Reports of Sections and Societies, New York Meeting

Mathematics (Section A)

Section A met 26. Dec. Tibor Rado (Ohio State University), retiring vice president of the section, gave an address entitled "A case history in pure mathematics," which was a semipopular exposition of the mathematical theory of rigid surfaces, together with a review of some of their present uses in engineering and a few suggestions for their future use. About 35 persons were present.

The section was cosponsor with Section A1 of the meeting on "The application of digital computers" held on 27 Dec.

C. C. MacDuffee, *Acting Secretary*

Association for Computing Machinery (A1)

The Association for Computing Machinery met for the first time with the AAAS on 27 Dec. Under the cosponsorship of AAAS Section A, one session of five invited papers on the application of digital computers was presented.

James E. Robertson, *Program Chairman*

Physics (Section B)

The orientation of atomic nuclei by optical methods was the subject vigorously discussed by a small group of specialists at one of the symposia. Optical pumping, optical orientation in a buffer gas, and relaxation times for the associated events were some of the topics covered. The session was chaired by Francis Bitter and organized by William B. Hawkins.

Interesting experiments on optical spectra originating in solids were presented by physicists working in quite divergent fields. There were reports on line spectra in rare-earth solids, lattice vibration spectra in crystals, infrared spectra in solid solutions, and spectra in solids condensed from discharges. This symposium, which brought together spectroscopists and solid-state physicists, was organized by William F. Meggers.

Diffusion as a process that tells us about the structure and physical reactions in solids was the subject of a symposium organized by H. B. Huntington. The discussion brought out the many ways in which the diffusion process enters into solid-state measurements and into our understanding of metallurgical processes. The first session covered the general problems of the relationship of diffusion to mobility, pressure, and grain boundaries. In the second session, the techniques of measurement and the nature of diffusion in crystals and semiconductors were discussed.

Symposia on crystal growth, organized by N. Cabrera, brought together a number of scientists working on various aspects of this important problem. The first session, chaired by David Turnbull, covered crystal growth from the melt. The second session, chaired by C. Herring, dealt with the growth of crystals in the interesting form of filaments or whiskers.

Alan T. Waterman gave the vice-presidential address and spoke on "Science in society today." In a vivid manner he showed how our growing society is faced with a scarcity of scientists. With statistics to bolster his observations, Waterman went on to analyze some of the bottlenecks which cut down on our production of scientists. In that part of his presentation dealing with research, Waterman described some of the administrative problems which confront us in this 20th century, giving special attention to the problem of large and costly projects which require cooperating groups of scientists to handle.

J. Howard McMillen, *Secretary*

American Meteorological Society (B1)

As part of Section O's program on "Grasslands in our national life" the American Meteorological Society sponsored a session dealing with the present and future contributions of the meteorological and climatological sciences to the problems of grasslands. About 60 people attended the session in which five papers discussing different aspects of the specific program question were presented.

In introducing the subject of grassland environments, C. P. Barnes (Agricultural Research Service) contrasted the climatically determined distribution of natural grasslands with the distribution of cultivated grasslands which reflects not only climate and environmental factors but also competition with economic crops.

J. R. Mather (Drexel Institute Laboratory of Climatology) showed how moisture indices are closely related to the distribution of grasslands and how the factors of the moisture balance, the moisture surplus, and deficit or soil moisture storage can be used in different agricultural studies.

E. R. Biel (Rutgers University), in discussing the climate of the layer of air in which plants grow, emphasized the climatic differences which exist both vertically and horizontally near the ground and showed how microclimates can be influenced by changing local environments.

J. M. Beall (U.S. Weather Bureau) described the Weather Bureau's program in agricultural meteorology and specialized crop-weather forecasts and gave details of cooperative grassland projects with land-grant colleges.

L. B. Leopold (U.S. Geological Survey), in discussing the climatic problems of western grasslands, emphasized (i) the need for increasing water supplies, (ii) erosion and sediment problems, and (iii) the need for the maintenance of forage production under grazing use, and described how climatology and microclimatology can contribute to such needs. He concluded that for climatology to assume its proper role, not only must the specific problems be clearly identified, but also the viewpoint of the professional meterologist must be broadened to include an understanding of other disciplines.

J. R. Mather, *Program Chairman*

Chemistry (Section C)

Interesting and profitable sessions held by Section C consisted of two general sessions of 15 submitted papers in about 15 different interest areas, and three symposia sessions: "Chemical and biological aspects of cellular competition," arranged by Werner Braun (Rutgers University); "Biosynthesis of isoprenoid compounds," arranged by H. Boyd Woodruff (Merck and Company); and "Organic reaction mechanism," arranged by Ellis V. Brown (Seaton Hall University).

To our retiring chairman, Karl Folkers, Section C extends its best wishes, and to our new chairman, F. E. Cislak, we look forward in pleasant anticipation to the next annual meeting. It is not too early to plan on attending the AAAS meeting in Indianapolis in 1957 and presenting a paper before the chemistry section.

ED. F. DEGERING, *Secretary*

American Association of Clinical Chemists (C2)

The session of the American Association of Clinical Chemists was devoted to a symposium on "Significant trends in clinical enzymology," Harry Goldenberg presiding. Talks were given on "Serum enzyme activities in cancer," by Oscar Bodansky (Memorial Center for Cancer and Allied Diseases); "Recent advances in enzyme methodology," by Harry Goldenberg (Hillside Hospital, Glen Oaks, N.Y.); and "Biochemical biopsy," by Felix Wroblewski (Memorial Center for Cancer and Allied Diseases).

Bodansky discussed the extent to which serum enzymes can reveal the presence and progress of disease processes, and particularly of neoplastic disease, in human tissues. The use of serum alkaline phosphatase as an indicator of osteogenic sarcoma, osteoblastic or intrahepatic metastases, and of serum acid phosphatase as an indicator of prostatic carcinoma was reviewed. Pointing out the tendency for excessive glycolysis to occur in tumors, Bodansky briefly considered two of the serum glycolytic enzymes (adolase and lactic dehydrogenase). His more detailed studies dealt with serum phosphohexose isomerase elevations as an index of tumor growth in metastatic carcinoma of the prostate and breast, and with the serum phosphohexose isomerase/phosphoglucomutase ratio as an indicator of the site of tissue metastases.

"The recent extensions of enzyme studies to various disease states has pointed up the more precise diagnoses which result when enzymologic studies are brought to bear on clinical problems," said Wroblewski. "Tissues and specific pathologic states of these tissues may be characterized not only by their cellular flora and reaction but in some cases by their enzyme patterns. These enzymatic tissue alterations may precede, parallel, or follow the histologic changes in disease states. The tissue involved may be biochemically biopsied by way of the blood stream and other body fluids. The further extension of this concept of biochemical biopsy would appear to be a potentially promising area for further study."

In pointing out the need for more exacting enzyme methods to delineate neurological as well as gross organic disorders, Goldenberg stressed the analytic and kinetic aspects of enzyme measurements. He indicated that methods can be set up to afford both accuracy and simplicity under routine conditions and recommended the use of pure, synthetic substrates which are custom-tailored for colorimetric analysis; use of stabilized reagents; elimination of blank corrections; elimination of unnecessary manipulations; and elimination of empirical graphical plots. A simple and general expression was introduced which permits the chemist to calculate enzyme concentration directly from the color of the reaction products, regardless of photometric or enzymic complications.

HARRY GOLDENBERG, *Program Chairman*

Astronomy (Section D)

The program of Section D was a full and varied one. The American Astronomical Society met with the AAAS for the first time since the 1946 Boston meeting, and Seth B. Nicholson delivered his retiring AAAS vice-presidential lecture on "The solar cycle" following a joint AAS-Section D dinner. The Astronomical League and Section D sponsored a symposium, arranged by Harold B. Davidson, on "The benefits of astronomy to young people."

The AAS program consisted of 51 contributed papers, the Helen B. Warner lecture on "Photometric distances of galactic clusters," by H. L. Johnson, and a symposium on "The recent close approach of Mars." The attendance at the symposium was 250, and there were 202 AAS registrations. We are deeply indebted to Albert E. Parr and to J. M. Chamberlain and the staff of the Hayden Planetarium for their hospitality and the fine arrangements for the meeting.

The Astronomical League program was an outstanding success, with speakers ranging in age from 10 to 19 years. The topics ranged from amateur observations with small telescopes to a geometric proof of the law of areas and a series of five talks on spectroscopy.

FRANK K. EDMONDSON, *Secretary*

Astronomical League (D2)

The Astronomical League, with the American Astronomical Society and AAAS Section D (Astronomy) as cosponsors, presented on Friday a program of the offerings of juniors. Catherine Barry, specializing in classes for young children, pointing out how fertile is the imagination of children, how easily they can be guided, and how well they grasp new ideas. Saul Adelman (Washington, D.C.) set the pace, exhibiting the youthful interest in the quest for knowledge and the desire for the best tools. Robert Strom (New York) had unusual poise and self-possession for a 10-year-old and reported a year's observation of sunspots with real originality and with naive advice to help "neophytes" avoid the errors he was forced to make. Cecily Resnick (Oak Park, Ill.) had very original comment on spectroscopic binaries. Bernadette Londak's (Chicago) "Proof of the theorem of areas" was well conceived, well considered, and well illustrated. Stephen Strom (New York) clearly and intelligently described planetary observing with the aplomb of a veteran many times his years. Martin Gerstens' (New York) transference of optical principles from photomicrography to astrophotography was refreshing.

Carol Lipphard, Warren Smalley, Marcellus Porter, John Cosgrove, and James Bullock, all of Louisville, Kentucky, presented a mature and complete exposition of spectroscopy. A more complete and better planned story has not been heard! Their accuracy and brevity was amazing! All of these youngsters were limited to 5 minutes apiece: some used less time, and only one or two used a minute or two more. Their elders could learn from this! The audience was fascinated. George Nielson (Columbus, O.), not on the program as printed, was given 2 minutes to describe the radiotelescope that he and Ivan Loftis had built. Photographs of this telescope were on exhibit.

All our juniors were enthusiastically received. Clarence E. Johnson then spoke briefly on the organization of junior groups, and Franklyn Branley pointed out the impact of astronomy on the juniors and the effect they would have on science. He also made the point that science is not the difficult ivory-towered thing that one should fear to study; these juniors were the proof of that.

Ben Adelman exhibited the "Junior astronomer." G. R. Wright exhibited models of the "Moonwatch team" and delivered an excellent and well-prepared discussion on the techniques to be used in observing the artificial satellite next year.

HAROLD B. DAVIDSON, *Program Chairman*

National Speleological Society (E4)

The NSS meeting held in conjunction with the AAAS was presided over by Joseph Lawrence, Jr. William E. Davies' paper "Solution features in polar areas" not only presented evidence of solution in limestone areas of northern Greenland hitherto thought to have been covered by glacial deposits but also reported on a large cave apparently containing solution formations that was spotted less than

600 miles from the North Pole. Just how this cave could have escaped destruction from the movement of the ice sheets is not clear, although it is situated on a plateau approximately 1000 feet above the present sea level.

At the other extreme of temperature range, Russell and Jeanne Gurnee reported on their trip into the highlands of Venezuela to make a study of *Steatornis caripensis,* in Guacharo cave. This bird is the only one known to reside in a cave at all phases of its life cycle, although it does leave the cave for a few hours at night to obtain food. The first colored pictures of this bird in flight in the cave and roosting at its nest were shown.

Papers dealing with techniques of cave exploration included one by John Parker and another by John Spence, the latter dealing mainly with cave photography. William R. Halliday presented a paper dealing with reports of bad air in caves, and Brother G. Nicholas reported on the collapse of several caves in western Maryland owing to shock waves resulting from nearby munitions explosions.

BROTHER G. NICHOLAS,
Program Chairman

Zoological Sciences (Section F)

The meetings arranged or sponsored by Section F covered a wide range of subjects in most of the special fields represented in the section as well as several areas in which the section is interrelated with other sections. These all drew an excellent attendance, ranging from 25 to 100 people in the specialized meetings, and 75 to more than 400 for some of the symposia. The Section F luncheon had only 52 members, but about 200 came in for the vice-presidential address by Bentley Glass.

Annual meetings with sections for contributed papers were held by the Society of Systematic Zoology, the Entomological Society of America, the Ecological Society of America, the Society for the Study of Evolution, the Society of Vertebrate Palaeontology, and the National Association of Biology Teachers. The following organizations sponsored or cosponsored symposia with the cooperation of Section F: American Society of Zoologists, American Sociey of Naturalists, Genetics Society of America, Society of General Physiologists, the International Union for the Study of Social Insects, the American Museum of Natural History, the New York Academy of Sciences, Brookhaven National Laboratory and the U.S. Atomic Energy Commission. This year, as in the past, contributed papers which were sent to the secretary were included in the programs of societies which were holding meetings.

The distinctive characteristic of the New York meeting, in addition to the large attendance, was the large number of symposia which brought together representatives from many different fields and emphasized that members of different sections, as C, E, F, G, and H, are concerned with problems to which each one is contributing. In every one of these symposia there was extended discussion from the floor, which frequently added to the effectiveness of the material which the symposium speaker was presenting. This was especially evident in the New York Academy of Sciences symposium on "Modern ideas of spontaneous generation," which was published by the academy, and in the Section G symposium cosponsored by Section F on "Some unsolved problems in biology." The latter subject might profitably be presented for several years with different speakers and treating different areas. It is probable that in future years it may be desirable to present fewer symposia including only one involving cooperation between fields and two or more on specialized subjects.

The New York meeting showed that the increase in numbers of the specialized biological societies and their tendency to hold most of their annual meetings separately at other times than Christmas week has in no way lessened the importance of the more inclusive meeting in one of the large centers of population in the United States. Although most of the specialized biological societies affiliated with Section F prefer to hold their meetings with AIBS or with the Federation, many of them will arrange a meeting with AAAS every third or fourth year. In other years they will be represented by sponsorship of a symposium arranged by Section F. This will continue to make available a yearly meeting and should result in healthy stimulation and growth for American biological science. A small fund for paying travel expenses of a small number of symposium speakers is urgently needed.

HAROLD H. PLOUGH, *Secretary*

Entomological Society of America (F2)

The Entomological Society of America, formed in 1953 by the amalgamation of the American Association of Economic Entomologists (founded in 1889) and the Entomological Society of America (founded in 1906), held its fourth annual meeting 27–30 Dec. There were approximately 600 entomologists registered at the meeting.

The society, in its general program, featured a panel discussion on "Insect attractants," and an invitational paper on "Insect flight." The address of the retiring president, Bennet A. Porter, was on the topic, "What have we learned from the codling moth?" The customary full schedule of papers for presentation necessitated five or more concurrent sessions of the six sections and seven subsections of the society throughout most of the period of the meetings, with the exception of times reserved for meetings of the society as a whole. In addition to the technical program, there was featured a president's luncheon honoring presidents of the society, present, past, and future. An entomologists' mixer was held on 27 Dec.

Programs of the ESA are customarily presented under the subject-matter groupings of general entomology, physiology and toxicology, biology, medical and veterinary entomology, control, extension and regulatory entomology, and chemical control. In summary, the section programs included 175 submitted papers, five invitational papers, and seven symposia-type programs of ½ day each. Among the more outstanding of the scientific contributions in the sectional programs were the following symposia: "Teaching entomology," "Museums and their problems," "Insects in nature," "The fate of insecticides," and "The nematode situation." A tour of the Rockefeller Institute of Medical Research was enjoyed by those interested in the relations of insects to plant diseases. The local arrangements committee under R. E. Heal did an outstanding job, the educational exhibits arranged by that committee being especially good.

The 5th annual meeting of the society will be held at the Hotel Peabody, Memphis, Tennessee, 2–5 Dec. 1957.

P. W. OMAN, *Program Chairman*
R. H. NELSON, *Executive Secretary*

International Union for the Study of Social Insects (F3)

The North American Section of IUSSI held a two-part symposium on "Communication in Insects" arranged by T. C. Schneirla (American Museum of Natural History). William S. Creighton (City College of New York) presided at the first session on "Perspective on fact and theory," and Kenneth D. Roeder (Tufts University) presided at the second part on "Problems and methods."

During the first session Vincent G. Dethier (Johns Hopkins University) told how hungry flies were made to dance by feeding them concentrated sugar solutions. The axis of the dance is oriented to light and to gravity. A dancing fly regurgitates on the substrate when it is crowded by other flies; these other flies eat the regurgitated material and may also dance. The reactions are similar to those in bees, except that in flies foraging flights do not follow the dances.

Edward O. Wilson (Harvard University) using the method of Ribbands, who fed radioactive phosphorus to bees, fed radioactive iodine to ants of three genera and, with a Geiger counter, checked its spread through the colony. In *Crematogaster* and *Formica* the spread was rapid; in *Pogonomyrmex* it was slow. No evidence was found that *Pogonomyrmex* regurgitates liquid food as do the first two.

Arthur C. Cole (University of Tennessee) surveyed the various mechanisms operating in the communication of ants. Mechanisms discussed ranged through vision, audition, olfaction and tactile, and a variety of response properties involved with these modalities. "Trophallaxis" was considered, not only with respect to actual food exchange, but also to related stimulative processes and to its visceral basis in different ants.

Schneirla pointed out that communication, defined as "behavior and related processes influencing behavior," is present in ants, but not "language," or "symbolic communication." Ant communication may be analyzed into processes of *trophallaxis* (reciprocal stimulation and not merely food exchange) and of orientation. In ant communication not only excitatory effects but also a variety of directionalizing and integrating influences are involved according to species.

Discussants for the first part of the symposium were J. A. Downes (Division of Entomology, Canada), Robert E. Gregg, University of Colorado), and Neal A. Weber, Swarthmore College).

The theme of the second part of the symposium was that communication can be considered as the coupling or interaction between two systems. The output of one system in some measure acts upon the input of the other. Hence, a knowledge of the physiological characteristics of the input or sensory mechanisms of insects is of prime importance in assessing their ability to communicate.

The full potentialities of insect sense organs as receivers are not usually revealed by behavioral studies alone. Asher Treat (City College of New York) defined phonoreception as the obtaining of information from mechanical vibrations originating at a distance. In intraspecific communication, timing and distribution of acoustic pulses have greater signal value to insects than has pitch or quality. Insect tympanic organs are displacement-sensitive receptors and are potentially capable of directional sensitivity. The noctuid tympanum contains only two acoustically sensitive cells and seems little adapted for directional localization. Electric recording of the afferent discharge from this ear confirms its ultrasonic range and its ability to respond to the ultrasonic pulses of predatory bats. On the other hand, although some intensity discrimination is possible, there is no evidence that moths can discriminate differences in pitch or can accurately localize a source of sound.

Chemoreception is a sense modality of widespread importance in insect communication. Edward S. Hodgson (Columbia University) reported on a neurophysiological analysis of the impulse input to the central nervous system from chemoreceptors. Contact chemoreceptors may respond not only to nutritionally significant chemicals but also to tactile and temperature changes. The behavioral significance of this multiple sensitivity was discussed. Commonly, chemoreceptors are spontaneously active, a behaviorally significant stimulus causing either an increase in impulse frequency, a decrease, or a particular impulse grouping. There is an encouraging correlation between the properties of chemoreceptors as revealed by electrophysiological and by behavioral methods of study.

Communication between the sexes is a universal prelude to mating in both social and asocial insects. Ilse Schwinck (New York University–Bellevue College of Medicine) analyzed the factors involved in the assembly of males to a virgin female of *Bombyx mori*. The odor of the female is not entirely species specific, but it can cause the direct orientation of males to its source over short distances when the concentration of odor is high and the gradient steep. When it is highly diluted over the considerable distances traveled by males in the field, the female odor merely causes an increase in the random activity of the males. When they are so activated, the airstream becomes the main orienting factor in male behavior, and there is an upwind movement to the odorous source. Under these circumstances an odor gradient appears to play no part in the orientation.

To the student of behavior the animal is the proverbial "black box." By manipulating its inputs and observing its outputs, he attempts to arrive at generalizations regarding the mechanism within. Horst Mittelstaedt (Tufts University and Max Planck Institute for Behavior Physiology) discussed steering mechanisms in insects and showed how it is possible to apply some of the formal concepts of communications theory to the analysis of insect behavior. As examples of this application, he analyzed phototaxis in the firefly, optomotor reactions in the dragonfly, and orientation of the praying mantis to its prey. The stroke of the forelegs in the mantis, the most complex of these systems, is predetermined by visual and proprioceptive information regarding the relative angles of prey, head, and prothorax.

These papers initiated a lively discussion which continued sporadically on various informal occasions throughout the New York meeting. In addition to the speakers the main participants in these discussions were V. G. Dethier, William van der Kloot (Cornell University), and T. C. Schneirla. It is apparent that the neurophysiologists and the behavioral psychologists can profit greatly from such mutual interaction, although their communication may at times be obscured by semantic problems.

KENNETH D. ROEDER and WILLIAM S. CREIGHTON, *Presiding Officers*

Society of Systematic Zoology (F5)

The ninth annual meeting of the society followed the usual pattern of its meetings but included far-reaching, behind-the-scene activities that will have important results in the near future. The election of officers for 1957 was announced by the council.

The society's book lounge has become the center of activities at the meetings. It was again visited by many members and many guests. Several of the latter joined on the spot, and many inquired about membership. A session for contributed papers aroused considerable interest, and a symposium cosponsored with the entomologists was well received.

In recent years we have distributed free at the meeting a mimeographed or printed list of the books exhibited. This year the list was much more elaborate, giving virtually all books on zoology or animals that are commercially available in the U.S. Its publication was supported by sale of advertising. Copies are being mailed free to all members of the SSZ and of the NABT. This list was prepared by the librarian, Ross H. Arnett, Jr. (St. John Fisher College, Rochester, N.Y.), who will in the future be designated editor of *Books on Zoology*.

It was decided to hold the 1957 annual meeting with the AAAS in Indianapolis.

R. E. BLACKWELDER, *Secretary*

Society of Vertebrate Paleontology (F6)

The 16th annual meeting of the Society of Vertebrate Paleontology, 28–30 Dec., heard reports from 42 members. The society participated in a symposium on "Biotic communities," arranged by the SSE and was the guest of the American Museum of Natural History at a party before its annual dinner; motion pictures of fossil collecting in Mongolia during the 1920's were shown.

Tilly Edinger reported that the braincast of a Paleocene bat revealed that the specialized acoustic apparatus of this mammal was already developed more than 60 million years ago. Malcolm C. McKenna has recovered jaws and teeth of many small mammals previously known only from Paleocene rocks by washing and screening early Eocene sedi-

ments in Wyoming. New Cretaceous mammals have been obtained by similar techniques during the past summer.

Brian Patterson presented a revised classification of Edentates. Horace E. Wood II said that a rhinoceros with four toes in the manus, from the early Miocene Thomas Farm fauna of Florida, upset current ideas about rhino evolution; heretofore no four-toed rhinos had been known later than early Oligocene.

Donald E. Savage reported a sequence of five mammalian faunas of Miocene and Pliocene age in the Caliente Mountains of California, in deposits which interfinger with marine beds. Louis Thaler outlined the evolution of the teeth of microtine rodents and showed how it formed a basis for closer correlation of late Cenozoic deposits of North America and Europe.

Karl Koopman revealed the presence of bones of large ground birds in caves in Cuba. Max Hecht reported that a majority of the amphibians and reptiles in the Eocene Tabernacle Buttes fauna were burrowing types. Donald Baird discussed implications of new knowledge of Coal-Measures amphibians and reptiles revealed by etching the specimens. Gordon Edmund described the tooth replacement in fossil reptiles.

Bobb Schaeffer reviewed work on the mechanism of the teleost fish skull. Transformation of the primitive palconiscid skull to that of modernized ray-finned fishes involved a radical change in direction and attachment area of the adductor mandibulae muscle. Primitive bony fish were capable of snapping their jaws rapidly but lacked the strong bite of their modern descendants. Robert H. Denison questioned current concepts of the jaw structure of ancient armored fishes. Acanthodians, or "spiny sharks," should not be grouped with Arthrodires and other armored fishes in the class Placodermi.

This meeting was the most successful in the history of our society, if not the most interesting. One hundred and eleven persons participated in phases at the American Museum; I have no count of the attendance at the symposium on "Biotic communities," but noted that the room was well filled. The SVP will meet in Philadelphia on 3 Nov. 1957, and with the Geological Society of America at Atlantic City on 4–5 Nov.

JOSEPH T. GREGORY,
Secretary–Treasurer

Mountain Lake Biological Station (FG6)

The Mountain Lake Biological Station breakfast, held 28 Dec., was well attended, considering the fact that not many biological groups were meeting with AAAS this year.

In introducing those present it was observed that attendants during most of the years since 1930 were represented. Bruce D. Reynolds called attention to the fact that he had retired as director in October 1956 and that Horton H. Hobbs had been appointed as his successor. Then he gave a brief history of the station, pointing out some of the difficulties encountered and the achievements realized during the 27 years of its existence.

The course work, which has always been good, should be improved by increased emoluments allowed instructors. Research has been greatly stimulated by a grant from the National Science Foundation. For the past 2 years the station has been operating at full capacity, with slightly less than 100 persons. Many square miles of virgin forests constitute the area for field work. Within the stone laboratory modern equipment makes possible research of a highly technical nature.

BRUCE D. REYNOLDS,
Program Chairman

National Association of Biology Teachers (FG7)

The National Association of Biology Teachers presented two individual programs, a luncheon meeting and a guided tour, cooperated with AAAS in the panel meetings on "Moving frontiers of science," cosponsored with the other science teaching societies a Cooperative Committee symposium on "Meeting the science teaching manpower shortage," held a joint session with NSTA on "Techniques in elementary science," and held jointly with ANSS two programs and a field trip. Emery Will, chairman of the NABT audio-visual aids committee, presented three showings of teaching films.

The first NABT program was general, including reports on conservation leadership patterns in the United States and on the two NABT conferences on biology teaching supported by National Science Foundation grants as well as a variety of other topics of interest to biology teachers—the upper atmosphere, insect material, consultation services, spelling errors. The second, which dealt with techniques in high-school biology, consisted largely of demonstrations, by both teachers and students, of interest-getting devices and of laboratory and classroom procedures.

The joint session with NSTA, devoted to "Methods and techniques for elementary science," included a "Make it and take it" program, nutrition experiments, and a description of a natural science center for young people. The joint sessions with ANSS dealt with camping and with urban conservation. The former was planned by ANSS, the latter by NABT. The annual field trip of the two societies included visits to the Stanford Museum and Nature Center, the Mianus River Gorge Sanctuary, and the Greenwich Audubon Nature Center. The luncheon address, by Roger L. Leatherman (University of Michigan), dealt with biological aspects of nuclear research and their implications on American science education.

JOHN BREUKELMAN, *President*

Botanical Sciences (Section G)

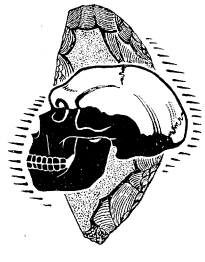
The meetings organized by Section G included two sessions for contributed papers and a number of symposia. The latter were uniformly successful, usually attracting attendance which strained the capacity of the rooms. Many of the symposia elicited spirited discussions and comments which suggested that this type of program be continued in the future.

The annual Botanists' Dinner was attended by more than 75 persons and represented something of an innovation in that a buffet style of serving was adopted in an effort to counteract the relatively high cost of dinners in New York City. It is worth noting that this innovation proved to be quite successful. The dinner was the occasion for informative addresses by the retiring chairman of Section G, Paul J. Kramer, and by Harriet B. Creighton, president of the Botanical Society of America. By arrangement the dinner took place 50 years to the day after the founding of the latter organization.

BARRY COMMONER, *Secretary*

Anthropology (Section H)

All 50 papers of the Section H program ran sequentially and without conflict with any general programs. The section celebrated the 100th anniversary of the discovery of Neanderthal man with a symposium jointly sponsored by the American Institute of Human Palaeontology. The speakers referred to the number, variety, and significance of Neanderthal fossils unearthed since 1856.



In a second symposium, "Man in the tropics: the Caribbean," the points of view of geography, sociology, and politics, as well as of anthropology, produced diverse images of a single subject: the plantation way of life. A third symposium, "Transitional communities in India, Pakistan, and Burma," and a fourth, "Current studies in cultural evolution: Oceania," permitted casting of theories and problems of cultural anthropology in specific geographic regions, a technique

also applied in the Caribbean symposium. This approach, and the session specifically devoted to the subject, made cultural theory the central theme of the meetings.

At virtually every session, including that devoted to archeology, the discussion turned to questions of theory and method. The high quality of the symposia was matched in the contributed papers. The section also cosponsored symposia on forensic odontology and values in human ecology. One aspect of the latter subject, what man is doing to the world in which he lives, will be the theme for the Indianapolis meeting of the AAAS and should permit anthropologists to contribute significantly and be widely heard.

GABRIEL W. LASKER, *Secretary*

Social and Economic Sciences (Section K)

The program of Section K included sessions of interest to each major discipline in the section—that is, economics, political science, sociology, and statistics.

A featured symposium was "The impact of natural science on social science," at which presentations were made by Bernard Brodie (RAND Corporation), Pitirim A. Sorokin (Harvard University) and by Benjamin H. Williams (Industrial College of the Armed Forces) in his vice-presidential address to Section K. Harold D. Lasswell (Yale University) presided. This program was cosponsored by Section K, the National Academy of Economics and Political Science, the American Political Science Association, and, by collaboration, the National Social Science Honor Society, Pi Gamma Mu. The papers of this meeting were all of very high quality, were warmly received by the large attendance, and precipitated much lively comment during the discussion period. Preceding the session was a dinner meeting held by Pi Gamma Mu in honor of the speakers and the officers of the cosponsoring organizations, officers of the AAAS, and members of the Section K committee. S. Howard Patterson (University of Pennsylvania), emeritus president of Pi Gamma Mu, presided.

Two symposia were cosponsored with the American Statistical Association. The first was on "Labor mobility and earnings," and papers were read by Theresa R. Shapiro (Columbia University) and Maurice C. Benewitz (City College of New York). Charles A. Pierce (New York State Department of Labor) was discussant, and Meredith B. Givens (New York State Incomes Study) presided. The program was arranged by A. J. Jaffe (Columbia University). The second symposium was on "Statistics in public health." Papers were presented by Morris Greenberg (New York Department of Health), J. S. Tyhurst (McGill University), Harold Jacobziner (New York Department of Health), Herbert Nieburgs (Brooklyn Beth-el Hospital), and Abraham Oppenheim and Jules Vandow (New York Department of Health). George James and Carl L. Erhardt (New York City Health Department) presided and arranged the program, respectively.

Other sessions in which Section K participated were "Aids for environmental control" with AAAS Sections C, H, I, L, M, and N, and the Conference on Scientific Manpower; "Resource development and population growth" with AAAS Section P, together with the vice-presidential address of this section; "Science versus crime" with the Society for the Advancement of Criminology, the Association for the Psychiatric Treatment of Offenders, and the Institute for Research on Crime and Delinquency; and "Grasslands in our national life" with AAAS Sections O and G.

During the past year two joint sessions were held by Section K 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 of these was on "Industrial concentration in American economic growth" and the second on "American foreign aid: a reappraisal." Pi Gamma Mu collaborated in these joint meetings.

DONALD P. RAY, *Secretary*

Society for the Advancement of Criminology (K7)

More than 300 persons, including many distinguished criminologists from the United States and other countries, participated in the "Science versus crime" seminar on 29 Dec. Other sponsors of the program were the Association for the Psychiatric Treatment of Offenders, the Institute for Research on Crime and Delinquency, and AAAS Section K. Donal E. J. Mac Namara (New York Institute of Criminology) presided. Some of the highlights of the program included the following.

Marcel Frym remarked that unemployability, owing to an amalgam of laws, customs, management policies, surety company regulations, and bad public attitudes, is the greatest bar to the successful readjustment of the ex-convict and the strongest stimulus to recidivism. Character Underwriters, Inc., a nonprofit corporation, is undertaking to insure selected ex-convict risks (chosen after exhaustive psychosocial screening), thus enhancing their employment chances.

Nicholas Pansegrouw (South Africa) pointed out that much criminological theory is rejected by police, penologists, and other practitioners, not so much because it is impractical, but because it is bad theory. There is too much arm-chair analysis and ivory-tower star-gazing and insufficient large-scale experimentation under controlled conditions and too little interdisciplinary coordination.

In the opinion of Sydney Zebel, no social problem can be approached in a historical vacuum. Far too frequently such "modern" phenomena as juvenile delinquency and the narcotics problem are discussed as if other generations experienced no crime or social difficulties. Zebel suggested the formation of a committee of historians and criminologists to explore the literature in the field and to encourage the use of proper historiographic techniques in the preparation of future volumes.

Present approaches to the narcotics problem in the United States are evident failures, according to Hubert Howe. Instead of controlling the spread of narcotics use and addiction, we have legislated a tremendous profit into the traffic and forced the addict into collateral criminality to secure the huge sums necessary to support his level of addiction. The experience of other countries indicates that a more rational approach is to emphasize the public health-mental health aspects, rather than the law enforcement, and to set up a modified dispensary-clinic system through which the addict could obtain sustaining narcotic doses at pharmaceutical prices, thus eliminating the criminal profiteer and his adulterated product.

Forrester Washington pointed out that minority groups and alien groups have traditionally been labeled high-crime-rate groups in the United States. Sometimes their rates have been excessive when compared with their numbers in the population, but these rates have usually leveled off as the first and second American-born generations achieved status in politics and business or melted unobtrusively into the dominant group. At times, as in the case of the Puerto Rican minority in New York, the crime rate attributed to them has been maliciously exaggerated. Such statistical information as we have indicates that the present percentage of Puerto Ricans convicted of criminal offenses in the criminal courts of New York State is almost exactly proportionate to their numbers in the population. High color visibility complicates the race-crime problem and perpetuates it, as is evidenced by the continuing excessive crime picture among the Negro minority.

Albert Ellis said that many crimes not usually thought of as sex crimes have a strong sex element, either in their motivation, or in their modus operandi; pathological fire-setting (arson) for direct

sexual satisfaction or unconscious sex symbolism is a major example.

Totalitarian regimes (specifically Nazi Germany, Fascist Italy, and the Dominican Republic) have been able to reduce the incidence of common criminality (as distinguished from political crimes) to levels far lower than those achieved in the United States and other democratic countries. According to Mac Namara, some of the reasons for this are higher police population ratios (5 to 10 times as high as in the U.S.A.); better trained and disciplined police in semimilitary formations; stricter population controls (identification cards, criminal and alien registration laws, movement control); fewer inhibitions on police (unlimited search and seizure, detention without examination before magistrate, little control over methods of interrogation); siphoning off of aggressive antisocial elements into state-approved activities (for example, Storm Troops, Black Shirts, and other quasi-military formations "licensed" to kill, assault, rape, and loot their unpopular minority victims); dispersal of other aggressive elements into political underground activity, concentration camps, emigration, and exile; general apathy of the people. The lesson we learn is that there is a price for democracy and personal freedom and that a part of that price may well be a somewhat higher crime rate, not necessarily, however, as high a crime incidence as we are presently experiencing.

Mark Luckens told the group that chromatographic techniques in the identification of trace elements, in making comparisons, and in determining minute quantities in connection with criminal cases have proved markedly successful, particularly in homicides, hit-run accidents, and rape.

Cleve Backster told of the increasing use of instruments (polygraphs), narcotics (sodium amytal and sodium pentothal), and hypnosis as scientific interrogation techniques. There has been tremendous improvement in methodology, but problems still to be dealt with include public ignorance, possible abuses by unethical or untrained practitioners, and admissibility of scientifically extracted admissions and confessions in legal proceedings.

The Yeremin letter [*Life* (23 Apr. 1956)], which purported to prove Stalin an Ochrana agent, was discussed by Martin Tytell and Isaac Don Levine.

General floor discussion centered on polygraph lie detection difficulties with the chromatographic technique, the statistical data supporting Mac Namara's thesis concerning totalitarian nations' crime rates, and the uses and abuses of psychiatry (particularly of psychoanalysis).

GENE ANN CONDON, *Secretary*

History and Philosophy of Science (Section L)

The meetings of Section L commenced on 26 Dec. with a session of contributed papers. A two-session symposium on "Science and ethics," arranged by Joseph Mayer, was presented by a distinguished roster of speakers. On 27 Dec. the section, together with the American Philosophical Association (eastern division) commemorated the 100th anniversary of the birth of Freud with a symposium on the general significance of his work in a session that was highly stimulating.

On 28 Dec. a symposium on the "Interaction of science and technology" was held as a joint session of Section L and the History of Science Society, and there was a joint dinner of the same two groups at which Dorothy Stimson spoke, as president of the History of Science Society, and at which Henry Guerlac presented his thoughtful and provocative vice-presidential address on "Critics of science, friendly and unfriendly." The meetings of the section included also a splendid five-session symposium on "Measurement" arranged by C. West Churchman.

Great credit is due all the participants of all of the sessions for particularly fine presentations, which attracted full and lively audiences. The section is happy to announce the election of I. Bernard Cohen as chairman of the section for 1957.

JANE OPPENHEIMER, *Secretary*

History of Science Society (L2)

In the first two of its sessions of contributed papers held on 28 Dec., the theme of the interaction of science and technology was particularly stressed. At the symposium held jointly with Section L, this theme was especially applied to metallurgy by Cyril S. Smith (Institute for the Study of Metals, University of Chicago). Smith spoke as a contemporary practicing metallurgist and stressed the long past of metallurgy as an empirical, rather than a theoretical, science. Frederick Kilgour (Yale University Medical School Library) similarly stressed the prior importance of empiricism in the development in antiquity of the wave theory of sound transmission; while John J. Beer (Hanover College), gave a more modern instance of the relationship between practical and theoretical science or research, in his case history of a German dye plant.

The same relationship between empiricism and scientific theory was reflected in the papers read by Marie Boas (Brandeis University) on 17th-century chemistry; by Thomas S. Kuhn (University of California, Berkeley) on "The caloric theory of adiabatic compression," and in a third paper, "The role of the U.S. Navy in creating a national agency for aeronautical research," by Lee M. Pearson (U.S. Navy Bureau of Aeronautics), which especially stressed the danger involved in making science subservient to technology at the expense of basic scientific research. Interesting and informative comments on these sessions were provided by Bern Dibner (Burndy Engineering Library) and by Henry Noss (New York University). The sessions were chaired by Henry Guerlac (Cornell University) and R. B. Lindsay (Graduate School, Brown University), respectively.

More particularly related to the interrelation of the scientific thories of antiquity with those of succeeding centuries were the papers read at the 29 Dec. sessions. Marshall Clagett (University of Wisconsin) explored the transmission of Archimedean mathematics from antiquity to the Middle Ages and the early modern era; while Curtis Wilson (St. John's College, Annapolis) developed the interrelationship of Aristotelian logic and the medieval theory of supposition with physical and mathematical questions; and William H. Stahl (Brooklyn College) in his examination of the question, "Whose authority dominated medieval science?" provided evidence for the proneness of early medieval authors to rely for their facts regarding Greek geography and astronomy upon encyclopedists. Both the chairman of the session, Chauncey D. Leake (College of Medicine, Ohio State University) and the commentator, Edward Rosen (City College of New York) enlivened the discussion by remarks and comments on the subject.

Similarly historical in content were the contributed papers of the final session, over which John F. Fulton (Yale University Medical School) presided. J. B. deC. M. Saunders (University of California Medical School, San Francisco) described the evolution of rational theories of medicine and practice among the Egyptians; Genevieve Miller (Western Reserve University) drew upon modern sources down to the 19th century to show the continued interest and reverence for the ancient Hippocratic treatise, "On airs, waters, and places," and Lynn Thorndike (professor emeritus of Columbia University) described, from several manuscript sources, the contents of a treatise, "De complexionibus," on the relation of the four complexions to the external environment and to the influence of the celestial bodies. Pearl Kibre (Hunter College) noted particularly the close relationship between the latter work and the Hippocratic treatise.

Other highlights of the meetings in-

cluded the report on a mathematical manuscript containing the brief work of the ninth-century Thebit ben Corat by the visiting scholar, Aydin Sayili (University of Ankara), the report on the International Congress of the History of Science, by I. Bernard Cohen (Harvard University), and the award of the Ida and Henry Schuman prize in the history of science to Chandler Fulton (Rockefeller Institute for Medical Research) for his paper, "Vinegar flies, T. H. Morgan, and Columbia University"; with honorable mention to the runners-up, Edyth Lutzker and John B. Riley. Also noteworthy was the fact that at the annual dinner held jointly with Section L, the guests were honored with two addresses: one by the retiring president of the History of Science Society, Dorothy Stimson, and the other by the retiring vice-president of Section L, Henry Guerlac.

PEARL KIBRE, *Program Chairman*

Society for the Advancement of General Systems Theory (L4)

The Society for the Advancement of General Systems Theory met on 29 Dec. Because a quorum of membership could not be constituted, it was agreed to hold the election of officers by mail ballot, allowing the present *pro tem* committee to conduct the business of the society until the election of officers. A proposal to change the name of the society to Society for Systems Research was likewise deferred to be acted on by mail ballot. The session was concluded by a contributed paper presented by Stuart C. Dodd (University of Washington) on "Introducing 'systemmetrics' for evaluating symbolic systems."

The second session of the Society on 30 Dec. was devoted to a symposium, "Systems under stress," which included "The individual under stress," presented by James G. Miller (University of Michigan), and "The small problem-solving group under stress," presented by Anatol Rapoport (University of Michigan).

LUDWIG VON BERTALANFFY, *Executive Secretary, pro tem*

Engineering (Section M)

During the past year, Section M was pleased to welcome seven additional technical societies as affiliated members of the section. They are the American Geophysical Union, the American Meteorological Society, the American Industrial Hygiene Association, the American Public Health Association, the American Society of Safety Engineers, the Electrochemical Society, and Tau Beta Pi. These additions form a total of 30 technical societies now affiliated with Section M. Although the total membership of these societies is more than 150,000, there are only some 3000 engineers registered members of our association. This clearly indicates the need for a better definition of the activities of the Engineering Section in a general scientific association of this type.

During the past year, the general relations between the officers, the board of governors, and the various sections of the association have greatly improved. A central program committee of the association has been formed to coordinate the activities of the various sections and to plan programs a year in advance. This committee meets with the section secretaries at least once a year. We hope by this means to develop programs of more general interest to the association as a whole; to develop more cosponsored programs among the various sections, and to promote the relations between science and the general public.

Section M committee held two meetings during the year in New York. At these meetings, the administrative secretaries of the various affiliated societies were invited to attend. The internal reorganization of the section has been greatly improved as a result of these joint meetings. In addition to the committee meeting, several meetings of the program committee were held under the chairmanship of Irving P. Orens. The next meeting of the section committee is scheduled for 5 Mar. 1957 at 1:30 P.M. in room 1101, Engineering Societies Building, 29 W. 39 St., New York, N.Y.

The general topic of Section M's program was "Aids for environmental control." There were three sessions at which ten papers were presented. At session 1, the topic was "Overcoming normal and abnormal physical limitations." The chairman was Eugene F. Murphy (Veterans Administration), and the attendance was 135. At session 2, the topic was "Extending mental and rational powers." The chairman was Irving P. Orens (Newark College of Engineering), and the attendance was 140. The third session was on "Breaking the language barrier." Its chairman was John Lotz (Columbia University), and the attendance was 120. Section M cosponsored the sessions of the Scientific Manpower Commission and the two symposia of the AAAS.

A feature of the meeting was a luncheon given by Charles M. Gratz, research surgeon of New York City and head of the New York State Institute of Biomechanics. The luncheon celebrated some 21 years of research by a group of medical men and engineers on the effects of accidents on human beings. It included studies of the stresses in bones and muscles and the surgery of rehabilitation.

Clarence E. Davies is the 1957 chairman of the section, and E. Paul Lange is the secretary. The committee-at-large is composed of K. F. Kayan (Columbia University), M. L. Towle (Cooper Union), W. M. Allan (City College of New York), F. S. Mallette (ASME). All representatives of affiliated societies are members of the section committee.

During the last 12 years, a serious attempt has been made to interest engineers in the activities of the AAAS. The many developments in the fields of science and engineering during the last 50 years have been of such a nature that they require a close cooperation of all branches of science. We feel that the AAAS offers an excellent medium to bring about this close relationship. Section M's first problem was to obtain the active support of the various engineering societies in the activities of the AAAS. Under the excellent leadership of our chairman, C. E. Davies, we are now in a position to state that Section M has the support of the engineering group. The engineering group will welcome the cooperation of the various sections of the AAAS in providing a medium where the problems of pure and applied science may be discussed and where our relations with the general public may be improved.

FRANK D. CARVIN, *Secretary*

Medical Sciences (Section N)

In addition to the symposium arranged by Section N, this section cosponsored several other excellent programs. The Section N program this year was arranged by Bernard B. Brodie. Edmund W. Sinnott ably and pointedly in the first paper set a standard for the subsequent presentations.

Sinnott expressed the opinion that a knowledge of intracellular organization and intercellular communication is the key to the function of the nervous system. M. C. Nui reviewed his more recent investigations on chemical inducers and emphasized particularly the important role of ribosenucleic acid (RNA). Harry Grundfest presented evidence to indicate the role of both chemical and electric mechanisms in the transmission of nerve impulses. The organization of the sensory and motor cortex in the mammalian cerebral cortex was reviewed by Clinton N. Woolsey.

Joseph Brady indicated by studies on rats and monkeys that induced behavior patterns can be altered independently by different tranquilizing drugs. Similar conclusions drawn from the work of Keith Killam suggest that more precise methods for studying the mechanism of action of drugs affecting brain function may be

developing. The last three speakers reviewed three separate areas of experimentation on the human being, indicating that rapid progress is being made in our fundamental understanding of the dysfunctions of the brain.

ALLAN D. BASS, *Secretary*

Alpha Epsilon Delta (N1)

Approximately 200 premedical and medical educators and students attended the symposium on premedical education arranged by Alpha Epsilon Delta at the Cornell University Medical College on 29 Dec. Those in attendance heard talks by William H. Hubbard (New York University Medical College), L. W. Hanlon (Cornell University Medical College), W. F. Walker (Oberlin College), and J. T. Cowles (University of Pittsburgh Medical School) and participated in a panel discussion led by E. Hugh Luckey (Cornell University Medical College), with George E. Miller (University of Buffalo Medical School), William E. Cadbury (Haverford College), and Norman F. Witt (University of Colorado).

Davis G. Johnson (State University of New York Medical Center, Syracuse) addressed a luncheon gathering of 135 on methods of improving liaison and cooperation between medical and liberal arts colleges. The afternoon was spent in informal personal discussions between the premedical advisers and the admission committee representatives in attendance from 15 medical schools.

MAURICE L. MOORE, *Secretary*

Dentistry (Nd)

Four sessions were held on 28 and 29 Dec. The first was devoted to the practical contributions of science to dental practice. Six papers were presented, and 50 people were in attendance.

Two sessions were devoted to "Human dentition in forensic medicine" in which Sections H and N were cosponsors. Eight papers were presented. These dealt with the identification of people by means of the teeth and the rates and sequence of tooth development. Racial traits and genetic influence on dentition were also discussed. There were 50 to 60 in attendance at each session.

A second joint session was devoted to a discussion of antienzymes. This session was cosponsored by Sections C, N, and Np. Four papers were given on various types of enzyme inhibitors. There was an attendance of 60.

The section committee elected Isaac Schour (University of Illinois) as vice-president and chairman of the section. The new committeeman-at-large is Joseph Muhler (University of Indiana). Plans were laid for the next meeting in Indianapolis, and the subject chosen for discussion is "The physiology and pharmacologic aspects of fluorine." The date of the meeting will be 28 Dec. 1957.

R. W. BUNTING, *Secretary*

Pharmacy (Np)

Pharmacy Section Np held seven sessions 26 Dec. through 29 Dec. A total of 17 contributed papers on original studies were given, and two symposia and two panel discussions were held. More than 800 persons registered as having attended one or more of the pharmacy section meetings.

Of considerable interest, as was shown by an attendance in excess of 450, was the symposium and discussion on "Cosmetics," which attracted interest outside the pharmaceutical group. This session was cosponsored by the Committee on Cosmetics of the American Medical Association. Various aspects of cosmetic utilization were discussed by six experts in the field. Veronica Conley discussed the new role of cosmetics in everyday living, and Paul G. I. Lauffer discussed the scientific formulation of cosmetics. The essentials of skin cleansing were brought out by R. S. Suskind, and a paper on the control of axillary sweating and body odors was presented by Marion B. Sulzberger and Franz Herrmann. The present status of pigment-forming drugs was covered from the standpoint of chemical structure and activity by A. B. Lerner. Some of the toxicity problems encountered in the use of cosmetics were called to the attention of the group by B. E. Conley. A very interesting and lively discussion of various cosmetic problems followed, with I. H. Blank, S. Rothman, C. Nelson, and H. T. Behrman participating.

More than 150 pharmaceutical scientists attended a 4-hour panel discussion on the problems of compressed tablet coatings. P. Wilcox discussed the history of tablet coatings and some of the general problems involved. He was followed by four speakers who had had firsthand experience with the operation of different coating machines. Each speaker summarized the operation, advantages, and disadvantages of a particular machine and followed this with a film showing the precise operation. J. Cooper, V. H. Hostetler, W. Madison, and A. Mattocks participated.

The pharmacy section also cosponsored a symposium on "Antienzymes" with the chemistry, dentistry, and medical sciences sections participating. Of particular interest to the pharmaceutical scientists was the discussion of "Insulinase inhibitors" by Arthur Mirsky.

R. H. Blythe (Smith, Kline, and French Laboratories), chairman of the section, opened the contributed papers sessions with a stimulating discussion of the importance of the pharmacy section in the AAAS. He clearly pointed out the importance of a common meeting ground for the various scientific disciplines. The scientific papers presented were of unusual merit. L. Chavkin (Columbia University) reported on tablet coatings designed for timed disintegration. A study of the stability of sulfadiazine sodium injection as done at Temple University was discussed by J. Autian. Stabilized peroxides were discussed by H. M. Cobe (Temple University). M. J. Rodman presented the interesting convulsant and antaleptic actions of anisatin. J. E. Christian (Purdue University) discussed the polarography of adrenergic blocking agents and nitrogen mustards. K. J. Master and G. L. Jenkins reported their work on the hemoglobin regeneration of iron compounds. Human blood and urine concentrations following administrations of sulfaethylthiadiazole were discussed by J. V. Swintosky (Smith, Kline, and French Laboratories).

The hospital pharmacy group had a very interesting, well-attended, and spirited full-day session, under the direction of G. F. Archambault (U.S. Public Health Service). Several important subjects were presented, including the law-imposed responsibilities on the hospital pharmacist, a professional degree for hospital pharmacists, cost data of injectables, scientific management of drug and pharmaceutical resources, narcotic-hypnotic control systems, and the use of investigational drugs in hospitals. A panel discussion of the papers was then held with the following participants: Paul Parker, Newell Stewart, Fred Lascoff, R. Zimmerman, Joseph Oddis, Robert Bogash, Herbert Flack, and E. E. Leuallen. Luncheon, entertainment, and dinner were sponsored by Squibb, Wyeth, and Pfizer, respectively.

JOHN E. CHRISTIAN, *Secretary*

Agriculture (Section O)

"Grasslands in our national life" was the theme of the Section O meetings. The section chairman, Howard B. Sprague (Pennsylvania State University), arranged a four-session symposium on grasslands, and in addition there were six sessions for contributed papers. Seventeen scientific societies were listed as cosponsors and eleven agencies as endorsers. Section O cosponsored a program on "Ecology of grasslands," arranged by the Ecological Society of America; another on "Grassland climatology," by the American Meteorological Society; and

one on "Range management," by the American Society of Range Management. In all, there were 13 half-day sessions, including some 67 papers and one movie dealing with various phases of the grasslands problem.

Grasslands are very important in American agriculture as a source of feed for livestock. Various societies have discussed different phases of the problem. However, it was felt that there was need for an across-the-board consideration of the subject. This was kept in mind in arranging the program, which included outstanding speakers from all parts of the United States from Vermont to Arizona and from Florida to Washington.

The workers in the various fields discussed current research and the need for more work in many areas. The climate, soils, ecology, fertilizers, and irrigation methods for good grasslands were considered. Seedbed preparation, seeding, care, management, and harvesting of forage and seed were reviewed in detail. The question of plant improvement and the seriousness of diseases and insects were considered. The importance of forage quality, the proper management of livestock, and livestock parasites were given attention. One session was devoted to the economics of grasslands, and another to the machines available for proper maintenance, harvesting, and feeding.

As research in this area continues, still greater progress will be made. Meetings such as these should do much to acquaint workers in various fields with what is being done and what should be done. In spite of concurrent sessions, attendance ranged from 40 to more than 100 per session.

K. S. QUISENBERRY, *Secretary*

Education (Section Q)

Section Q continued in its policy of joining with other organizations to cosponsor programs of mutual interest. Under this arrangement, the following sessions were sponsored: two panels on gifted children with the International Council for Exceptional Children; an address and a panel presentation on gifted children with the National Association for Gifted Children, and two symposia, one on "Testing for the professions" and one on "Scientists and education," with the American Educational Research Association. In addition, there were three sessions of general papers.

The teaching societies, NABT, NARST, NSTA, and ANSS, set up an outstanding series of programs, including symposia, addresses, field trips, and demonstrations. The societies also joined with the AAAS Cooperative Committee on the Teaching of Science and Mathematics to sponsor a panel on "Proposals for meeting the science teaching manpower crisis."

The many fine AAAS programs created a real competition among the various offerings. Thus, attendance at some sessions was not large, although participation from the floor was thereby encouraged and resulted in some vigorous discussions. The vice-presidential address delivered by Dean A. Worcester was a stimulating and provocative paper entitled "A backward glance into the future." A business meeting for Section Q was held following the vice-presidential address.

HERBERT A. SMITH, *Secretary*

National Association for Gifted Children (Q4)

On 26 Dec. a paper titled "The needs of today's gifted children" was presented by Ann F. Isaacs (Personality Development Preschool). It was indicated that the gifted child should be identified from four points of view: by his parents, by his teachers, to his peers, and to himself. Parents must identify the gifted child because they have the first and most intimate contact with the child for the most extended length of time. Teachers should know the gifted child because they are in position to influence the child's attitudes toward school and the amount of schooling he will be motivated to seek. The peer group should identify the gifted child in order that he may be encouraged rather than feel the desire to suppress his talents in his search for group acceptance. The individual must know that he himself is talented in order that he may develop a sense of responsibility and the desire to develop his potentialities to the fullest, both for his own self-realization and the benefit of society.

On 27 Dec. papers were presented on the topic of "Motivating the gifted underachiever." Doris T. Allen (University of Cincinnati) pointed out that in terms of the problems of world peace, we are all underachievers. Louis T. Fliegler (Syracuse University) discussed the problem from the point of view of personality dynamics, and how case studies have shown that the child's attitudes toward himself and those of his parents influence his achievement.

John Mayor (Science Teaching Improvement Program, AAAS) approached the problem from the subject-matter aspect. He indicated that the subject might be regarded from the point of view of aiding the underachiever through curriculum changes, guidance, extracurricular activities, and the new force of professional societies that are concerned with studying ways to bring about improvement in public education.

John Person (Rochester State Hospital) presented a paper stressing the potential influence of adequate guidance of the underachiever. He indicated that these children sometimes do not achieve because they are unaware of their capacities and the value of adequate college training in terms of their future life's earnings.

Leah Gold Fein (Stamford, Conn.) and Viola Cassidy (Ohio State University) were discussants of the papers presented. Ann F. Isaacs acted as moderator.

ANN F. ISAACS, *President*

Junior Scientists Assembly (X1)

On 27 Dec. more than a thousand high-school students from the metropolitan area of New York City and as far away as Allentown, Pa., converged on the American Museum of Natural History to attend the tenth annual Junior Scientists Assembly sponsored by AAAS and the Academy Conference. In the morning, these students attended a special exhibit where 15 first-prize-winning projects of the New York Science Fair of 1956 were on display.

In the afternoon, 1100 ticket-holders gathered in the museum auditorium to receive packets of science-career materials and to enjoy the prepared 3-hour program.

Paul B. Sears, president of AAAS, opened the assembly with an address on the "Fellowship of science." Sears traced back his own career to his boyhood experiences on the family farm and an awakened curiosity in the common, ordinary things around him. He emphasized the importance of communication as an integral part of a scientist's work—"An observation or an experiment does not become 'science' until you have told someone about it." Hence, the importance of learning to speak and write well, to listen well, and to read well. He also stressed the importance of individual initiative in learning. "Nobody can learn anything *for* you; you must learn it *yourself*."

Don Herbert, the progress reporter of General Electric Theater on C.B.S. and "Mr. Wizard" on N.B.C., focused on curiosity as a common characteristic of all scientists. Much to the amusement and amazement, especially of the younger members, of his audience, Herbert demonstrated a number of very "curious" phenomena, using such "apparatus" as a soda bottle, a drinking straw, and the belt from his own trousers.

"What makes a scientist?" was the subject of discussion by a panel consisting of two young scientists, two students, and two science teachers. Paul Witty (Northwestern University) served as the mod-

erator. The discussion stimulated several pointed questions from members of the audience.

The program reached its climax with the scintillating demonstrations of Hubert N. Alyea (Princeton University). Amid bubbling fluids, changing colors, flashing lights, and burning jets; between sparks, fumes, and explosions, Alyea animatedly related how luck and accident favor the prepared mind. At the end of Alyea's talk, the repeated announcement that the assembly was over meant *nothing* to the hundred or more wide-eyed youngsters who crowded around the stage bombarding Alyea with questions until he was rescued by the custodian who came to close the building. From all indications the assembly was a "hit."

ZACHARIAH SABARSKY,
Program Chairman

Academy Conference (X1)

The business meeting of the Academy Conference of the AAAS was held 29 Dec., with Father P. H. Yancey, president, presiding. Representatives of 27 of the 41 state and city academies of science were present. Committee reports were given and reports of academy activities were presented by the official representatives of the academies. The resignation of Ralph W. Lefler, president-elect, was accepted, since he expects to be out of the United States during 1957.

Lefler presided at the afternoon session. I. E. Wallen, assistant director of AAAS Science Teaching Improvement Program, gave a progress report. J. A. Campbell, project director for operations, education in the sciences, National Science Foundation; Lyell Thomas, University of Illinois; and Thelma C. Heatwole, secretary of the academy conference, participated in a panel discussion on "What the Federal Government could do for academies of science."

Thirty academy representatives and guests were present at the academy conference dinner in the evening. C. L. Baker, Southwestern College, Memphis, Tenn., served as toastmaster for the occasion. Father Yancey gave the presidential address, a delightfully sincere and informative talk on "The role of academies of science and of the academy conference in the scientific program."

THELMA C. HEATWOLE, *Secretary*

American Association of Scientific Workers (X2)

Any broad discussion of planning must necessarily produce platitudes and generalities, but the particular purpose of the meeting on "Science and planning" was to relate these generalities to the contribution that has been, and can be, made by the various scientific disciplines. To this end, the keynote speaker, Hans Blumenfeld, related past progress in planning to the advances in particular scientific fields. In turn, public health, sanitation, microbiology, hydrology, statistics, and other disciplines were shown as sources of knowledge which permitted the planner to remedy or control different elements of urban development. Solutions to problems such as epidemic disease, accentuated by space concentration, removed limits to urban growth, while advances in power technology removed limitations on the choice of site. Thus, the past flow of knowledge from scientist to planner has been reasonably direct; today, however, such single-purpose transfer of information is no longer adequate for urban development. Instead, a comprehensive approach, involving a continued high level of contribution from the natural sciences and a rapidly increasing application of social science, seems essential.

Discussing the contribution of the physical sciences, Frank Herring described the interplay of advances in power generation and distribution, communication, and transportation which have virtually eliminated site and size considerations and substituted space design as the key planning problem. But again it was made clear that technology alone is insufficient to insure progress; improved roads, space layouts, power transmission, distribution facilities, and so forth, no longer guaranteed the effectiveness of planning. New parameters, such as the effect of the pace of life, the scale of endeavor, and the character and spirit of the population strongly influenced the attainment of planning goals.

Thus, contemporary planning requires closer attention to the less tangible and predictable areas covered by the social sciences. Stressing that today's planning actions will influence social, political, and economic decisions well into the future, Burnham Kelly regarded planning by "belief and experience" as outmoded. In its place, maximum application of social science is mandatory, if flexible long-range plans based on scientific estimates of the consequences of given alternatives, both in social and economic terms, are to be achieved. In particular, science is asked to provide a frame of reference, physical and social, so that planning decisions do not quickly produce a new set of problems which negate the goals of the plan.

It is obvious that the requirements and deficiencies are the most precise at the neighborhood level. Social distortions based on racial, religious, economic, and other criteria of status and rank were seen as major factors affecting the situation. Drayton Bryant noted that these were a major contribution to the "blighting" of urban areas, which could be controlled only by the development of "self-regenerating" neighborhoods, stable to factors such as mobility, alteration of economic status, and racial composition, and self-regulating with regard to maintenance, crowding, levels of service, and community facilities. Accommodation of the additional 50 million urban dwellers predicted for the year 2000 makes the need more urgent and requires scientific approaches which will prevent "reblighting" by that time. Resources several times the present 10 percent of each tax dollar must be available to the cities if the job is to be done; at least some portion of this should be devoted to research in the specific areas needed for community planning.

ROBERT RUTMAN, *Secretary*

American Documentation Institute (X3)

The fourth annual meeting was held in New York on 28 and 29 Dec. The theme of the meeting was the broadening interests of documentalists. The opening session entitled "Language, logic, and logistics of documentation" was chaired by James W. Perry (Western Reserve University), the new president of ADI. There were papers by an M.I.T. linguist, Noam Chomsky, by a logician of the Hebrew University, Israel, Yehoshua Bar-Hillel (read by another in his absence), and by J. W. Perry.

At the business meeting, Herman H. Henkle (Crerar Library, Chicago) was elected ADI president for 1958. An International Conference on Scientific Information is to be held in this country in November 1958, in cosponsorship with the National Academy of Sciences, the National Research Council, and the National Science Foundation. The next annual meeting of ADI will be in Chicago, November 1957.

There were two concurrent sessions on 29 Dec., with a total of 16 talks. The chairmen were G. Miles Conrad (Biological Abstracts) and Richard Gremling (Bell Telephone Laboratories). The subjects varied from reports on installations, such as "A punch card code for cardiovascular pathology" at the National Research Council and "Mechanized linguistic analysis" at the IBM World Trade Organization, to predictions of things to come, such as the "Rapid selector and optical disc memories as applied to document search" by Jacob Rabinow. History was covered by Calvin Mooers in "The debt of documentation to some forgotten inventors."

The ADI panel on "Changing patterns of information organization" was cosponsored by the Association for Computing Machinery. The panel consisted of eminent librarians and computer experts: S. M. Alexander (NBS), R. S. Angell (LC), C. L. Bernier (CA), H. P. Luhn (IBM), J. W. Mauchly (UNIVAC), and M. F. Tauber (CU). The panel discussed how librarians/indexers could provide engineers with a specification of their searching problems, so that an adequate machine working model could be constructed.

LEA M. BOHNERT, *Program Chairman*

American Nature Study Society (X6)

The American Nature Study Society inaugurated its 50th-anniversary celebration in New York City, where it was founded in December 1908, with Liberty Hyde Bailey as its first president, and made special anniversary plans for next year's meeting in Indianapolis. The meeting highlights included four well-attended program sessions, a banquet, and a field trip to Stamford and Greenwich, Conn.

The following speakers discussed "New approaches to conservation": William Clement (Cortland, N.Y.), E. L. Palmer (Ithaca, N.Y.), Fairfield Osborn (New York City), Richard Westwood (Washington, D.C.), and Stanley A. Cain (Ann Arbor, Mich.). Four naturalists described various aspects of natural history of the New York City region: Richard B. Fischer, Steven Collins, Roger Tory Peterson, and John Kieran.

A third panel consisted of a textile designer, Virginia Eckelberry, who uses nature designs in fabrics; a bird artist, Don Eckelberry, who described the art of bird painting; a college teacher, Stanley Mulaik, who captures and analyzes the various sounds in nature; a textbook writer, Herman Schneider, who suggests simple ways of interesting children in science and nature; and a medical doctor, Glidden Baldwin, who traveled 3 months in Africa and captured nature scenes on 10 miles of colored film. Five other nature and camping leaders showed how nature study can be highlighted in camping. They were Helen Ross, Dorothy Treat, Howard Weaver, L. B. Sharp, and Ted Pettit. Edwin Way Teale gave an illustrated lecture on *Autumn across America*, the title of his best-selling volume, at the annual banquet.

The field trip to the Stamford Museum, Audubon Nature Center, and North Mianus Gorge was arranged and led by Charles Mohr, Mr. and Mrs. Anthony Anable, Ernest Luhde, Leonard Bradley, and Dorothy Treat.

RICHARD L. WEAVER,
Program Chairman

Conference on Scientific Manpower (X9)

Howard L. Bevis, chairman of the National Committee for the Development of Scientists and Engineers, was the principal speaker at the Conference on Scientific Manpower session held on 26 Dec. In reporting on the program of the national committee, Bevis noted particularly that its membership was composed of the current heads of some 19 nongovernment organizations. The committee's effort is to mobilize the resources of its constituent organizations to produce more qualified scientists and engineers than are presently being trained.

Paul B. Sears presided at the session. Formal discussants included J. C. Warner (Carnegie Tech), who stressed the quality aspects of training. He proposed early identification of gifted students, their early training in science and mathematics, and provision for financial assistance if required for their higher education. For improvement in the short-run, he recommended effective utilization of our engineers, particularly through the use of technical aides. Earl P. Stevenson (Arthur D. Little, Inc.) stressed the importance of three principal areas of committee concern—that is, improved utilization of present scientists and engineers, better secondary-school training, and the greater use of technical assistants. Milton O. Lee (Federation of American Societies for Experimental Biology), speaking for the biological sciences, noted the emerging shortages of biologists. Again, secondary-school training in mathematics and science, particularly in chemistry and physics, was considered of prime importance. Additional fellowship support was also believed particularly important in this field, which is increasingly requiring substantial post-Ph.D. training.

Papers delivered at the conference are being collected for publication by the National Science Foundation. A limited number of copies will be available for distribution by that agency.

THOMAS J. MILLS, *Program Director*

New York Academy of Sciences (X14)

The symposium on "Modern ideas on spontaneous generation" was held by the Section of Biology, New York Academy of Sciences, in collaboration with Section F, AAAS on 26 Dec. Harold Blum (National Institutes of Health) gave the introductory remarks and presided over the morning session, which included the following: "Formation of organic compounds on the primitive earth," Stanley L. Miller (College of Physicians and Surgeons, Columbia University); "Paleobiochemistry," Philip H. Abelson (Carnegie Institution of Washington); "Electrolytic requirements of protists and archeometabolism," Seymour H. Hutner, Marvin Sanders, and J. J. A. McLaughlin (Haskins Laboratories); "Speculations on origins and evolutions in photosynthesis," Sam Granick (Rockefeller Institute for Medical Research).

George Wald (Harvard University) was the chairman for the afternoon session. The subjects and speakers were: "Phosphorus and the origin of life," Addison Gulick (Cambridge, Mass.); "Interaction of synthetic polynucleotides," Robert C. Warner (New York University College of Medicine); "The structure of crystalline proteins," David Harker (Polytechnic Institute of Brooklyn); "Spontaneous generation of protein and anabolic pathways," Sidney W. Fox (Florida State University); "The gene as the prime mover," Carl C. Lindegren (Southern Illinois University); "The assumptions underlying discussions about the origin of life," N. W. Pirie (Rothamsted Experimental Station, England). Owing to lack of time, Pirie's paper was not given in full. The concluding remarks were given by Wald.

The papers presented at this meeting will be published in the *Annals of the New York Academy of Sciences* and should be ready for distribution sometime this year, free to the members of the academy and at a nominal charge to nonmembers.

Although some old themes were rehashed, a considerable amount of new material, experimental evidence, and provocative ideas on spontaneous generation were presented. The symposium was well received by the press, and there was a constant attendance of about 500 persons. The discussion from the floor was lively.

ROSS F. NIGRELLI,
Conference Chairman