Proceedings Issue

SCIENCE

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Although there are at least five kinds of probability, we can get along with just one kind.

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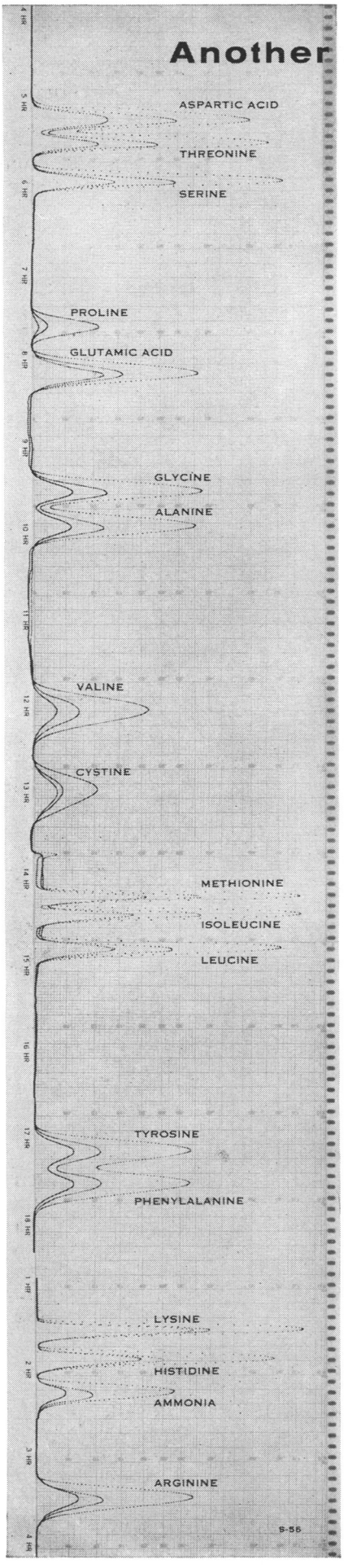

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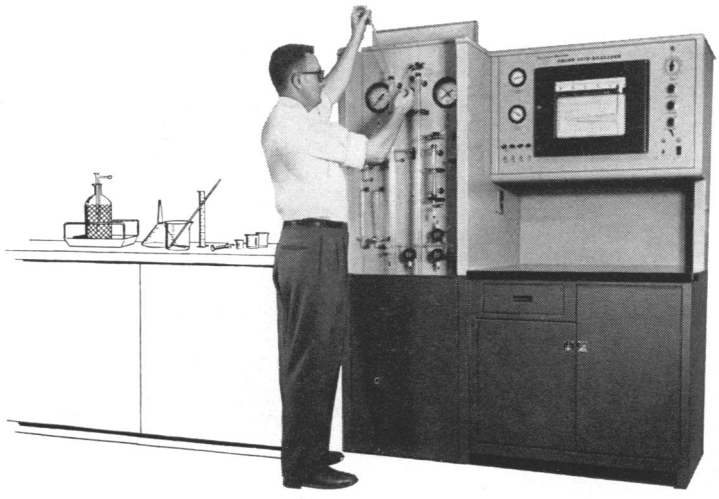

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Reference: *D. H. Spackman, W. H. Stein, and S. Moore, "Automatic Recording Apparatus for use in the Chromatography of Amino Acids", Anal. Chem., 30, 1190-1206, 1958.*

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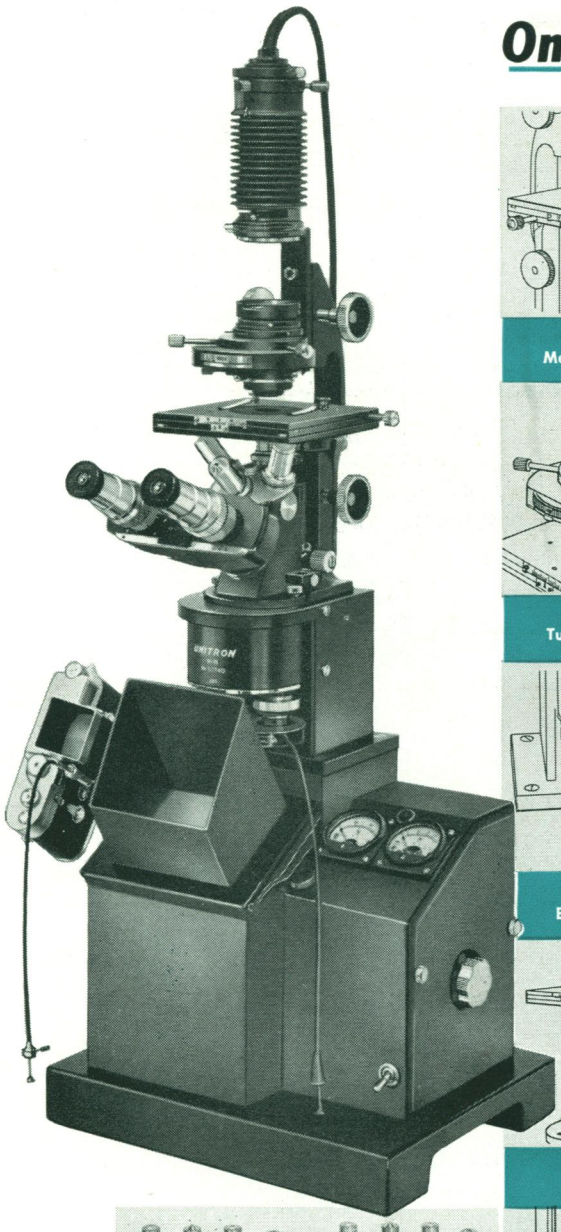

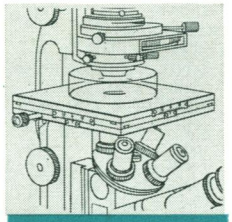

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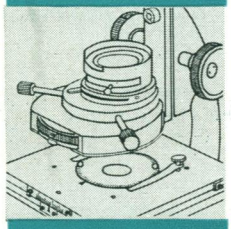

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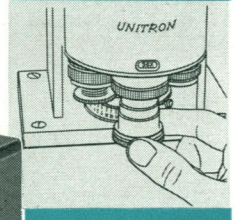

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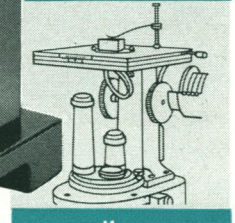

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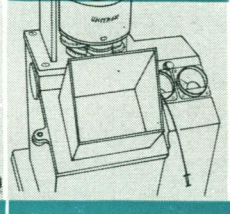

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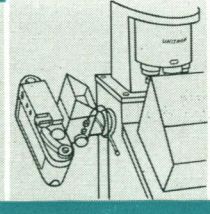

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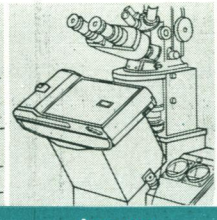

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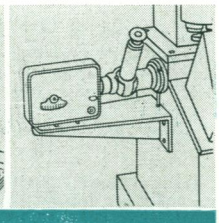

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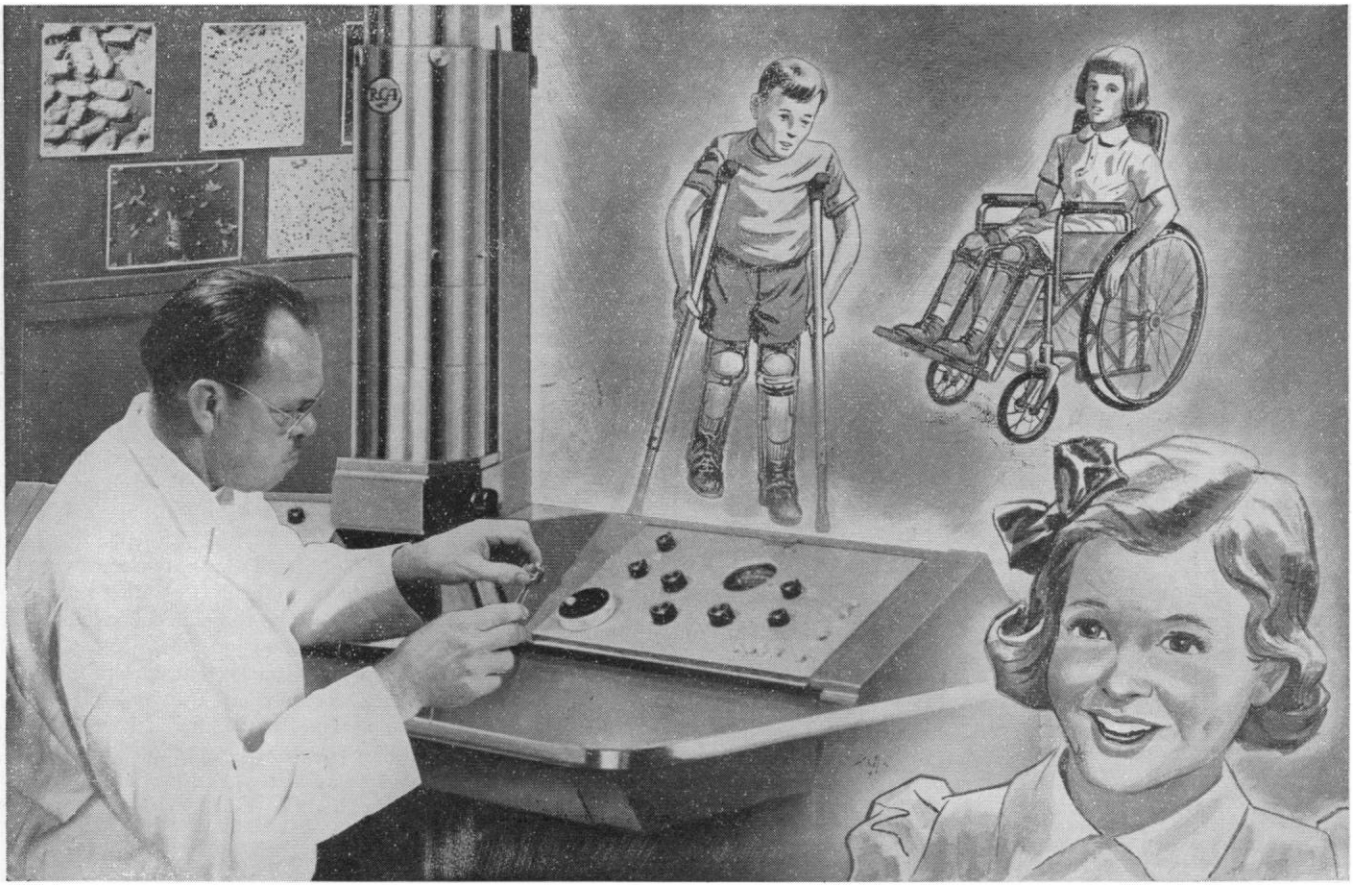

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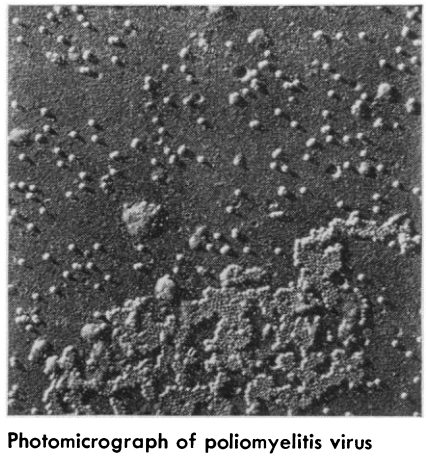

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Letters

First Person: Immodest or Insecure?

The present writer would like to add his comment to that of Court (*1*) about ascribing false modesty to the use of *I* or *we* in the editorial entitled "Passive voice" [*Science* **125**, 529 (1957)]. That editorial sought to discourage the view that *I* or *we*, used in scientific communications, is indicative of immodesty. It intimated that "the active voice is, in general, more robust and more direct" than the passive voice. The latter was said to inveigle authors into grammatical inexactness, this in turn leading to scientific inexactness.

As one concerned with teaching professional writing to graduate students in psychology, and as an advocate of the passive voice as well (*2*), the present writer follows closely the style manual of the American Psychological Association (*3*). Ever since the first scientific psychologist, Wundt, considered that the expression of feeling in language was more important than communication (*4*), psychologists have been concerned with both functions of language. Scientists in other fields may be interested in knowing how psychologists treat person and voice in their style manual. Presumably their treatment of the appearance of feelings, or other aspects of the personality, in scientific writing has been influenced by empirical investigations with a relatively long history.

Instead of the first person being seen as "robust and . . . direct," psychological stylists claim that "inexperienced and insecure investigators . . . think in the first person because they are so overwhelmingly concerned with what they themselves did, felt, found, or left undone" (*3*). Such novices were also said to have a tendency toward an excessive use of *we*. Psychologists, then, would seem to disagree with the editorial viewpoint expressed in *Science*.

It is interesting to note, however, that both the editorial and the manual presented illustrations of faulty and clumsy usages of the passive voice and their correction. Beyond this similarity there was little agreement.

Whether the active voice expresses robustness or inexperience, whether the passive voice indicates false modesty or objectivity, the remedy for an involved and clumsy usage of the passive voice seems to lie more in attitude than in rule. The passive voice can be well used, as the editorial pointed out, if the writer is maturely aware of his material and his reader as well. In such cases, as indicated in the psychological manual, the writer perceives himself chiefly as a link between the two. It is the research which is important, not the researcher. Employment of the third person would seem to emphasize the writing; utilization of the first person, the researcher, be he immodest or insecure.

DELL LEBO
Richmond Professional Institute, Richmond, Virginia

References

1. A. Court, *Science* **128**, 1532 (1958).
2. D. Lebo, *J. Clin. Psychol., Monogr. Suppl.*, No. 13 (1959).
3. *Publication Manual, rev. ed.* (American Psychological Assoc., Washington, D.C., 1957), p. 16.
4. W. Wundt, *Sprachgeschichte und Sprachpsychologie* (Engelmann, Leipzig, 1901); *Volkerpsychologie*: vol. 1, *Die Sprache* (Engelmann, Leipzig, 1911–1912).

The debate over the appropriateness of the active and passive voices will doubtless continue as long as we have a living language. We should like, for the time being, to close the debate with the following quotation from Richard Asher's "Why are medical journals so dull?" [*Brit. Med. J.*, **II**, 502 (23 Aug. 1958)]: ". . . avoiding 'I' by impersonality and circumlocution leads to dullness and I would rather be thought conceited than dull. Articles are written to interest the reader, not to make him admire the author. Overconscientious anonymity can be overdone, as in the article by two authors which had a footnote, 'Since this article was written, unfortunately one of us has died.' "—G.DuS.

German Scientists and the Atom Bomb

Reviews of Robert Jungk's *Brighter than a Thousand Suns* [J. Cockroft, *Nature* **182**, 547 (1958); R. R. Wilson, *Sci. American* **199**, 145 (Dec. 1958); E. U. Condon, *Science* **128**, 1619 (1958)] have not mentioned Werner Heisenberg's recorded opinion of why German scientists failed to develop nuclear weapons during World War II. Jungk's interpretation of the brief and selective quotations given on page 89 of his book, that such research was restrained by humane scruples, is not supported by a fuller reading of Heisenberg's article. An abridged translation [W. Heisenberg, *Nature* **160**, 211 (1947)] of Heisenberg's 1946 statement in *Naturwissenschaften*, "Research in Germany on the technical application of atomic energy," includes the following assertions.

"We have often been asked, not only by Germans but also by Britons and Americans, why Germany made no attempt to produce atomic bombs. The simplest answer one can give to this question is this: because the project could not have succeeded under German war conditions. . . . Finally—and this is a most important fact—the undertaking could not even be initiated against the psychological background of the men re-

(*Continued on page 523*)

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

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

J. E. GUERNSEY, *Program Chairman*

Botanical Sciences (Section G)

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

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

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

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

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

BARRY COMMONER, *Secretary*

Anthropology (Section H)

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

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

J. L. GIDDINGS, *Secretary*

Social and Economic Sciences (Section K)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DONALD P. RAY, *Secretary*

General Systems Research (L2)

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

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

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

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

R. L. MEIER, *Secretary-Treasurer*

Engineering (Section M)

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

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

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

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

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

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

E. PAUL LANGE, *Secretary*

American Society of Photogrammetry (M3)

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

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

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

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

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

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

RICHARD G. RAY, *Program Chairman*

Medical Sciences (Section N)

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

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

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

ALLAN D. BASS, *Secretary*

Dentistry (Section Nd)

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

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

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

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

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

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

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

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

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

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

REIDAR F. SOGNNAES, *Secretary*

Pharmacy (Section Np)

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

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

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

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

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

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

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

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

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

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

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

JOHN E. CHRISTIAN, *Secretary*

Alpha Epsilon Delta (N1)

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

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

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

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

MAURICE L. MOORE,
National Secretary

American Psychiatric Association (N5)

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

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

LOUIS JOLYON WEST,
Program Chairman

Agriculture (Section O)

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

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

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

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

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

HOWARD B. SPRAGUE, *Secretary*

Society for Industrial Microbiology (P2)

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

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

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

Under "Microbiologic hazards to equipment reliability," Walter N. Ezekiel cited failures from fungus growth and corrosion in electrical and electronic elements of military equipment during World War II, suggested that similar attack on units for space vehicles or associated ground equipment might make them unreliable, and indicated preventive measures. R. D. Gafford (Martin Company, Denver) discussed "Algal research in space problems," considering algae for regenerating oxygen from carbon dioxide in a sealed space cabin with

solar radiation. Experiments with a prototype model, in which a high-temperature alga and mice were used as subjects, suggest that a gravity-independent system can be constructed.

R. W. Krauss (University of Maryland) described 1- by 3-inch cylinders devised to use yeast in evaluating outer-space environments; CO_2 pressure from growth of the yeast was to be recorded and signaled down from the Navy satellites. "Survival of microorganism spores exposed to high vacuum" was reported by A. E. Prince and S. Bakanauskas (Wright Air Development Center), who found that fungus and bacterial spores, after freeze-drying and up to 32 days under simulated high-altitude vacuum conditions, could still germinate and produce normal growth. A paper on "Sterilization of space vehicles" was not given as scheduled, since C. P. Sonett (Space Technology Laboratories) could not attend.

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

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

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

WALTER N. EZEKIEL,
Program Chairman

Education (Section Q)

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

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

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

HERBERT A. SMITH, *Secretary*

Academy Conference (X1)

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

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

and archivist, Clinton L. Baker (Tennessee).

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

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

JOHN G. ARNOLD, JR., *Secretary*

Conference on Participation of Women in Science (X2)

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

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

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

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

ROBERT J. RUTMAN,
Program Chairman

Conference on Scientific Manpower (X8)

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

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

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

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

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

THOMAS J. MILLS,
Program Chairman

Washington Academy of Sciences (X19)

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

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

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

GEORGE W. IRVING, JR.,
Program Chairman

Meetings

Latin American Chemistry Congress

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

Technology; A. J. Birch, University of Manchester; V. Deulofeu, University of Buenos Aires; C. Djerassi, Wayne State University and Syntex, S.A.; W. S. Johnson, University of Wisconsin; F. Sondheimer, Weizmann Institute of Science; and G. Stork, Columbia University.

The morning sessions during these 2 days will be devoted to about 20 shorter papers dealing with steroids and related natural products. Further information can be obtained from Dr. Alberto Sandoval, Instituto de Quimica, Ciudad Universitaria, Mexico 20, D.F., Mexico.

Institute of Radio Engineers

The rapid strides which have been made in the past year in space technology and other major new fields of electronics have given a radically new look to the program of the 1959 Institute of Radio Engineers national convention, scheduled for the Waldorf-Astoria Hotel and New York Coliseum, 23–26 March. Highlighting the 54 sessions will be a special evening symposium on 24 March at which ten of the nation's foremost experts will discuss "Future Developments in Space." Present developments, too, will receive a good deal of attention in two additional sessions devoted to space electronics.

Two new entries of unusual interest have been included in the program this year: a symposium on "Psychology and Electronics in the Teaching-Learning System," and a session on "Theory and Practice in Russian Technology." Other sessions range over the fields of all 28 IRE Professional Groups and include such timely topics as "Widening Horizons in Solid State Electronics," "Frontiers of Industrial Electronics," "Man-Machine System Design," and "Military Electronics Looks Forward." A full list of sessions, papers, and abstracts will appear in the March issue of *Proceedings of the IRE.*

Exhibit space at the New York Coliseum has been completely sold out, assuring visitors that the Radio Engineering Show will provide them with a complete display of new apparatus and products. Some 850 exhibitors will be represented.

Sterility and Obstetrics Meetings

The 15th annual meeting of the American Society for the Study of Sterility will be held at the Shelburne Hotel, Atlantic City, N.J., 3–5 April 1959. Persons interested in attending this meeting should apply for advance registration and a complete program to the secretary, Dr. Herbert H. Thomas, 920 S. 19th St., Birmingham 5, Ala. The president of the society for 1959 is Sheldon Payne, Los Angeles, Calif.; the chairman of the Program Committee is Edward O. Reifenstein, Jr., New Brunswick, N.J.; and the chairman of the Local Arrangements Committee is Luigi Mastroianni, Jr., New Haven, Conn. Immediately following the meeting, on 6–8 April, the annual clinical meeting of the American College of Obstretricians and Gynecologists also will be held in Atlantic City, at the Municipal Auditorium.

Forthcoming Events

March

20. New Jersey Acad. of Science, annual, New Brunswick. (H. L. Silverman, 361 Highland Ave., Newark 4, N.J.)

23–24. Theory of Fluid Flow through Porous Media, 2nd conf., Norman, Okla. (C. G. Dodd, School of Petroleum Engineering, Univ. of Oklahoma, Norman.)

23–26. Institute of Radio Engineers, natl. conv., New York, N.Y. (G. L. Haller, IRE, 1 E. 79 St., New York 21.)

24–27. American Meteorological Soc., general, Chicago, Ill. (K. C. Spengler, AMS, 3 Joy Street, Boston, Mass.)

27–28. Michigan Acad. of Sciences, East Lansing. (D. A. Rings, Univ. of Michigan, Dept. of Engineering, Ann Arbor.)

27–28. Pennsylvania Acad. of Sciences, Gettysburg. (K. Dearolf, Public Museum and Art Gallery, Reading, Pa.)

28. South Carolina Acad. of Sciences, Columbia. (H. W. Freeman, Dept. of Biology, Winthrop College, Rock Hill, S.C.)

29–3. Latin American Congress of Chemistry, 7th, Mexico D.F., Mexico. (R. I. Frisbie, Calle Ciprès No. 176, Zone 4, Mexico, D.F.)

30–31. Third Teratology Conf., Portland, Ore. (D. L. Gunberg, Dept. of Anatomy, Univ. of Oregon Medical School, Portland.)

30–1. American Orthopsychiatric Assoc., San Francisco, Calif. (M. F. Langer, 1790 Broadway, New York 19.)

30–12. Bahamas Medical Conf., 7th, Nassau. (B. L. Frank, 1290 Pine Ave., W. Montreal, Canada.)

31–2. American Power Conf., 21st annual, Chicago, Ill. (N. S. Hibshman, AIEE, 33 W. 39 St., New York 18.)

31–2. Symposium on Millimeter Waves, 9th, New York, N.Y. (H. J. Carlin, Microwave Research Inst., 55 Johnson St., Brooklyn 1, N.Y.)

31–5. International Committee of Military Medicine and Pharmacy, 21st session, Paris, France. (Comité International de Médecine et de Pharmacie Militaires, Hôpital Militaire, 79, rue Saint Laurent, Liège, Belgium.)

April

1–3. American Assoc. of Anatomists, Seattle, Wash. (B. Flexner, Univ. of Pennsylvania Medical School, Philadelphia 4.)

1–4. National Council of Teachers of Mathematics, Dallas, Tex. (H. T. Karnes, Dept. of Mathematics, Louisiana State Univ., Baton Rouge 3.)

1–4. National Science Teachers Assoc., 7th natl. conv., Atlantic City, N.J. (R. H. Carlton, NSTA, 1201 16 St., NW, Washington 6.)

1–4. Neurosurgical Soc. of America, Hot Springs, Va. (F. P. Smith, 260 Crittenden Blvd., Rochester 20, N.Y.)

1–29. World Meteorological Organization, 3rd session of congress, Geneva, Switzerland. (WMO, Campagne Rigot, 1. avenue de la Paix, Geneva.)

2–3. Electrically Exploded Wires, conf., Boston, Mass. (W. G. Chace, Thermal Radiation Laboratory, CRZCM, Geophysics Research Directorate, Air Force Cambridge Research Center, Bedford, Mass.)

2–3. Southern Municipal and Industrial Waste Conference, 8th, Chapel Hill, N.C. (University Extension Division, Short Courses, P.O. Box 1050, Chapel Hill, N.C.)

2–4. Association of American Geographers, 55th annual, Pittsburgh, Pa. (J. E. Guernsey, 9707 Parkwood Dr., Bethesda. Md.)

2–4. Association for Computing Machinery, Cleveland, Ohio. (J. Moshman, Corporation for Economic and Industrial Research, 1200 Jefferson Davis Highway, Arlington 2, Va.)

2–4. Optical Soc. of America, New York, N.Y. (S. S. Ballard, Dept. of Physics, Univ. of Florida, Gainesville.)

3–4. Eastern Psychological Assoc., Atlantic City, N.J. (C. H. Rush, Standard Oil Co. of New Jersey, Rockefeller Plaza. New York, N.Y.)

3–5. American Soc. for the Study of Sterility, Atlantic City, N.J. (H. H. Thomas, 920 S. 19 St., Birmingham 5, Ala.)

3–5. Cooper Ornithological Soc., Berkeley, Calif. (J. Davis, Univ. of California, Hastings Reservation, Jamesburg Route, Carmel Valley.)

5–7. Vaccination against Tuberculosis with Non-Living Vaccines, intern. symp., Florence, Italy. (D. W. Weiss, Dept. of Bacteriology, Univ. of California, Berkeley 4.)

5–9. American College of Obstetricians and Gynecologists, Atlantic City, N.J. (J. C. Ullery, 15 S. Clark St., Chicago 3, Ill.)

5–9. International Acad. of Proctology, 11th annual, New York, N.Y. (A. J. Cantor, IAP, 147–41 Sanford Ave., Flushing 55, N.Y.)

5–10. American Chemical Soc., 135th, Boston, Mass. (M. A. H. Emery, 18th and K St., NW, Washington, D.C.)

5–10. Nuclear Congress, Cleveland, Ohio. (S. Baron, Burns & Roe, Inc., 160 West Broadway, New York 13.)

6. Paleontological Research Institution, Ithaca, N.Y. (R. Harris, 109 Dearborn Rd.. Ithaca.)

6–7. Chemical and Petroleum Instrumentation, 2nd natl. symp., St. Louis, Mo. (H. S. Kindler, Director of Technical and Educational Services, ISA, 313 Sixth Ave., Pittsburgh 22, Pa.)

6–8. American Radium Soc., Hot Springs, Va. (R. L. Brown, Robert Winship Clinic, Emory Univ., Atlanta 22, Ga.)

6–8. National Open Hearth Steel Furnace, Coke Oven and Raw Materials Conf., St. Louis, Mo. (E. O. Kirkendall, AIME, 29 W. 39 St., New York 18.)

6–9. American Acad. of General Practice, San Francisco, Calif. (M. F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Mo.)

6–11. Coordination Chemistry, intern. conf., London, England. (Chemical Soc., Burlington House, London, W.1.)

8. Evolution of Cell Populations, conf. (by invitation), Atlantic City, N.J. (D. C. Hetherington, Dept. of Anatomy, Duke Univ. School of Medicine, Durham, N.C.)

8–9. Tissue Culture Assoc., 10th annual, Atlantic City, N.J. (D. C. Hetherington, Dept. of Anatomy, Duke Univ. School of Medicine, Durham, N.C.)

10–11. Society for the Scientific Study of Religion, Chicago, Ill. (W. H. Clark, SSSR, Hartford Seminary Foundation, Hartford 5, Conn.)

10–16. Mental Health, 2nd Caribbean conf., St. Thomas, Virgin Islands. (Mrs. E. L. M. Shulterbrandt, Bureau of Mental Health, St. Thomas, V.I.)

12–13. American Soc. for Artificial Internal Organs, Atlantic City, N.J. (C. K. Kirby, ASAIO, 110 Maloney Bldg., University Hospital, 3600 Spruce St., Philadelphia 4, Pa.)

12–14. Atomic Mechanisms of Fracture, conf., Cambridge, Mass. (D. K. Felbeck, Natl. Acad. of Sciences–Natl. Research Council, 2101 Constitution Ave., NW, Washington 25.)

12–15. Neurosurgery, 8th Latin American cong., Santiago, Chile. (A. Asenjo G., Casilla 70-D, Santiago, Chile.)

12–16. American Physiological Soc., Atlantic City, N.J. (R. C. Daggs, 9650 Wisconsin Ave., Washington, D.C.)

12–16. Fracture, intern. conf., Cambridge and Dedham, Mass. (Headquarters, Air Force Office of Scientific Research, Washington 25.)

13. Biochemical Cytology of Liver (Histochemical Soc.), symp., Atlantic City, N.J. (A. B. Novikoff, Dept. of Pathology, Albert Einstein College of Medicine, Yeshiva Univ., Eastchester Rd. and Morris Ave., New York 61.)

13–15. Hydraulics Conf. (American Soc. of Mechanical Engineers), Ann

Arbor, Mich. (O. B. Schier, ASME, 29 W. 39 St., New York 18.)

13–17. American Assoc. of Immunologists, Atlantic City, N.J. (C. Howe, 630 W. 168 St., New York 32.)

13–17. American Inst. of Nutrition, Atlantic City, N.J. (G. M. Briggs, NIAMD, Room 9D20, Bldg. 10, National Institutes of Health, Bethesda, Md.)

13–17. American Soc. for Pharmacology and Experimental Therapeutics, Atlantic City, N.J. (H. Hodge, Univ. of Rochester, Rochester 20, N.Y.)

13–18. American Acad. of Neurology, Los Angeles, Calif. (J. M. Foley, Boston City Hospital, Boston, Mass.)

13–18. American Soc. of Biological Chemists, Atlantic City, N.J. (F. W. Putnam, Univ. of Florida Medical School, Gainesville.)

13–18. American Soc. for Experimental Pathology, Atlantic City, N.J. (J. F. A. McManus, Univ. of Alabama Medical Center, Birmingham 3.)

14–15. Electrical Heating Conf. (American Institute of Electrical Engineers), Philadelphia, Pa. (N. S. Hibshman, AIEE, 33 W. 39 St., New York 18.)

14–16. Faraday Soc. (Energy Transfer), Nottingham, England. (Faraday Soc., 6 Gray's Inn Sq., London, W.C.1, England.)

14–16. Life Span of Animals, 5th colloquium on aging, London, England. (Ciba Foundation, 41 Portland Pl., London, W.1.)

14–16. Rheology of the Glassy State (British Soc. of Rheology), Sheffield, England. (D. W. Saunders, British Rayon Research Assoc., Heald Green Laboratories, Wythenshawe, Manchester 22, England.)

15–17. American Assoc. of Genito-Urinary Surgeons, Absecon, N.J. (W. J. Engel, 2020 E. 93 St., Cleveland 6, Ohio.)

15–17. American Surgical Assoc., San Francisco, Calif. (W. A. Altemeier, Cincinnati General Hospital, Cincinnati 29, Ohio.)

15–17. Midwest Benthological Soc., annual, Hickory Corners, Mich. (C. M. Fetterolg, Jr., Water Resources Commission, Sta. B, Lansing 13, Mich.)

16–18. American Assoc. of Railway Surgeons, Chicago, Ill. (C. C. Guy, 5800 Stony Island Ave., Chicago 37.)

16–18. Association of South Eastern Biologists, Knoxville, Tenn. (H. J. Humm, Dept. of Botany, Duke Univ., Durham, N.C.)

16–18. Ohio Acad. of Sciences, Columbus. (G. W. Burns, Ohio Wesleyan Univ., Delaware.)

16–30. Engineering, Marine, Welding and Nuclear Energy Exhibition, 22nd, Olympia, London. (F. W. Bridges & Sons, Ltd., Grand Buildings, Trafalgar Square, London, W.C.2, England.)

17. Current Developments in the Production of High Vacua, symp., London, England. (Institute of Physics, 47 Belgrave Square, London, S.W.1.)

17–18. Nebraska Acad. of Sciences, 69th annual, Lincoln. (M. Beckman, Teachers College, Univ. of Nebraska, Lincoln.)

18–22. American Soc. of Tool Engineers, 27th annual, Milwaukee, Wis. (ASTE, 10700 Puritan, Detroit 38, Mich.)

19–23. Oil and Gas Power Conf. (American Soc. of Mechanical Engi-

neers), Houston, Tex. (O. B. Schier, ASME, 29 W. 39 St., New York 18.)

19–24. American Pharmaceutical Assoc., annual conv., Cincinnati, Ohio. (R. P. Fischelis, APA, 2215 Constitution Ave., Washington 7.)

20–21. Analog and Digital Instrumentation, 3rd natl. conf. (American Inst. of Electrical Engineers), Philadelphia, Pa. (N. S. Hibshman, AIEE, 33 West 39 St., New York 18.)

20–22. American Oil Chemists' Soc., spring, 50th anniversary, New Orleans, La. (Mrs. L. R. Hawkins, 35 E. Wacker Dr., Chicago 1, Ill.)

20–22. Boundary Problems in Differential Equations, symp., Madison, Wis. (R. E. Langer, Mathematics Research Center, U.S. Army, 1118 W. Johnson St., Madison 6.)

20–23. American Urological Assoc., Atlantic City, N.J. (S. L. Raines, 188 S. Bellevue Blvd., Memphis, Tenn.)

20–23. International Anesthesia Research Soc., 33rd cong., Miami Beach, Fla. (A. W. Friend, IARS, E. 107 and Park Lane, Cleveland 6, Ohio.)

20–24. American College of Physicians, Chicago, Ill. (E. R. Loveland, 4200 Pine St. Philadelphia 4, Pa.)

20–26. International Acad. of Pathology, annual, Boston, Mass. (F. K. Mostofi, Armed Forces Inst. of Pathology, Washington 25.)

21–23. American Assoc. for Thoracic Surgery, Los Angeles, Calif. (H. T. Langston, 7730 Carondelet Ave., St. Louis 5, Mo.)

21–25. Psychosomatic Research, 4th European cong., Hamburg, Germany. (H. Freyberger, II. Med. Univ.-Klinik und Poliklinik, Hamburg-Eppendorf, Germany.)

23–24. Molecular Genetics and Human Disease, symp., Syracuse, N.Y. (L. I. Gardner, Dept. of Pediatrics, State Univ. of New York, College of Medicine, Syracuse 10.)

23–25. American Assoc. of Pathologists and Bacteriologists, Boston, Mass. (R. L. Holman, 1542 Tulane Ave., New Orleans 12, La.)

23–25. Hawaii Medical Assoc., Hilo. (L. McCaslin, 510 S. Beretania St., Honolulu 13.)

24–25. American Assoc. of University Professors, Pittsburgh, Pa. (R. F. Fuchs, AAUP, 1785 Massachusetts Ave., NW, Washington 6.)

24–25. Georgia Acad. of Sciences, Macon. (R. J. Martin, Dept. of Geology, Emory Univ., Atlanta 22, Ga.)

24–25. Louisiana Acad. of Sciences, Ruston. (G. H. Ware, Northwestern State College, Natchitoches, La.)

25. West Virginia Acad. of Sciences, Huntington. (J. D. Draper, Bethany College, Bethany, W.Va.)

25–26. Population Assoc. of America, Providence, R.I. (D. O. Price, Box 630, Chapel Hill, N.C.)

26–29. Industrial Medical Assoc., Chicago, Ill. (L. Arling, 3101 University Ave., SE, Minneapolis 14, Minn.)

27–28. Society of Exploration Geophysicists, 12th annual midwestern exploration, El Paso, Tex. (D. Dawson, Dawson Geophysical Co., Midland, Tex.)

27–28. Society of Neurological Surgeons, New York, N.Y. (B. S. Ray, 525 E. 68 St., New York 21.)

27–29. Aero Medical Assoc., Los Angeles, Calif. (T. H. Sutherland, P.O. Box 26, Marion, Ohio.)

27–30. Physical Chemistry of Extractive Metallurgy, intern. symp., Pittsburgh, Pa. (AIME, 29 W. 39 St., New York 18, N.Y.)

27–30. Physical Chemistry of Process Metallurgy, intern. symp., Pittsburgh, Pa. (J. F. Elliott, Room 8-109, Massachusetts Inst. of Technology, Cambridge 39.)

27–1. American Psychiatric Assoc., Philadelphia, Pa. (C. H. Hardin Branch, 156 Westminister Ave., Salt Lake City, Utah.)

30–1. Eastern States Health Education Conf., New York, N.Y. (I. Galdston, New York Acad. of Medicine, 2 E. 103 St., New York 29.)

30–1. Youth Conference on the Atom, 1st natl., Atlantic City, N.J. (W. Adams, Bozell & Jacobs, Inc., 2 W. 45 St., New York 36.)

30–2. American Assoc. for Cleft Palate Rehabilitation, Philadelphia, Pa. (D. C. Spriestersbach, University Hospitals, Iowa City, Iowa.)

30–2. American Goiter Assoc., Chicago, Ill. (J. C. McClintock, 149½ Washington Ave., Albany, N.Y.)

30–2. American Physical Soc., Washington, D.C. (K. K. Darrow, Columbia Univ., New York 27, N.Y.)

30–2. Kansas Acad. of Sciences, Lawrence. (J. O. Harris, Kansas State College, Manhattan.)

30–3. Student American Medical Assoc., Chicago, Ill. (R. F. Staudacher, 430 N. Michigan, Chicago 11.)

30–4. American Assoc. for the Study of Neoplastic Diseases, Gatlinburg, Tenn. (B. H. Sisler, Box 268, Gatlinburg.)

May

1–3. Prevention of Bacterial Resistance to Antibiotics, intern. symp., Perugia, Italy. (Segreteria del Simposio, Clinica Ostetrica e Ginecologica, Policlinico, Perugia.)

2. Idaho Acad. of Science, Moscow. (E. J. Larrison, Sec.-Treas., Dept. of Biological Sciences, Univ. of Idaho, Moscow.)

2–3. American Psychosomatic Soc., 16th annual, Atlantic City, N.J. (M. Rosenbaum, APS, 265 Nassau Rd., Roosevelt, N.Y.)

2–7. Experimental Biology, intern. symp. (celebration of Lazzaro Spallanzani), Reggio and Pavia, Italy. (C. Jucci, Director, Istituti di Zoologia L. Spallanzani, Universita-Pavia, Palazzo Botta, Pavia, Italy.)

2–9. International Union for Health Education of the Public, 4th conf., Dusseldorf, Germany. (M. L. Viborel, 92, rue St. Denis, Paris 1e, France.)

3. American Federation for Clinical Research, annual, Atlantic City, N.J. (G. E. Schreiner, Georgetown Univ. Medical Center, Washington 7.)

3. Periapical Lesions-Pacific Coast Oral Pathology Workshop, 1st annual, Los Angeles, Calif. (W. Bullock, Dept. of Pathology, Univ. of Southern California School of Medicine, 1200 N. State St., Los Angeles.)

3–7. American Assoc. of Cereal Chemists, 44th annual, Washington, D.C. (J. W. Pence, AACC, Western Utilization Research Laboratories, Albany, Calif.)

3–7. Electrochemical Soc., Philadelphia, Pa. (Electrochemical Soc., Inc., 216 W. 102 St., New York 25.)

3–7. Electrode Processes, symp., Philadelphia, Pa. (Headquarters, Air Force Office of Scientific Research, Washington 25.)

3–7. Mechanical Properties of Intermetallic Compounds, Philadelphia, Pa. (J. H. Westbrook, General Electric Research Laboratory, P.O. Box 1088, Schenectady, N.Y.)

4. American Soc. for Clinical Investigation, annual, Atlantic City, N.J. (W. W. Stead, J. Hillis Miller Health Center, Gainesville, Fla.)

4–7. American Geophysical Union, annual, Washington, D.C. (W. E. Smith, AGU, 1515 Massachusetts Ave., NW, Washington 5.)

4–7. National Instrumentation Flight Test Symp., 5th, Seattle, Wash. (H. T. Noble, Boeing Airplane Co., Flight Test Station, Wichita 1, Kan.)

4–8. American Soc. of Civil Engineers, Cleveland, Ohio. (W. H. Wisely, 33 West 39th St., New York 18.)

5–6. Association of American Physicians, annual, Atlantic City, N.J. (W. W. Stead, vice president, AFCR, J. Hillis Miller Health Center, Gainesville, Fla.)

5–6. Self-Organizing Systems, conf., Chicago, Ill. (S. Cameron, ICSOS Conference Secretary, Armour Research Foundation, 10 W. 35 St., Chicago 16.)

5–7. International Scientific Radio Union, spring meeting, Washington, D.C. (J. P. Hagen, National Acad. of Sciences, 2101 Constitution Ave., NW, Washington 25.)

5–9. Southwestern and Rocky Mountain Div., AAAS, Laramie, Wyo. (M. G.