Meetings and Societies

Plant Protection

The second international Plant Protection Conference, sponsored by Plant Protection, Limited, was held in England on 18–21 June 1956. Attending were some 200 delegates representing 42 lands and countries. The conference, under the general chairmanship of E. M. Fraser (U.K.), opened with a luncheon at the Dorchester Hotel at which the principal speaker was R. A. Butler, Lord Privy Seal. Butler expressed the view that this type of international conclave of scientists is more effective in promoting international accord than any other type of international meeting. He pointed out that, although plant protection research is generally underestimated by the public, it is nonetheless indispensable to protect the food sources for the world's expanding population.

Following the luncheon, the delegates repaired to the thoroughly congenial setting of the Fernhurst Research Station, Surrey, for detailed considerations of the various scientific aspects of crop protection.

The world aspects of crop protection were introduced by Sir Frank Engledow (U.K.). H. J. Page (U.K.) delivered the principal paper by J. G. Knoll (FAO), which described the history of international cooperation, recent international spread of pests and diseases, and the current international activities of FAO.

The role of genetics in crop protection was chairmaned by S. C. Harland (U.K.). W. F. Hanna (Canada) described the importance of resistant plant varieties to insects and disease, especially from the background of rust-resistant varieties of wheat. He commented on the vast number of biotypes of common pathogenic fungi and contrasted the ease with which strains have developed to overcome resistant host varieties, with the singular lack of demonstrated pathogen resistance to chemicals. This provoked considerable discussion, during which it was concluded that resistant strains of fungi have not been intensively looked for and that most fungicides are general protoplasmic poisons which reduce the likelihood of selection for resistance. K. T. Suhorukov (U.S.S.R.) described the plant physiological aspects of resistant varieties, and R. L. Knight summarized the results of 15 years of research on the genetics of resistance to black arm disease of cotton.

The session on mechanisms of toxicity was chairmaned by Sir Rudolph Peters (U.K.). S. E. A. McCallan (U.S.A.) discussed the mode of action of fungicides and pointed out that present-day fungicides generally lack specific action and are relatively ineffective by comparison with other classes of biocides. J. W. L. Beament (U.K.) emphasized the difficulties in correlating the highly specific biochemical action of most insecticides with the physiological complexity of the living systems through which they must pass to the site of action, and J. T. Martin (U.K.) described the physicochemical problems involved in bringing pesticides into contact with disease organisms—that is, the nature, distribution, and behavior of deposits. He concluded that because of inefficient distribution methods many crop protection chemicals are being applied at unnecessarily high dosages and that better methods of application will permit the use of expensive chemicals with particularly favorable action and will minimize the hazards of mammalian and plant toxicity. Much of the discussion of these papers was related to the problems of the *in vivo* transformation of pesticides such as schradan, parathion, dithiocarbamates, and fluoroacetate to more active toxicants.

Three papers on the role of systemic pesticides in crop protection—insecticides (R. L. Metcalf, U.S.A.), fungicides and bactericides (P. W. Brian, U.K.), and herbicides (E. Åberg, Sweden)—were introduced by T. A. Bennet-Clark (U.K.). The speakers emphasized the complexity of the behavior of these substances, their importance as selective agents to supplement biological control, and the question of *in vivo* modifications of the toxicants to substances of greater or lesser activity. Additional points of interest were the use of systemic insecticides as seed treatments to protect seedling crops and for the control of insect vectors of plant diseases; the possibilities of downward-translocating systemic fungicides for root protection; and the rotation of selective herbicides to prevent development of plant resistance.

The session devoted to the assessment of the residual effects of crop-protection chemicals was primarily concerned with human health hazards. J. M. Barnes (U.K.) discussed the problems of handling toxic chemicals during crop application and stated that the simple measure of thorough washing with soap and water after pesticide application is the most valuable safeguard against human poisoning. Apart from the well-recognized hazards of the use of organo-phosphorus insecticides and dinitro-*ortho*-cresol, pentachlorophenol and the alkylated mercurial fungicides were mentioned as materials for which suitable precautions in handling are necessary. R. Truhaut (France), in a paper by D. R. Fabre and Truhaut, discussed the problems of the residue hazards associated with the use of pesticides on foodstuffs. These may be limited by determining maximum tolerable concentrations, such that levels 100 times as great produce no serious ill effects in laboratory animals over several generations, and by restricting treatment to prescribed periods before harvest. The safety standards or tolerances proposed by the Western European Union were compared with those of the U.S. Food and Drug Administration. The authors felt that particular emphasis should be given to possible carcinogenic action of proposed pesticides. F. J. D. Thomas (Australia) described the residual effects of pesticides applied to the soil. Acute problems here are interference with plant germination or growth, tainting crops, or interfering with beneficial soil organisms. The author concluded that, although short-term tainting from BHC and possible long-term accumulation of DDT may result from injudicious usage, there is currently little evidence of serious soil poisoning from pesticides. Continued vigilance should be exercised over both old and new chemicals, so that any developing residue troubles may be foreseen and corrective steps may be taken.

The discussion of the application of crop-protection chemicals was chairmaned by W. C. Moore (U.K.). The mechanics of spray production were dealt with very thoroughly by R. P. Fraser (U.K.) and illustrated with beautiful high-speed photographs and motion pictures clearly showing that the mechanism of disintegration of liquid sheets results from unstability, producing filamentation followed by breakup of the filaments. E. W. B. van den Muijzenberg (Holland) illustrated the advantages of mist blowers in orchard spraying which results in marked savings of pesticide and labor. He described an electronic drop counter for rapid assessment of the perimeters of spray clouds. R. C. Rainey (U.K.) emphasized the necessity for thoroughly understanding the relevant

aspects of locust behavior in efficiently attacking swarms of desert locusts by aircraft spraying.

The proceedings concluded with a comprehensive exhibit and demonstration of crop-protection machinery chairmaned by S. P. Stotter (U.K.) and a buffet supper at which E. Holmes (U.K.) briefly summarized the conference.

This conference was notable for the breadth of scientific disciplines represented, the opportunities for discussion on a truly international basis, and the perfection of arrangements and elegance of amenities. Especially noteworthy were the availability of printed prepublication copies of all papers and the use of closed-circuit television for illustrations. The delegates departed not only with a thorough sense of physical well-being but also with sober reflections regarding the manifold imperfections of current plant-protection knowledge and practices. The papers and recorded discussions are soon to be published by Plant Protection, Limited.

R. L. METCALF
Department of Entomology,
University of California, Riverside

Pacific Division Meets

The 37th annual meeting of the Pacific Division, American Association for the Advancement of Science, was held at the University of Washington, Seattle, 11–16 June 1956. Twenty-three societies participated in the meeting, at which 500 scientific papers were presented.

Arrangements for the meeting were efficiently handled by a local committee and various subcommittees, under the general chairmanship of E. C. Lingafelter (department of chemistry, University of Washington). Registration and information headquarters were located in the Student Union Building, which also housed an interesting and instructive collection of commercial exhibits.

The committees on arrangements made it possible for the guests to enjoy to full advantage the remarkable scenic attractions that Seattle has to offer. They must have gone so far as to conspire with the Weather Bureau. And even the salmon were biting in Puget Sound. Tours were arranged to the Snoqualmie Falls Forest Camp, to Paradise Valley in Mount Rainier National Park, and to the Friday Harbor Laboratories of the University of Washington in the San Juan Islands. Special excursions were also planned so that interested persons could visit the San Juan Fishing and Packing Company of Seattle and the Boeing Airplane Company's Plant II.

A number of social events were held, including a general reception by President Henry Schmitz of the University of Washington and Mrs. Schmitz, two evening hours, a ladies' tea, and a salmon barbecue dinner at Seward Park on the shore of Lake Washington.

There were three general evening sessions. On Monday evening, 11 June, Walter G. Whitman (Massachusetts Institute of Technology), president of the American Institute of Chemical Engineers, spoke on "The significance of the Geneva atoms-for-peace conference." On Tuesday evening, the address by Robert B. Brode (University of California, Berkeley), president of the Pacific Division, AAAS, dealt with "The boundaries of science." The concluding address on Wednesday evening was by N. Tinbergen (Oxford University, Walker-Ames professor of zoology, University of Washington), who spoke on "Experiments on adaptive coloration in animals."

At the meeting of the council on Wednesday afternoon, Ian Campbell (California Institute of Technology) was named president-elect of the Pacific Division. The president of the division for the coming year is J. Murray Luck (Stanford University). Elected to membership on the executive committee were Walter P. Cottam (Department of botany, University of Utah) and George A. Bartholomew (department of zoology, University of California, Los Angeles). Elected to the council were J. G. Hooley (department of chemistry, University of British Columbia) and Theodore L. Jahn (department of zoology, University of California, Los Angeles).

Representing the national administration of the AAAS at the meeting were Thomas Park of the University of Chicago, who came as a representative of the president of the AAAS, Paul B. Sears, and Raymond L. Taylor, associate administrative secretary.

Societies meeting in conjunction with the Pacific Division were American Chemical Society (Pacific Northwest Regional Meeting), American Institute of Chemical Engineers (Washington-Oregon Section), American Meteorological Society (national meeting), American Nature Study Society (Western Division), American Phytopathological Society (Pacific Division), American Society for Horticultural Science (Western Region), American Society of Ichthyologists and Herpetologists (Western Division), American Society of Limnology and Oceanography (Pacific Section), American Society of Plant Physiologists (Western Section), Association of Pacific Coast Geographers, Biometric Society (Western North American Region), Botanical Society of America (Pacific Section), Cooper Ornithological Society (Northern Division), Ecological Society of America (Western Section), Herpetologists League, National Association of Biology Teachers, Pacific Northwest Bird and Mammal Society, Pacific Slope Biochemical Conference, Society for Experimental Biology and Medicine (Pacific Coast Section), Society of Systematic Zoology (Pacific Section), Western Bird-Banding Association, Western Society of Naturalists, Western Society of Soil Science.

The 1362 registered members and guests attending the meeting were drawn from a wide geographic area, as is shown in Table 1. Included in the total registration and breakdown by states are 402 chemists and chemical engineers, most of whom preregistered separately. Sev-

Table 1. Geographic distribution of registrants*

Arizona	4	Ohio	1	Canada	
California	*307*	Oklahoma	1	Alberta	1
Colorado	3	*Oregon*	*155*	*British Columbia*	*88*
Connecticut	2	Rhode Island	1	Quebec	1
District of Columbia	4	Tennessee	1	Saskatchewan	2
Idaho	*12*	Texas	1	Egypt	1
Illinois	6	*Utah*	*39*	England	2
Maryland	2	Virginia	3	*Hawaii*	*8*
Michigan	1	*Washington*†	*664*	India	5
Missouri	2	Wisconsin	2	Iran	1
Montana	*12*	Wyoming	1	Israel	1
Nebraska	5			Jordan	1
Nevada	*0*	Total, continental		Netherlands	2
New Jersey	2	United States	1241	Norway	1
New Mexico	1			Spain	1
New York	8	Alaska	2	Thailand	1
North Carolina	1	Australia	2		
		Austria	1	Total, territorial and foreign	121
				Grand total	1362

* Italics indicate the seven states, the Territory of Hawaii, and the Canadian province of British Columbia that comprise the area of the Pacific Division of the AAAS. Their combined registration was 1285, or 94 percent of the total.
† There were 34 communities in Washington represented, including 460 from Seattle and 106 from Pullman.

eral other societies maintained individual registrations and, although many of their members also registered with the AAAS, it is possible that the aggregate nonduplicate registrations in Seattle may have totaled 1550—making this one of the largest meetings of the Pacific Division.

The next annual meeting of the Pacific Division will be held at Stanford University, 25–29 August 1957, in connection with the national meeting of the American Institute of Biological Sciences to be held at Stanford at that time.

ROBERT C. MILLER
California Academy of Sciences, San Francisco

Aging

Health for the aging was the subject of the ninth annual University of Michigan Conference on Aging, which was held 9–11 July in Ann Arbor. Of interest to *Science* readers are the papers that were presented at the research seminar (Ralph W. Gerard, chairman) and at the two seminars on training. E. V. Cowdry was chairman of the group that discussed training in geriatrics, and Clark Tibbitts was chairman of the group concerned with professional training in gerontology. The more than 700 persons who registered at the conference were primarily attending 12 different workshops concerned with different facets of health and aging. The conference as a whole assembled for major addresses, such as those of Edward L. Bortz, "Healthy added years"; L. T. Coggeshall, "The battle against chronic disease"; William B. Kountz, "Current trends in gerontology"; and L. E. Burney, "Trends in health legislation." Two panel discussions were organized: "Applications to the health needs of older people," Wilbur J. Cohen, moderator; and "Meeting the costs of medical care of the older age group," Odin W. Anderson, moderator.

Twelve papers were presented in the research seminar. Gerard introduced the seminar and presented the basis for the order of presentation, which was to begin with cellular mechanisms of aging and to proceed through papers and discussion for 2 days, concluding with age changes in social behavior. Johan Bjorksten pointed out that one of the likely mechanisms of aging is immobilization of tissue proteins such as would occur as the result of irreversible cross-linkages. The concept of rigidity appeared as a useful term to apply to changes at the submicroscopic level and through all levels of organization. Increasing rigidity as a function of aging has different implications, however, for the different levels of organization—for example, cells, tissues, organs, organisms, social systems, and institutions. Because of the widely different implications, the usefulness of the term *rigidity* lies at present in its naturalistic aspects—that is, the ability of individuals and species to survive and prosper in changing habitats.

L. Frederick Bissell pointed out the difficulties of assessing diet in relation to aging and stressed the need for longitudinal research. Olaf Mickelsen also discussed nutrition and age changes in body composition. He pointed out that the fat content of the human body goes up with age, even with a constant body weight, and he described techniques that can be used to measure body fat. Joseph A. Falzone explained the fall in basal metabolic rate with age as a result of a widespread tendency for cells for the various tissues of the body to shrink and disappear. According to work reported by Reuben L. Kahn, there is some evidence that the ability of the body to produce antibodies declines with advancing age. The reticulo-endothelial system appears to decrease in function with age, as is shown by the fact that older persons show less response to a nonspecific test of antibody reaction. Numerous changes in the cells of the nervous system occur with age, but, because of the difficulties in obtaining and preparing suitable material, there is still uncertainty, according to Harry H. Wilcox, regarding exactly what the changes imply or how to distinguish them from disease and artifacts.

James E. Birren thought that the primary change in behavior with age was a slowing of skills and of speed of emergency reactions. He maintained that one of the important research questions at the moment is the extent to which slowness and rigidity of behavior is (i) the result of attitudes and (ii) the necessary result of the physiological and anatomical changes in the nervous system. L. Koyl described a research project in which he and his colleagues are attempting to find methods of assessing employability in aging persons and also to develop methods for studying the antecedents of later life pathology. This work is being carried out in a longitudinal study of a group of Canadian veterans.

In the discussion of social factors in aging, Gordon Streib pointed out that social power in our society tends to be concentrated in the older members. Although we do not have a gerontocracy, studies of communities show a concentration of decision making in the elders. Jack Weinberg viewed aging as a psychiatrist and emphasized that the great tragedy of aging is the gradual isolation that occurs since there is no replacement for the loss of job, family members, and friends. Hope is the necessary ingredient for successful aging. James Miller also discussed the psychiatric aspects of aging and drew analogies to physical systems; aging was viewed by him as in part a reduced energy output and a slower feedback.

What is the most effective way of training physicians to meet the health needs of older persons? This question was the subject of the seminar on training in geriatrics. The report of the seminar showed " . . . agreement as to the need and the desirability of stressing a program in schools of medicine for teaching, research and service on aging and the aged." Because of the practical problems of already crowded curricula the manner of introducing the subject matter of gerontology must rest with the faculties of the individual schools. "In view of the relatively small number of teachers qualified in the field of Gerontology it seems wise to establish graduate departments in selected medical schools. The functions of these departments would not be to turn out large numbers of graduates who could practice geriatrics as a specialty but to produce investigators and teachers in this field."

The seminar on professional training in gerontology approached its task by asking broad initial questions, such as "Whose responsibility is it to offer the education and training needed for work with the aging and aged?" and "Is there need for new courses, curricula, departments, field work experiences, degrees?" The seminar accepted the idea that students who will work primarily with older individuals within their professional fields should have preparation in gerontology and specialized courses within their own professions. Attempts were made to answer such questions as whose responsibility it is to initiate training, what kind of specialist is most needed, and what methods should be employed to train such persons. Three methods of initiating training were discussed: (i) specialization within an established graduate department, (ii) creation of a department or school of gerontology, and (iii) the creation of an institute of gerontology offering core courses, research opportunities, and field work.

The reports of the seminars and the research papers will be published by the University of Michigan. Further information may be obtained from Dr. Wilma Donahue, Chairman of the Division of Gerontology, University of Michigan.

JAMES E. BIRREN
Section on Aging, National Institute of Mental Health, National Institutes of Health, Bethesda, Maryland

Forthcoming Events

November

18–25. National Meeting of Surgeons, Mexico City, Mexico. (Intern. Acad. of Proctology, 147–41 Sanford Ave., Flushing, N.Y.)

19–20. Entomological Soc. of America, Eastern Branch, Atlantic City, N.J. (B. F. Driggers, Experiment Station, New Brunswick, N.J.)

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

22–23. Calder Hall Nuclear Power Station, conf., London, England. (Secretary, British Nuclear Energy Conference, 1–7 Great George St., London, S.W.1.)

22–3. International Cong. of Industrial Chemistry, 29th, Paris, France. (J. Gerard, Société de Chimie Industrielle, 28, rue Saint-Dominique, Paris VII^e.)

23–24. American Mathematical Soc., Evanston, Ill. (E. G. Begle, 207 Leet Oliver Memorial Hall, Yale Univ., New Haven 11, Conn.)

23–24. American Physical Soc., Chicago, Ill. (K. K. Darrow, APS, Columbia Univ., N.Y. 27.)

23–24. American Soc. of Animal Production, annual, Chicago, Ill. (W. M. Beeson, Dept. of Animal Husbandry, Purdue Univ., W. Lafayette, Ind.)

24. American Ethnological Soc., New York, N.Y. (A. G. James, Hunter College, Bronx 68, N.Y.)

25–30. American Rocket Soc., annual, New York, N.Y. (J. J. Harford, ARS, 29 W. 39 St., New York 18.)

25–30. American Soc. of Mechanical Engineers, annual, New York, N.Y. (C. E. Davies, ASME, 29 W. 39 St., New York 18.)

26–28. American Soc. of Refrigerating Engineers, Boston, Mass. (R. C. Cross, ASRE, 234 Fifth Ave., New York 1.)

26–30. Automation Exposition, 3rd intern., New York, N.Y. (TIAE, Richard Rimbach Associates, Inc., 845-A Ridge Ave., Pittsburgh 12, Pa.)

27–30. American Medical Assoc., clinical, Seattle, Wash. (G. F. Lull, AMA, 535 N. Dearborn St., Chicago 10, Ill.)

27–30. National Chemical Exposition, 9th, Cleveland, Ohio. (J. J. Doheny, NCE, 86 East Randolph St., Chicago 1, Ill.)

28–30. American College of Cardiology, 5th interim, Pittsburgh, Pa. (P. Reichert, ACC, Empire State Bldg., New York, N.Y.)

28–30. International Conf. on Ozone, 1st, Chicago, Ill. (C. E. Thorp, Armour Research Foundation, 35 W. 33 St., Chicago 16.)

29–30. Veterinary Symposium on "Meti-Steroids," New York, N.Y. (J. C. Siegrist, Schering Corp., Bloomfield, N.J.)

30. American Rheumatism Assoc., Bethesda, Md. (E.F. Hartung, 580 Park Ave., New York, N.Y.)

30–1. Oklahoma Acad. of Science, Stillwater. (D. E. Howell, Entomology Dept., Oklahoma A. & M. College, Stillwater, Okla.)

30–1. Tennessee Acad. of Science, Murfreesboro. (D. Caplenor, Dept. of Biology, Peabody College, Nashville 4, Tenn.)

December

2. American Acad. of Dental Medicine, 11th mid-annual, New York, N.Y. (A. Reiner, 114–01 201 St., St. Albans 12, N.Y.)

2–7. Radiological Soc. of North America, Inc., annual, Chicago, Ill. (D. S. Childs, 713 E. Genesee St., Syracuse 2, N.Y.)

5–7. Instrumentation Conf., 2nd, Inst. of Radio Engineers, Atlanta, Ga. (M. D. Prince, Engineering Experiment Station, Georgia Inst. of Technology, Atlanta.)

6. Amino Acid Imbalance in Nutrition, Assoc. of Vitamin Chemists, Chicago, Ill. (M. Freed, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32.)

6–7. American Astronautical Soc., 3rd annual, New York, N.Y. (N. V. Petersen, AAS, 516 Fifth Ave., New York 36.)

6–8. American Phytopathological Soc., annual, Cincinnati, Ohio. (G. S. Pound, Dept. of Plant Pathology, Univ. of Wisconsin, Madison.)

6–9. American Psychoanalytic Assoc., New York, N.Y. (J. N. McVeigh, APA, 36 W. 44 St., New York 36.)

7–8. Association for Research in Nervous and Mental Disease, annual, New York, N.Y. (R. J. Masselink, 710 W. 168 St., New York 32.)

8–11. American Acad. of Optometry, annual, Houston, Tex. (C. C. Koch, 1506 Foshay Tower, Minneapolis 2, Minn.)

9–12. American Inst. of Chemical Engineers, annual, Boston, Mass. (F. J. Van Antwerpen, AICE, 25 W. 45 St., New York 36.)

9–12. American Soc. of Agricultural Engineers, Chicago, Ill. (J. L. Butt, ASAE, St. Joseph, Mich.)

10–12. American Nuclear Soc., winter meeting, Washington, D.C. (ANS, P.O. Box 963, Oak Ridge, Tenn.)

10–12. Eastern Joint Computer Conf., New York, N.Y. (J. R. Weiner, Remington Rand, Inc., 315 Fourth Ave., New York, N.Y.)

13–15. Texas Acad. of Science, annual, Brownwood, Tex. (G. C. Parker, Texas A.&M. College, College Station.)

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 55 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.

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.)

PERSONNEL PLACEMENT

CLASSIFIED: 18¢ per word, minimum charge $3.60. Use of Box Number counts as 10 additional words.

COPY for classified ads must reach SCIENCE 2 weeks before date of issue (Friday of every week).

DISPLAY: Rates listed below — no charge for Box Number. Monthly invoices will be sent on a charge account basis — provided that satisfactory credit is established.

Single insertion	**$22.00 per inch**
13 times in 1 year	**21.00 per inch**
26 times in 1 year	**20.00 per inch**
52 times in 1 year	**19.00 per inch**

For PROOFS on display ads, copy must reach SCIENCE 4 weeks before date of issue (Friday of every week).

POSITIONS WANTED

Biochemist, Ph.D., group leader; 20 years' experience plant biochemistry, carbohydrate technology, enzymes, food processing, technical writing, lecturing, publications, patents. Box 235, SCIENCE. X

Biochemist, Ph.D. Clinical laboratory experience. Research in nucleic acid, carbohydrate biosynthesis. Desires appointment institution affiliated with or near university; East. Box 236, SCIENCE. X

Biochemist; Ph.D.; 8 years' teaching; at present associate professor of biochemistry, medical school; interested in teaching, academic or industrial research. Medical Bureau (Burneice Larson, Director), 900 North Michigan Avenue, Chicago. X

POSITIONS OPEN

Assistant Librarian. Year-round position. Library Marine Biological Laboratory, Woods Hole, Mass. Details on inquiry. 10/26

POSITIONS OPEN

(a) **Biochemist**; small general hospital; major expansion program pending; $500; New York City area. (b) **Biophysicist**; young man or woman trained in radioisotopes and health physics; thoroughly familiar with instrumentation and statistical methods in tracer methodology and with good background in biochemistry; a biochemist eligible; research department, university medical school; West. (c) **Pharmaceutical Chemist**; Ph.D.; will consider one with master's degree if well experienced; university department; rank dependent on qualifications. (d) **Research Assistants**; particularly desirable openings for persons wishing to change from clinical chemistry to medical research; type of work differs in various positions, being concerned with metabolic effects of hormones on one hand and enzyme chemistry on the other. (e) **Virologist**; research department, pharmaceutical company; Midwest. $10-20 Medical Bureau (Burneice Larson, Director), 900 North Michigan Avenue, Chicago. X

Microscope Technician. To inspect and repair microscopes and similar optical instruments of all types. Must be experienced in both optical and mechanical aspects. Annual salary $5000–$7000. Boston, Mass. Send complete résumé of previous experiences and references to Box 234, SCIENCE. X

Research Assistant in research laboratory investigating biochemical aspects of central nervous system function. Opportunity for qualified individuals to simultaneously pursue graduate studies. Salary to $4000. Location: New England. Box 233, SCIENCE. 10/19; 26

Science Writer for new 516-bed research hospital and basic science research institute. Basic policy clinical and basic science research into the problem of cancer and allied diseases. Salary open. Qualifications: bachelor's degree and 2 years of writing experience. Box 221, SCIENCE. ew 11/23

Scientist–Junior; B.S. or equivalent in preclinical sciences with some knowledge of medical terminology to participate in processing of scientific data pertinent to research and development activities of an eastern pharmaceutical firm. Liberal benefits. Send complete résumé. Box 239, SCIENCE. 10/26

POSITIONS OPEN

PHARMACOLOGISTS—PH.D.

Established Research Division of growing pharmaceutical company has immediate opportunities for pharmacologists with experience and training in:

1) CNS drug research. Work will involve general pharmacological screening and development of pharmacological testing methods.
2) Cardiovascular research. Work will involve design and supervision of screening procedures and development of basic research program.

Company has modern research facilities, complete employee benefit program, and is located in rural area of central New York State. Forward résumés to Personnel Director, The Norwich Pharmacal Company, Norwich, New York.

SCIENTIFIC INFORMATION HEAD

Key position available with prominent pharmaceutical manufacturer in Philadelphia area. Duties involve heading up central unit including library, abstracting, technical editing, technical filing groups serving research, medical and related departments. Requires fully trained scientist with laboratory background in medical field. Library or writing experience helpful but not essential. Ideal working conditions. High level position. Box 231, SCIENCE.