Meetings and Societies

AIBS Connecticut Meetings

The 1956 annual meeting of biological societies, sponsored by the American Institute of Biological Sciences, was held at the University of Connecticut, 26–30 Aug., as part of the 75th anniversary celebrations of the university. In attendance were 3500 members of the following 23 societies: American Bryological Society, American Fern Society, American Microscopical Society, American Society for Horticultural Science, American Society of Human Genetics, American Society of Limnology and Oceanography, American Society of Naturalists, American Society of Parasitologists, American Society of Plant Taxonomists, American Society of Zoologists, Biometric Society (ENAR), Botanical Society of America, Ecological Society of America, Genetics Society of America, Mycological Society of America, National Association of Biology Teachers, Nature Conservancy, Phycological Society of America, Society for Industrial Microbiology, Society of General Physiologists, Society of Protozoologists, and Society of Systematic Zoology.

The Botanical Society of America celebrated its 50th anniversary with a golden jubilee symposium, "Progress and outstanding achievements in various fields of botany the past fifty years." At an anniversary dinner for all botanists, golden jubilee awards for meritorious achievement in the field of botany were presented to 50 outstanding botanists. A special volume of *The American Journal of Botany* will be published soon as part of the anniversary program. The Mycological Society of America celebrated its 25th anniversary with special symposia and a dinner.

As is customary, field trips preceded and followed the sessions on the Storrs campus. This year 125 members of seven societies took part in group trips in New Hampshire and Connecticut for 3 days prior to the meeting.

The general AIBS meeting for all biologists, held 27 Aug., featured a talk by Byron T. Shaw, administrator, Agricultural Research Service, USDA. Shaw discussed the tremendous advances made in agriculture through biological research and pointed to the many problems that remain to be solved in supplying the world population with adequate food, clothing, and shelter.

The AIBS also sponsored a special symposium, "Education and the future of biology," at which three speakers, John A. Behnke, Oswald Tippo, and Howard M. Phillips, told a record audience of the varied ways in which state, federal, and national organizations are attempting to meet the scientific manpower shortage, science teacher shortage, and staggering student influx. The particular attempts being made in biology were outlined, and the cooperation of all biologists was sought in some form in programs that have been initiated.

Many radiation biologists were present at Storrs, since several societies arranged symposia on some aspect of atomic radiation. The American Society for Horticultural Science's "The application of atomic energy to problems in agriculture" brought before a large audience, as one of the speakers, Rueben Pomerantz, of the U.S. Quartermaster Corps, Chicago, who told of advances in the use of radiation in food preservation. Pomerantz pointed out that since there is only a minute rise in temperature in the sterilized product during the short exposure time, the method is now referred to as "cold sterilization." Apparently the microorganisms causing food deterioration either are killed by the nuclear bombardment or are rendered incapable of reproduction. So far, cathode rays, x-rays, and gamma radiations are the only types that appear to be useful in the food industry. Some foods "sterilize" with smaller amounts of radiation than others. The process has been found suitable for meats, vegetables, fowl, fish and sea food, bakery products, and milk as well as for delaying the sprouting of tubers, destroying food-borne helminths, such as *Trichinella,* and deinfesting cereals, grains, and spices of insects. Among the current problems of the process are the subtle biochemical changes induced in the radiated foods, in some cases, in the alteration of color, odor, flavor, or texture.

A symposium on "Radiation ecology," sponsored by the Ecological Society of America, had speakers who discussed the problems of radioactive waste disposal and the ecological, food-chain hazards of fallout. Soil and ocean disposal of atomic waste from power reactors poses many problems that only concentrated, newly designed research will be able to answer. E. P. Odum, R. J. Morton, S. Auerbach, V. T. Bowen, and J. Wolfe undertook to discuss various aspects of these questions.

In the second half of the symposium, the bioaccumulation of radioisotopes received attention. Radioiodine released to the atmosphere and subsequently deposited on vegetation is concentrated to varying degrees in the thyroid glands of animals. J. J. Davis, R. F. Foster, W. C. Hanson, and R. L. Browning explained that radiophosphorus released to the Columbia River from the Hanford plant (at considerably less than dangerous levels) is transmitted through aquatic food chains to several types of waterfowl. Maximum amounts of this isotope are found in those birds which feed predominantly upon aquatic insects. Concentrations of P^{32} up to 1.5 million times that of river water have been found in egg yolk of nesting waterfowl. Environmental contaminants such as radiostrontium are doubtless more dangerous, since they have a long half-life and concentrate in bones. H. Boroughs, S. J. Townsley, and R. W. Hiatt (University of Hawaii) discussed research on the radiostrontium uptake of ocean fish. They have found that pelagic fish, such as tuna, excrete radiostrontium rapidly, but that more sluggish fish retain the element for longer periods. Radiotritium was found to be excreted even more rapidly than strontium; what remains is found in the viscera and muscles. Both isotopes are produced by bomb detonations and from nuclear power plant wastes.

R. G. Lindberg and K. H. Larson reported on the biological fate and persistence of radioactive debris from fallout. Their data, collected from the continental test sites, demonstrated that radioactive fallout contamination is decreasingly persistent in any one undisturbed environment over a period of years; that some fraction of the total radioactive contamination for any one fallout pattern is metabolized by plants and animals; that while the external radiation dose to native rodents tends to decrease with distance from Ground Zero, the chronic internal radiation dose resulting from the accumulation of radiostrontium tends to be the same or increase with distance up to 400 miles from Ground Zero. The maximum values observed were within 200 miles from Ground Zero.

The American Society of Naturalists held a symposium on "Biological chronometry," during which five scientists discussed various aspects of the presence of built-in "clocks" in animals, particularly seashore species. It appears that these internal "clocks" are set to the rhythmic patterns of the tide or of the moon. The time-keeping persists even when the animals are kept in complete darkness in the laboratory.

During sessions of the American Society of Plant Physiologists, the new group of growth substances known as gibberellins were explained by B. O. Phinney, F. H. Stodola, and S. H. Wittwer, among others. Phinney (University of California) told of a certain strain of corn, that owing to a single gene mutation, grew only to a height of 1 to 2 feet. Upon treatment with gibberellins, these plants shot up to a normal 8 feet. None of the previously known plant growth regulators, such as indoleacetic acid, had any such growth-promoting ability for these dwarfs. This is one of the first cases in higher plants of the reversal of a gene mutation by the application of a chemical substance.

Another growth phenomenon was discussed by F. C. Steward and E. M. Shantz (Cornell University). Coconut milk—and other liquid endosperms—has been found to contain substances other than the normal nutrients and vitamins needed for cell growth. When it was fed to mature plant cells, coconut milk stimulated abnormal rates of growth similar to tumorous growth. In the immature horse chestnut liquid, four active substances have been found. The presence of any of the four in a concentration as low as 1 part per million stimulates rapid growth in mature cells. None of the substances so far identified appear to be identical with any known plant hormone.

The American Society of Zoologists made a distinct contribution to the convention through a two-session symposium, "Some recent advances in invertebrate zoology," which was especially designed to bring to teachers the most up-to-date research results in zoology. A distinguished panel of speakers took part in this program: J. H. Welsh, C. L. Prosser, A. C. Hodson, T. Von Brand, W. T. Edmondson, L. H. Hyman, D. L. Nanney, P. S. Crowell, R. L. Watterson, and B. Scharrer.

In a Botanical Society of America symposium, "The beginnings of the plant world," E. S. Barghoorn (Harvard University) told of the biochemical studies of rock formations near Lake Superior that have revealed the oldest structurally preserved organisms yet discovered. Found by S. A. Tyler and investigated by Tyler and Barghoorn, the one deposit is graphitic anthracite interbedded in black shale of the Michigamme formation in the Iron River district of northern Michigan. The other is a dense black chert found in the Gunflint Iron formation on the northern shore of Lake Superior in Ontario. The organisms consist of unbranched filaments structurally resembling colonies of blue-green algae and aquatic fungi. Studies of the black chert have indicated the presence of eight amino acids and pigmented organic compounds resembling humic acids. The age of the deposits, determined by P. Hurley (Massachusetts Institute of Technology) indicate 1300 million years for the Michigan coal deposits and nearly 2000 million years for the Gunflint cherts.

E. L. Little, Jr. (U.S. Forest Service) reported on the use of helicopters for botanical field work in the tropics. This new tool not only supplies rapid transportation to inaccessible areas and makes extensive surveys possible but, because of its hoverability at low altitudes, makes the identification of vegetation or individual plant species from the air possible.

A mixture of two nitrofuran drugs (nitrofurazone and furazolidone) has been found not only to protect broilers against coccidiosis and mixed secondary infections but to increase their weight on less feed. P. D. Harwood (Hess & Clark) reported on this research and pointed out that, with 2 billion broilers raised annually in the United States, this discovery represents a considerable economic saving.

Methods of predicting wave and surf conditions were developed during World War II and utilized in landing operations in Normandy. Rhode Island has made use of these methods since 1954 to forecast conditions on the recreational ocean beaches of the state. With such advance forecasts, life guards can be distributed more advantageously, the general public can make better travel plans, and at hurricane times adequate precautions can be taken to preserve buildings, boats, and shoreline equipment. The accuracy of prediction has been within 0.6 feet 80 per cent of the time for breaker heights during normal day-to-day conditions.

S. Shapiro (Corps of Engineers Research and Development Laboratories) reported to the Society for Industrial Microbiology on a new chemical water repellent that can be added to surfaces already treated with antifungicidal agents. The combination was found to extend the life of sandbags considerably beyond that of untreated or only fungicide-treated ones. In 6 war years (1941–45, 1950–52) the Armed Forces of the U.S. bought approximately 567 million sandbags at an estimated cost of $113 million. This new process should cut considerably into this expenditure.

The presence of living algae in the air could become a public health hazard if they are allowed to accumulate radioactive wastes from contaminated areas, reported M. B. Morrow and G. H. Meyer (University of Texas). Only rarely before, have living algae been recovered, but samples have now been cultured. Clinically reported as a sensitizing agent, algae may play the role of an aeroallergen (such as pollen) as well.

Evidence was presented by A. D. Hasler, W. J. Wisby, and R. A. Parker (University of Wisconsin) to show that black bass and many other fish do not move around a lake in random fashion but have definite homing habits. Many fish species are territorial—that is, they pick a breeding site and defend it fiercely. Once the site is picked, they show an intense urge to return to it. Both the sun (and moon) and bottom landmarks seem to help in orientation to the home site, but they may not be the only guideposts. Two-thirds of all fish released experimentally away from home territory returned home. Those that did not were assumed to be bachelors or "dawdlers." The speakers stated that "statistical estimates of fish populations based on the assumption that fish are randomly dispersed must be modified to correct the formulas and design techniques for true estimates."

Orr E. Reynolds (director of the biological sciences division, Office of Naval Research) became the center of considerable attention at the Storrs meetings with a successful hand graft of embryonic cow skin. The search for suitable skin for grafting in cases of extensive, deep burns has been a subject of considerable search and research. Reynolds is one of three human "guinea pigs" on whom the grafting of cow skin has been successful. The skin must be transferred before the hair follicles form.

Neurotic tendencies among children are influenced more by environment than by heredity, according to R. B. Cattell (University of Illinois). For the first time in psychological research, the Illinois research group headed by Cattell measured the personalities of "normal" children with objective tests. Another "first" of this team was a new method of separating the hereditary traits of individuals from those due to environment. Called a "multiple-variance analysis," the method has been used only in livestock research before. Environmental influences, such as family and school, tended to raise below-average hereditary traits, while they tended to lower above-average characteristics. Cattell emphasized that this may be true only for the American culture.

F. C. Fraser (McGill University) discussed before members of the American Society of Human Genetics, the basic

problems in counseling in cases of harelip and/or cleft palate. Prediction about the risk of a subsequent child being affected is the usual problem, and, unfortunately, this cannot be given on the basis of Mendelian theory, since the familial distributions of these defects do not fit any simple genetic pattern. In experimental studies with mice, Fraser found the condition dependent, in some cases, on environmenal factors such as cortisone level and amniotic fluid pressure. He believes that there are several etiologically different types of cleft palate and that it would be most misleading to try to fit all cases into one genetic pattern.

Some reptiles traditionally labeled "cold-blooded" have warmer blood than human beings, Charles M. Bogert (American Museum of Natural History) told the biologists. Unlike birds and mammals, who waste energy converting it into internal heat, reptiles obtain their necessary body warmth directly from the sun. In doing so, they maintain body temperatures that fluctuate little more than that of human beings. Bogert said that it is doubtful that birds or mammals could have evolved from reptiles if some means of controlling body temperatures in reptiles had not arisen.

A greenhouse for every gardener may not be an idle dream. R. H. Wallace and J. S. Koths (University of Connecticut) believe that small plastic greenhouses, costing approximately $50, will be available in the near future. In their latest experiments the plastic film, oriented styrene acrylonitile, showed good weathering qualities and high transmisson of light, including ultraviolet. Necessary qualities are adequate stability against weather, including mechanical stability against temperature and moisture variations, and sufficient strength to withstand wind or hail. The "perfect" plastic should not darken or collect dirt, which will lower its light-transmission qualities. Several new plastics are being tested now under identical conditions on the Connecticut campus.

The 1957 meeting of biological societies, sponsored by AIBS, will be at Stanford University, 25 to 29 Aug.

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Atomic Trade Fair

The 1956 trade fair of the atomic industry provided engineers and research workers with a comprehensive display of instruments and materials for use in the nuclear sciences. Sponsored by the Atomic Industrial Forum, Inc., a nonprofit trade association composed of more than 500 companies and institutions active in some phase of atomic energy work, the fair was held at Navy Pier in Chicago, Ill., 25–27 Sept. More than 120 companies displayed their products. This figure represents a substantial increase over the number of exhibitors in last year's fair, which is evidence that industry is beginning to recognize the tremendous economic possibilities in peacetime applications of atomic energy. Significant, too, is the substantial progress the industry has made in the 2 years since Congress modified the Atomic Energy Act to allow industrial firms to join in the effort to harness nuclear reactors to the economic production of power. The attempt to build nuclear power plants represented the dominant theme in most of the exhibits.

The story was summed up by Leeds and Northrup in their simulation of a nuclear power plant. On a large display board some 20 feet across, a working model of a simulated reactor and steam-turbine generator was mounted. Directly below the display board was an actual set of instruments and recorders that would be used to control such a plant. While a moderator described the various steps involved in bringing the reactor to the critical stage, and the subsequent production of electricity from the heat generated, an operator at a control console set the various components in motion. The control rods in the reactor moved in and out, controlling the chain reaction and thus controlling the electric output. By means of a series of lights, the heat-transfer fluid could be followed from the reactor into the steam generator. The entire demonstration lasted about 12 minutes, and it served to point out the problems encountered in the design of such a plant.

Since the loosening of controls by the Government, many new firms have entered the field of producing and designing nuclear reactors. Some of these firms had already had experience in building units for the U.S. Atomic Energy Commission. The newer ones, however, have acquired their knowledge by hiring entire staffs of nuclear scientists and engineers. The models of reactors shown at the fair covered the entire range of the five basic types now proposed. Many of these have already been built and are now operating, while others have been contracted for and are presently under construction. Westinghouse displayed a model of the first industry-owned test reactor designed primarily for study of atomic fuels and materials. In addition, they also showed a mock-up of a large homogeneous reactor power plant.

Aero-Jet General Corporation displayed a model of the first mass-produced research reactor. The unit can be used for training personnel in the use of reactors as well as for research projects. Atomics International Division of North American Aviation displayed models of both power and research reactors that they are building, and some that they have already finished. Featured in the Babcock and Wilcox display was an animated model of the company's pressurized water reactor and various samples of dual elements. Swimming-pool-type reactors were shown in model form by both A.M.F. Atomics and the Foster-Wheeler Corporation.

Two companies have designed reactors specifically for medical research. Atomics International are already building one of their medical research reactors at the Medical Center of the University of California at Los Angeles. Nuclear Development Associates have developed a medical-type research reactor patterned after the requirements for such an installation presented to the Joint Congressional Committee on Atomic Energy by L. E. Farr, chairman of the medical department of Brookhaven National Laboratory.

The high energy encountered in dealing with atomic energy has prompted the search for new materials that will withstand the destructive power of intense heat and atomic radiation. Several firms have directed their efforts to this area of research. Allied Resinous Products have investigated the use of Boronol- and Resinol-polyethylene in atomic installations. These materials can be used to make sheets, rods, blocks, and other shapes. The use of beryllium as a neutron-reflecting material is also extensive in the industry. The Beryllium Corporation's exhibit was designed to demonstrate the latest advances in the shaping of beryllium. At Callery Chemical Company's display, visitors were given extensive information on sodium-potassium alloys used as heat-transfer liquids in some types of reactors.

Information on uranium and thorium, the two primary fuel elements used in reactors, was available from several firms. Michigan Chemical Company and Lindsay Chemical Company passed out information concerning their entire line of rare-earth chemicals. Mallinckrodt Chemical showed how uranium dioxide is produced from uranium hexofluoride.

The hazards associated with the handling of high-level radioactivity have resulted in the development of an entire industry devoted to the protection of nuclear scientists and engineers. Equipment of this type takes two forms, instruments to detect levels of radioactivity and devices that shield personnel.

Several companies—Jordan Electron-

ics, Chatham Electronics, Atomic Research Corporation, and Technical Associates—displayed radiation survey meters. Baird Associates, Victoreen Instrument Company, Detectolab, and Anton Electronics also displayed counters and scalers for quantitative measurement of radioactivity. In addition, Anton Electronics presented a new mobile radiological laboratory for monitoring radiation in large areas.

Probably one of the most useful pieces of equipment to the nuclear scientist is the master-slave manipulator. This instrument allows an operator to work with dangerous materials from a safe position without touching the materials under observation. In effect, it supplies him with a remote pair of hands that respond simultaneously to his own hand movements. In the past, three companies, Central Research Laboratories, General Mills, and American Machine and Foundry have been the only producers of manipulators. This year, however, General Electric displayed a new small-size manipulator for use with standard-size radioactive hoods. Although it is much smaller and simpler than its more elaborate counterparts, nevertheless, its sensitivity proved to be sufficient for a number of routine laboratory procedures. Borg-Warner Corporation introduced the newest innovation in this field with an electronically controlled manipulator. Use of this instrument permits operators to perform experiments from a distance by using closed-circuit television. The television was provided by Farnsworth Electronics Company, and visitors were allowed to try several operations.

Goodyear Atomic Corporation and Electronic Associates were both present to demonstrate the latest use of computers in solving problems in reactor design. Both firms manufacture analog-type computers. Electronic Associates also displayed an *xy* plotter that graphically traces the results of problems that are fed into the computer.

Circulatory pumps for use in atomic power plants have presented engineers with some of the most difficult problems that they have encountered, because the AEC requirements state that a pump must have zero leakage. A canned pump with a motor that is hermetically sealed off is being produced by the Byron Jackson Company. The sodium-potassium alloy of molten metal used as a heat-transfer medium in some reactors presents one of the most difficult pumping problems. The electromagnetic pump, which keeps the molten liquid metal from coming into contact with other liquids, solves this problem adequately. These pumps were displayed by the Callery Chemical Company and by Allis-Chalmers Manufacturing Company. Valves and piping also require special engineering. The Edward Valve Company and the Crane Company both showed their latest valves for atomic plumbing.

A particularly important development was introduced by the Vitro Corporation of America. Recovery of fission products and regenerated fuels has long been the aim of reactor engineers. Vitro displayed a plastic model of a recovery plant that they have contracted to build. The new plant will reprocess spent fuel from the reactor and automatically feed the fissionable material back to the reactor.

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Programs in Mathematics, Physical Science, and Earth Science at AAAS New York Meeting

Some of the section and society programs to be presented at the 1956 AAAS meeting in New York are given here. Others will be announced in subsequent issues.

Mathematics

Section A. Vice-presidential address, "A case history in pure mathematics," by Tibor Rado, Ohio State University, 26 Dec., afternoon.

Association for Computing Machinery. Invited papers, cosponsored by Section A: "Application of digital computers"; arranged by J. P. Nash, University of Illinois. 27 Dec., morning; Joseph H. Wegstein, National Bureau of Standards, presiding. Scientific problems that will require faster machines, L. H. Thomas, Columbia University; Computers and pattern recognition, O. G. Selfridge, Massachusetts Institute of Technology; A high-school digital computer program, Aaron Buchman, Hutchinson-Central Technical High School, Buffalo, N.Y.; Election prediction by means of computers, Max A. Woodbury, New York University; Computer research and the atomic energy program, John R. Pasta, U.S. Atomic Energy Commission.

Physics

Section B, cosponsored by Sigma Pi Sigma. Symposium: "Optics and oriented nuclei"; arranged by William B. Hawkins, Yale University; 26 Dec., afternoon; Francis Bitter, Massachusetts Institute of Technology, presiding. Polarization of atoms by optical pumping, William B. Hawkins, Yale University; Effect of a buffer gas on the optical orientation process in sodium vapor, Peter Bender, National Bureau of Standards; Slow spin relaxation of sodium atoms in argon buffer, Hans Dehmelt, University of Washington; Hyperfine structure of alkali atoms in excited states, Peter Buck, Columbia University.

Symposium: "Optical absorption in solids"; arranged by William F. Meggers, National Bureau of Standards, who will preside; 26 Dec., afternoon. Absorption spectra of solids condensed at low temperatures from electric discharges, Herbert P. Broida and Arnold M. Bass, National Bureau of Standards; Lattice vibration absorption spectra of polar and homopolar crystals, Elias Burstein, Naval Research Laboratory; Line spectra and magnetic properties of solids, G. H. Dieke, Johns Hopkins University; Infrared absorption spectra of solid solutions, Henry W. Morgan, Oak Ridge National Laboratory.

Vice-presidential address, "Science in society today," by Alan T. Waterman, National Science Foundation; 26 Dec., afternoon.

Two-session symposium: "Diffusion in solids"; arranged by H. B. Huntington, Rensselaer Polytechnic Institute, who will preside; 27 and 28 Dec., morning. Part I: Diffusion in solids: a survey, David Lazarus, University of Illinois; Mobility and diffusion, Lawrence S. Darken, U.S. Steel Corporation; Effect of pressure on diffusion, Norman Nachtrieb, University of Chicago; Grain boundary diffusion and its role in solid-state reactions, David Turnbull, General Electric Company. Part II: Modern techniques in diffusion research, Frank E. Jaumot, Franklin Institute; Diffusion in ionic crystals, Howard W. Etzel, Naval Research Laboratory; Diffusion in semiconductors, F. J. Morin, Bell Telephone Laboratories; Indirect measurements of atomic movements, Arthur Nowick, Yale University.

Two-session symposium: "Crystal growth"; arranged by Nicolas Cabrera, University of Virginia; 29 Dec., morning and afternoon. Part I, "Growth from the melt"; David Turnbull, General Electric Laboratory, presiding. Crystal growth from the melt, Bruce Chalmers, Harvard University; Growth of single crystals of Ge and Si, William G. Pfann, Bell Telephone Laboratories; Decoration of dislocations in Si by precipitated Cu, W. C. Dash, General Electric Laboratory; Growth forms and preferred orientations, W. A. Tiller, Westinghouse Research Laboratories; Melting and freezing of p-toluidine, G. W. Sears, General Electric Laboratory. Part II, "Growth of whiskers"; H. C. Herring, Bell Telephone Laboratories, presiding. Theory of crystal growth, Nicolas Cabrera; Formation of whiskers, G. W. Sears; Properties of

whiskers, S. S. Brenner, General Electric Laboratory; Growth and structure of spontaneous whiskers, R. G. Treuting and S. N. Arnold, Bell Telephone Laboratories; Growth of whiskers from the vapor, R. V. Coleman, University of Virginia; Tensile and torsion tests on whiskers, R. L. Eisner, Westinghouse Research Laboratories.

Chemistry (in Part)

Section C. Symposium: "Organic reaction mechanisms"; arranged by Ellis V. Brown, Seton Hall University, who will preside. 29 Dec., morning. Studies in biphenyl stereochemistry, Kurt Mislow, New York University; Oxidation behavior of 1,1 and 1,2-disubstituted cyclic hydrazines; new reactions of N-amino and N-nitroso compounds, Charles Overberger, Polytechnic Institute of Brooklyn; Stereospecific polymerizations, Charles Price, University of Pennsylvania; Alkylation and acylation of enamines derived from ketones and aldehydes, Gilbert Stork, Columbia University; Some consequences of the reversibility of radical addition reactions; Cheves Walling, Columbia University.

Alpha Chi Sigma. Dinner and meeting of New York professional chapter; 28 Dec., evening. "The chemist and management," Clifford F. Rassweiler, Johns-Manville Corporation.

Gordon Research Conferences. Dinner and address, "The future through science," by Glenn T. Seaborg, University of California, in celebration of the 25th anniversary of the Gordon Research Conferences. Emil Ott, Food Machinery and Chemical Corporation, presiding; 27 Dec., evening.

Astronomy

Section D. Vice-presidential address, "The solar cycle," by Seth B. Nicholson, Mount Wilson Observatory; 27 Dec., evening.

American Astronomical Society, cosponsored by Section D. Welcome, demonstration, open house, and reception; 26 Dec., evening. Helen B. Warner lecture, by Harold L. Johnson, Lowell Observatory; 27 Dec., afternoon. Contributed papers; 27–29 Dec., mornings and afternoons. Symposium: "The recent close approach of Mars"; arranged by J. Allen Hynek, Harvard College Observatory; 28 Dec., afternoon; Fred Whipple, Smithsonian Astrophysical Observatory, presiding. R. S. Richardson, Mount Wilson Observatory; John Shaw, Perkins Observatory; C. H. Mayer, Naval Research Laboratory; C. C. Kiess, National Bureau of Standards; Seymour Hess, Florida State University.

Astronomical League. Round-table panel discussion: "The benefits of astronomy to young people"; arranged by Harold B. Davidson, New York, 15 papers and exhibits; 28 Dec., morning.

Geology and Geography

Section E, cosponsored by the Geological Society of America. Contributed papers: general geology; 26 Dec., morning.

Three-session symposium, cosponsored by the American Geophysical Union: "Recent advances in geochronometry"; arranged by J. Laurence Kulp, Lamont Geological Observatory, Columbia University. Part I, "Potassium-argon and rubidium-strontium methods"; 26 Dec., afternoon; J. Laurence Kulp, presiding. The potassium-argon age method, George W. Wetherill, Carnegie Institution; New potassium-argon dates on plutonic rocks, Leon E. Long, Lamont Geological Observatory; Potassium-argon dating of sediments, Joseph Lipson, University of California; The rubidium-strontium age method and the age of ancient granitic rocks, Paul W. Gast, Lamont Geological Observatory; Rubidium-strontium ages of glauconite, Randall F. Cormier, Massachusetts Institute of Technology. Part II, "Uranium, thorium, and lead methods and the age of meteorites"; 27 Dec., morning; George W. Wetherill, Carnegie Institution, presiding. Uranium and thorium dating, George R. Tilton, Carnegie Institution; The problem of old radiogenic lead in U-Pb dating, Lorin R. Stieff, U.S. Geological Survey; Methods of estimating the age of common lead minerals, Ron M. Farquhar, University of Toronto; Dating by the lead-alpha method, David Gottfried, U.S. Geological Survey; The age of meteorites, Claire C. Patterson, California Institute of Technology. Part III, "Radiocarbon dating," cosponsored by Sections F, G, and H; 28 Dec., morning; J. Laurence Kulp, presiding. Current techniques and problems in radiocarbon dating, Wallace S. Broecker, Lamont Geological Observatory; Radiocarbon dates and Pleistocene chronology, Richard F. Flint, Yale University; Radiocarbon dates and archeology, Hallam L. Movius, Jr., Harvard University; Other isotopic chronometers for the Pleistocene and Recent, James R. Arnold, Princeton University; Panel and general discussion.

Symposium: "Carbonate sedimentation"; arranged by Rhodes W. Fairbridge, Columbia University, who will preside; 26 Dec., evening. Clastic limestone calcarenites and precipitated calcarenites, Frank W. Beales, University of Toronto; Eolian calcarenites as paleoclimatic indicators, Rhodes W. Fairbridge; Dolomite in the Florena Shale of Kansas, John Imbrie, Columbia University; Studies of Bahamian limestone seas, Norman D. Newell and John Imbrie, Columbia University; Petrography of some Pacific atoll dolomites, Seymour O. Schlanger, U.S. Geological Survey; The significance of trace elements in carbonate sediments, Karl K. Turekian, Yale University; Carbonate replacement of quartz and feldspar as a source of silica in silicified sediments, Theodore R. Walker, University of Colorado; Tonal dilation in carbonate photography, R. J. Dunham, Shell Development Company.

Two-session symposium: "Ground water"; arranged by A. Nelson Sayre, U.S. Geological Survey. Part I, 29 Dec., morning; A. N. Sayre and Henry C. Barksdale, U.S. Geological Survey, presiding. Application of geology to the investigation of water resources, A. N. Sayre; Relationship between the water table and zone of aeration, Irwin Remson, J. R. Randolph and H. C. Barksdale, U.S. Geological Survey; Quantitative approach used on ground-water investigations, John G. Ferris and A. Nelson Sayre, U.S. Geological Survey; Mining hydrology, Wilbur T. Stuart, U.S. Geological Survey; Relationship between fresh and salty ground water in southern Nassau and southeastern Queens Counties, Long Island, New York, N. M. Perlmutter, J. L. Geraghty and J. E. Upson, U.S. Geological Survey; Concepts and principles of salt water encroachment, N. J. Lusczynski, U.S. Geological Survey. Part II, 29 Dec., afternoon; R. M. Leggette, Leggette, Brashears and Graham, New York, and J. E. Upson, U.S. Geological Survey, presiding. Ground-water problems in New York and New England, J. E. Upson; Ground water in north-central Connecticut, R. V. Cushman, U.S. Geological Survey; Utilization of ground water in Suffolk County, New York, J. F. Hoffman, U.S. Geological Survey; Some aspects of the interrelation between ground water and engineering structures, Sidney Paige, Columbia University; Ground-water provinces in India, George C. Taylor, Jr., U.S. Geological Survey.

Vice-presidential address, "The training of a geologist," by Carl Tolman, Washington University, and Smoker; 29 Dec., evening.

Two-session symposium: "Appalachian stratigraphy and structure"; arranged by John Rodgers, Yale University, who will preside; 30 Dec., morning and afternoon. Part I: Formational units in the Knox dolomite, C. R. L. Oder, American Zinc Company of Tennessee; Structural geology of the area between the Copper Creek and Saltville faults, Grainger, Hancock, and Hawkins Counties, Tennessee, John B. Sanders, Yale University; Iron Mountain thrust fault at Watauga Dam, Tennessee, Leland F. Grant and John M. Kellberg, Tennessee Valley Authority; The Stones River group of

Pennsylvania, C. E. Prouty, University of Pittsburgh; Boulder-filled dikes near Burlington, Vermont, David Hawley, Hamilton College; Devonian section at Bowmanstown, Pennsylvania, Bradford Willard, Lehigh University; Stratigraphy and structure of the Stissing Mountain area, New York, Eleanora B. Knopf, Stanford University; Structural elements of the northeastern Appalachian basin, Herbert P. Woodward, Rutgers University. Part II: Stratigraphic relationships in northern Vermont and southern Quebec, Wallace M. Cady, U.S. Geological Survey; Stratigraphy and structure of the Sutton Mountains, Quebec, P. H. Osberg, Colby College; Stratigraphy and structure of the north end of the Taconic Range, E-an Zen, Harvard University; The Skitchewaug Nappe, a major recumbent fold in the area about Claremont, New Hampshire, James B. Thompson, Jr., Harvard University; The metamorphic geology of the Middle Haddam area, Connecticut, John L. Rosenfeld and Gordon P. Eaton, Wesleyan University; Lead-alpha ages of Rhode Island granitic rocks compared with their geologic ages, Alonzo W. Quinn, Brown University, Howard W. Jaffe, W. L. Smith and C. L. Waring, U.S. Geological Survey; Stratigraphy of the pre-Silurian sedimentary rocks in Maine, Robert B. Neuman, U.S. Geological Survey; The geology of the Danbury and Bethel quadrangles, Connecticut, James W. Clarke, University of South Carolina; A third class of arcuate structures, B. Ashton Keith, Institute of Sciences, Washington, D.C.

Association of American Geographers, cosponsored by Section E. Invited papers: "Geographic research in progress"; arranged by John E. Brush, Rutgers University, and David H. Miller, Quartermaster Research and Development Center, Natick, Mass. Part I, 27 Dec., morning; William L. Thomas, Jr., Wenner-Gren Foundation, presiding. Sunlight in coniferous forest, David H. Miller; Relief, slope, and natural vegetation in the United States, Walter Wood, Quartermaster Research and Development Center; Geographic representation of rural settlement: a method of generalizing dispersed rural dwellings, businesses, and farmsteads, Arthur F. Loeben, University of Pennsylvania; Research approaches to the megalopolis of the northeastern seaboard: Boston to Washington, D.C., Jean Gottmann, Twentieth Century Fund. Part II, 28 Dec., morning; Peter M. Stern, Conservation Foundation, presiding. Topoclimatic investigations in the Brooks Range, Alaska, Robert Anstey, Quartermaster Research and Development Center; Microclimatic investigation at Point Barrow, Alaska, Stanton J. Ware, Drexel Institute Laboratory of Climatology; Glacier and related botanical studies in the Pacific Northwest, Calvin J. Heusser, American Geographical Society of New York; Some aspects of the climatology of glaze in the United States, Iven Bennett, Quartermaster Research and Development Center.

National Speleological Society. General session; 29 Dec., afternoon.

Meeting Notes

■ The fifth annual meeting of the American Society of Tropical Medicine and Hygiene was held in New Orleans, 31 Oct.–3 Nov. Ninety papers were presented. Included among these were ten dealing with a symposium on "Helminthic infections as the cause of disability and disease," which was moderated by Norman R. Stoll of the Rockefeller Institute for Medical Research, New York. The 21st annual Charles Franklin Craig lecture on "The role of pharmacology in determining the rational use of therapeutic agents" was delivered by Leon H. Schmidt of Cincinnati, Ohio. For "meritorius achievement in tropical medicine," Karl F. Meyer of the Hooper Foundation, San Francisco, Calif., was presented with the Walter Reed medal. Asa C. Chandler of the Rice Institute presented as his presidential address "The interrelations of nutrition and infectious diseases in the tropics."

The following officers were elected: pres.-elect, Donald L. Augustine, Department of Tropical Public Health, Harvard School of Public Health; v. pres., G. Robert Coatney, Laboratory of Tropical Diseases, National Institutes of Health; and sec.-treas., Rolla B. Hill, 3575 St. Gaudens Rd., Miami 33, Fla.

■ The Instrument Society of America has announced the establishment of the nonprofit Foundation for Instrumentation Education and Research. The objective of the foundation is to stimulate, guide, and support programs of education and fundamental research in the field of instrumentation. A year ago, at the society's national meeting in Los Angeles, Calif., a commission was appointed to formulate plans and create a foundation in accordance with the evolving needs of industry and Government.

The commission's report, which was recently accepted by the ISA, provides for the establishment of a nonprofit foundation to be financed through funds made available to it from individuals, trade associations, societies, and industrial contributors. The foundation is to function as a separate corporation under the direction of a board of trustees made up of representatives of industry, government, and education. The president and president-elect of ISA will serve as trustees, ex-officio. The functions of the board of trustees include (i) evaluation of current instrumentation educational programs; (ii) planning and directing fund-raising projects; and (iii) administering the affairs of the foundation.

The ISA has made an initial grant of $40,000 to the foundation, earmarked for specific objectives and services deemed "essential to the national economy" by the ISA. Grants to the foundation may be restricted to specific uses or may be for general support of the foundation's objectives. Initially, the ISA will provide office space and administrative and staff services to the foundation; William H. Kushnick, executive director of ISA, will serve as executive director of the foundation.

■ A conference on the theory of analytic functions (of one or more complex variables) will be held at the Institute for Advanced Study at Princeton, N. J., from 1 Sept. to 14 Sept. 1957. There will be lectures and seminars and a small number of hour-long addresses. In addition several special seminars will be conducted each day at different hours in the following fields: (i) "Theory of functions of several complex variables"; (ii) "Conformal mapping and Schlicht functions"; (iii) "Riemann surfaces"; (iv) "Theory of automorphic functions"; and "Analytic functions as related to Banach algebras."

Membership in the conference is by invitation. About 60 mathematicians have been invited, including about 25 from foreign countries. The meeting is supported by the Air Force Office of Scientific Research under a contract with the Institute for Advanced Study. The committee in charge of the conference is composed of Marston Mores (chairman) Arne Beurling, and Atle Selberg.

The papers presented at the seminars will be reproduced and will become available for limited distribution. The principal addresses will appear in book form in the Princeton Series and will be on sale at the Princeton University Press, Princeton, N.J. The secretary of the conference is Mrs. Joan Slotnick, Fuld Hall, Institute for Advanced Study, Princeton, N.J.

■ A symposium on host-specificity and parallel evolution among parasitic insects and worms will take place at Neuchâtel, Switzerland, 15–18 Apr. 1957, under the chairmanship of Ernst Mayr of Harvard University. The aim is to bring together both parasitologists and specialists of the vertebrate host groups to discuss the various problems, which have been tentatively grouped under the following headings: adaptation, dispersal, speciation, and phylogeny.

The following specialists have agreed to present reports or to take part in the

discussions: *Hosts.* Harrison-Mathews (London), Kuhn-Schneider (Zürich), Marshall (London), B. Patterson (Harvard), Stresemann (Berlin). *Parasites.* Baer (Neuchâtel), Chabaud (Paris), Clay (London), Dubois (Neuchâtel), Euzet (Montpellier), Hopkins (Tring), Kent (Baltimore), Llewellyn (Birmingham), Manter (Lincoln, Neb.), Theodor (Jerusalem). It is planned to have all the reports available at the meeting in either mimeographed or printed form so that translations will not be necessary and more time will be left for discussions.

This symposium is being held under the auspices of the International Union of Biological Sciences and the University of Neuchâtel. Further particulars may be obtained from the General Secretary, Dr. Jean G. Baer, C.P.2 Neuchâtel 7, Switzerland.

Society Elections

■ Wilderness Society: honorary pres., Benton MacKaye; honorary v. pres., Irving M. Clark and Charles G. Woodbury; pres., Olaus J. Murie; v. pres., Harvey Broome; treas., Harold C. Anderson.

■ American Medical Writers' Association: pres., Dean F. Smiley, *Journal of Medical Education*; pres.-elect, Charles E. Lyght, Merck and Company, Inc.; past pres., Richard M. Hewitt, Mayo Clinic; 1st v. pres., Morris Fishbein, *Excerpta Medica*; 2nd v. pres., Theodore R. Van Dellen, *Chicago Tribune*; sec.-treas., Harold Swanberg, *Mississippi Valley Medical Journal,* Quincy, Ill. Representative to the AAAS Council is Harold Swanberg.

■ Mycological Society: pres., D. P. Rogers, New York Botanical Gardens; pres.-elect, J. R. Raper, Harvard University; v. pres., Constantine J. Alexopoulos, University of Iowa; sec.-treas., E. S. Beneke, Michigan State University. Representative to the AAAS Council is George W. Fischer.

■ Phi Sigma Society: pres., Karl F. Lagler, University of Michigan; v. pres., Henry van der Schalle, University of Michigan; exec. sec.-treas., Fred S. Orcutt, Viriginia Polytechnic Institute; honorary pres., Laurence H. Snyder, University of Oklahoma; past pres., A. I. Ortenburger, University of Oklahoma.

Forthcoming Events

December

19. Arctic Branch, Alaska Div., AAAS, College Alaska. (Miss C. Juedes, Box 47, College.)

26–31. American Assoc. for the Advancement of Science, annual, New York, N.Y. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington 5.)

The following 56 meetings are being held in conjunction with the AAAS annual meeting.

AAAS Academy Conference (L. Taylor, West Virginia Univ., Morgantown). 29–30 Dec.

AAAS Cooperative Committee on the Teaching of Science and Mathematics (M. Meister, Bronx High School of Science, New York 68). 27 Dec.

AAAS-Gordon Research Conferences (W. G. Parks, Univ. of Rhode Island, Kingston). 27 Dec.

Alpha Chi Sigma (H. G. Seavey, 30 Church St., Room 340, New York 7). 28 Dec.

Alpha Epsilon Delta (M. L. Moore, 7 Brookside Circle, Bronxville, N.Y.). 29 Dec.

American Assoc. of Clinical Chemists (A. E. Sobel, Jewish Hospital of Brooklyn, Brooklyn 16, N.Y.).

American Assoc. of Hospital Consultants (E. D. Barnett, School of Public Health, Columbia Univ., New York 32.)

American Assoc. of Scientific Workers (R. J. Rutman, 6331 Ross St., Philadelphia 44, Pa.). 29 Dec.

American Astronomical Soc. (J. A.

Hynek, Harvard College Observatory, Cambridge 38, Mass.). 26–29 Dec.

American Documentation Inst. (J. Hilsenrath, National Bureau of Standards, Washington 25). 27–29 Dec.

American Educational Research Assoc. (A. G. Wesman, Psychological Corp., 522 Fifth Ave., New York 36). 29 Dec.

American Meteorological Soc. (R. J. Roth, Crop-Hail Insurance Actuarial Assoc., 209 W. Jackson Blvd., Chicago, Ill.). 28 Dec.

American Museum of Natural History (G. Reekie, AMNH, Central Park West at 79 St., New York, N.Y.). 26 Dec.

American Nature Study Soc. (R. L. Weaver, Univ. of Michigan, Ann Arbor). 26–30 Dec.

American Philosophical Assoc., Eastern Div. (J. Wild, Harvard Univ., Cambridge 38, Mass.). 27 Dec.

American Psychiatric Assoc. (B. Pasamanick, Ohio State Univ., Columbus 10). 28–29 Dec.

American Soc. of Hospital Pharmacists (G. E. Archambault, U.S. Public Health Service, Washington 25). 29 Dec.

American Soc. of Range Management (F. G. Renner, Soil Conservation Service, U.S. Dept. of Agriculture, Washington 25). 28 Dec.

American Statistical Assoc. (R. E. Johnson, Western Electric Co., New York 7).

Association for Computing Machinery (J. P. Nash, Univ. of Illinois, Urbana).

Association of American Geographers (P. M. Stern, Conservation Foundation, 30 E. 40 St., New York, N.Y.).

Astronomical League (H. B. Davidson, 812 Park Ave., New York 21.)

Conference on Scientific Editorial Problems (J. G. Adashko, Ford Instrument Co., Long Island City, N.Y.). 26–28 Dec.

Conference on Scientific Manpower (T. J. Mills, National Science Foundation, Washington 25). 26 Dec.

Ecological Soc. of America (M. F. Buell, Rutgers Univ., New Brunswick, N.J.). 26–30 Dec.

Entomological Soc. of America (P. W. Oman, Plant Industry Sta., Beltsville, Md.). 27–30 Dec.

Genetics Soc. of America (A. W. Pollister, Columbia Univ., New York 27). 28 Dec.

History of Science Soc. (Miss P. Kibre, Hunter College, New York, N.Y.). 27–29 Dec.

Honor Soc. of Phi Kappa Phi (L. R. Guild, 634 So. Western Ave., Los Angeles 5, Calif.). 28–29 Dec.

Institute of Mathematical Statistics (Miss E. Scott, Univ. of California, Berkeley 4).

International Council for Exceptional Children (M. H. Fouracre, Columbia Univ., New York 27). 26 Dec.

International Union for the Study of Social Insects, North American Section (T. C. Schneirla, American Museum of Natural History, Central Park West at 79 St., New York, N.Y.). 26–27 Dec.

Mountain Lake Biological Sta. (B. D. Reynolds, Univ. of Virginia, Charlottesville).

Mycological Soc. of America (L. S. Olive, Columbia Univ., New York 27). 26 Dec.

National Acad. of Economics and Political Science (D. P. Ray, George Washington Univ., Washington, D.C.). 27 Dec.

National Assoc. for Gifted Children (Miss A. F. Isaacs, 409 Clinton Springs Ave., Cincinnati, Ohio).

National Assoc. for Research in Science Teaching (N. Washton, Queens College, Flushing 67, L.I., N.Y.). 27 Dec.

National Assoc. of Biology Teachers (J. Breukelman, State Teachers College, Emporia, Kan.). 26–30 Dec.

National Assoc. of Science Writers (J. E. Pfeiffer, New Hope, Pa.).

National Geographic Soc. (W. R. Gray, NGS, 16 and M Sts., NW, Washington 6). 29 Dec.

National Speleological Soc. (Brother G. Nicholas, LaSalle High School, Cumberland, Md.). 29 Dec.

New York Acad. of Sciences (R. F. Nigrelli, New York Zoological Soc. and M. Kopac, New York Univ., Washington Sq., New York, N.Y.). 29 Dec.

Philosophy of Science Assoc. (C. W. Churchman, Case Inst. of Technology, Cleveland, Ohio). 29–30 Dec.

Pi Gamma Mu (B. H. Williams, Industrial College of the Armed Forces, Washington 25). 26 Dec.

Scientific Research Soc. of America (D. B. Prentice, Yale Univ., New Haven, Conn.). 26–27 Dec.

Sigma Delta Epsilon (C. Chandler, Boyce Thompson Inst. for Plant Research, 1086 N. Broadway, Yonkers 3, N.Y.).

Sigma Pi Sigma (M. W. White, Pennsylvania State Univ., University Park).

Society for the Advancement of Criminology (D. E. J. MacNamara, New York Inst. of Criminology, 2109 Broadway, New York, N.Y.). 29 Dec.

Society for the Advancement of General Systems Theory (L. von Bertalanffy, Mt. Sinai Hospital, Los Angeles 48, Calif.). 29–30 Dec.

Society for the Study of Evolution (H. Lewis, Univ. of California, Los Angeles 24). 27–29 Dec.

Society of General Physiologists (A. Shanes, National Institutes of Health, Bethesda, Md.).

Society of Systematic Zoology (R. E. Blackwelder, Box 500, Victor, N.Y.). 27–30 Dec.

Society of the Sigma Xi (T. T. Holme, Yale Univ., New Haven, Conn.). 27 Dec.

Society of Vertebrate Paleontology, annual (J. T. Gregory, Peabody Museum of Natural History, Yale Univ., New Haven, Conn.). 28–30 Dec.

Torrey Botanical Club (David Keck, New York Botanical Garden, Bronx Park, New York 58). 26–27 Dec.

United Chapters of Phi Beta Kappa (C. Billman, PBK, 1811 Q St., NW, Washington 6). 27 Dec.

27–28. Fluid Mechanics in Chemical Engineering, American Chemical Soc., Lafayette, Ind. (W. E. Ranz, Dept. of Engineering Research, Pennsylvania State Univ., University Park.)

27–28. Linguistic Soc. of America, Philadelphia, Pa. (A. A. Hill, Box 7790, University Sta., Austin 12, Tex.)

27–29. American Mathematical Soc., 63rd annual, Rochester, N.Y. (J. H. Curtiss, AMS, 80 Waterman St., Providence 6, R.I.)

27–29. American Physical Soc., Monterey, Calif. (W. A. Nierenberg, Univ. of California, Berkeley 4.)

27–29. Western Soc. of Naturalists, annual, Goleta, Calif. (D. Davenport, Santa Barbara College, Goleta.)

27–30. American Economic Assoc., annual, Cleveland, Ohio. (J. W. Bell, 629 Noyes St., Evanston, Ill.)

27–30. American Finance Assoc., annual, Cleveland, Ohio. (G. E. Hassett, Jr., New York Univ., 90 Trinity Place, New York 6.)

28. Society for the Advancement of Criminology, annual western, Fresno, Calif. (W. Dienstein, Fresno State College, Fresno.)

28–29. American Folk-Lore Soc., annual, Santa Monica, Calif. (MacE. Leach, Bennett Hall, Univ. of Pennsylvania, Philadelphia 4.)

28–30. American Anthropological Assoc., annual, Santa Monica, Calif. (W. S. Godfrey, Jr., Logan Museum, Beloit College, Beloit, Wis.)

28–30. American Historical Assoc., annual, St. Louis, Mo. (AHA, Study Room 274, Library of Congress, Washington 25.)

28–30. Archaeological Inst. of America, annual, Philadelphia, Pa. (C. Boulter, Library, Univ. of Cincinnati, Cincinnati 21, Ohio.)

28–30. Industrial Relations Research Assoc., Cleveland, Ohio. (E. Young, Sterling Hall, Univ. of Wisconsin, Madison 6.)

29. Mathematical Assoc. of America, 40th annual, Rochester, N.Y. (H. M. Gehman, Univ. of Buffalo, Buffalo 14, N.Y.)

29–30. American Chemical Soc., Div. of Industrial and Engineering Chemistry, Princeton, N.J. (A. H. Emery, ACS, 1155 16 St., NW, Washington 6, D.C.)

January

7–11. International Social Science Council, 3rd gen'l. assembly, Paris, France. (Secretary Gen'l., ISSC, 19, avenue Kleber, Paris 16.)

10. Technical and Clinical Applications of Radioisotopes, Assoc. of Vitamin Chemists, Chicago, Ill. (M. Freed, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32.)

10–12. American Group Psychotherapy Assoc., 14th annual, New York, N.Y. (C. Beukenkamp, Jr., AGPA, Room 300, 345 E. 46 St., New York 17.)

14–16. Cottonseed Processing as Related to the Nutritive Value of the Meal, 4th conf., New Orleans, La. (Southern Regional Research Lab., USDA, 1100 Robert E. Lee Blvd., New Orleans 19.)

14–16. Reliability and Quality Control in Electronics, 3rd natl. symp., Washington, D.C. (C. M. Ryerson, Radio Corp. of America, Bldg. 10–6, Camden 2, N.J.)

14–18. Society of Automotive Engineers, annual, Detroit, Mich. (Meetings Div., SAE, 29 W. 39 St., New York 18.)

14–20. Indian Science Cong. Assoc., 44th meeting, Calcutta, India. (General Secretary, ISCA, 1 Park St., Calcutta 16.)

15. Society for Applied Spectroscopy, Philadelphia, Pa. (F. M. Biffen, Johns-Manville Research Center, Manville, N.J.)

16–23. Australian and New Zealand Assoc. for the Advancement of Science, 32nd meeting, Dunedin, N.Z. (J. R. A. McMillan, ANZAAS, Science House, 157 Gloucester St., Sydney, N.S.W., Australia.)

17–18. Engineers Joint Council, New York, N.Y. (EJC, 29 W. 39 St., New York 18.)

18–19. Symposium on Blood, 6th annual, Detroit, Mich. (W. H. Seegers, Wayne State Univ. Coll. of Medicine, Detroit 7.)

21–22. Solar Furnace Design and Operation, Phoenix, Ariz. (J. I. Yellott, Assoc. for Applied Solar Energy, 3424 N. Central Ave., Phoenix.)

21–25. American Inst. of Electrical Engineers, winter general, New York, N.Y. (N. S. Hibshman, AIEE, 39 W. 39 St., New York 18.)

23–25. Very Low Frequency Electromagnetic Waves, symp., Boulder, Colo. (J. R. Wait, National Bureau of Standards, Boulder.)

28–29. Many Body Problem, symp., Hoboken, N.J. (G. J. Yevick, Dept. of Physics, Stevens Inst. of Technology, Hoboken.)

28–31. American Meteorological Soc., New York, N.Y. (K. C. Spengler, AMS, 3 Joy St., Boston 8, Mass.)

28–31. Modern Methods of Analytical Chemistry, 10th annual symp., Baton Rouge, La. (P. W. West, Louisiana State University, Baton Rouge.)

30–1. American Assoc. of Physics Teachers, New York, N.Y. (F. Verbrugge, Carleton College, Northfield, Minn.)

30–31. College-Industry Conf., 9th annual, American Soc. for Engineering Education, Los Angeles, Calif. (Univ. of California Extension, Engineering, Los Angeles 24.)

31–2. Western Soc. for Clinical Research, 10th annual, Carmel-by-the-Sea, Calif. (A. J. Seaman, WSCR, Univ. of Oregon Medical School, Portland 1.)

February

4–8. American Soc. for Testing Materials, Philadelphia, Pa. (R. J. Painter, ASTM, 1916 Race St., Philadelphia 3.)

10–12. Canadian Ceramic Soc., 55th annual, Niagara Falls, Ont., Canada. (L. C. Keith, 49 Turner Road, Toronto, Ont.)

14. Present Status of Heart Sound Production and Recording, symp., Buffalo, N.Y. (R. M. Kohn, Univ. of Buffalo, 2183 Main Street, Buffalo 14, N.Y.)

14. Significance of Nucleic Acid Derivatives in Nutrition, Assoc. of Vitamin Chemists, Chicago, Ill. (M. Freed, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32.)

(See issue of 16 November for comprehensive list)