

Preview of the 121st Meeting, AAAS, Berkeley, California, 26-31 December 1954

AS was pointed out in previous announcements [*Science* 119, 780; 120, 509 (1954)], the 121st meeting of the American Association for the Advancement of Science, to be held on the Berkeley campus of the University of California, has grown to surprising proportions. Four years ago when the then executive committee of the Association decided to explore the possibilities of holding the first national *winter* meeting of the AAAS in the San Francisco Bay Area in 1954, it was assumed that most of the participating societies would be those that meet with the AAAS Pacific Division in June and that the attendance from east of the Rockies might be restricted to only a few hundred. Since then, however, a variety of other meetings—several international conferences and numerous national meetings, special regional meetings of national societies, and West Coast meetings of societies that usually do not meet with the AAAS, for example, the American Physical Society (estimated as 40 percent larger than last year's meeting), the Astronomical Society of the Pacific, and the Western Society of Naturalists—have combined to raise the total to 90 participating organizations, two-thirds of them with programs of their own. With the addition of the programs of the 18 AAAS sections, most of them also multisessioned and national in scope, there will be well over 300 sessions, and some 1500 papers will be read.

From such program details as the names and addresses of authors, advance registrations, and sleeping accommodation reservations, it is indicated that attendance from all sections of the continent and from abroad will be gratifyingly large. Not only will this year's AAAS meeting be the largest diversified scientific meeting ever held on the Pacific Coast, but it also will be one of the best attended in the history of the Association.

Despite the size and complexity of the meeting, however, each of the participating organizations will convene in its own set of session rooms, and their members will have their own social functions in addition to the opportunities to attend the special sessions, conferences, large-scale exhibits, AAAS Science Theatre, and other features associated with annual meetings.

As the list of participating societies and bare outline of sectional and societal symposiums show, no principal field of science will be neglected. The detailed daily Summary of Events indicates the extent to which the sections and societies have collaborated on joint interdisciplinary programs so characteristic of AAAS meetings, which bring together scientists of diverse specialties. Although a majority of the sessions are devoted either to short reports of current research or to technical symposiums, primarily of interest to specialists, there are many other symposiums, lectures, and addresses that will be of interest to the general attendance and the general public. And students at the high-school level have not been overlooked. A new feature this year is the broadening of the Junior Scientists Assembly, sponsored by the Association's Academy Conference, into a full afternoon for 850 selected high-school science students from the San Francisco Bay Area. This program, held on the campus of the cosponsor, San Francisco State College, will include addresses on opportunities in science and on scientific careers, respectively, by Warren Weaver, AAAS president, and Harry C. Kelley of the National Science Foundation, and other

events will be the General Electric Company's "House of Magic" and a special showing of two nature films supplied by courtesy of Walt Disney Productions.

Fundamental matters in education and in society will be emphasized in the AAAS Special Program, "The Crisis in Science Education," and in the three-part AAAS General Symposium, "Science and Society." The National Academy of Economics and Political Science has scheduled a symposium, "National Defense against Atomic Attack"; the National Association of Science Writers, another, on "Science and National Security." The vice-presidential address of Section K, given by John B. Condliffe, will be "The international consequences of scientific research"; the vice-presidential address of Section L, by Chauncey D. Leake, is "National loyalty and security in relation to scientific idealism."

1) **Contributed Papers.** Sessions for contributed papers are too numerous to catalog—but all principal fields of science are included. Papers in physics, in biology, in science teaching, and in such medical fields as experimental biology, biochemistry, and physiology, have had to be grouped in concurrent sessions. Of the 18 sections of the Association, the following 11 have sessions for contributed papers: A—Mathematics, C—Chemistry, D—Astronomy, E—Geology and Geography, G—Botanical Sciences, H—Anthropology, I—Psychology, L—History and Philosophy of Science, Nd—Dentistry, Np—Pharmacy, and Q—Education.

2) **Symposiums.** The details of the AAAS General Symposium, "Science and Society," appeared last month [*Science* 120, 766]. The combined list of the 105 symposiums of the sections and societies—including groups of invited papers (and some panels) devoted to a single theme—totals 126 sessions and more than 600 individual speakers.

3) **Vice-Presidential Addresses.** There will be vice-presidential addresses given by the following AAAS sections: D, E, F, G, I, K, L, N, P, Q.

4) **Conferences.** The three recurrent conferences at annual meetings of the Association have important programs in their areas. The *Academy Conference*, representing 42 academies of science affiliated with the AAAS, has a full day of sessions, 27 Dec. The *Conference on Scientific Editorial Problems*, meeting for the third time, has expanded its program, 29–30 Dec., to four sessions: I. Preparation of Technical Manuals for Complex Instruments. II. Effective Technical Writing. III. Scientific Journals. IV. Military and Industrial Technical Reports. The *Conference on Scientific Manpower*, meeting for the fourth year on an organized basis, has morning sessions on 28 and 29 Dec. on, respectively, "Implications of the Findings of the Commission on Human Resources and Advanced Training," and "Prospective Developments in the Utilization of Scientists and Engineers."

Special conferences, unique this year, are (i) The *International Conference on Animal Venoms*, organized by Nandor Porjes, Eastern Regional Research Laboratory, USDA, and jointly sponsored by AAAS Sections F—Zoological Sciences and N—Medical Sciences; it has eight sessions, 27–30 Dec. inclusive, and its 65 papers will be presented by speakers from all sections of the United States and from Aden, Australia, Austria, Brazil, Formosa, France, Germany, India, Italy, North Africa,

Switzerland, Thailand, and the Union of South Africa. (ii) The *Third Berkeley Symposium* on Mathematical Statistics and Probability, held every 4 or 5 years under the auspices of the Statistical Laboratory of the University of California. Jerzy Neyman, director, has arranged a full program, 26-31 Dec. inclusive. In addition to pure mathematics and statistics, there are sessions on applications to astronomy, biology and genetics, psychology, and medicine and public health. (iii) The *Pacific Slope Biochemical Conference*, arranged by David M. Greenberg, University of California, Berkeley, has four sessions of 48 contributed papers, 30 Dec.

5) **Special Sessions.** The details of the annual illustrated lecture of the National Geographic Society and of the evening addresses of the Scientific Research Society of America, the Society of the Sigma Xi, and of the United Chapters of Phi Beta Kappa have recently appeared in *Science* [120, 765]. These special events, sponsored by organizations that meet regularly with AAAS, are joint with the Association and are open to the general public of the city where the meeting is held. An additional program this year is the afternoon address of the Pacific Science Board, 30 Dec.

6) **AAAS Business Sessions.** The board of directors of the Association will meet after breakfast in the Directors Room of the Men's Faculty Club of the University of California, at 9 A.M., Monday, 27 Dec. Dates and hours of subsequent sessions of the board of directors during the meeting will be decided at this first session.

The Council of the Association will meet Monday, 27 Dec., at 4 P.M. in Eshleman Auditorium. A second session of the council is scheduled for Thursday, 30 Dec., at 9 A.M. in the same room. All members of the council have been notified individually, and it is hoped that all can attend. Subjects to be considered by the council (in addition to the agenda prepared) usually are first brought before the board of directors through the administrative secretary. During the meeting, communications for the board of directors should be left at the Hotel Shattuck mail desk, addressed to Dr. Dael Wolfe.

All section chairmen and section secretaries will meet Thursday, 30 Dec., at 12 noon in the Town Room, Hotel Shattuck, for luncheon and a business session. Dael Wolfe and Raymond L. Taylor will be cochairmen.

7) **AAAS Science Theatre Programs.** The AAAS Science Theatre, a permanent feature of the Association's annual meeting, presents showing of the latest domestic and foreign scientific films—nearly all with sound—throughout the meeting period. Please note, in the following schedule, that programs are both repeated and transposed to increase the opportunities for those attending the sessions of the 121st meeting to see particular films. Most titles—but not all—will be shown twice. The Association is greatly indebted to all those who made these pictures and lent them for showing.

Location of the Science Theatre. The AAAS Science Theatre is on the same floor of the Gymnasium for Men as the Annual Exposition of Science and Industry. Take corridor at left of entrance from foyer.

Admission to the Science Theatre. The Science Theatre is a feature for the pleasure and information of all registrants attending the annual meeting; it is deemed well worth the considerable cost of projection. It cannot be for the casual passerby; thus admission is restricted to those who wear the AAAS Convention Badge.

Hours of the Science Theatre are 9 A.M. to 1 P.M. and 2 to 6 P.M. the four days, 27-30 Dec., inclusive.

PROGRAM 1

Monday, 27 Dec., 9 a.m. to 1 p.m.

- 1) *Time-Lapse Studies of Growing Trees.* William M. Harlow, State University of New York College of Forestry. Color. Sound. 11 min.
- 2) *The Continuity of Life: Asexual Reproduction.* Indiana University. Color. Sound. 10 min.
- 3) *Target Nevada.* Department of the Air Force. Color. Sound. 14 min.
- 4) *Autonomic Nervous System*, parts III and IV. J. E. Markee and R. F. Becker, Duke University. Color. Sound. 30 min.
- 5) *Man to Man.* Mental Health Film Board. Black and white. Sound. 30 min.
- 6) *Processing Taconite Ore.* E. W. Davis and University of Minnesota Audio-Visual Services. Black and white. Sound. 15 min.
- 7) *Looking for the Answers.* New York Zoological Society and McGraw-Hill Book Co., Text-Film Department. Color. Sound. 11 min.
- 8) *Clean Waters.* General Electric Company. Color. Sound. 25 min.
- 9) *The Bronchopulmonary Segments*, part I: *Anatomy and Bronchoscopy.* Chevalier L. Jackson, John Franklin Huber, and Charles Norris, Temple University, and Pfizer Laboratories. Color. Sound. 25 min.
- 10) *Ready for Sea.* Raytheon Manufacturing Company. Color. Sound. 14 min.
- 11) *The Continuity of Life: Characteristics of Plants and Animals.* Indiana University. Color. Sound. 10 min.
- 12) *Underwater Story.* British Information Services. Black and white. Sound. 20 min.

PROGRAM 2

Monday, 27 Dec., 2 p.m. to 6 p.m.

- 1) *Living Microscopic Blood Vessels: Normal and Pathological Conditions.* Brenton R. Lutz and George P. Fulton, Boston University. Color. Silent. 25 min.
- 2) *Photogeology—A New Look for Oil.* Geophoto Services, Denver. Color. Sound. 22 min.
- 3) *Age of Turmoil.* McGraw-Hill Book Co., Text-Film Department. Black and white. Sound. 20 min.
- 4) *Structure and Function of the Vestibular Apparatus.* Richard J. Blandau and Newton B. Everett, University of Washington. Color. Sound. 20 min.
- 5) *Insect Catchers of the Bog Jungle.* Copyrighted by William M. Harlow, State University of New York College of Forestry, Syracuse. Color. Sound. 11 min.
- 6) *Four Experiments in Hydraulics.* National Bureau of Standards. Color. Sound. 17 min.
- 7) *Warning in the Dark.* Institute of Psychology, Innsbruck; distributed by Kinesis, Inc., San Francisco. Black and white. Sound (in German). 11 min.
- 8) *Columbia Frontier.* Bureau of Reclamation, U.S. Department of the Interior. Color. Sound. 28 min.
- 9) *Hazards of Dental Radiography.* National Bureau of Standards and the American Dental Association. Color. Sound. 13 min.
- 10) *225,000-Mile Proving Ground.* Association of American Railroads. Color. Sound. 20 min.
- 11) *Mosquito Stages of Plasmodium Falciparum.* Communicable Disease Center, U.S. Public Health Service. Black and white. Sound. 9 min.
- 12) *The Locomotion of Snakes.* New York Zoological Society; distributed by McGraw-Hill Book Co. Color. Sound. 11 min.

PROGRAM 3

Tuesday, 28 Dec., 9 a.m. to 1 p.m.

- 1) *CaCO₃*. Gardner-Denver Company and Black White Limestone Company, Quincy, Ill. Color. Sound. 23 min.
- 2) *The Physiology of Reproduction in the Rat*. Richard J. Blandau and Anthony Canedo, University of Washington. Color. Sound. 20 min.
- 3) *In the Beginning*. General Petroleum Corporation, distributed by Frank Church Films, Oakland, Calif. Color. Sound. 28 min.
- 4) *Which Fate?* National Society for Medical Research. Color. Sound. 21 min.
- 5) *Coaxial and Microwave Miracles*. The Bell Telephone System. Black and white. Sound. 10 min.
- 6) *Ancylostoma Caninum in the Intestine of the Dog*. Communicable Disease Center, U.S. Public Health Service. Black and white. Sound. 5 min.
- 7) *The Atomic Apothecary*. Medical Film Guild, Ltd. Black and white. Sound. 38 min.
- 8) *Hurricane Hunters*. U.S. Department of the Air Force. Black and white. Sound. 15 min.
- 9) *Syngamy and Alternation of Generations in Alomyces—A Watermold*. Arthur T. Brice, Phase Films. Black and white. Sound. 20 min.
- 10) *Pumicelands*. New Zealand Embassy. Black and white. Sound. 22 min.
- 11) *Exit Grasshoppers*. Shell Chemical Corporation. Color. Sound. 10 min.

PROGRAM 4

Tuesday, 28 Dec., 2 p.m. to 6 p.m.

- 1) *The Fight: Science against Cancer*. National Film Board of Canada and Association of American Medical Colleges; distributed by International Film Bureau, Inc. Black and white. Sound. 21 min.
- 2) *The Dances of the Bees*. Karl von Frisch; distributed by E. J. Mauthner, New York. Black and white. Silent. 22 min.
- 3) *The Transistor*. The Bell Telephone System. Black and white. Sound. 10 min.
- 4) *Life in a Garden*. Roy Wilcox Productions and American Museum of Natural History; distributed by McGraw-Hill Book Co. Color. Sound. 13 min.
- 5) *The Atom Goes to Sea*. General Electric Company. Black and white. Sound. 12 min.
- 6) *Infective Larvae of Ancylostoma Caninum*. Communicable Disease Center, U.S. Public Health Service. Black and white. Sound. 4 min.
- 7) *World at Your Feet*. National Film Board of Canada; distributed by International Film Bureau, Inc. Color. Sound. 22 min.
- 8) *Fossil Story*. Shell Oil Company. Color. Sound. 19 min.
- 9) *Operation Blue Jay*. Department of the Army. Black and white. Sound. 28 min.
- 10) *Nuclear Reactors for Research*. North American Aviation, Inc. Color. Sound. 16 min.
- 11) *Citrus Culture*. Paul Hoefler Productions. Color. Sound. 17 min.
- 12) *Phase Microscopy of Normal Living Blood*. Richard J. Blandau, Quinn B. DeMarsh, and Paul H. Ralph, University of Washington. Black and white and color. Sound. 25 min.

PROGRAM 5

Wednesday, 29 Dec., 9 a.m. to 1 p.m.

- 1) *Underwater Story*. British Information Services. Black and white. Sound. 20 min.

- 2) *The Continuity of Life: Characteristics of Plants and Animals*. Indiana University. Color. Sound. 10 min.
- 3) *Ready for Sea*. Raytheon Manufacturing Company. Color. Sound. 14 min.
- 4) *The Bronchopulmonary Segments*, part I: *Anatomy and Bronchoscopy*. Chevalier L. Jackson, John Franklin Huber, and Charles Norris, Temple University, and Pfizer Laboratories. Color. Sound. 25 min.
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- 2) *Citrus Culture*. Paul Hoefer Productions. Color. Sound. 17 min.
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8) Societies and Organizations Participating in the Berkeley Meeting

A—Mathematics and Statistics

American Mathematical Society
American Statistical Association
Institute of Mathematical Statistics
Pacific Coast Committee on Social Statistics of the Social Science Research Council

Third Berkeley Symposium on Mathematical Statistics and probability

B—Physics

American Meteorological Society
American Physical Society
Sigma Pi Sigma

C—Chemistry

Alpha Chi Sigma
American Chemical Society, California Section
Pacific Southwest Association of Chemistry Teachers

D—Astronomy

Astronomical Society of the Pacific
Meteoritical Society

E—Geology and Geography

Arctic Institute of North America
Association of American Geographers, Pacific Division
Association of Pacific Coast Geographers
Division of Mines, State of California
Geological Society of America
National Geographic Society
National Speleological Society

F—Zoological Sciences

American Society of Ichthyologists and Herpetologists
Cooper Ornithological Society
Herpetologists League
International Conference on Animal Venoms
International Union for the Study of Social Insects, North American Section
Pacific Coast Entomological Society
Society of Systematic Zoology

FG—Biological Sciences

American Society of Limnology and Oceanography
American Society of Naturalists
Beta Beta Beta
Biometric Society, WNAR
Ecological Society of America
Ecological Society of America, Western Section
National Association of Biology Teachers
Society of General Physiologists
Western Society of Naturalists

G—Botanical Sciences

American Phytopathological Society, Pacific Division
American Society of Plant Physiologists, Western Section
Botanical Society of America, Pacific Section
Mycological Society of America

I—Psychology

Society for Research in Child Development
Western Psychological Association

K—Social and Economic Sciences

AAAS Committee for Social Physics
National Academy of Economics and Political Science
Pi Gamma Mu
Society for the Advancement of Criminology
Western Economic Association

L—History and Philosophy of Science

Philosophy of Science Association
Society for the Advancement of General Systems Theory

M—Engineering

American Society for Engineering Education, Pacific Southwest Section
Engineering Manpower Commission

N—Medical Sciences

Alpha Epsilon Delta
American Academy of Forensic Sciences
American Psychiatric Association
Bay Counties Veterinary Medical Association
Donner Laboratory of Biophysics and Medical Physics

Pacific Slope Biochemical Conference
 Society for Experimental Biology and Medicine, Southern California and Pacific Coast Sections
 Society of American Bacteriologists, Northern California and Hawaiian and Southern California Branches

Nd—Dentistry

American College of Dentists
 American Dental Association
 International Association for Dental Research, North American Division

Np—Pharmacy

American Association of Colleges of Pharmacy
 American College of Apothecaries
 American Pharmaceutical Association, Scientific Section
 American Society of Hospital Pharmacists

O—Agriculture

Society of American Foresters
 Western Society of Soil Science

Q—Education

AAAS Cooperative Committee on the Teaching of Science and Mathematics
 American Educational Research Association
 California Science Teachers Association, Northern Section
 International Council for Exceptional Children
 National Association for Research in Science Teaching
 National Science Teachers Association

X—General Sciences

AAAS Pacific Division
 Academy Conference
 American Geophysical Union
 American Nature Study Society
 California Academy of Sciences
 Conference on Scientific Editorial Problems
 Conference on Scientific Manpower
 National Association of Science Writers
 National Research Council of the National Academy of Sciences
 National Science Foundation
 Pacific Science Board
 Scientific Manpower Commission
 Scientific Research Society of America
 Sigma Delta Epsilon
 Society of the Sigma Xi
 United Chapters of Phi Beta Kappa

9) Symposiums of the Sections and Societies

Mathematics and Statistics

Applications of Poisson and Exponential Distributions to Physics and Industry
 Regional Unemployment Estimates
 Regional Indexes of Business Activity
 Reliability of Complex Systems
 The Meaning of Probability to the Engineer, Mathematician, and Physicist
 Design of Experiments in Fisheries Work
 Principle of Invariance
 Comparison of Experiments
 Statistics in Biology and Genetics
 Statistical Mechanics
 Statistics in Medicine and Public Health
 Mathematical Statistics
 Statistics in Industrial Research
 Statistics in Psychology

Meteorology

Fire Weather Problems and Objective Forecasting

Microclimatology
 Weather Modification

Physics

High Energy Physics
 Theoretical Physics; two sessions
 Nuclear Chemistry
 High Energy Machines
 Nuclear Polarization
 Nuclear and Electron Resonance
 High Energy Electron Physics
 Division of Electron Physics
 Instrumentation

Chemistry

Petroleum Chemistry; two sessions
 Viruses
 Nucleic Acids and Nucleotides
 Chemistry in the Harnessing of Biological Resources; two sessions

Astronomy

Nebular Red Shift
 The Spatial Distribution of Galaxies
 The Distribution of Stars in the Hertzsprung-Russell Diagram

Geology and Geography

Science in the Arctic; five sessions
 Earth Sciences from the Air; two sessions

Zoological Sciences

Problems in Ecology of Amphibians and Reptiles
 Colony Organization and Related Processes in Social Insects
 Animal Courtship Patterns

Biological Sciences

Recent Advances in Biological Oceanography
 Marking Organisms in Ecological Studies
 Dew as an Ecological Factor
 Photochemical Effects in Biological and Biochemical Systems; two sessions
 Natural Resources of the West
 The Cell; two sessions

Botanical Sciences

Modern Views on Tissue Differentiation
 Crop Sequence and Plant Disease Control
 The Mode of Survival of Plant Pathogens in the Soil
 Physico-Chemical Control of Structural Differentiation in the Fungi

Anthropology

Culture Change in the Pacific Area; two sessions
 The Contribution of India-Pakistan Studies to Social Science Theory

Psychology

How Can Behavior Theory Best Handle the Construct of Motivation?
 Psychological Factors in Highway Safety
 The Nervous System and Behavior
 The Values and Limitations of Longitudinal Studies of Children
 Approaches to the Study of Personality Development in Children
 The Present Status of Psychoanalytic Theory
 Sex Differences in Personality and Intellectual Development
 Perception: Learned and Unlearned

Social and Economic Sciences

The Appraisal of Natural Resources Development
 Regional Economic Analysis
 The Social Structure of Cities
 Pacific Coast Population Trends
 The Organization of Research for Western Regional Development

- National Defense Against Atomic Attack
Diffusion Theory; two sessions
Education in Criminology; two sessions
- History and Philosophy of Sciences**
Probability and Induction
- Engineering**
Air Pollution; two sessions
Industry's Stake in Engineering Education
- Medical Sciences**
Physiology of Growth—Normal and Abnormal; four sessions
Preparation for Medical and Dental Education in the Liberal Arts College; two sessions
Medical-Legal Aspects of Head Injuries
Clinical Applications of Chlorpromazine
Clinical Applications of Reserpine
Mechanism of Drugs with Behavioral Effects
Some Problems in the Care of Laboratory Animals
Infectious Disease Control in a Small Animal Hospital
Recent Advances in Biophysics and Medical Physics; two sessions
Adrenal-Pituitary Relationships
- Dentistry**
Growth and Development
Radiation Hazards in the Dental Office
- Pharmacy**
Hazardous Domestic Pesticides and Household Chemicals
Ways and Means of Improving Pharmacy Service
Administrative Responsibilities of the Hospital Pharmacist
- Agriculture**
Soil Management Problems in Western Agriculture
Water Supplies and Irrigation
Seed Production in the Western States
Problems in Horticultural Crops
- Industrial Science**
The Roles of Government, Industry, and the University in Basic Research; two sessions
- Education and Science Teaching**
Problems Relating to Reading
Problems in the Development of Educational Programs for Exceptional Children
Recent Research in the Development of Exceptional Children
Research in Science Education
The Crisis in Science Education; two sessions
Biology for Pleasure
Biology for Living
Biology for Survival
Our Biology Laboratory Problems
The Schools, Their Problems, and You
Keeping Up to Date in Science
Science Teachers Face Their Problems
Progress in Science Education
- Science in General**
Natural History as Revealed by Early Explorers in the West
Recent Scientific Explorations in the West and Their Contributions to Natural History
Science and National Security

BERKELEY MEETING INFORMATION

Hotel Headquarters. The Hotel Shattuck is the official headquarters of the AAAS; it is where messages for the board of directors of the Association should be left. The Press Room—for receipt of authors' abstracts and the

only source of press releases—is the office of the *Daily Californian* in Eshleman Hall.

The AAAS Registration-Information Center, the Visible Directory of Registrants, the AAAS Office, the AAAS Science Theatre, and the Annual Exposition of Science and Industry are in the Gymnasium for Men, Dana St.

Since virtually all sessions are on the campus, rather than in hotels, it has not been feasible to name any hotel in Berkeley as headquarters for particular sections or participating societies. To meet needs for headquarters rooms in some cases, the following have been assigned.

Headquarters rooms

All botanists	Life Sciences Building 2023
American Nature Study Society	Wheeler 203
American Physical Society	LeConte 375
Herpetologists League	Life Sciences Building 3598
National Association of Biology Teachers	Wheeler 303
National Science Teachers Association	Wheeler 100
Society of Systematic Zoology	Stephens Memorial Room
Statisticians	Dwinelle 288
Western Society of Naturalists	Life Sciences Building 2009

Headquarters for women. The new Alumni House on Dana Street, directly across from the Gymnasium for Men, will serve as a lounge for all attending the AAAS meeting. It will be particularly convenient as a meeting place for husbands and wives and for visiting. A Supplementary Information Center, staffed by wives of the faculty of the University of California, will be located on the main floor, and light refreshments will be available.

Registration. The AAAS Registration-Information Center will be located in the lobby of the Gymnasium for Men, the entrance to which is on Dana Street. It will be open daily, 26–30 Dec., 8 A.M. to 9 P.M. except Thursday evening 30 Dec., when it will remain open until 11 P.M. to accommodate any nonregistrants who wish to attend the Biologists' smoker, and Friday, 31 Dec., when it will close at noon.

The Registration Center is the *only* place to receive a convention badge, the General Program-Directory, a map of the city, guide books, and other complimentary literature. Advance registrants (who receive Programs and badges prior to the meeting) are urged to visit the Registration Center at any convenient time, to receive these last-mentioned items.

Registration fee. The AAAS registration fee for all persons is \$2.50. Each registrant receives a receipt, a convention badge, and the General Program-Directory—the only publication with the programs of all 18 AAAS Sections and of the 90 participating organizations. Any person who purchases an advance copy of the General Program-Directory but does not register in advance and who then attends the meeting agrees to complete his registration—and is expected to do so—at the AAAS Registration Center, after which he will receive his convention badge and the privileges that go with it.

It is essential that each person who attends the meeting support it by paying the registration fee of \$2.50, which, intentionally, has been kept at a minimum. When the costs of the Program and badge are deducted, the net contribution toward general expenses is less than \$1 per registrant.

AAAS convention badge. The AAAS convention badge indicates that you have paid your share of the expenses of the meeting and that you are a complete participant in this 121st convention of the Association. The badge

should be worn throughout the meeting, because (i) it reminds others to register; (ii) it is needed for admission to the AAAS Science Theatre, the Biologists' Smoker, and the reception that follows the presidential address; and (iii) it helps others to find you.

The California Academy of Sciences will admit free to its new planetarium persons wearing the badge.

The badge will facilitate parking on the campus.

Visible Directory of Registrants. The much-consulted Visible Directory of Registrants, for the maximum convenience of all, is located between the Registration Center and the Annual Exposition of Science and Industry. The hours it will be open correspond exactly with the hours the AAAS registration is open—daily 8 A.M. to 9 P.M. The registration cards of all registrants are placed in the Visible Directory as soon as possible after registration. The arrangement is alphabetical. The cards of advance registrants are *completely* alphabetized and typed, since they were posted in Washington prior to the meeting; all other registration cards are filed to the second or third letter of the surname (Ba, Be, etc.). Members of the press, exhibitor personnel, and guests are included in the Visible Directory—on *blue* cards instead of yellow. Registrants will find the Visible Directory invaluable in determining the convention addresses of friends attending the meeting.

Mail, telegrams, and messages. Mail and telegrams addressed in care of the AAAS will be held at the AAAS Office in the Gymnasium for Men. Efforts will be made to notify addressees listed in the Visible Directory, but the Association assumes no responsibility for the delivery of mail or of telegrams.

Telephone and personal messages will be filed alphabetically in the AAAS Office, and the names for whom they are intended will be posted on a bulletin board.

Society meal function tickets. Tickets to the dinners or luncheons of any participating society are obtainable only from representatives of that society, during preceding sessions of that society, or at the AAAS Information Center.

Facilities for Eating. Throughout the meeting period, the University of California will serve low-cost meals in its cafeterias (four separate rooms accommodating 200 each); breakfasts in the dormitory units; and light refreshments in the Gymnasium for Men, the Alumni Hall Lounge, and Stephens Memorial Hall.

The Hotel Claremont serves all meals in one dining room; the Hotels Shattuck and Durant have both coffee shops and dining rooms. Some of the restaurants near the campus are Larry Blake's (American-German), 2367 Telegraph Avenue; Gladys's, 2451 Shattuck Avenue; Lichee Hwon (Chinese), 2500 Telegraph Avenue; The Black Sheep, 2550 Bancroft Way.

The names of other restaurants in Berkeley may be obtained at the Information Center.

Local Travel Directions. The campus of the University of California is so compact that all session rooms are within walking distance of one another and of the Hotels Shattuck and Durant. (The Hotel Claremont is 1 mi away.) From other parts of Berkeley, the campus is served by a variety of bus routes (fare 20c). Information on these routes and other travel data may be obtained at the Registration Center in the Gymnasium for Men.

Between Berkeley and San Francisco. By car, San Francisco and the campus area of Berkeley are about 12 mi apart—some $7\frac{1}{2}$ mi of which is across the San Francisco Transbay Bridge and its approaches. Time (except at "rush hour") 20 min; bridge toll 25c.

Those who wish to visit San Francisco without a car may take a Key System interurban train from Shattuck and University Avenues or at stops on Shattuck Avenue at Bancroft Way or Dwight Way. Running time 30 min; fare 48c. From the Bay Terminal on First Street it is possible to go anywhere in San Francisco on one fare (15c) and a transfer, for example, Union Square, Chinatown, Nob Hill (via cable car), Fishermen's Wharf.

To return to the vicinity of the campus or to the Hotels Shattuck and Durant, take an "F" train from the Bay Terminal; for the Hotel Claremont, take an "E" train. Since the frequency of service varies from 30 min to 1 hr at night, consulting a timetable is advisable.

Tours. At this meeting there are no formal tours sponsored by the AAAS as a whole, but certain sections and societies have planned tours and field trips.

The California Academy of Sciences in Golden Gate Park will admit free to their new planetarium all who wear the AAAS convention badge. The adjacent large Museum and Steinhart Aquarium will also be of interest. The Academy is sponsoring an Open House for the Society of Systematic Zoology, Tuesday, 28 Dec., 2 to 6 P.M.

For the physicists, the Radiation Laboratory of the University of California has arranged one afternoon tour each day of the meetings. Visitors may sign up for the trips of their preferences at the APS Registration Desk in LeConte Hall.

The Division of Mines, State of California, Ferry Building, San Francisco, will guide one or more motorcades to points of geologic interest in the Coast Ranges and San Francisco Bay Area. It is desirable that those making this trip purchase in advance the 400-page publication, Bull. 154, *Geologic Guide Book of the San Francisco Bay Counties; History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, by Olaf P. Jenkins. Tour leaves Claremont Hotel parking lot, Tuesday, 28 Dec., at 8:30 A.M.

The Astronomical Society of the Pacific and AAAS Section D will make a trip to Lick Observatory, Mount Hamilton, Thursday, 30 Dec. They will be joined by the Meteoritical Society.

All-day field trips to Muir Woods (redwoods) and Stinson Beach State Park are scheduled by Ecological Society of America and Herpetologists League, Thursday, 30 Dec.; American Nature Study Society and National Association of Biology Teachers, Thursday, 30 Dec.

An expedition to the Institute of Forest Genetics, California Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Placerville, Calif., to observe experiments in progress, is being planned for Friday, 31 Dec., by the Third Berkeley Symposium on Mathematical Statistics and Probability. Departure from Berkeley may be the evening of 30 Dec., and also early on the morning of 31 Dec.

Tours for women. The wives of the faculty of the University of California and the women of the administrative staff have volunteered to conduct women visitors on tours around the campus and vicinity. Those who are interested should apply to the Supplementary Information Center in the Lounge of the Alumni House.

AAAS Public Information Service. Each person who will deliver an address or present a paper at the Berkeley meeting is requested to provide the Association's Public Information Service with 100 copies of a nontechnical abstract of his paper. One hundred copies of *complete* manuscripts are also required of papers presented by (i) officers of the Association; (ii) officers and invited speakers who appear on the programs of the participating

societies; and (iii) authors whose papers are particularly newsworthy. Most authors already have recognized the necessity of this procedure and have sent their material to the Association's Director of Public Information, Sidney S. Negus, Medical College of Virginia, Richmond, Va. If you are an author of an address or paper and have not done this, please send to Dr. Negus, to *arrive in Richmond on or before 15 Dec.*, 100 copies of your nontechnical abstract and 100 copies of your full paper (or significant portions of it if it is unusually long). If it is impossible for you to send this material to Richmond to arrive by 15 Dec. (*and mails are much slower in the pre-Christmas period*), then mail all your material to Dr. Negus—or deliver it to him in person—at the AAAS Press Room, Eshleman Hall, Berkeley, before or during the convention. As an aid to the Association's Public Information Service, please send copies of your paper to your local newspapers with the time indicated when it is to be presented in Berkeley.

The necessity for the general public to be kept informed of the results of the scientific research which it supports, directly and indirectly, is quite evident. Organized science and the individual scientist must have the understanding and support of all. It is, of course, equally important that the advances of science be publicized with accuracy and clarity without sensationalism. Progress in this direction in recent years has been most gratifying, thanks largely to members of the National Association of Science Writers, other accredited science reporters, managing editors of American newspapers, and program managers of radio and television stations.

It is in the interest of accuracy and completeness that science writers frequently wish to discuss various research results with investigators. If you are asked to cooperate in this respect or to participate in a press conference, please do so, not only for your own protection, but for the benefit of science in general. Scores of science writers will be covering this meeting. News stories filed by the representatives of all the wire services will be published and broadcast throughout the entire civilized world. At no other scientific meeting are the facilities for the dissemination of the most recent findings in all branches of science so complete as they are at the great, diversified meetings of the AAAS.

This year, not only is the Association fortunate in the continued services of Dr. Negus, chairman of the Department of Biochemistry, Medical College of Virginia, Richmond, and past president of the Virginia Academy of Science, but also in its Local Committee on Public Information, headed by George C. Tenney, vice president, McGraw-Hill Publishing Company, San Francisco.

Berkeley Committees. As is rather generally recognized, it would be quite impossible to arrange successfully a large and complex meeting and to carry it through to a conclusion, successful in all respects, if it were not for the devoted services of many local scientists and other members and friends of the Association. They merit the unstinted appreciation of all who attend. It is noteworthy that Robert Gordon Sproul accepted the general chairmanship of the Berkeley meeting in the spring of 1953, appointed the local committees early, and has kept in close touch with all phases of this year's meeting. In making the 121st meeting a memorable one, those whose names follow have advanced science:

GENERAL CHAIRMAN

Robert Gordon Sproul, president, University of California, Berkeley

VICE CHAIRMEN

James B. Black, president, Pacific Gas & Electric Company, San Francisco
Robert K. Cutter, president, Cutter Laboratories, Berkeley

EXECUTIVE SECRETARY

George A. Pettitt, University of California, Berkeley

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Robert G. Sproul, president, University of California, *chairman*
Raymond B. Allen, Chancellor, University of California, Los Angeles
Stephen D. Bechtel, president, Bechtel Corporation, San Francisco
S. Clark Beise, president, Bank of America National Trust and Savings Assn., San Francisco
James B. Black, president, Pacific Gas and Electric Company, San Francisco
Alexander H. Brawner, president, W. P. Fuller & Company, San Francisco
Robert B. Brode, professor of physics, University of California, Berkeley
John F. X. Connolly, S.J., president, University of San Francisco
M. J. Copley, chief, Western Utilization Research Branch, U.S. Dept. of Agriculture, San Francisco.
Laurence L. Cross, mayor, City of Berkeley
Robert K. Cutter, president, Cutter Laboratories, Berkeley
George A. Davidson, vice president, Standard Oil Company of California, in charge of the California Research Corporation, San Francisco
Paul L. Davies, president, Food Machinery and Chemical Corporation, San Francisco
Lee A. DuBridge, president, California Institute of Technology
T. W. Evans, vice president in charge of oil and chemical research, Shell Development Company, Emeryville
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Walter A. Haas, president, Levi Strauss and Company, San Francisco
Herman J. Hauck, S.J., president, Santa Clara University
Jesse E. Hobson, director, Stanford Research Institute
Henry J. Kaiser, president, Kaiser Aluminum & Chemical Corporation, and Kaiser Steel Corporation, Oakland
Charles Kendrick, president, Schlage Lock Company, San Francisco
Clark Kerr, chancellor, University of California, Berkeley
J. Paul Leonard, president, San Francisco State College
James K. Lochead, president, American Trust Company, San Francisco
Malcolm H. Merrill, director, California State Department of Public Health
Robert C. Miller, director, California Academy of Sciences, San Francisco
T. S. Petersen, president, Standard Oil Company of California, San Francisco.
Donald J. Russell, president, Southern Pacific Company, San Francisco
C. Donald Shane, director, Lick Observatory, Mount Hamilton
Ira I. Somers, acting director, National Canners Association Western Branch Research Laboratory, Berkeley

J. E. Wallace Sterling, president, Stanford University
 A. H. Sturtevant, retiring president, Pacific Division, AAAS, California Institute of Technology
 M. R. Sullivan, president, Pacific Telephone and Telegraph Company, San Francisco
 Reese H. Taylor, president, Union Oil Company of California, San Francisco
 Brother W. Thomas, president, St. Mary's College of California
 John T. Wahlquist, president, San Jose State College
 Harry R. Wellman, vice president—Agricultural Sciences, University of California
 Lynn T. White, president, Mills College, Oakland
 J. D. Zellerbach, president, Crown-Zellerbach Corporation, San Francisco

COMMITTEE ON EXHIBITS

Robert K. Cutter, president, Cutter Laboratories, Berkeley, *chairman*
 Jack L. Ashby, vice president and general manager, Kaiser Steel Corporation, Oakland
 Arnold O. Beckman, president, Beckman Instruments, Inc., South Pasadena
 Paul L. Davies, president, Food Machinery and Chemical Corporation, San Jose
 J. E. Hobson, director, Stanford Research Institute, Stanford
 H. Leslie Hoffman, president, Hoffman Radio Corporation, Los Angeles
 A. B. Layton, vice president, Crown-Zellerbach Paper Co., San Francisco
 Henry P. Nelson, president, Menasco Manufacturing Co., Burbank
 Wendell M. Stanley, director, Virus Laboratory, University of California, Berkeley
 Howard G. Vesper, vice president, Standard Oil Company of California, San Francisco

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 R. L. Curtis, vice president and general manager, Dow Chemical Company, San Francisco
 Paul L. Davies, president, Food Machinery and Chemical Corporation, San Francisco
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 W. J. Maytham, vice president, Westinghouse Electric Corporation, San Francisco
 T. S. Petersen, president, Standard Oil Company of California, San Francisco
 Alden G. Roach, president, Columbia-Geneva Division, U.S. Steel Corporation, San Francisco
 Matthew H. Scott, manager, Carbide and Carbon Chemicals Company, San Francisco
 D. M. Sheldon, secretary, Shell Development Company, New York

Mark R. Sullivan, president, Pacific Telephone and Telegraph Company, San Francisco
 E. E. Trefethen, Jr., vice president, Kaiser Aluminum and Chemical Corporation, Oakland
 R. W. Turnbull, commercial vice president, General Electric Company, San Francisco
 Dean Witter, partner, Dean Witter & Company, San Francisco

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 Leonie Boyd, Registrar's Office, University of California
 Robert B. Brode, vice president, Faculty Club, University of California
 Ruth N. Donnelly, housing supervisor, University of California
 Gregory F. Engelhard, director of general activities, Associated Students of the University of California
 Joseph W. Hutchison, principal superintendent of grounds and buildings, University of California
 J. E. Lateana, principal audio-visual specialist, University of California
 John D. Phillips, city manager, City of Berkeley
 Arthur R. Wright, vice president, Berkeley Convention Bureau

COMMITTEE ON PUBLIC RELATIONS

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 Milton H. Esberg, Jr., Consultants, Inc., 127 Montgomery Street, San Francisco
 Harold E. Jones, director, Institute of Child Welfare, University of California
 Robert C. Miller, director, California Academy of Sciences, San Francisco
 Daniel M. Wilkes, science writer, University of California

SUMMARY OF EVENTS

Registration, the AAAS Annual Exposition of Science and Industry, the AAAS Science Theatre, and the Visible Directory of Registrants are daily events, although the hours may vary from day to day. These events are described in detail in preceding and later sections of this Preview of the Berkeley Meeting.

Sunday Afternoon, 26 Dec.

Mathematics and Statistics

Third Berkeley Symposium on Mathematical Statistics and Probability—3 P.M.; informal reception; 288 Dwinelle Hall

Chemistry

Section on Chemistry—2 P.M.; contributed papers; 100 Lewis Hall

Sunday Evening, 26 Dec.

Chemistry

Section on Chemistry—7 P.M.; contributed papers; 100 Lewis Hall

Monday Morning, 27 Dec.

AAAS as a Whole

AAAS board of directors meeting—9 A.M.; Directors Room, Men's Faculty Club

Academy Conference—9 A.M.; business meeting; 33

Dwinelle Hall. 10:30 A.M.; reports of committees; 33, Dwinelle Hall

International Conference on Animal Venoms, I—9 A.M.; 155 Dwinelle Hall

Mathematics and Statistics

American Statistical Association; Institute of Mathematical Statistics; Section on Mathematics—9:30 A.M.; Applications of Poisson and Exponential Distributions to Physics and Industry; 111 Dwinelle Hall

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; American Statistical Association; Biometric Society, WNAR; Ecological Society of America; Institute of Mathematical Statistics—9 A.M.; Statistics in Biology and Genetics; 145 Dwinelle Hall

Chemistry

American Chemical Society, California Section; Section on Chemistry—9 A.M.; symposium: Petroleum Chemistry, I; Auditorium, Chemistry Building

Astronomy

Astronomical Society of the Pacific; Section on Astronomy—9 A.M.; papers; 1 Leuschner Observatory

Zoological Sciences

Society of Systematic Zoology—10 A.M.; council meeting I; Council Room, Stephens Union

Biological Sciences

Ecological Society of America and ESA, Western Section—9 A.M.; contributed papers; 159 Forestry Building

Society of General Physiologists—9 A.M.; contributed papers; 2507 Life Sciences Building

Western Society of Naturalists—9:15 A.M.; concurrent session 1; contributed papers: Physiology; 2503 Life Sciences Building. 9:15 A.M.; concurrent session 2; contributed papers: Vertebrate Natural History; 2003 Life Sciences Building

Psychology

Western Psychological Association; Section on Psychology—9 A.M.; symposium: The Present Status of Psychoanalytic Theory; 113, Haviland Hall

Society for Research in Child Development; Section on Psychology; Section on Education—9 A.M.; The Values and Limitations of Longitudinal Studies of Children; 123 Haviland Hall

Social and Economic Sciences

Section on Social and Economic Sciences; Section on Engineering—9 A.M.; symposium: The Appraisal of Natural Resources Development; B45 Dwinelle Hall

AAAS Committee for Social Physics—10 A.M.; Diffusion Theory, I; 15 Dwinelle Hall

Medical Sciences

Section on Medical Sciences—9 A.M.; symposium: Physiology of Growth—Normal and Abnormal, I; 101 California Hall

Society of American Bacteriologists, Northern California and Hawaiian and Southern California Branches—9:30 A.M.; contributed papers; 105 California Hall

Agriculture

Section on Agriculture; Western Society of Soil Science; American Geophysical Union—9 A.M.; symposium: Soil Management Problems in Western Agriculture; 125 Hilgard Hall

Education

Section on Education; American Educational Research Association—9 A.M.; joint session; 103 Wheeler Hall

National Science Teachers Association—9 A.M.; general session: The Schools, Their Problems, and You; Auditorium, Wheeler Hall. 10:15 A.M.; concurrent ses-

sion 1; discussion, Kindergarten through Grade 6; 11 Wheeler Hall. 10:15 A.M.; concurrent session 2; discussion, Grades 7 through 9; 30 Wheeler Hall. 10:15 A.M.; concurrent session 3; discussion, Grades 10 through 12; 110 Wheeler Hall

Science in General

American Nature Study Society—8 A.M.; meeting of board of directors; 203 Wheeler Hall. 9:30 A.M.; Natural History as Revealed by Early Explorers in the West; 311 Wheeler Hall

Monday Noon and Afternoon, 27 Dec.

For all women attending the AAAS meeting; Mrs. Robert Gordon Sproul and Mrs. Clark Kerr will entertain at a tea in the Women's Faculty Club, 3 to 5 P.M.

AAAS as a Whole

Academy Conference—2 P.M.; address; 33 Dwinelle Hall. 3 P.M.; reports from individual Academies; 33 Dwinelle Hall

International Conference on Animal Venoms, II—2 P.M.; 155 Dwinelle Hall

AAAS General Symposium—Science and Society, I: Natural Resources: Power, Metals, Food; 4 P.M.; Auditorium, Wheeler Hall

AAAS Council Meeting I—4 P.M.; Auditorium, Eshleman Hall

Mathematics and Statistics

American Statistical Association; Pacific Coast Committee on Social Statistics of the Social Science Research Council—2 P.M.; Regional Unemployment Estimates; 127 Dwinelle Hall

Institute of Mathematical Statistics; Biometric Society, WNAR—1:30 P.M.; Design of Experiments in Fisheries Work; 111 Dwinelle Hall

Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—4 P.M.; special invited papers; 145 Dwinelle Hall

Physics

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; Section on Physics; American Physical Society; American Statistical Association; Institute of Mathematical Statistics—1:30 P.M.; Statistical Mechanics; 145 Dwinelle Hall

Chemistry

American Chemical Society, California Section; Section on Chemistry—2 P.M.; symposium: Petroleum Chemistry, II; Auditorium, Chemistry Building

Astronomy

Astronomical Society of the Pacific; Section on Astronomy—1:30 P.M.; symposium: Nebular Red Shift; 1 Leuschner Observatory

Zoological Sciences

Society of Systematic Zoology—2 P.M.; symposium: Animal Courtship Pattern; 11 Wheeler Hall

Biological Sciences

Ecological Society of America and ESA, Western Section; Section on Zoological Sciences; Section on Botanical Sciences—2 P.M.; symposium: Marking Organisms in Ecological Studies; 159 Forestry Building

Western Society of Naturalists; Section on Chemistry; Section on Zoological Sciences; Section on Botanical Sciences; American Society of Plant Physiologists, Western Section—2 P.M.; invited papers: Photochemical Effects in Biological and Biochemical Systems, I; 2003 Life Sciences Building

Western Society of Naturalists—2 P.M.; contributed papers: Vertebrate Anatomy and Physiology; 2503 Life Sciences Building

Psychology

Western Psychological Association; Section on Psychology; Section on Education—2 P.M.; symposium: Sex Differences in Personality and Intellectual Development; 113 Haviland Hall

Society for Research in Child Development; Section on Psychology; Section on Education—2 P.M.; Approaches to the Study of Personality Development in Children; 123 Haviland Hall

Social and Economic Sciences

AAAS Committee for Social Physics—2 P.M.; Diffusion Theory, II; 15 Dwinelle Hall

History and Philosophy of Science

Society for the Advancement of General Systems Theory—2 P.M.; organizational meeting; B45 Dwinelle Hall

Medical Sciences

Section on Medical Sciences—2 P.M.; symposium: Physiology of Growth—Normal and Abnormal, II; 101 California Hall

Society of American Bacteriologists, Northern California and Hawaiian and Southern California Branches—2 P.M.; contributed papers; 105 California Hall

Agriculture

Section on Agriculture; Section on Geology and Geography; Section on Engineering; Western Society of Soil Science; American Geophysical Union—2 P.M.; symposium: Water Supplies and Irrigation; 125 Hilgard Hall

Education

Section on Education; American Educational Research Association—2 P.M.; joint session; 103 Wheeler Hall

Section on Education—2 P.M.; general papers; 102 Wheeler Hall

National Science Teachers Association—11:45 A.M.; luncheon program: This Is Your NSTA; Turquoise Room, University Cafeteria. 1:30 P.M.; concurrent session 1; Keeping Up to Date in Science; 30 Wheeler Hall. 1:30 P.M.; concurrent session 2; Keeping Up to Date in Science; 110 Wheeler Hall. 1:30 P.M.; concurrent session 3; Keeping Up to Date in Science; 120 Wheeler Hall. 4 to 6 P.M.; Science Teachers social mixer; Women's Social Room, Stephens Union

Science in General

American Nature Study Society—2 P.M.; Recent Scientific Explorations in the West and Their Contributions to Natural History; 311 Wheeler Hall

Monday Evening, 27 Dec.

AAAS as a Whole

Academy Conference—6:30 P.M.; Academy Conference dinner and presidential address; North Room, Men's Faculty Club

United Chapters of Phi Beta Kappa—Annual address; 8:30 P.M.; 155 Dwinelle Hall

National Geographic Society—Annual illustrated lecture; 8:30 P.M.; Berkeley High School Auditorium

Mathematics and Statistics

Institute of Mathematical Statistics—8 P.M.; council meeting; 117 Dwinelle Hall

Astronomy

Meteoritical Society—8 P.M.; meeting of 1950-54 council; Carlton Hotel

Zoological Sciences

Society of Systematic Zoology—8 P.M.; general lecture; 11 Wheeler Hall

Biological Sciences

Ecological Society of America and ESA, Western Sec-

tion—7 P.M.; Ecologists' dinner; place to be announced. (Purchase tickets in foyer of Gymnasium for Men.)

Social and Economic Sciences

National Academy of Economics and Political Science; Pi Gamma Mu; Section on Social and Economic Sciences—8 P.M.; symposium: National Defense against Atomic Attack; Auditorium, Eshleman Hall

Engineering

American Society for Engineering Education, Pacific Southwest Section—7:30 P.M.; committee meetings; 104, 125, 134, 204, 210, 286 Dwinelle Hall

Education

National Association of Biology Teachers—8 P.M.; meeting of executive board; 303 Wheeler Hall

Science in General

American Nature Study Society—8 P.M.; annual meeting of ANSS; 311 Wheeler Hall. 8:30 P.M.; annual showing of Kodachromes; 311 Wheeler Hall

Tuesday Morning, 28 Dec.

AAAS as a Whole

Conference on Scientific Manpower—9 A.M.; I. Implications of the Findings of the Commission on Human Resources and Advanced Training; 104 Engineering Building

International Conference on Animal Venoms, III—9 A.M.; 155 Dwinelle Hall

Mathematics and Statistics

American Statistical Association; Pacific Coast Committee on Social Statistics of the Social Science Research Council—9:30 A.M.; Regional Indexes of Business Activity; 127 Dwinelle Hall

American Statistical Association—9 A.M.; Reliability of Complex Systems; B45 Dwinelle Hall

Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—9 A.M.; Principle of Invariance; 111, Dwinelle Hall

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; American Statistical Association; Biometric Society, WNAE; Institute of Mathematical Statistics; Section on Medical Sciences—9 A.M.; Statistics in Medicine and Public Health; 145 Dwinelle Hall

Physics

American Meteorological Society—9:15 A.M.; announcements and welcome; 312 LeConte Hall. 9:30 A.M.; Dynamic Meteorology; 312 LeConte Hall

American Physical Society—10 A.M.; concurrent session 1; invited papers: High Energy Physics; 310 LeConte Hall. 10 A.M.; concurrent session 2; contributed papers: Shock Waves; 4 LeConte Hall. 10 A.M.; concurrent session 3; contributed papers: Theoretical Physics; 3 LeConte Hall. 10 A.M.; concurrent session 4; contributed papers: High Energy Experimental Physics; 1 LeConte Hall

Chemistry

Section on Chemistry; American Chemical Society, California Section; Section on Medical Sciences—9 A.M.; symposium: Viruses; Auditorium, Chemistry Building

Astronomy

Astronomical Society of the Pacific; Section on Astronomy—9 A.M.; papers; 1 Leuschner Observatory

Meteoritical Society—9 A.M.; business meeting; 322 LeConte Hall. 9:30 A.M.; papers, 322 LeConte Hall

Geology and Geography

Division of Mines, State of California—8:30 A.M.; departure of geological field trip to the Central Coast Ranges; Parking Lot, Hotel Claremont

Section on Geology and Geography; Association of American Geographers, Pacific Division; Association of Pacific Coast Geographers—9 A.M.; contributed papers: General Geography; 290 Hearst Mining Building

Zoological Sciences

Society of Systematic Zoology; Pacific Coast Entomological Society—9 A.M.; contributed papers; 30 Wheeler Hall

Biological Sciences

American Society of Limnology and Oceanography—9 A.M.; contributed papers; 230 Forestry Building

Ecological Society of America and ESA, Western Section—9 A.M.; symposium: Dew as an Ecological Factor; 159 Forestry Building

Western Society of Naturalists; Section on Chemistry; Section on Zoological Sciences; Section on Botanical Sciences; American Society of Plant Physiologists, Western Section—9 A.M.; invited papers: Photochemical Effects in Biological and Biochemical Systems, II; 2003 Life Sciences Building

Western Society of Naturalists; Section on Zoological Sciences—9 A.M.; symposium: Natural Resources of the West; 2000 Life Sciences Building

Botanical Sciences

American Phytopathological Society, Pacific Division—9 A.M.; symposium: Crop Sequence and Plant Disease Control; 113 Hilgard Hall

Psychology

Section on Psychology—9 A.M.; symposium: How Can Behavior Theory Best Handle the Construct of Motivation? 123 Haviland Hall

Social and Economic Sciences

Society for the Advancement of Criminology—9 A.M.; Education in Criminology, I; 15 Dwinelle Hall

History and Philosophy of Science

Section on History and Philosophy of Science—9 A.M.; contributed papers; 23 Dwinelle Hall

Engineering

American Society for Engineering Education, Pacific Southwest Section—9 A.M.; registration; foyer, Gymnasium for Men. 10 A.M.; Trends in Engineering Education; 105 Engineering Building

Medical Sciences

Section on Medical Sciences—9 A.M.; symposium: Physiology of Growth—Normal and Abnormal, III; 101 California Hall

Bay Counties Veterinary Medical Association—10 A.M.; invited papers: Some Problems in the Care of Laboratory Animals; 11 Wheeler Hall. 11 A.M.; panel: Infectious Disease Control in a Small Animal Hospital; 11 Wheeler Hall

Society for Experimental Biology and Medicine, Southern California and Pacific Coast Sections—9 A.M.; contributed papers; 105 California Hall

Dentistry

Section on Dentistry; International Association for Dental Research, North American Division; American College of Dentists; American Dental Association—9 A.M.; symposium: Growth and Development; 100 Lewis Hall

Pharmacy

Section on Pharmacy; American Pharmaceutical Association, Scientific Section; American Association of Colleges of Pharmacy; American Society of Hospital Pharmacists; American College of Apothecaries—9 A.M.; contributed papers; Auditorium, Eshleman Hall. 10:30 A.M.; panel: Hazardous Domestic Pesticides and Household Chemicals; Auditorium, Eshleman Hall

Agriculture

Section on Agriculture—9 A.M.; symposium: Seed Production in the Western States; 125 Hilgard Hall

Education

National Association of Biology Teachers—8 A.M.; meeting of the executive board; 303 Wheeler Hall

National Association of Biology Teachers; American Nature Study Society—8:30 A.M.; Science Teaching Films; 311 Wheeler Hall. 9:30 A.M.; theme: Biology for Pleasure; 311 Wheeler Hall

Section on Education—9 A.M.; general papers; 103 Wheeler Hall

National Science Teachers Association—9 A.M.; general session: Science Teachers Face Their Problems; Auditorium, Wheeler Hall. 9:50 A.M.; concurrent session 1; Trends and Issues in Science Teachings: Kindergarten through Grade 6; 110 Wheeler Hall. 9:50 A.M.; concurrent session 2; Trends and Issues in Science Teaching: Grades 7 through 9; 200 Wheeler Hall. 9:50 A.M.; concurrent session 3; Trends and Issues in Science Teaching: Grades 10 through 12; 120 Wheeler Hall. 11 A.M.; concurrent session 1; symposium: My Best Teaching Unit: Elementary and Junior High School Science; 110 Wheeler Hall. 11 A.M.; concurrent session 2; My Best Teaching Unit: Senior High School Science; 200 Wheeler Hall. 11 A.M.; concurrent session 3; panel: The Science Teachers' Clinic; 120 Wheeler Hall

Science in General

American Nature Study Society—8 A.M.; meeting of the board of directors; 203 Wheeler Hall

Tuesday Noon and Afternoon, 28 Dec.

AAAS as a Whole

Academy Conference—1 P.M.; Ninth Annual Junior Scientists Assembly; Concert Hall, Creative Arts Building, San Francisco State College

International Conference on Animal Venoms IV—2 P.M.; 155 Dwinelle Hall

AAAS General Symposium—Science and Society, II; Population Problems; 4 P.M.; Auditorium, Wheeler Hall

Mathematics and Statistics

Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—1:30 P.M.; invited addresses; 111 Dwinelle Hall

Institute of Mathematical Statistics—4 P.M.; contributed papers, I; 117 Dwinelle Hall

Physics

American Meteorological Society—1:30 P.M.; Optics, Radiation, and Instruments; 312 LeConte Hall. 4 P.M.; Demonstration of New Meteorological Instruments and Systems; Campanile Plaza

American Physical Society—2 P.M.; concurrent session 1; invited papers: Theoretical Physics; 1 LeConte Hall. 2 P.M.; concurrent session 2; invited and contributed papers: Nuclear Chemistry; 4 LeConte Hall. 2 P.M.; concurrent session 3; contributed papers: Electron Physics; 3 LeConte Hall. 2 P.M.; concurrent session 4; contributed papers: Nuclear Induction; 310 LeConte Hall

Chemistry

Section on Chemistry; American Chemical Society, California Section; Section on Medical Sciences—2 P.M.; symposium: Nucleic Acids and Nucleotides; Auditorium, Chemistry Building

Astronomy

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; Section on Astronomy; American Statistical Association; Astro-

nomical Society of the Pacific; Institute of Mathematical Statistics—1:30 P.M.; Statistics in Astronomy: The Spatial Distribution of Galaxies; 145 Dwinelle Hall

Meteoritical Society—2 P.M.; papers; 322 LeConte Hall

Geology and Geography

Section on Geology and Geography; Association of American Geographers, Pacific Division; Association of Pacific Coast Geographers—1:30 P.M.; contributed papers: General Geography; 290 Hearst Mining Building

National Speleological Society; American Nature Study Society—2 P.M.; The Underworld, the Last Frontier; 2507 Life Sciences Building

Zoological Sciences

Herpetologists League—2 P.M.; scheduled papers; 3598 Life Sciences Building

International Union for the Study of Social Insects—2 P.M.; International Union announcements; 113 Hilgard Hall. 2:15 P.M.; symposium: Colony Organization and Related Processes in Social Insects; 113 Hilgard Hall

Society of Systematic Zoology—2 to 5 P.M.; open house; California Academy of Sciences

Biological Sciences

American Society of Limnology and Oceanography—2 P.M.; contributed papers; 230 Forestry Building

Ecological Society of America and ESA, Western Section—2 P.M.; contributed papers; 159 Forestry Building

Western Society of Naturalists—1:30 P.M.; contributed papers: Physiology; 2003 Life Sciences Building. 4 P.M.; business meeting; 2503 Life Sciences Building

Western Society of Naturalists; Arctic Institute of North America—1:30 P.M.; invited papers: Science in the Arctic, I; 2503 Life Sciences Building

Botanical Sciences

Mycological Society of America; American Phytopathological Society, Pacific Division; American Society of Plant Physiologists, Western Section; Botanical Society of America, Pacific Section; Society of American Bacteriologists, Northern California and Hawaiian and Southern California Branches; Section on Botanical Sciences—1:30 P.M.; symposium: Physicochemical Control of Structural Differentiation in the Fungi; 113 Agriculture Hall

Anthropology

Section on Anthropology—2 P.M.; contributed papers; 210 Haviland Hall

Psychology

Section on Psychology; Section on Engineering—2 P.M.; invited papers: Psychological Factors in Highway Safety; 113 Haviland Hall

Section on Psychology—2 P.M.; general papers; 123 Haviland Hall

Social and Economic Sciences

Section on Social and Economic Sciences; American Statistical Association; Western Economic Association; Pacific Coast Committee on Social Statistics of the Social Science Research Council—2 P.M.; symposium: Regional Economic Analysis; B45 Dwinelle Hall

Society for the Advancement of Criminology—2 P.M.; Education in Criminology, II; 15 Dwinelle Hall. 4 P.M.; business meeting; 15 Dwinelle Hall

History and Philosophy of Science

Section on History and Philosophy of Science—2 P.M.; contributed papers; 23 Dwinelle Hall

Engineering

American Society for Engineering Education, Pacific Southwest Section—12 noon; luncheon and annual business meeting; place to be announced. 3 P.M.; tea for ladies; place to be announced

Medical Sciences

Section on Medical Sciences—2 P.M.; symposium: Physiology of Growth—Normal and Abnormal, IV; 101 California Hall

Bay Counties Veterinary Medical Association—12 noon; luncheon and address; Berkeley Women's City Club. 2 P.M.; invited papers; 11 Wheeler Hall. 5 P.M.; social hour; Hotel Claremont

Society for Experimental Biology and Medicine, Southern California and Pacific Coast Sections—2 P.M.; symposium: Adrenal-Pituitary Relationships; 105 California Hall

Dentistry

Section on Dentistry; International Association for Dental Research, North American Division; American College of Dentists; American Dental Association—12:15 P.M.; luncheon; Men's Faculty Club. 1:30 P.M.; symposium: Radiation Hazards in the Dental Office; 100 Lewis Hall

Pharmacy

Section on Pharmacy; American Pharmaceutical Association, Scientific Section; American Association of Colleges of Pharmacy; American Society of Hospital Pharmacists; American College of Apothecaries—2 P.M.; contributed papers; Auditorium, Eshleman Hall. 3:30 P.M.; panel: Ways and Means of Improving Pharmacy Service; Auditorium, Eshleman Hall

Agriculture

Section on Agriculture—2 P.M.; symposium: Problems in Horticultural Crops; 125 Hilgard Hall

Education

National Association of Biology Teachers; American Nature Study Society—2 P.M.; theme: Biology for Living; 311 Wheeler Hall

Section on Education—2 P.M.; symposium: Problems Relating to Reading; 103 Wheeler Hall. 3:30 P.M.; vice-presidential address; 103 Wheeler Hall. 4:30 P.M.; business meeting; 103 Wheeler Hall

National Science Teachers Association—1:30 P.M.; general session: high-school student panel: Science, Science Classes, and Science Teachers; Auditorium, Wheeler Hall. 2:30 P.M.; concurrent session 1; Superior Students in Science; 30 Wheeler Hall. 2:30 P.M.; concurrent session 2; Outside Resources in Science Teaching; 110 Wheeler Hall. 2:30 P.M.; concurrent session 3; Teaching for Problem Solving; 120 Wheeler Hall

Science in General

National Association of Science Writers—4 P.M.; symposium: Science and National Security; 104 Engineering Building

Sigma Delta Epsilon—3 to 4:30 P.M.; tea and social hour for all women in science; University of California Women's Faculty Club

Tuesday Evening, 28 Dec.

AAAS as a Whole

AAAS Presidential Address—8 P.M.; Auditorium, Wheeler Hall

AAAS Reception—9 P.M.; Clubrooms, Stephens Memorial Union.

Zoological Sciences

Society of Systematic Zoology—6 P.M.; informal dinner; Fishermen's Wharf. 8 P.M.; Morrison Planetarium Show; California Academy of Sciences

Botanical Sciences

American Phytopathological Society, Pacific Division; Mycological Society of America—6:30 P.M.; Phytopathol-

ogists' banquet; Blue and Gold Room, Hotel Claremont
Social and Economic Sciences

Society for the Advancement of Criminology—7 P.M.; dinner, installation of officers, and social hour; place to be announced

Engineering

American Society for Engineering Education, Pacific Southwest Section—6:30 P.M.; annual dinner; place to be announced

Education

National Association of Biology Teachers—8 P.M.; meeting of the editorial board; 303 Wheeler Hall. 8 P.M.; meeting of the national membership committee; 306 Wheeler Hall

Wednesday Morning, 29 Dec.

AAAS as a Whole

Conference on Scientific Manpower—9 A.M.; II. Prospective Developments in the Utilization of Scientists and Engineers; 104 Engineering Building

International Conference on Animal Venoms, V—9 A.M.; 155 Dwinelle Hall

Conference on Scientific Editorial Problems—10 A.M.; I. Preparation of Technical Manuals for Complex Instruments; 125 Hilgard Hall

Mathematics and Statistics

Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—9 A.M.; special invited papers; 145 Dwinelle Hall

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; Section on History and Philosophy of Science; American Statistical Association; Institute of Mathematical Statistics; Philosophy of Science Association—10 A.M.; Probability and Induction; 145 Dwinelle Hall

Physics

American Meteorological Society; Society of American Foresters—9 A.M.; Fire Weather Problems and Objective Forecasting; 312 LeConte Hall

American Physical Society—9 A.M.; invited papers: High Energy Machines; 310 LeConte Hall

Chemistry

Section on Chemistry—9 A.M.; symposium: Chemistry in the Harnessing of Biological Resources, I; Auditorium, Chemistry Building

Astronomy

Astronomical Society of the Pacific; Section on Astronomy—9 A.M.; papers; 1 Leuschner Observatory

Meteoritical Society—9 A.M.; papers; 322 LeConte Hall

Geology and Geography

Section on Geology and Geography; Geological Society of America; American Geophysical Union—9 A.M.; symposium: Earth Sciences from the Air, I; 100 Lewis Hall

Zoological Sciences

Herpetologists League—9 A.M.; symposium: Problems in Ecology of Amphibians and Reptiles; 3598 Life Sciences Building

Society of Systematic Zoology—9 A.M.; annual business meeting; 30 Wheeler Hall. 10:20 A.M.; contributed papers; 30 Wheeler Hall

Biological Sciences

American Society of Limnology and Oceanography—9 A.M.; contributed papers; 230 Forestry Building. 11 A.M.; annual business meeting; 230 Forestry Building

Western Society of Naturalists; Section on Zoological Sciences; Section on Botanical Sciences; American Society of Plant Physiologists, Western Section; Society of

General Physiologists—9 A.M.; symposium: The Cell, I; 2000 Life Sciences Building

Botanical Sciences

American Phytopathological Society, Pacific Division; Mycological Society of America—9 A.M.; demonstration of Methods of Assay for Soil-Inhabiting Microorganisms; 113 Hilgard Hall. 10:30 A.M.; discussion on Soil Borne Virus Diseases of Plants; 113 Hilgard Hall

Anthropology

Section on Anthropology—10 A.M.; symposium: Culture Change in the Pacific Area, I; 113 Haviland Hall

Psychology

Section on Psychology—9 A.M.; general papers; 123 Haviland Hall

Social and Economic Sciences

Section on Social and Economic Sciences; American Statistical Association; Pacific Coast Committee on Social Statistics of the Social Science Research Council—9:30 A.M.; symposium: The Social Structure of Cities; B45 Dwinelle Hall

Engineering

American Society for Engineering Education, Pacific Southwest Section—9 A.M.; committee reports and panel: Industry's Stake in Engineering Education; 105 Engineering Building

Medical Sciences

American Academy of Forensic Sciences—9 A.M.; symposium: Medical-Legal Aspects of Head Injuries; 15 Dwinelle Hall

Pharmacy

Section on Pharmacy; American Pharmaceutical Association, Scientific Section; American Association of Colleges of Pharmacy; American Society of Hospital Pharmacists; American College of Apothecaries—9 A.M.; contributed papers; Auditorium, Eshleman Hall

Education

National Association of Biology Teachers—8 A.M.; meeting of the executive board; 303 Wheeler Hall

National Association of Biology Teachers; American Nature Study Society—8:30 A.M.; Science Teaching Films; 311 Wheeler Hall. 9:30 A.M.; theme: Biology for Survival; 311 Wheeler Hall

National Science Teachers Association; National Association for Research in Science Teaching; AAAS Cooperative Committee on the Teaching of Science and Mathematics; Section on Education; Western Society of Naturalists—9 A.M.; symposium: Research in Science Education; Auditorium, Wheeler Hall

Section on Education; International Council for Exceptional Children—9 A.M.; panel: Problems in the Development of Educational Programs for Exceptional Children; 103 Wheeler Hall

Wednesday Noon and Afternoon, 29 Dec.

AAAS as a Whole

Conference on Scientific Editorial Problems—2 P.M.; II. Effective Technical Writing; 125 Hilgard Hall

International Conference on Animal Venoms, VI—2 P.M.; 155 Dwinelle Hall

AAAS General Symposium—Science and Society, III: Science in Human Thought and Action; 4 P.M.; Auditorium, Wheeler Hall

Mathematics and Statistics

Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—1:30 P.M.; Comparison of Experiments; 111 Dwinelle Hall

Institute of Mathematical Statistics—4:30 P.M.; contributed papers, II; 117 Dwinelle Hall

Physics

American Meteorological Society; Section on Geology and Geography—1:30 P.M.; symposium: Microclimatology; 312 LeConte Hall

American Physical Society—12:30 P.M.; open luncheon meeting; University Cafeteria. 2:30 P.M.; concurrent session 1; invited and contributed papers: Nuclear Polarization; 310 LeConte Hall. 2:30 P.M.; concurrent session 2; contributed papers: Experimental Meson Physics; 4 LeConte Hall. 2:30 P.M.; concurrent session 3; contributed papers: Solid State Physics; 1 LeConte Hall

Chemistry

Alpha Chi Sigma—12 noon; Alpha Chi Sigma luncheon; University Cafeteria

Section on Chemistry—2 P.M.; symposium: Chemistry in the Harnessing of Biological Resources, II; Auditorium, Chemistry Building

Pacific Southwest Association of Chemistry Teachers—2 P.M.; business session; 217 Chemistry Building

Astronomy

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; Section on Astronomy; American Statistical Association; Astronomical Society of the Pacific; Institute of Mathematical Statistics—1:30 P.M.; Statistics in Astronomy: The Distribution of Stars in the Hertzsprung-Russell Diagram; 145, Dwinelle Hall

Meteoritical Society—2 P.M.; papers; 322 LeConte Hall. 2:30 P.M.; business meeting; 322 LeConte Hall. 3 P.M.; presidential address; 322 LeConte Hall. 3:30 P.M.; meeting of the 1954-58 council, 322 LeConte Hall

Geology and Geography

Section on Geology and Geography; Geological Society of America; American Geophysical Union—1:30 P.M.; symposium: Earth Sciences from the Air, II (including 3-D film); Auditorium, Wheeler Hall

Zoological Sciences

Cooper Ornithological Society; Section on Zoological Sciences—2 P.M.; papers; 159 Forestry Building

Herpetologists League—2 P.M.; unscheduled papers, discussion, business meeting; 3598 Life Sciences Building

Society of Systematic Zoology—2 P.M.; panel: Museums; Clubroom, Stephens Union. 4 P.M.; tea; Memorial Room, Stephens Union. 5 P.M.; film; 11 Wheeler Hall

Biological Sciences

American Society of Limnology and Oceanography—2 P.M.; contributed papers; 230 Forestry Building

Western Society of Naturalists—1:30 P.M.; contributed papers: Natural History; 2003 Life Sciences Building

Western Society of Naturalists; Section on Zoological Sciences; Section on Botanical Sciences; American Society of Plant Physiologists, Western Section; Society of General Physiologists—2 P.M.; symposium: The Cell, II; 2000 Life Sciences Building

Western Society of Naturalists; Arctic Institute of North America—1:30 P.M.; invited papers: Science in the Arctic, II; 2503 Life Sciences Building

Botanical Sciences

American Phytopathological Society, Pacific Division; Mycological Society of America—2 P.M.; symposium: The Mode of Survival of Plant Pathogens in the Soil; 113 Agriculture Hall

Section on Botanical Sciences—4:30 P.M.; open house for all botanists; 2023 Life Sciences Building

Anthropology

Section on Anthropology—2 P.M.; symposium: Culture Change in the Pacific Area, II; 123 Haviland Hall

Psychology

Section on Psychology—2 P.M.; invited papers: The Nervous System and Behavior; 113 Haviland Hall

Social and Economic Sciences

Section on Social and Economic Sciences; American Statistical Association; Pacific Coast Committee on Social Statistics of the Social Science Research Council—2 P.M.; symposium: Pacific Coast Population Trends; B45 Dwinelle Hall

History and Philosophy of Science

Section on History and Philosophy of Science—12 noon; Section L luncheon; place to be announced. 2 P.M.; contributed papers; 23 Dwinelle Hall. 4 P.M.; vice-presidential address; 23 Dwinelle Hall

Engineering

American Society for Engineering Education, Pacific Southwest Section—12:15 P.M.; luncheon; place to be announced. 1:45 P.M.; Education and Accreditation of Engineers; 105 Engineering Building

Pharmacy

Section on Pharmacy; American Pharmaceutical Association, Scientific Section; American Association of Colleges of Pharmacy; American Society of Hospital Pharmacists; American College of Apothecaries—2 P.M.; contributed papers; Auditorium, Eshleman Hall. 3:30 P.M.; panel: Administrative Responsibilities of the Hospital Pharmacist; Auditorium, Eshleman Hall

Education

National Association of Biology Teachers; American Nature Study Society—12:30 P.M.; NABT-ANSS luncheon and address; Hotel Durant

National Association of Biology Teachers—2:30 P.M.; theme: Our Biology Laboratory Problems; 30 Wheeler Hall. 4 P.M.; reports of recorders of group work; 30 Wheeler Hall

Section on Education; International Council for Exceptional Children—2 P.M.; Recent Research in the Education of Exceptional Children; 103 Wheeler Hall

National Science Teachers Association—12 noon to 2 P.M.; "Try-It-Yourself" Exhibits; 230 Wheeler Hall. 2 P.M.; general session; Progress in Science Education; 11 Wheeler Hall. 2:30 P.M.; concurrent session 1; Elementary Program A; 110 Wheeler Hall. 2:30 P.M.; concurrent session 2; Elementary Program B; 120 Wheeler Hall. 2:30 P.M.; concurrent session 3; Elementary Program C; 200 Wheeler Hall. 2:30 P.M.; concurrent session 4; High-School Biology; 210 Wheeler Hall. 2:30 P.M.; concurrent session 5; High-School Chemistry; 213 Wheeler Hall. 2:30 P.M.; concurrent session 6; High-School Physics; 122 Wheeler Hall. 4 to 6 P.M.; "Try-It-Yourself" Exhibits; 230 Wheeler Hall

Science in General

American Nature Study Society—2 P.M.; conference: ANSS—Should We Expand Our Activities? 311 Wheeler

Wednesday Evening, 29 Dec.

AAAS as a Whole

Society of the Sigma Xi—Annual Address; 8 P.M.; Auditorium, Wheeler Hall

Conference on Scientific Editorial Problems—III. 8 P.M.; Scientific Journals; 125 Hilgard Hall

Mathematics and Statistics

Institute of Mathematical Statistics—7:30 P.M.; business meeting; 117 Dwinelle Hall

Institute of Mathematical Statistics; Section on Mathematics—9 P.M.; beer party for all mathematicians and statisticians; Angelo's, Emeryville

Physics

American Meteorological Society—7 P.M.; dinner; Fishermen's Wharf, San Francisco

Chemistry

Pacific Southwest Association of Chemistry Teachers—6:30 P.M.; dinner; Grill Room, Men's Faculty Club

Astronomy

Section on Astronomy; Astronomical Society of the Pacific—5:45 P.M.; Astronomers' dinner; Women's Faculty Club. 8 P.M.; vice-presidential address of Section D; 145 Dwinelle Hall

Meteoritical Society—6 P.M.; Meteoritical Society dinner; Japanese Room, Yamato Sukiyaki House, San Francisco

Geology and Geography

Section on Geology and Geography; Association of American Geographers, Pacific Division; Association of Pacific Coast Geographers; Geological Society of America—8 P.M.; vice-presidential address and Section E smoker; Senior Men's Hall

Zoological Sciences

Herpetologists League—5:30 P.M.; Herpetologists' social; University Cafeteria. 6 P.M.; Herpetologists' dinner; University Cafeteria. 6:45 P.M.; address; University Cafeteria

Society of Systematic Zoology; American Society of Ichthyologists and Herpetologists—8 P.M.; lecture; 11, Wheeler Hall

Society of Systematic Zoology—9 P.M.; council meeting II; Council Room, Stephens Union

Biological Sciences

Western Society of Naturalists—6 P.M.; annual banquet and presidential address; University Cafeteria

Psychology

Section on Psychology—8 P.M.; vice-presidential address; 113 Haviland Hall

Pharmacy

Section on Pharmacy; American Pharmaceutical Association, Scientific Section; American Association of Colleges of Pharmacy; American Society of Hospital Pharmacists; American College of Apothecaries—7 P.M.; dinner meeting of the Northern California Society of Hospital Pharmacists; Hotel Claremont

Education

National Association of Biology Teachers—8 P.M.; meeting of editorial board; 303 Wheeler Hall

Science in General

American Nature Study Society—6 P.M.; ANSS banquet. 8 P.M.; ANSS presidential program. 9:30 P.M.; ANSS mixer. Places to be announced

Thursday Morning, 30 Dec.

AAAS as a Whole

AAAS council meeting II—9 A.M.; Auditorium, Eshleman Hall

International Conference on Animal Venoms, VII—9 A.M.; 155 Dwinelle Hall

AAAS Cooperative Committee on the Teaching of Science and Mathematics—10 A.M.; The Crisis in Science Education, I; Auditorium, Chemistry Building

Mathematics and Statistics

American Mathematical Society; Section on Mathematics; Third Berkeley Symposium on Mathematical Statistics and Probability—11 A.M.; contributed papers; 111 Dwinelle Hall

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; American Statistical Association; Institute of Mathematical Statistics—9 A.M.; Mathematical Statistics; 145 Dwinelle Hall

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; Section on Engineering; American Statistical Association; Institute of Mathematical Statistics—10 A.M.; Statistics in Industrial Research; 145 Dwinelle Hall

Physics

American Meteorological Society—9 A.M.; Pacific Meteorology; 312 LeConte Hall

American Physical Society—9 A.M.; concurrent session 1; invited papers: Nuclear and Electron Resonance; 310 LeConte Hall. 9 A.M.; concurrent session 2; invited and contributed papers: Theoretical Physics; 3 LeConte Hall. 9 A.M.; concurrent session 3; contributed papers: Low Energy Experimental Physics; 4 LeConte Hall. 9 A.M.; concurrent session 4; invited and contributed papers; High Energy Electron Physics; 1 LeConte Hall

Chemistry

Section on Chemistry—9 A.M.; contributed papers; 100 Lewis Hall

Astronomy

Section on Astronomy; Astronomical Society of the Pacific; Meteoritical Society—trip to Lick Observatory, Mount Hamilton

Geology and Geography

Section on Geology and Geography; Geological Society of America—9 A.M.; contributed papers: General Geology; 290 Hearst Mining Building

Zoological Sciences

Society of Systematic Zoology; Pacific Coast Entomological Society—9 A.M.; contributed papers; 30 Wheeler Hall

Biological Sciences

American Society of Limnology and Oceanography; Ecological Society of America and ESA Western Section—9 A.M.; symposium: Recent Advances in Biological Oceanography; 159 Forestry Building

Ecological Society of America and ESA, Western Section; Herpetologists League—9 A.M.; departure of field trip to Muir Woods and Stinson Beach State Park; West Gate of Campus

Western Society of Naturalists—9:15 A.M.; contributed papers: Marine Zoology; 2507 Life Sciences Building

Western Society of Naturalists; Arctic Institute of North America—9:15 A.M.; invited papers: Science in the Arctic, III; 4093 Life Sciences Building

Botanical Sciences

Section on Botanical Sciences—9 A.M.; contributed papers; 113 Agriculture Hall

Anthropology

Section on Anthropology—9 A.M.; symposium: The Contribution of India-Pakistan Studies to Social Science Theory; 113 Haviland Hall

Psychology

Section on Psychology—9 A.M.; general papers; 123 Haviland Hall

Engineering

Section on Engineering; Section on Chemistry; Section on Medical Sciences; Section on Agriculture; American Geophysical Union—9:30 A.M.; symposium: Air Pollution, I; 101 California Hall

Medical Sciences

Alpha Epsilon Delta; Sigma Pi Sigma; Section on Chemistry; Section on Zoological Sciences; Section on

Medical Sciences; Section on Dentistry—9 A.M.; symposium: Preparation for Medical and Dental Education in the Liberal Arts College; 11 Wheeler Hall

American Psychiatric Association; Section on Medical Sciences—9 A.M.; panels: Psychiatry-Pharmacology: Recent Advances: Clinical Applications of Chlorpromazine and of Reserpine; 105 California Hall

Donner Laboratory of Biophysics and Medical Physics; Section on Physics; Section on Medical Sciences—9 A.M.; Recent Advances in Biophysics and Medical Physics, I: Cellular Biophysics; 2000 Life Sciences Building

Pacific Slope Biochemical Conference—9 A.M.; concurrent session 1; papers: Biochemical and Biophysical Methods; 2003 Life Sciences Building. 9 A.M.; concurrent session 2; papers: Metabolism and Endocrines; 2503 Life Sciences Building

Industrial Science

Section on Industrial Science—9:30 A.M.; symposium: The Roles of Government, Industry, and the University in Basic Research, I; Salem Room, Hotel Claremont

Education

National Association of Biology Teachers; American Nature Study Society—9 A.M.; departure of field trip to Muir Woods and Stinson Beach State Park; lobby, Wheeler Hall

Science in General

Society of the Sigma Xi—10 A.M.; 55th annual convention; Emerald Room, Hotel Claremont

Thursday Noon and Afternoon, 30 Dec.

AAAS as a Whole

AAAS Section Officers' luncheon and business meeting—12 noon; Town Room, Hotel Shattuck

Conference on Scientific Editorial Problems—2 P.M.; IV. Military and Industrial Technical Reports; 100 Lewis Hall

International Conference on Animal Venoms, VIII—2 P.M.; 155 Dwinelle Hall

AAAS Cooperative Committee on the Teaching of Science and Mathematics—2 P.M.; The Crisis in Science Education, II; Auditorium, Chemistry Building

Pacific Science Board—4 P.M.; Public Lecture; Auditorium, Wheeler Hall

Mathematics and Statistics

American Statistical Association; Institute of Mathematical Statistics; Section on Mathematics—2 P.M.; panel: The Meaning of Probability to the Engineer, Mathematician, and Physicist; 111 Dwinelle Hall

Institute of Mathematical Statistics—4 P.M.; contributed papers, III; 117 Dwinelle Hall

Third Berkeley Symposium on Mathematical Statistics and Probability; Section on Mathematics; Section on Psychology; Section on Education; American Statistical Association; Institute of Mathematical Statistics; Western Psychological Association—1:30 P.M.; Statistics in Psychology; 145 Dwinelle Hall

Physics

American Meteorological Society—1:30 P.M.; Weather Modification; 312 LeConte Hall

American Physical Society—1:30 P.M.; concurrent session 1; invited papers: Division of Electron Physics; 310 LeConte Hall. 1:30 P.M.; concurrent session 2; contributed papers: High Energy Experimental Physics; 4 LeConte Hall. 1:30 P.M.; concurrent session 3; contributed papers: Spectroscopy; 1 LeConte Hall. 1:30 P.M.; concurrent session 4; invited and contributed papers: Instrumentation; 3 LeConte Hall. 1:30 P.M.; concurrent

session 5; post-deadline contributed papers: Unstable Heavy Particles, Machine-made; 2 LeConte Hall

Zoological Sciences

Society of Systematic Zoology—2 P.M.; lecture: Cenozoic Vertebrate Paleontology and Continental Stratigraphy of Australia; 290 Hearst Mining Building

Biological Sciences

American Society of Limnology and Oceanography—visit to River and Harbor Laboratory, College of Engineering, University of California

Beta Beta Beta—12:15 P.M.; luncheon and regional meeting of the Western Region of Beta Beta Beta; Social Hall, Trinity Methodist Church, Bancroft and Dana Streets. 2:15 P.M.; contributed papers; Social Hall, Trinity Methodist Church

Western Society of Naturalists—1:30 P.M.; contributed papers: Protozoology and Parasitology; 4093 Life Sciences Building

Western Society of Naturalists; Arctic Institute of North America; American Society of Limnology and Oceanography—1:30 P.M.; invited papers: Science in the Arctic, IV: Distribution of the Plankton of the North Pacific Ocean; 159 Forestry Building

Botanical Sciences

Section on Botanical Sciences; Botanical Society of America, Pacific Section; American Society of Plant Physiologists, Western Section; American Society of Naturalists—2 P.M.; symposium: Modern Views on Tissue Differentiation; 113 Agriculture Hall

Anthropology

Section on Anthropology—2 P.M.; contributed papers; 123 Haviland Hall

Psychology

Western Psychological Association; Section on Psychology—2 P.M.; symposium: Perception: Learned and Unlearned; 113 Haviland Hall

Social and Economic Sciences

Section on Social and Economic Sciences—2 P.M.; symposium: The Organization of Research for Western Regional Development; B45 Dwinelle Hall

Engineering

Section on Engineering; Section on Chemistry; Section on Medical Sciences; Section on Agriculture; American Geophysical Union—2 P.M.; symposium: Air Pollution, II; 101 California Hall

Medical Sciences

Alpha Epsilon Delta—12:15 P.M.; luncheon and address; Turquoise Room, University Cafeteria

Alpha Epsilon Delta; Sigma Pi Sigma; Section on Chemistry; Section on Zoological Sciences; Section on Medical Sciences; Section on Dentistry—2 P.M.; round-table discussions: Preparation for Medical and Dental Education in the Liberal Arts College; 110, 120, 200, 210, Wheeler Hall. 4:30 P.M.; summary session for reports from round-table groups; 11 Wheeler Hall

American Psychiatric Association; Section on Medical Sciences—2 P.M.; panel: Psychiatry-Pharmacology: Recent Advances: Mechanism of Drugs with Behavioral Effects; 105 California Hall

Donner Laboratory of Biophysics and Medical Physics; Section on Physics; Section on Medical Sciences—2 P.M.; symposium: Recent Advances in Biophysics and Medical Physics, II: Biophysics and Medical Physics; 2000 Life Sciences Building

Pacific Slope Biochemical Conference—2 P.M.; concurrent session 1; papers: Enzymes, Photosynthesis, Protein Synthesis; 2003 Life Sciences Building. 2 P.M.; con-

current session 2; papers: Metabolism, Amino Acids, Nucleic Acids; 2503 Life Sciences Building

Industrial Science

Section on Industrial Science—12:15 P.M.; luncheon and vice-presidential address; Blue and Gold Room, Hotel Claremont. 2:30 P.M.; The Roles of Government, Industry, and the University in Basic Research, II; Salem Room, Hotel Claremont

Science in General

Society of the Sigma Xi; Scientific Research Society of America—1 P.M.; luncheon; Lido Deck, Hotel Claremont

Scientific Research Society of America—3 P.M.; annual convention; Emerald Room, Hotel Claremont

Thursday Evening, 30 Dec.

AAAS as a Whole

Scientific Research Society of America—8 P.M.; annual address and award of William Procter prize; Auditorium, Wheeler Hall

AAAS, Society of Systematic Zoology—8:30 to 11 P.M.; Biologists' smoker (Open to all registrants); Terrace, Hearst Gymnasium for Women

Mathematics and Statistics

Section on Mathematics; Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—6:30 P.M.; dinner of Mathematicians and Statisticians; Hotel Shattuck

Institute of Mathematical Statistics—8:30 P.M.; council meeting; 117 Dwinelle Hall

Physics

American Physical Society; Section on Physics; Sigma Pi Sigma—7:30 P.M.; Physicists' dinner; Men's Faculty Club

Zoological Sciences

Society of Systematic Zoology; Section on Zoological Sciences—6:30 P.M.; Zoologists' dinner and vice-presidential address of Section F; University Cafeteria

Biological Sciences

Western Society of Naturalists; Arctic Institute of North America—7:45 P.M.; invited papers: Science in the Arctic, V: motion pictures; 155 Dwinelle Hall

Botanical Sciences

Section on Botanical Sciences; American Society of Plant Physiologists, Western Section; Botanical Society of America, Pacific Section; Mycological Society of America—6:30 P.M.; Botanists' dinner and vice-presidential address of Section G; University Cafeteria

Social and Economic Sciences

Section on Social and Economic Sciences; Section on Anthropology; Section on Psychology; Section on Education—6 P.M.; Social Sciences dinner meeting and vice-presidential address of Section K; International House

National Association of Biology Teachers—8 P.M.; meeting of the executive board; 303 Wheeler Hall

Friday Morning, 31 Dec.

Mathematics

American Mathematical Society; Section on Mathematics; Third Berkeley Symposium on Mathematical Statistics and Probability—11 A.M.; contributed papers; 111 Dwinelle Hall

Institute of Mathematical Statistics; Third Berkeley Symposium on Mathematical Statistics and Probability—9 A.M.; visit to Institute of Forest Genetics, Placerville

Education

National Association of Biology Teachers; American

Nature Study Society—9 A.M.; theme: Special Activities in Conservation Education in the Western States; 311 Wheeler Hall

Friday Afternoon, 31 Dec.

AAAS as a Whole

AAAS Pacific Division—12:15 P.M.; luncheon meeting of the executive committee; Directors Room, Men's Faculty Club

Science in General

American Nature Study Society—2 P.M.; start of trip to California Academy of Sciences; Lobby, Wheeler Hall

AAAS ANNUAL EXPOSITION OF SCIENCE AND INDUSTRY

The AAAS Annual Exposition of Science and Industry, which dates back to 1924 (still earlier with certain pioneer exhibitors), has long been an important and integral part of the Association's annual meeting. It provides an outstanding opportunity for those who use the tools and materials of science to meet those who produce and distribute the same. The 1954 edition of the Exposition, by special arrangement housed in the Gymnasium for Men of the University of California, is up to the same high standard of previous years.

The exhibits include the latest and best in scientific books, instruments, and materials; they are on a scale, and with a diversity, not usually possible at the meeting of an individual society or group of societies in a single field of science. In addition to this "core" of the Exposition, a variety of organizations have special exhibits, and there are *technical* exhibits by large firms representative of the basic industries of the nation. Prominent concerns in the chemical, pharmaceutical, and other industries are sharing with the attending scientists some of their impressive technological accomplishments. The Exposition should not be missed by anyone who attends this 121st meeting.

The Exposition is open to (i) all registrants attending the 121st meeting; (ii) adults who have applied for, and received, complimentary tickets of admission.

HOURS OF THE ANNUAL EXPOSITION OF SCIENCE AND INDUSTRY

Monday, 27 Dec.	2 P.M. to 6 P.M.
Tuesday, 28 Dec.	9 A.M. to 5 P.M.
Wednesday, 29 Dec.	10 A.M. to 5 P.M.
	and 7:30 P.M. to 10 P.M.
Thursday, 30 Dec.	9 A.M. to 3 P.M.

EXHIBITS IN THE ANNUAL EXPOSITION OF SCIENCE AND INDUSTRY

AAAS New Member Service—Science—The Scientific Monthly (Booth 13). Whether or not one is a member of the American Association for the Advancement of Science, every person attending this meeting is cordially invited to visit the AAAS booth for information concerning the Association and its activities. Beyond the satisfaction of strengthening its work for science, for scientists, and for society by one's membership, there are demonstrable personal advantages in joining the Association.

Since its founding, in 1848, the Association has admitted to membership not only professional scientists but also other men and women who have a general interest in science, who wish to keep informed of the progress of science, and who would like to support the high purposes of the one organization that represents *all* science. The New

Member Service will be pleased to accommodate those who wish to join the Association as of 1 Jan. Members can conveniently nominate others for membership.

Included in the annual dues of \$6.50 (for 1955), each member has a choice of a year of *Science*, the professional scientist's newsweekly, or *The Scientific Monthly* (or both for an additional \$3.50). Free sample copies of these two publications will be distributed, and all not familiar with both magazines should visit this booth where Symposium Volumes and AAAS membership insignia are also on display. Prospective advertisers may obtain sample copies of the magazines and rate cards.

American National Red Cross (Booths 33 and 34).

American Optical Company, Instrument Division (Booth 45). The American Optical Company, Instrument Division, will introduce its newest student microscopes, Model 73, designed to provide instructor and student with a compound microscope which combines simplicity of operation, allowing more time for actual subject matter and less time for lengthy instruction on instrumentation, and specially designed optics to provide clear images, mechanical movements that are all metal and will give long trouble-free life. See this latest development in low-cost student instruments at the American Optical Company booth. A new polarized light attachment for use with the AO Stereoscopic microscopes will be shown. The newest development in a microscope lamp for group student use will be exhibited. A new Hand Sugar Refractometer will be shown and demonstrated which has automatic temperature compensation and illumination built into one compact unit. The well-known AO Phase microscope will be demonstrated as well as latest developments in laboratory microscopes of binocular and monocular design. An Instrument Division representative of the American Optical Company will be present at all times to discuss instruments displayed or help you with problems associated with instrument application.

The American Tobacco Company, Inc. (Booths 77 and 78). The Research Laboratory of The American Tobacco Company will demonstrate a recording automatic cigarette-weighing balance which was developed by its Instrument Division. This balance utilizes a servo mechanism and has been recently improved by the incorporation of an automatic counter thereby completely eliminating the human factor in the determination of cigarette weights on a laboratory scale or as a control in commercial production. Original applications of well-known principles such as this result in closer control of quality in Lucky Strike, Pall Mall, and Herbert Tareyton cigarettes. The exhibit will also include samples of the four main types of tobacco used in the production of cigarettes. Technical literature will be available for distribution.

Animal Welfare Institute (Booth 74). The Schweitzer medal, honoring the great physician and humanitarian, Albert Schweitzer, will be displayed for the first time. The Animal Welfare Institute will award this medal, together with \$500, to the scientist who does most to further a major aim of the institute: To foster developments in experimentation whereby animal suffering may be minimized. Blanks for the use of persons who wish to nominate a scientist for this award will be available at the booth. Also on display, and available free on request, will be copies of *Basic Care of Experimental Animals*, a manual now in use in most medical and veterinary schools, as well as a large number of commercial laboratories, in the United States. Another new Animal Welfare Institute publication, *Comfortable Quarters for Laboratory Animals*, will also be on exhibit and available without charge.

It is a loose-leaf collection of floor plans, construction details, cages and other information prepared for institutions which contemplate improvements in their animal quarters through remodeling, re-equipping, or building. The material has been selected with a view to overcoming major problems in modern animal houses, such as overcrowding, lack of room for exercise, lack of comfortable resting places for animals, and inadequate ventilation and sanitation. New material will be continuously added and made available to interested institutions.

Annual Reviews, Inc. (Booth 61). Annual Reviews, Inc., is a nonprofit corporation which, since 1931, has been engaged in the publication of annual reviews in the various sciences. In each Review an attempt is made to survey, through the cooperation of 20 or more distinguished scientists, the progress which is being made, year by year. The reviews are critically written and the present status of the science carefully appraised. The particular sciences to which these Reviews pertain are as follows, year of inception and name of editor indicated in parentheses: Annual Review of *Biochemistry* (1932; J. M. Luck); Annual Review of *Physiology* (1939; V. E. Hall); Annual Review of *Microbiology* (1947; C. E. Clifton); Annual Review of *Medicine* (1950; W. C. Cutting); Annual Review of *Plant Physiology* (1950; D. I. Arnon); Annual Review of *Physical Chemistry* (1950; G. K. Rollefson); Annual Review of *Psychology* (1950; C. P. Stone); Annual Review of *Nuclear Science* (1952; J. G. Beckerley); Annual Review of *Entomology* (to appear in 1956; E. A. Steinhous). Each of the eight Reviews published in 1954 will be on display, together with back volumes. All of these publications are sold at \$7 per copy, postpaid. Orders may be placed with the attendant in the exhibit booth or may be addressed to Annual Reviews, Inc., Stanford, California.

Applied Research Laboratories (Booth 53). The Applied Research Laboratories will exhibit the latest instruments for spectro-chemical analysis. Engineers in attendance will be glad to demonstrate and discuss optical emission spectrographs, quantometers, x-ray fluorescence equipment and power sources. Reprints of the latest techniques are available as well as full information on the quantometers, and the new curved crystal x-ray spectrometers. We welcome your visit to our booth.

Arctic Institute of North America (Booths 31 and 32).

Association of American University Presses (Booth 96). The university presses, leaders in the field of nonfiction, each year publish a large number of important titles. Many of these gain lasting recognition as reference books and college texts. Each press represented in the Association of American University Presses' exhibit at the 1954 AAAS Annual Exposition of Science and Industry is a separate publishing company producing technical, medical, and scholarly works as well as general books of vital interest to all Americans. This exhibit offers you an opportunity to see the new books from various university presses at our booth.

Atchison, Topeka and Santa Fe Railway Company (Booths 11 and 12). A Santa Fe model railroad with a purpose—constructed over a period of 4½ years by Bill Morgan, a railroad hobbyist, from San Diego, Calif. Its purpose is to provide education and amusement for children and adults alike. The model displays 5½ scale miles of track. It has 30 electrically operated switches and can handle three operating trains each at the same time, each one independent of the other. The entire roadbed has actual sanded ballast to conform to prototype. Automatic signals indicate location of all trains. Passenger trains

are complete with rivet detailed sides; working springs in all trucks, and finished interiors including overhead lights in all cars. The rails were laid with miniature railroad spikes requiring more than 10,000 spikes. Twenty-seven of its 30 switches were hand-made from 6-ft strips of brass rail; each has its own jeweled switch stand to indicate the position of the switch. The control board is a complete unit, carrying more than 100 wire cables. It is operated by 3 transformers, 5 rectifiers, 4 power stats, and 7 relays. The mobile railroad unit in the past has amused many shut-ins confined in hospitals and rest homes throughout Southern California.

Beckman Instruments, Inc. Berkeley Division (Booth 44). Berkeley Division of Beckman Instruments, Inc., is exhibiting instrumentation for the laboratory and clinical measurement of radioactivity. In particular, a complete system for medical use of radioisotopes for clinical diagnosis will be on display and sealing equipment and monitoring equipment with associated accessories for the radio assay of radioisotopes used in various branches of chemical research will be shown. Both of these systems in these two general fields will be displayed as operating systems.

Beckman & Whitley, Inc. (Booth 41). Beckman & Whitley, Inc., Instruments Division will display its line of meteorological instruments, including a new high Resolution Anemometer, Radiometer, and Heat Flow Transducers. The new Model 189 Framing Camera will be shown, and a demonstration will be given once each day—showing how pictures are taken at rates over 1 million per second! The demonstration schedule will be posted at the Beckman & Whitley Booth No. 41.

The Bioscope Manufacturing Company (Booth 28). The Bioscope Manufacturing Company will exhibit The Bioscope, an instrument that will project microscopic slides down on a table or on a wall screen and is especially made to project living material without harmful heat. The Bioscope makes microscopic study interesting to students; speeds up microscopic study tremendously; eliminates eye strain and cramped positions; makes a great saving in microscopes and slides; and is self-contained in a long-lasting case. Master Model Bioscope Complete is \$116; specially selected slides, 25 per set, \$8.50. Superintendents, principals, and science teachers are cordially invited to Booth 28 in the Exposition to see The Bioscope. Bioscope Manufacturing Co., Box 1492, Tulsa, Okla.

California Research Corporation (Booth 40). The exhibit of the California Research Corporation shows characteristics and samples of surface coatings and plastics derivatives of isophthalic acid which are illustrative of the following information:

Isophthalic alkyd resins containing 75 to 80 percent soybean oil are in excellent condition after nearly 5 years of outdoor weathering and are equal to conventional phthalic anhydride alkyd resins containing 65 percent soybean oil. An isophthalic alkyd type of house paint vehicle containing 90 percent soybean oil is also in good condition after nearly 5 years of outdoor weathering and is considerably better than conventional linseed oil house paint vehicles or a similar alkyd type of vehicle made from phthalic anhydride. Automotive, machinery, and appliance enamels are improved by the use of isophthalic alkyds. Tougher, more durable films are obtained. Isophthalic is an excellent material for use in unsaturated polyesters. Cured resins from isophthalic polyesters have considerably better flexural strength properties, and impact strengths are improved greatly when the isophthalic content of the polyester is high. Also, the heat distortion temperatures of cured resins made from isophthalic polyester are significantly higher than those of similar resins

made from phthalic anhydride. High polymer polyesters and polyamides containing isophthalic show interesting possibilities in films, fibers, and molding resins where modifications in melt point and crystallinity are desired. Plasticizers for polyvinyl chloride plastic products are more permanent, and the plastics retain flexibility longer when they are made from isophthalic.

Carolina Biological Supply Company (Booth 5). Carolina Biological Supply Company cordially invites you and your friends to visit us at Booth 5. Our exhibit will be of particular interest to botanists and plant pathologists as well as to zoologists. During the past year all phases of our botany department have been greatly improved under the capable guidance of Fred W. Emerson, who has been with us in the capacity of botany consultant. On display will be our new plant presses, vasculums, and kodachromes made up under his supervision. Also there will be shown our new and complete listing of instruments and tools, about which many of you have inquired in the past year. These items are now in stock and available for your immediate use. Plast-O-Mounts, biological specimens embedded in plastic for permanent preservation, will be exhibited along with our unbreakable plastic models. Our booth will be attended by professional biologists who will be glad to help you with your problems and invite your suggestions and criticism.

Central Scientific Company (Booths 67 and 68). Among many new items of apparatus for the physical, chemical, biological, and research laboratory which Cenco will exhibit in Booths 67-68 are a new Van de Graaff Generator which develops 200,000 to 300,000 volts for striking classroom demonstrations with electrostatic electricity; the new 1-gal capacity Waring Blendor; Quikpure, a device for quickly changing tap water into the chemical equivalent of triple distilled water in terms of specific electric resistance; and five new science kits that have been designed to give pupils or students, ages 8 to 18, a better understanding of science and industry, and their importance in American living. The science kits are carefully prepared so the student can forecast weather; transmit and receive radio messages on the set he builds himself; learn the principles of light rays and study the stars through his own telescope; study rocks and minerals; and analyze the functions of the human body.

The Coca-Cola Company (Booths 36 and 37). Ice cold Coca-Cola will be served through the courtesy and cooperation of the Coca-Cola Bottling Company of Oakland and The Coca-Cola Company.

Denoyer-Geppert Company (Booth 6). The Denoyer-Geppert Company will exhibit its line of visual teaching aids to the biological sciences and related subjects, featuring the newly developed unbreakable Resilioplast anatomical models and many new charts imported from foreign countries. The new models can be dropped on a concrete floor without resultant damage, even to the painted surface because the plastic casting material permits use of paints that fuse directly with the cast, thereby making the surface an integral part of the model, not subject to chipping or flaking. Some of the plastic models also feature innovations of design, such as the new life-size dissectible torso and head model with interchangeable pelvic inserts for changing the sex of the model. The display will be a representative sampling of the wide variety of products available from Denoyer-Geppert Company. Virtually all aspects of biological science are "covered" by the many items in the D-G line, including botany, zoology, anatomy, physiology, embryology, histology, parasitology, neurology, and plant pathology. The exhibit will be of interest to anyone engaged in instructional activities in

the field of biology. Experienced representatives will be on hand to demonstrate our products, answer any questions, and discuss visual teaching aids problems.

Folkways Records & Service Corp. (Booth 39). The Folkways Records and Service Corp. of 117 W. 46 St., New York, N. Y. was established as a commercial company with one of its main purposes to document through phono-records and prerecorded tape the phenomena of sounds found on the earth, in sea and air. The Ethnic Folkways Library series provides recordings of the authentic music expression of peoples (and the cultural and social background in accompanying notes). The Science Series provides illustrations of sounds—animal, man-made and 'natural' both in and out of their specific environment (with accompanying notes by authorities in these fields). Folkways Records makes available records and tape recordings in literature, international folk music and jazz, and in the children's fields. Brochures will be distributed describing Folkways publications in detail and all products will be on display and demonstrated.

W. H. Freeman and Company (Booth 46). Textbooks in the biological sciences, chemistry, and geology will be exhibited by W. H. Freeman and Company, San Francisco. We invite you to drop in at Booth 46 and look over our publications: Hardin: *Biology: Its Human Implications*, ed. 2; DuShane and Regnery: *Experiments in General Biology*; Srb and Owen: *General Genetics*; Stern: *Principles of Human Genetics*; Bonner and Galston: *Principles of Plant Physiology*; Oosting: *The Study of Plant Communities*; Oginsky and Umbreit: *An Introduction to Bacterial Physiology*; Pauling: *College Chemistry and General Chemistry*, ed. 2; Malm and Frantz: *College Chemistry in the Laboratory and College Chemistry in the Laboratory No. 2*; Frantz: *A Laboratory Study of Chemical Principles*; Gilluly, Waters and Woodford: *Principles of Geology*; Krumbein and Sloss: *Stratigraphy and Sedimentation*; Levorsen: *Geology of Petroleum*; Newell et al.: *The Permian Reef Complex of the Guadalupe Mountains Region, Texas and New Mexico*; Niggli: *Rocks and Mineral Deposits*; Williams, Turner, and Gilbert: *Petrography*.

Adolf Frese Corporation (Booth 108). The Adolf Frese Corporation is the West Coast distributor for the new Emson Balance. This balance, of single-span design, is unmatched for speed, simplicity, reproducibility, accuracy, and dependability. It is a direct-reading balance, 200-g capacity, beam loaded, with an air-damping device that eliminates the disturbing effect of a magnetic field within the balance. The weight recording scale is in the center at eye level, and the weights are located in the base of the balance. Excessive vibrations associated with overhead weight type balances are avoided. The Emson Balance will be exhibited at the Adolf Frese Corporation booth.

The Graf-Apsco Company (Booth 52). The answer to any microscope repair problem will be found at Booth 52 of the Graf-Apsco Company "America's Leading Microscope Repair House." Guaranteed rebuilt microscopes of various brands are displayed as well as numerous hard-to-get or discontinued optics. The new Graf-Apsco microscopes with built-in safety features can be seen and compared. Latest Zeiss instruments of West Germany and information on Zeiss equipment can also be obtained.

Laboratory Equipment Company (Booth 66). The Laboratory Equipment Company of San Francisco will exhibit the following pieces of equipment: Hotpack Laboratory Ovens, Furnaces, Incubators and Water Baths; Metalab Steel Laboratory Furniture; Sartorius Selecta Analytical Speed Balances; Photovolt pH Meters; Aetna Water Stills and Autoclaves; Leitz Microscopes; Reich-

ert Microtomes; Chemical Rubber Company Automatic Laboratory Glassware Washer; Stocker & Yale Laboratory Lamps; Beck Spectroscopes; Clay-Adams Centrifuges; Ohaus Scales; Royal Metal Laboratory Stools; Hellige Photoelectric Colorimeters; and other laboratory apparatus items and scientific instruments. In attendance: J. Karl Kolhede and A. O. Schlichtmann.

E. Leitz, Inc. (Booth 42). E. Leitz will exhibit microscopes, a new Micro Manipulator, and scientific opticals in general. Visitors are cordially invited to visit the Leitz booth for demonstrations and further information.

McGraw-Hill Book Company, Inc., and Blakiston Medical Division (Booths 91 and 92). The merger of the Blakiston Company with McGraw-Hill, which took place 1 Nov., makes the McGraw-Hill exhibit of unusual interest this year. The Blakiston imprint will continue to signify the high quality of publications in the health sciences for which the firm has been noted for generations, while the college texts and nonmedical reference works will be transferred to the McGraw-Hill list. Books on display include a broad selection of new and standard works in botany, biology, zoology, agriculture, chemistry, mathematics, physics, and every branch of engineering and the social sciences. The Blakiston Division books include several new and authoritative works in medicine, public health, pharmacy, and nursing. In attendance at the McGraw-Hill booths will be Harry P. Graves, vice president in charge of Pacific Coast office and field representatives Alden C. Paine, Robert Belanger, and Geoffrey Clouse.

Microchemical Specialties Co. (Booth 58).

Micro-Technical Services Co. (Booth 59).

Microtime Laboratories (Booths 85 and 86). Microtime Laboratories will present its latest model High Speed Flash X-ray Pulse Generators. This equipment produces extremely short duration (less than 2×10^{-7} sec) burst of x-rays in the 35kv-100kv range. In conjunction with the x-ray equipment we are also exhibiting the new MX-100 x-ray tube. This tube represents a new development in the field of commercially available field emission tubes. It has the advantage of a beryllium window, a conical anode for focusing the x-ray beam and gives longer tube life when used with this type of circuitry. This is the first time the new Kerr Electro-optical equipment has been shown. A cell with complete associated circuitry and camera will be exhibited. Associated equipment, that is, 100-kv Power Supply and Pulse transformer will also be shown.

National Geographic Society (Booths 21 and 22). The exhibit of the National Geographic Society will feature the *National Geographic Magazine* and the *Geographic School Bulletins*. Also on display will be maps, books, pictures, and other special educational materials of the society. An automatic projector will screen a continuous selection of natural color slides. The slides cover National Geographic field assignments and expeditions and were selected from illustrations by staff photographers of the *National Geographic Magazine*.

National Society for Medical Research (Booth 101).

North American Aviation, Inc. (Booths 14 and 15). North American Aviation will display a nuclear research reactor model as an example of the reactors the company has designed for medical, industrial, and scientific applications. The model will demonstrate how a full-scale reactor can be used for cancer therapy and other medical applications; the production of radioisotopes; and the development of radiation processing for food and drug preservation. Representatives from the company's Atomic Energy Department will be present to explain other types of reactors designed by North American for a wide variety

of applications in the field of nuclear research. The representatives will have available for distribution copies of the company's brochure, Nuclear Reactors for Science and Industry, the world's first catalog describing reactors available to qualified industrial, educational, and medical organizations. North American is one of the country's largest organizations developing the nonmilitary uses of atomic energy and is participating in the Atomic Energy Commission's program to develop economical electric power from nuclear energy.

Nuclear Instrument and Chemical Corporation (Booth 3). The exhibit of the Nuclear Instrument and Chemical Corporation will include: New Model D-47 Flow Counter with exclusive removable 120- μ g micromil window; a completely automatic Sample Changing system for use with GM, scintillation, proportional, or flow counting; the New Mediac medical uptake instrument designed specifically for quick and precise uptake measurements; a new Counting Rate Meter of high accuracy; a portable Survey Meter for measuring both fast and slow neutrons; and a completely re-engineered alpha, beta, gamma portable survey instrument, plus the Actigraph laboratory group for paper chromatography and absorption studies.

Office of Naval Research (Booth 10).

The Pacific Telephone and Telegraph Company (Booth 35). The Pacific Telephone and Telegraph Company will exhibit one or more late developments of the Bell Telephone Laboratories related to communications.

Philosophical Library (Booth 73). The Philosophical Library of New York will display some of their new titles in the field of General Sciences: *Development of the Guided Missile* by Kenneth W. Gatland; *Glass Reinforced Plastics* edited by Phillip Morgan; *The Gyroscope Applied* by K. I. T. Richardson; *Aspects of Deep Sea Biology* by N. B. Marshall; *The Elements of Chromatography* by T. I. Williams; *The Treasury of Philosophy* by Dagobert D. Runes.

Research Equipment Corporation (Booth 4). Chromatographic equipment for paper and column chromatography and apparatus for paper electrophoresis will be displayed by Research Equipment Corporation who specialize in the manufacture of this type of equipment. Included in the display will be the most recent model chromatography oven, chromatographic chambers for two-dimensional separation, and other miscellaneous equipment recently developed for paper chromatography. An assortment of pyrex chromatographic columns for column chromatography with some specially designed glass apparatus for use in this field will be shown. Also included in the display will be the new Reco Fraction Collector, and the new Sample Applicator for applying samples to chromatograms. The new Reco Vertical Curbain Electrophoresis will be shown and a comprehensive bibliography on paper electrophoresis will be available without charge. A very comprehensive bibliography of chromatography in general covering the last 10 years, cross-indexed by title, author, and subject matter, will be offered for a nominal charge.

Rinehart & Company, Incorporated (Booth 97). The exhibit from Rinehart & Company, Inc., will be composed of our publications for colleges and universities in the following academic disciplines: agriculture, anthropology, the biological sciences, chemistry, economics, education, mathematics, physics, psychology, sociology and zoology. Our display of more than 100 books will contain some recently published titles, which will warrant careful examination, not only for their content, but also for their physical beauty. Entomologists will be especially interested in examining the new *Introduction to the Study of*

Insects by Borror and DeLong; physicists will want to see Dirk ter Haar's *Elements of Statistical Mechanics* and Semat's *Introduction to Atomic Nuclear Physics*; mathematicians will be interested in Beaumont and Ball's *Introduction to Modern Algebra and Matrix Theory*; and psychologists and sociologists will be pleased to find a new work by Allen L. Edwards, entitled: *Statistical Methods for the Behavioral Sciences*. Psychiatrists and psychologists will find a display of the books published by Basic Books, Inc., which are distributed by Rinehart & Company. In addition to the texts for colleges and universities, Rinehart will display outstanding technical publications in radio, television, electronics, and electricity.

Henry Salvatori Laboratory of Geophysics, Stanford University (Booth 51). The major display of the Henry Salvatori Laboratory of Geophysics Exhibit is a Gravity Meter in an illuminated transparent lucite case. This extremely delicate mechanism is essentially a sensitive weighing scale. It has a sensitivity of 1/100 milligal which corresponds to a change of 1 part in 100 million of the total value of gravity. In terms of weight this is analogous to weighing small fractions of a pencil dot. Field experience has demonstrated that this sensitivity is sufficient to measure the very minute variations of the gravitational field caused by the normal changes of density found within the surface layers of the earth. Exploration geophysicists study these variations and are able to infer from these the distribution of subsurface masses. A seismogram profile and the corresponding dip-depth section, illustrating pertinent evidence of a specific subsurface structure, are also featured. This information is obtained by the reflection seismograph, the most successful and commonly used oil exploration method. Other displays are charts and schematic diagrams depicting geophysical information. This exhibit is made possible by the kind sponsorship of Western Geophysical Company of America of Los Angeles. Stanford University students of geophysics, who serve as attendants, participated in the preparation of the exhibit.

The Science Library (Booths 110, 111, 112). The Science Library is administered by the AAAS as an additional service to publishers of books, both exhibitors and nonexhibitors. It has become an integral part of each year's Annual Exposition of Science and Industry. In the Science Library, books of all publishers participating are grouped by fields of science—a convenience both to the visitor who is restricting his inspection of books to a single category and to the one who wishes to browse.

Among the publishers in the Science Library are American Association for the Advancement of Science, Academic Press Inc., Addison-Wesley Publishing Company, Inc., Annual Reviews, Inc., Appleton-Century-Crofts, Inc., Cambridge University Press, Chemical Publishing Co., Inc., Columbia University Press, Cranbrook Institute of Science, Thomas Y. Crowell Company, Crown Publishers, Inc., The Devin-Adair Company, E. P. Dutton & Co., Inc., Emerson Books, Inc., Folkways Records and Service Corp., W. H. Freeman and Company, Harvard University Press, D. C. Heath and Company, Paul B. Hoeber, Inc., Henry Holt and Company, Inc., Houghton Mifflin Company, Iowa State College Press, The Johns Hopkins Press, Lea & Febiger, J. B. Lippincott Company, Little, Brown & Company, The Macmillan Company, Josiah Macy, Jr. Foundation, Pantheon Books, Inc., Prentice-Hall, Inc., The Ronald Press Company, W. B. Saunders Company, Charles C. Thomas, Publisher, University of California Press, University of Minnesota Press, John Wiley & Sons, Inc., Yale University Press, The Year Book Publishers, Inc.

Scientific Film Company (Booth 48). Picture Yourself, the theme of the exhibit presented by the Scientific Film Company, points the way to better, more effective teaching, public relations, advertising, and sales promotion programs through the use of motion pictures. The Scientific Film Company, specialists in the production of fine motion pictures in the field of science, serves scientific societies, industrial organizations, colleges and universities, and public relations groups throughout the nation, helping them to bring themselves and their activities before the public. Business and industrial organizations have found that there is no better medium for publicizing their products or services than the use of motion pictures, either for direct audience viewing or for television. Teaching institutions find greater effectiveness with special film productions created specifically for their individual teaching programs; and they find that their public relations activities get better results with motion pictures. The Scientific Film Company gives special attention to limited budget productions; and now SFC brings the use of full color sound motion pictures within the means of every organization interested in education, public relations, or advertising. This is the age of motion pictures; and Scientific Film Company motion picture technologists would like to show you how you can *Picture Yourself*.

Silge & Kuhne (Booths 70 and 71). Microscopists, photomicrographers, and those interested in other branches of scientific photography will find the Silge & Kuhne exhibit of special interest. Shown in operation are the patented Ortho-Illuminators, including the new Ortho-Illuminator B—Modern apparatuses that embody an entirely new concept of illumination for the microscope. They are designed to be applied to, and combined with, any standard microscope, affording all of the advantages of "built-in illumination." Based on the Koehler principle, Ortho-Illuminators become, optically, an integral part of, and are in permanent alignment with, the microscope. They provide complete control of illumination as to intensity, color temperature, color, numerical aperture and field of view; thus, fulfilling the prerequisites for maximum microscope performance. They are instantly adaptable to brightfield, phase-contrast, darkfield, polarized light, fluorescent light work, in visual microscopy, photomicrography, or microprojection. The Orthophot camera assembly, which is also shown in operation embodies a novel concept of modern engineering principles applied to the field of scientific photography. One single unitized apparatus serves in a simple efficient way most branches of scientific photography, that is, photomicrography, photomacrography, laboratory and clinical photography, cine-photomicrography and technical photocopying, plus adaptation for enlarging and microprojection—all in a compact apparatus that can be kept on the laboratory desk or bench. The Orthophot provides excellent results in black and white or natural color in any of the mentioned fields, without special training. Be sure to see these interesting demonstrations.

Specialized Instruments Corporation (Booth 102). The Specialized Instruments Corporation will exhibit some of its new products: Spinco Model R. Paper Electrophoresis System, a new integrated group of instruments which coordinates and routinizes all paper electrophoresis operations, from precision specimen application to automatic computation and recording of component relationships; New Developments in Ultracentrifugation, special rotors and accessories developed to broaden the applicability of both analytical and preparative ultracentrifugation. Regular products include the Spinco Model E Analytical Ultracentrifuge; Spinco Model L Preparative Ultracentrifuge;

and the Spinco Model H Electrophoresis-Diffusion Instrument.

Special Libraries Association, San Francisco Chapter (Booth 113). The San Francisco Chapter of the Special Libraries Association will exhibit materials to show what a special library is, what it does, and how it can assist scientists.

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation (Booths 55 and 56). Plant infections caused by bacteria are yielding to antibiotic treatment, as have human infections. A comprehensive display by John Powell & Company, a division of Olin Mathieson Chemical Corporation, tells the story with charts and photographs. On this occasion Powell introduces *Phytomycin*, a new streptomycin product, for use in the control of certain bacterial diseases of plants. This antibiotic, developed and produced in the laboratories of the Squibb Division, has been found to control fireblight of apple and pear trees. With the special problems of the orchardist in mind, the producer offers an aqueous solution of streptomycin nitrate. The liquid formulation is easy to measure. It is chemically compatible with many pesticides and therefore may offer possibilities of combination treatment.

J. W. Stacey, Inc. (Booths 1 and 2). Stacey's, established over a quarter of a century ago, provides those in the West with an efficient source for technical books of all publishers. At Booths 1 and 2 you will find displayed the latest in scientific literature.

Stanford Research Institute (Booths 8 and 9).

Teaching Aids Exchange (Booth 54). Teaching Aids Exchange will feature the Crow Electri-Kits. These kits provide a practical new visual-experiment method for teaching electricity and electronics at a cost within reach of every school. The exhibit will include the small kit designed for junior-high-school courses in general science and industrial arts electricity. It will also include the instructor demonstration kits which provide a complete laboratory for instruction in electricity and the fundamentals of electronic components. Also featured will be the rotating electric machine which is designed to give complete instruction on all types of a-c and d-c motors. Each kit contains complete apparatus for performing a related series of fascinating experiments that demonstrate visually electrical principles and their practical application. A coordinated text-manual fully describes and illustrates every experiment. The use of these kits relieves the instructor of tedious time-consuming preparation. It enables students with no mathematical background to grasp the principles of electricity readily. They learn by watching and doing the experiments.

Technical Equipment Co. (Booth 72). The Technical Equipment Company will demonstrate their line of precision electronic temperature controllers; their line of micro-rotameters; and their Automatic Orsat Gas Analyzer. They will also display photographs of their complete line of petroleum testing apparatus. Temperature controllers will be displayed which have a control accuracy of $\pm 0.001^\circ\text{C}$, ranges of -100°C to 500°C , and a resistance thermometer—precision bridge circuit design. These controllers will be demonstrated controlling a constant temperature bath to $\pm 0.001^\circ\text{C}$. The controllers are suitable for control of constant temperature baths for Warburg apparatus, viscometers, pycnometers, refractometers, PVT apparatus, as well as incubators, furnaces, and industrial temperature control. The micro-rotameters will be demonstrated on a test panel arranged for visitor participation. One rotameter tube with two floats (one hollow plastic; one solid platinum) will illustrate a range

of flow rates of air from 1 to 1200 ml/min. Rotameter holders from brass to the Hastelloys and floats from Teflon to platinum will be displayed. The Automatic Orsat Gas Analyzer demonstration will illustrate the use of an electronic control system to replace the manual recirculation of gases through Orsat absorbers. New equipment will be solicited from inventors for manufacture under license.

Technical Instrument Co. (Booth 47). Precision optical equipment is the main activity of the Technical Instrument Co. On exhibit will be a number of makes of microscopes, centrifuges, microtomes, and other special equipment, both imported and domestic. Information with respect to unconditionally guaranteed service and repair on any microscope is available for the asking. Imported telescopes, together with other scientific instruments, will be exhibited. Information on facilities for building special instruments to customers' designs will be available.

Tide Water Associated Oil Company (Booth 7). Controls and accessories have been added to a laboratory distillation column to provide automatic recording of data, control of reflux ratio, control of heat input, and separation of distillate samples. The principal novelty is the automatic control of reflux ratio. The design displayed is applicable directly to laboratory columns whose reflux ratio is set by an intermittent take-off device. The automation is obtained by making the intermittent take-off device skip one or more successive take-offs whenever a rise occurs in the temperature of the column top. It is thought that the device may be of interest to chemists in the petroleum and chemical industries.

Trans-Pacific Import and Export Co. (Booth 75). Olympus Microscopes are manufactured by the Olympus Optical Company of Japan, which is one of the oldest and largest manufacturers of optical instruments in Japan and is well known as the pioneer of the microscope industry in that country. With about 40 years of experience and much valuable assistance given them during that time by German precision instrument engineers and other readily available information, they are in a position today to build the finest of microscopes. In 1949 the Microscope Export Promotion Commission of Japan publicly stated that Olympus biological microscopes were the best obtainable in Japan. On 15 Oct. 1949, an official letter of commendation and highest award for their microscopes was granted to the Olympus people from the Minister of International Trade and Industry of the Japanese government. The name *Olympus* is a guarantee of the finest quality microscopes, and all Olympus Microscopes carry a 3-year guarantee against defective parts or workmanship. Please see our display of Olympus Microscopes in Booth 75 at the Gymnasium for Men.

University Apparatus Company (Booth 98). One of the outstanding exhibits to be presented at the 1954 Annual Exposition of Science and Industry will be that of the University Apparatus Co., of Berkeley, Calif. This 52-year old firm, as distributors of chromatography equipment and electrophoresis apparatus, will feature RSCo products manufactured by Research Specialties Co., of the same city. Paper electrophoresis units designed for both research and clinical uses will be exhibited. Accessory items will include power supplies and paper-strip scanners. The chromatography display will present new types of glass-jar and glass-tube units (Pyrex Glass), as well as a complete line of standard glass-jar (Pyrex Glass) and cabinet units, and the nonbreakable solvent trough assemblies which are an RSCo specialty. An im-

portant accessory will be a new electro-desalter unit. Instruments for other laboratory purposes will include a radioactivity sample holder, a constant temperature paraffin dispenser, and an all-stainless automatic pipette washer. Further, the University Apparatus Co., as sole distributors of Pyrex Laboratory Glassware in the convention city of Berkeley, California, expect to exhibit several new items in behalf of the Corning Glass Works, outstanding manufacturers of laboratory glassware.

University of California Schools of Medicine, San Francisco and Los Angeles (Booths 87 and 88). The exhibit of the Schools of Medicine of the University of California at Berkeley and Los Angeles is made possible by the kind sponsorship of the Cutter Laboratories of Berkeley, California.

W. M. Welch Manufacturing Company (Booths 49 and 50). The W. M. Welch Manufacturing Company will exhibit laboratory instruments for physics, chemistry, and biology departments including stainless steel balances, high vacuum pumps, electric measuring instruments, electronics teaching devices, an oscilloscope for recording peripheral arterial blood pressure, a densichron for measuring optical density and reflecting power, etc. Several new pieces will be shown for the first time:—a Maxwell top, film loops, for teaching repetitive processes, a new diffusion cloud chamber, a logarithm and trigonometric tables chart, a Van de Graaff generator, demonstration radio equipment, etc. Charts and sets of charts will be shown for teaching physics, chemistry, and biology.

Western Scientific Apparatus (Booth 69). Exhibit features special glass apparatus designed and built by Western, such as its mercury diffusion pump, micro-kjeldahl distillation apparatus, tilting McLeod gages, volatile acid still, and vacuum stirring apparatus. All this equipment will be in operation, as will the line of glassblowing equipment manufactured by Western. This includes crossfires, roller stands, annealing burners, ribbon burners, and a polariscope for the detection of strains in blown glassware. Literature describing both the specialties and the more common apparatus fabricated by Western will be available, and at least one of the firm's glassblowers will be on hand at all times to discuss and demonstrate the equipment. In addition to items of its own manufacture, Western will exhibit the Victor rotameter, a new flow measuring instrument, the Heller electronic timer for accurate short interval timing, and a line of standard taper joint thermometers, including an enclosed porcelain scale model. Of additional interest to the attendance will be a small glassblowing lathe with a glassblower actually fabricating apparatus.

Wyeth Laboratories (Booth 60). Improvements, over a 7-year period, in the formulation of venom inocula for hyperimmunization, in which certain venoms were deleted, others increased, and new venoms added to succeeding immunizing cycles resulted in the composition of a formula incorporating four venoms appearing to contain the basic antigens for all crotaline venoms; and led to production of a serum effective for all species of the family Crotalidae. Using a modification of the salting-out procedure, employed for production of antitoxins, a method of refinement has been developed with which a practically water-clear, concentrated antivenin has been obtained. Considerable investigation utilizing various test animals and venom-antivenom neutralization techniques, and using venoms from most crotaline species, has shown that neutralization of the venoms of the dominant species indicates adequate levels of antivenom for the minor species Crotalidae.