.

A. DAVID BASKIN, *President, Chicago Section*

Education (Section Q)

Section Q had a comprehensive program of symposia, contributed papers, field trips, conferences, and reports. In general, the sessions were well attended and interest was high. In Section Q and in the programs of the affiliated societies, 18 sessions were devoted to papers which treated subjects as varied as "Radio telemetry of nerve action potentials" and "Analysis of algebra textbooks used in the Russian secondary schools." There were five lectures and a special report of the National Project for the Identification, Development, and Utilization of Human Talent. Numerous other special programs and committee meetings were also scheduled. Paul Witty's report on televiewing had an excellent reception, both with the audience to which he presented it, and with the press.

The excellent vice-presidential address on "Fallacies in the concept of overachievement," by Warren Findley, was well attended. The most vigorous business meeting in several years was held, and plans were laid for a more active involvement of the section committee in section affairs.

There are increasing indications, in both the section itself, and in its affiliated societies, that closer identification with the subject-matter sections is desired. This was evidenced by an expression of a need for greater opportunities and encouragement to attend the programs of other sections, and by a desire for opportunity to share more fully with other sections in the development of programs of mutual interest.

Joseph Novak (Purdue University) was elected to a 4-year term as committeeman-at-large, and John C. Flanagan (University of Pittsburgh) was elected by the Council as vice president and chairman of Section Q.

HERBERT A. SMITH, *Secretary*

Section Q and the Council for Exceptional Children held joint sessions in the morning and afternoon of 26 December. The morning session was devoted to a consideration of organic and social factors in mental deficiency and their significance to the educational program. George Yacorzynski (Northwestern University Medical School) reported research indicating that precipitate delivery and anoxia are more frequently associated with later evidences of brain damage than are prolonged labor or instrument deliveries. Bernard Demsch and William Itkin (Cooperative Re-

search Project on Mental Deficiency of the Chicago public schools) presented research data strongly suggesting that individual psychological examinations utilizing either the Stanford-Binet test or the WISC test underestimate the potential of children who have recently migrated from the rural south to an urban school system, since these children appear to achieve more rapidly than their intelligence scores would predict after a few years in the urban school situation. Other papers were presented by Louise Sinderson (Joliet public schools) and Henry Turkel (Detroit, Mich.).

The afternoon session was devoted to the topic "Weapons of the school in the war against delinquency." The importance of a strong and flexible total school program was stressed in the first two papers by Louise Daugherty (Forrestville School, Chicago) and Irving Abrams (director of health services, Chicago). They pointed out the need for school organization which permits the principal of a school in an underprivileged area to adapt the curriculum and the organization to the needs of the community. Abrams presented research on an extensive health survey of a large school in a problem neighborhood, revealing the high incidence of health problems in a population which also has a high delinquency rate. He recommended strengthening the school health program in such communities, particularly a roving team of medical experts, including a pediatrician, a psychiatrist, nad a neurologist, who would make rapid evaluations at the school site of children with health problems referred by the school staff. A number of other special school programs were described. One was an effective guidance and adjustment program for young people returned to a city high school after serving a term in a state school for delinquents. Another was a series of special classes in Milwaukee designed to introduce migrants to ways of living in the city and succeeding in the city schools. A third was the revised curriculum in a school for socially maladjusted adolescent girls reflecting many years of experience in the girls' branch of the Montefiore special school in Chicago. Discussion of these papers emphasized the many aspects of the school's responsibility in the prevention of delinquency. First of all, the school must be a good school providing a strong academic program preparing all young people to meet the varied demands of American citizenship; second, an effective school sys-

tem must devise and utilize a wide variety of special attacks on special problems to meet the needs of individual children and special groups of children, utilizing the disciplines of medicine, social work, and psychology as well as education.

FRANCES A. MULLEN,
Program Chairman

AAAS Cooperative Committee on the Teaching of Science and Mathematics (Q1)

Sunday, 27 December. John R. Mayor reviewed the STIP studies in science teacher education now being undertaken by several universities. These studies include use of undergraduates as laboratory assistants in science courses, appointment of science advisers for elementary school science teachers in training, development of testing programs for teacher certification, and training in laboratory procedures for more effective teaching. J. R. C. Brown reported on the program designed to encourage research in smaller colleges, specifically those engaged in teacher training. Further grants are needed to continue these programs since the heavy teaching load of science teachers in smaller colleges frequently prevents these teachers from doing any research. F. B. Dutton gave a summary of the use of special teachers of science and mathematics in grades 5 and 6. Further evaluation will be necessary before a final report can be made.

William P. Viall reviewed the plans of the National Association of State Directors of Teacher Education and Teacher Certification for a national study of certification requirements for teachers of secondary science and mathematics.

Harold E. Wise presided over a panel discussion dealing with the recent Garrett report of certification of secondary science teachers. Pertinent observations made during the discussion included (i) the need for those presently teaching science courses for teachers to up-grade these programs; (ii) integration of what is taught in elementary and secondary science courses with college courses; (iii) greater responsibility by faculty members in matters of teacher certification; (iv) comparable recognition for teaching and for research; and (v) awarding of graduate credit for at least some of the courses taken in the recommended fifth year of training for secondary science teachers.

BROTHER G. NICHOLAS,
Program Chairman

Wednesday, 30 December. Malcolm Smith reported for the Physical Science Study Committee. Smith reviewed the status of the present course in high school physics and referred to the widespread try-out of materials during this school year. He also indicated the availability of films for the course and for teachers. E. G. Begle (Yale University) reviewed the work of the School Mathematics Study Group which has prepared sample textbooks for grades 7 through 12; these books are being used this year by more than 600 teachers in 100 schools on an experimental basis. Teachers are reporting experiences, and revision of the textbooks will be made during the summer of 1960 on the basis of these experiences. Reference was also made to the panels on monographs, teacher education, mathematics for slow students, and mathematics in grades 4–6. Arnold Grobman (University of Colorado), director of the Biological Sciences Curriculum Study, indicated that the first serious writing on the project would be carried on during the summer of 1960 on a basis similar to that used by the physics and mathematics studies. In the meantime, teams are working on teacher education materials, on identification of qualities of gifted biology teachers, and on the goals of biology education from kindergarten through grade 12. B. F. Heller (University of Minnesota, Duluth) reviewed the work of the Teaching Resources Planning Group in Geology held at Duluth last summer. The project is directing its attention to preparation of supplementary materials for elementary and secondary schools. The plan does not call for the recommendation of a year's course in geology in the secondary school. Robert Silber, representing a committee of the Division of Chemical Education of the American Chemical Society, reported on plans for curriculum studies in chemistry and included reference to the Chemical Bonds Approach Project which developed a sample course at Reed College last summer.

JOHN R. MAYOR, *Program Chairman*

National Science Teachers Association (Q6)

The general session of the science teaching societies affiliated with the American Association for the Advancement of Science, held on the morning of 27 December, had as its theme, "Man and space travel." John A. O'Keefe (Theoretical Division, National Aeronautics and Space Administration) presented a paper on the surface of the moon, dealing with the phenomenon of retroreflection. James C. Fowler (Cranbrook Institute of Science) spoke on the place of planetaria in teaching space science.

Concurrent elementary school, junior high school, and senior high school sessions dealing with "Here's how I teach space science" were held that afternoon. These sessions were chaired respectively by Helen J. Challand (National College of Education), Edward Victor (Northwestern University), and John S. Richardson (Ohio State University). These programs, offering practical classroom ideas, have been a popular feature at previous meetings. At the senior high school session a group of able students from Evanston Township High School demonstrated how they learn physics of an extremely advanced nature.

A symposium on K-12 planning, which began on 28 December, under the leadership of Donald G. Decker, president of the National Science Teachers Association, continued through three sessions. At the preliminary meet-

ing, critical problems of curriculum planning were highlighted by a panel of speakers. The problems thus identified were the basis of six concurrent round-table discussions which followed. At the third session, the members of the round-table groups reassembled to summarize their considerations of the problems and issues involved in K-12 curriculum planning. Data collected by a questionnaire prepared by Decker indicated that those present felt (i) that a carefully integrated K-12 program is the aim of science education and (ii) that NSTA should provide leadership in developing such a program to be modified by schools for local use.

J. Myron Atkin (University of Illinois) was chairman of a joint assembly on elementary science teaching problems on 29 December.

On 30 December, Zachariah Subarsky (Bronx High School of Science) presided at an invitational conference providing opportunities for scientists to hear about, discuss, and counsel on the program and activities of the Future Scientists of America Foundation.

MARGARET J. MCKIBBEN,
Program Coordinator

Science Teaching Societies (Q7)

This is the final statement from the general chairman for the 1959 joint meetings of the Science Teaching Societies affiliated with AAAS. From all reports everything proceeded smoothly.

I appreciate the generous cooperation which I received from the officers of the AAAS and the societies, from the committee chairmen, and from members of all committees. I also appreciate the fine cooperation of the Sherman Hotel personnel.

The publicity committee worked hard on their tedious but important task of addressing thousands of letters to the administrators in the adjacent states.

The hospitality committee did a fine job of manning the tables and answering questions. Students from Rosary College and Chicago Teachers College volunteered for these posts.

Because of the decision to use the facilities and services of the Chicago school system for projecting slides, the services of the physical facilities committee were not used to the fullest possible extent.

The success of the coffee hour committee was evident from the large attendance at that function and the apparent enjoyment on the part of those who attended of this period set aside for visiting with friends.

Information on educational tours was mimeographed by the educational tours committee and distributed at the registration desks.

For all these efforts I am deeply grateful. The combined activities and cooperation of many people contributed to the success of the Chicago meeting.

MURIEL BEUSCHLEIN, *Coordinator*

Academy Conference (X1)

The Academy Conference held a very successful and well attended meeting at the Hotel Sherman on 27–28 December. The first session was given over to problems of the Junior Academies of Science. Elnore Stoldt (Jacksonville, Ill.) organized and presided over the program, which featured talks by Harry Bennett (Louisiana Academy of Science), M. S. McCay (Tennessee Junior Academy Program), and C. Leplie Kanatzar (Illinois State Academy of Science).

The president of the conference, A. M. Winchester (Stetson University) presided over the Monday morning session, which featured reports of representatives of the member academies from all over the nation. Interesting discussions were also presented on the methods of application for and utilization of grants from national organizations by John Yarbrough (Meredith College) and Clinton Baker (Southwestern at Memphis). Robert C. Miller (California Academy of Science) was selected as the president elect of the Academy Conference, and E. Ruffin Jones (University of Florida) was re-elected as secretary.

John G. Arnold (Loyola University) presided over the Monday afternoon session which featured problems of the senior academies. Speakers included: W. C. Oelke (Grinnell College), Robert C. Miller (California Academy), Harold Hansen (Minnesota Academy), P. H. Yancey (Alabama Academy), and Wayne Taylor (Michigan Academy).

The dinner meeting on Monday evening was presided over by the retiring president John Yarbrough and featured the presidential address by A. M. Winchester. His topic was "Tribulations of the textbook author."

A. M. WINCHESTER, *President*

Session on junior academies of science. Beginning with the conference at Navy Pier in Chicago 4 years ago, adult leaders of junior academies of science have pursued possibilities for improving

the quality of junior academies, so that those groups might be of greater service to young persons. It seemed fitting at the 1959 meeting, therefore, to focus attention on what has been accomplished and to point out a few of the things that are being done to implement the suggested programs.

For brief review, the recorder for the meeting, H. Neil Hardy (Indiana University Laboratory School), recalled the ten proposals developed at the first meeting and indicated which have been implemented wholly or in part. It was noted that there is still need for more high school teachers to assume positions of leadership in the academies and for more exchange of ideas and information among groups.

Representing the host state, Robert C. Wallace, chairman of the Illinois Junior Academy, was present. As samples of activities of one academy, the chairman of the meeting presented two students, Lynda Hartman and David Lloyd, who were selected by the Illinois Junior Academy to honorary membership in the AAAS for this year. She also presented Earl O. Ehrhardt (Illinois Bell Telephone Company), who described the Businessman's Advisory Committee set up by the Illinois Chamber of Commerce to aid the Junior Academy with advisory and financial contributions from industry and business.

The program consisted of three presentations, two of which concerned programs for state junior academies where National Science Foundation aid is being used. Harry J. Bennett (Louisiana Junior Academy of Science), described the program being followed in Louisiana, and M. S. McCay (Tennessee Junior Academy Program) spoke of the methods used in Tennessee.

Presenting a contrasting method used to encourage participation of young persons in science activities, C. Leplie Kanatzar (Illinois Academy of Science), described his observations of the Young Naturalists' and Young Technicians' Circles, which are the Soviet counterpart of American junior academies of science. To illustrate his talk, he used slides of photographs he made on two visits to the U.S.S.R.

This session was well-attended. Most persons present had attended at least one of the previous meetings that dealt with the junior academies. There was expression of the hope that continued effort will be made to bring these groups into closer contact and to improve their services.

ELNORE STOLDT, *Program Chairman*

Encouraging Women To Select and To Advance in Scientific Careers (X2)

The second conference, cosponsored by Sigma Delta Epsilon and the American Council on Women in Science, met on Monday afternoon, 28 December. Alan T. Waterman, director of the National Science Foundation, the keynote speaker, discussed "scientific womanpower—a neglected resource." He said, "At a time when the extent and quality of our scientific manpower resources are of critical importance we are failing to exploit the potentialities of women for scientific research and the teaching of science. . . . As a nation, we cannot afford this serious waste of intellectual resources. Women's general lack of interest in the scientific and technical fields is traceable to (i) prevailing cultural and social attitudes; (ii) discriminatory practices which deprive them of equal opportunities with men for advancement and recognition; and (iii) the difficulties of combining a professional career with homemaking and motherhood." After questions and discussion from the audience, two group discussions were held simultaneously.

Captain Apollonia Adams, chief of the Division of Nursing Resources, Public Health Service, Department of Health, Education, and Welfare, and Hazel Bishop, president of H–B Laboratories, spoke to one group about problems of the working woman scientist. Captain Adams was moderator of the group discussion.

The other group met with Mary Louise Robbins, department of bacteriology, George Washington University School of Medicine, who discussed undergraduate and graduate training for women in science. Dr. Robbins was moderator of the audience discussion.

The two groups then met together to hear summaries of the two discussions. Commander Ernestine Thurman, Division of Special Grants, National Institutes of Health, reported the discussion on problems of the working woman scientist, and Esther Hand, traveling science teacher, Michigan State University, reported the discussion on undergraduate and graduate training.

ETHALINE CORTELYOU, *Chairman*

Chicago Academy of Sciences (X6)

A symposium on the physiology of reproduction of birds, cosponsored by the Chicago Academy of Sciences and Section F, was held on 28 and 29 December. The Monday sessions, which

were attended by 50 to 60 people, covered the general topics of environmental control of the reproductive system (Wolfson), the role of the hypothalamus (Ralph) and the pituitary (Nalbandov and Harris) in reproduction, the endocrinology of embryos (Watterson, Pincus, Meyer), and the hormonal responses of the female (van Tienhoven) and male (Hilton) reproductive tracts and accessories. These sessions were chaired by McLean and Edgren. The Tuesday sessions were less well attended, 25 to 35 persons; with Beecher and Wolfson in the chair, they covered the effects of the sex hormones on lipid (Pick and Cook) and calcium (McLean) metabolism, a discussion of secondary sex characteristics that might be hormonally controlled (Beecher), and sex behavior and the behavioral effects of sex hormones (Guhl and Lehrman). Although attendance at these sessions was rather small, discussion of the excellent series of papers was animated.

Beecher and his academy staff are to be congratulated for the coffee and other refreshments served during the breaks and for arranging the informal luncheons that allowed continuation of discussions. I was particularly pleased with the exchange of ideas that resulted from gathering ornithologists, naturalists, physiologists, endocrinologists, pharmacologists, and psychologists together in the same room.

RICHARD A. EDGREN, *Secretary and Program Chairman*

Conference on Scientific Manpower (X8)

The Conference on Scientific Manpower met on 28 December to consider the general theme of higher education and training in emerging fields of technology. Morning and afternoon sessions were held, and six papers were presented dealing with specialized fields.

R. D. Maxson (Commonwealth Edison Company and the Western Society of Engineers) served as chairman of the morning session. Harold L. Hazen (Massachusetts Institute of Technology), in discussing engineering education, described the trend toward sound general education with emphasis on science and mathematics; greater depth, generality, and fundamental relationships in advanced science applications; and development of basic intellectual skills, including rigor of analysis, breadth of concept, creativity, and judgment, rather than specific engineering practice. John P. Hagen (National Aeronautics and

Space Administration) reviewed the many fields included in "space sciences" and urged that thorough training in analysis and understanding of the scientific method be included in graduate science training. Gordon A. Riley (Yale University) noted the unusual factors associated with training in oceanography and advocated greater fellowship support for this field.

S. B. Ingram (Bell Telephone Laboratories) presided over the afternoon session. Charles W. Shilling (Atomic Energy Commission) reported on training programs supported by his agency and on the importance of public attitudes in developing excellence. W. R. Hibbard, Jr., (Metallurgy and Ceramics Research Department, General Electric Co.) placed emphasis on the field of metallurgy requirements for quality rather than quantity of trained manpower. Richard D. Greckler (Aerojet-General Corp.), discussing training for work on chemical fuels, urged "teaching the meaning of the fundamental laws of nature."

The conference was again sponsored by the Engineering Manpower Commission, the Scientific Manpower Commission, the National Research Council, the National Science Foundation, and AAAS Section M–Engineering. Papers delivered at the conference will again be published by the NSF. Copies should be available by March.

THOMAS J. MILLS, *Program Chairman*

Sigma Delta Epsilon (X16)

The grand chapter and dinner meeting of Sigma Delta Epsilon was held in the Walnut Room of the Morrison Hotel on 29 December. Approximately 60 attended the luncheon for all women in science on 30 December. Delaphine Wyckoff (Wellesley College) spoke on "Science in education and education in science." She emphasized the importance of scientific training for both girls and boys in the lower grades through college for a better understanding of science in this space age.

Two chapters were established in 1959—Tau, with members in southern California and western Arizona, and Upsilon, at Indiana University. The organization has 20 chapters.

Mary Lou Pritchard (Lincoln, Neb.) has been appointed editor of the *Newsletter*. Betty McLaughlin, (Washington, D.C.) was elected permanent secretary.

The fraternity recommended that one or more grants-in-aid be awarded annually for research especially for older

women who need funds to complete a special project. When funds are available, a larger grant will be made.

A national honorary membership (the highest award in Sigma Delta Epsilon) was awarded to Louise A. Boyd, explorer and author, of San Rafael, Calif. She is known for her exploratory and scientific work in the arctic polar region, Greenland, Spitzbergen, and Franz Joseph Land. In addition to polar research, her interests include geography, geology, botany, and photogrammetry.

ESTHER S. ANDERSON, *President*

Meetings

Forthcoming Events

March

18–19. American Laryngological Assoc., Miami Beach, Fla. (L. Richards, Massachusetts Institute of Technology, Cambridge.)

20–23. American Assoc. of Dental Schools, Chicago, Ill. (R. Sullen, 840 N. Lake Shore Drive, Chicago 11.)

20–26. American Cong. on Surveying and Mapping, Washington, D.C. (C. E. Palmer, American Soc. of Photogrammetry, 1515 Massachusetts Ave., NW, Washington 5.)

20–26. American Soc. of Photogrammetry, Washington, D.C. (C. E. Palmer, ASP, 1515 Massachusetts Ave., NW, Washington 5.)

21–24. American Acad. of General Practice, 12th annual, Philadelphia, Pa. (AAGP, Volker Blvd. at Brookside, Kansas City 12, Mo.)

21–24. Institute of Radio Engineers, natl. conv., New York, N.Y. (L. G. Cumming, IRE, 1 E. 79 St., New York 21.)

22–24. High-Polymer Physics, 20th, Detroit, Mich. (T. L. Smith, American Physical Soc., Stanford Research Inst., Menlo Park, Calif.)

23–25. National Council on Alcoholism, annual, New York, N.Y. (M. Ross, American Psychiatric Assoc., 1700 18 St., NW, Washington 9.)

23–25. Optical Spectrometric Measurements of High Temperatures, symp., Chicago, Ill. (F. Brech, Laboratories for Applied Science, Univ. of Chicago, 6220 S. Drexel Ave., Chicago 37.)

24–25. Human Factors in Electronics, 1st annual symp. (IRE), New York, N.Y. (J. E. Karlin, Bell Telephone Laboratories, Murray Hill, N.J.)

24–26. American Assoc. for the History of Medicine, Charleston, S.C. (J. B. Blake, c/o Smithsonian Institution, Washington 25.)

24–26. Aviation Education, 4th natl. conf., Denver, Colo. (W. Kinkley, Superintendent of Schools, Aurora, Colo.)

26–27. American Psychosomatic Soc., 17th annual, Montreal, Canada. (E. D. Wittkower, APS 265 Nassau Rd., Roosevelt, N.Y.)

28–31. Exploitation of Natural Animal Populations, symp., Durham, England. (E. D. Le Cren, British Ecological Soc., The Ferry House, Ambleside, Westmorland, England.)

29–31. American Power Conf., 22nd annual, Chicago, Ill. (R. A. Budenholzer, Mechanical Engineering Dept., Illinois Inst. of Technology, 3300 Federal St., Chicago 16.)

29–2. National Science Teachers Assoc., 8th annual conv., Kansas City, Mo. (Miss M. R. Broom, NSTA, National Education Assoc., 1201 16 St., NW, Washington 4.)

30–31. Adrenergic Mechanisms, Ciba Foundation symp. (by invitation only), London, England. (G. E. W. Wolstenholme, Ciba Foundation, 41 Portland Pl., London, W.1, England.)

31–1. Continuous Culture of Microorganisms, symp., London, England. (R. Elsworth, c/o Ministry of Supply, Microbiological Research Establishment, Porton, Salisbury, Wilts., England.)

31–2. American Gastroenterological Assoc., New Orleans, La. (W. Volwiler, Dept. of Medicine, Univ. of Washington, Seattle.)

April

1–3. American Soc. of Internal Medicine, San Francisco, Calif. (R. L. Richards, 350 Post St., San Francisco 8.)

1–3. American Soc. for the Study of Sterility, Cincinnati, Ohio (H. H. Thomas, 920 S. 19 St., Birmingham 5, Ala.)