Science Exhibition

At the delayed 1945 annual meeting, held in St. Louis during the spring of this year, there was a partial resumption of the Science Exhibition sponsored by the Association. At that time it was not possible to have as large a representation of technical and scientific exhibits as in previous years because of the short notice on which the meeting was called. In Boston a much larger group of scientists and manufacturers will be represented. It is particularly gratifying to note that there will be a substantial increase in the scientific exhibits.

The Exhibition will be held in the First Corps Cadet Armory, Arlington Avenue and Columbus Street. The Armory is conveniently located in the center of Boston and diagonally across the street from the Hotel Statler, general headquarters of the convention.

The standards for exhibiting at the Association's meetings have always been high, and this year's exhibitors have qualified in every way for participation. The Association expresses appreciation on behalf of its members for the cooperation of all the exhibitors who will make this feature possible.

The local committee for the meetings is sponsoring a tea each afternoon at 4:30 in the Gun Room of the Armory. Members and their friends are invited to visit the Exhibition and enjoy this hospitality of the local committee.

Some institutions and concerns which have already decided to take part in the Exhibition were unable to send descriptive material for publication in this issue of *Science*. This is particularly true of exhibitors expected from England, South Africa, Canada, and Australia.

At our request the exhibitors have furnished us with the following descriptions of their exhibits:

American Optical Company

(Scientific Instrument Division)
Buffalo, New York
Booth Nos. 26–27

The Scientific Instrument Division of the American Optical Company will have several interesting instruments on exhibit. The Phase Microscope, a recent research development, will be on display. A new Metallurgical Microscope, with coated optics, and a Microcharacter will be shown. Two Polarizing Microscopes, one in which Polaroid of optical quality replaces calcite, as well as one using calcite, will also be exhibited. A graduated quartz wedge for use with the Polarizing Microscope and other standard microscopes and instruments of the well-known Spencer quality will be on hand. Messrs. O. E. Schaefer, G. W. Frid, N. J. Blaiklock, R. A. Lowe, and C. R. Smith will be in attendance to demonstrate Spencer equipment and to discuss any optical questions presented by visitors.

Baird Associates

Cambridge, Massachusetts
Booth No. 2

Baird Associates plan to exhibit the following equipment: *Double Beam Infra-Red Spectrometer*—This instrument will be set up and operating in the booth. It will give recorded transmission values in the spectral range, 2–15 microns; *Cabinet Model Infra-Red Gas Analyzer*—The gas analyzer will be operating and recording a continuous analysis of the CO_2 content of the air in the exhibit hall; *Interference Filters*—Transmission-interference filters for use in the solution of optical problems will be demonstrated. The outstanding characteristic of these filters is their narrow transmission bands which can be located in any specified wave length of the spectrum; *Hardy Dermal Radiometer*—This instrument is a radiometric device adapted to the measurement of surface temperatures. The apparatus has been used for measuring skin temperatures in humans, and the precision of the instrument is such that temperatures can be measured to $\pm 0.01°$ C.; *Surface Roughness Standards*—These surface finish standards have found wide acceptance as gages for checking the acceptable roughness of a machined surface. The set consists of 20 stainless-steel blocks machined to predetermined microinch readings. Differences in roughness as low as two millionths of an inch can be detected by tactual (fingernail) comparisons.

Bausch & Lomb Optical Company

Rochester, New York
Booth Nos. 52, 53, and 54

"New Developments in the Field of Optical Instruments" will be the main theme of the Bausch & Lomb exhibit. Visitors will be shown demonstrations of new development projects in the field of optics and will be given an opportunity to see some of the new products planned for the future. Among these will be new microscopes which can be equipped with fluorescence and stereoscopic accessories, new photomicrographic equipment for ultraviolet work, a new combination bright field-dark field vertical illuminator, and a number of new equipments for the control of substage illumination. Technical personnel will be in attendance at the booths during exhibit hours to provide complete information on the operation and use of these new products.

The Blakiston Company

Philadelphia, Pennsylvania
Booth No. 28

The Blakiston Company, Philadelphia and Toronto, have prepared an especially attractive exhibit of their textbooks and reference works of interest to teachers in the sciences. Extensive recent progress in various fields of scientific endeavor has been fruitful and of real significance in areas of undergraduate study. Teachers will be interested in the presentation of atomic fission, disintegration, and resulting nuclei included in the new printing of Hackh's *Chemical dictionary. The "particles" of modern physics,* by Stranathan; *Electronic physics,* by Hector, Lein, and Scouten; *Human embry-*

ology, by Bradley M. Patten; *Inorganic chemistry*, by W. Norton Jones, Jr.; Pregl's *Quantitative organic microanalysis*; and Stiles' new edition of the *Handbook of microscopical characteristics of tissues and organs* are some of the new books to be shown. Textbooks for full college term, semester, or briefer courses in chemistry, physics, and the biological sciences will be on display. Teachers are cordially invited to discuss textbook problems or matters pertaining to new manuscripts with the Blakiston representative. Dr. James B. Lackey, editor of Undergraduate Texts, will be in charge.

Cargille Scientific, Inc.

New York, New York
Booth No. 70

Cargille Scientific, Inc., associated with the firm of R. P. Cargille, will exhibit the following new products: (1) Crocker-Henderson Odor Standards, developed and long used by Arthur D. Little, Inc., and commercially available for the first time. The Crocker-Henderson System, which makes it possible to evaluate any order in terms of a 4-digit number, has many important applications; (2) Hawkin's Density Gels for the rapid comparison of the densities of gems and minerals as well as other materials; replace the high-density solutions that have long been used and which are expensive and toxic; (3) Stone-Marshall Test Paper for Quaternary Ammonium Compounds, the first simple means of determining concentration of these important sanitizing agents in eating establishments, dairies, and food-processing plants; (4) Chloro-Sharp, new, simple, portable color test for determining chlorine in the concentrations of 50–200 ppm; (5) the new Cargille Spot Test Plate (40 times as sensitive as the conventional test plate) and Cargille Reagent Granules, pure reagent deposited in porous glass —convenient to handle for spot tests and provides the pure reagent in an instantly soluble form.

Fred S. Carver

New York, New York
Booth Nos. 31–32

Fred S. Carver will exhibit their standard 10-ton Carver Laboratory Press and standard accessories. One of the unique features of the Carver Laboratory Press will be the various standard accessories available for optional use with the equipment. These include swivel bearing plates for crushing and compression tests, cage and other filtering equipment, and Carver test cylinders. Carver-designed accessories provide facilities for many kinds of laboratory testing and control work. Flexibility as to accessory equipment available is a real economy in laboratory operation. For plastic molding and hot pressing of various kinds, the press is regularly furnished with $6'' \times 6''$ electric hot plates complete with wiring, switch, and thermostatic control, for temperatures up to 400° F. Fred S. Carver's booth will have on exhibit a museum collection of test and sample pieces representative of the work done by users with the Carver Laboratory Press. Samples will include molded plastic pieces, oil and extraction samples, metallographic mountings, laminations, etc. These user-made samples show the wide range of uses and versatility of this small press and its standard accessories.

Central Scientific Company

Chicago, Illinois
Booth No. 84

In the Cenco exhibit many new apparatus items of interest to laboratory workers are presented. For the chemist, there is the new Cenco Titration-pH Meter, Cenco Kool-Grip Flask, and Cenco-Sheard-Sanford "Photelometer"; for the physicist, the Cenco Oscilloscope, Concentrated-Arc Lamps, and Selsyn Motors; for the biologist, Hygeaire Germicidal Units, Magnifocuser, and Ultraviolet Lamps; for the meteorology instructor, the Cenco-Millar Observoscope. The Cenco Titration-pH Meter operates from 115-volt, 60-cycle, alternating-current lines. Its large, easy-to-read dial includes two ranges for pH or titration readings. Many features of convenience and safety are built into the unit. Polarity may be instantly reversed without disconnecting, measurements may be made in grounded tanks, and direct readings may be taken in the range 0–100° C. through the use of the automatic temperature compensation switch. Normal a-c fluctuations are automatically stabilized. "Cenco News Chats," reprints, and descriptive circulars will be available at the booth. Mr. R. H. Parker, manager of Cenco's Eastern Division at Boston, will be in charge and will welcome visiting scientists.

Ciba Pharmaceutical Products, Inc.

Summit, New Jersey
Booth No. 47

Ciba issues a cordial invitation to all those in attendance to visit its booth. The featured product around which the exhibit is built is Pyribenzamine Hydrochloride. This preparation is a new antihistaminic compound of very high efficacy in the treatment of various types of allergy. Pyribenzamine is a synthetic drug, effective by mouth, and is therefore made available in the form of oral tablets. Its greatest success has been achieved in the treatment of seasonal allergic rhinitis (hay fever) and urticaria (hives). In these two conditions relief is obtained in approximately 85 to 95 per cent of cases. In bronchial asthma and nonseasonal allergic rhinitis the success rate is not quite as high but still remains impressive. Other and more rare forms of allergy are benefited in greater or lesser degree. Fortunately, serious undesirable side reactions from this drug are extremely rare. The exhibit depicts pictorially the dramatic effects of Pyribenzamine both in the laboratory animal and in the human subject.

Clay-Adams Company, Inc.

New York, New York
Booth Nos. 57–58

The Clay-Adams exhibit will feature supplies and equipment for the biological and medical sciences; Medi-

chromes (2″×2″ Kodachromes) on the biomedical sciences; as well as the projectors, screens, files, viewers, and other accessories for use in handling the 2″×2″ Kodachromes.

The Coleman & Bell Company

Norwood, Ohio
Booth No. 66

The Coleman & Bell Company will exhibit a representative list of laboratory reagents, including inorganic and organic chemicals, biological stains, chemical indicators, test papers, and solutions. A number of new items developed during the war will be shown.

Thomas Y. Crowell Company

New York, New York
Booth No. 45

The Thomas Y. Crowell Company will present a display of its college texts and reference books, which are largely in the fields of chemistry, geography, and the social sciences. Featured in the Crowell booth will be three new college texts in chemistry which are scheduled for publication in January 1947. Copies of these new books will be available for inspection. The titles are: *First-year qualitative analysis,* by Carl J. Likes and Aubrey E. Harvey, Jr.; *Physical chemistry,* by Herschel Hunt; and *Semimicro qualitative organic analysis,* by Nicholas D. Cheronis and John B. Entrikin. Over 30 other books will be on display. Among these will be such recently published texts as *Basic college chemistry,* by Joseph A. Babor, and *Atlas of world affairs,* by Clifford H. MacFadden, Henry Madison Kendall, and George F. Deasy. The list will also include Spanish translations of several of the Crowell texts in the science field.

Eastman Kodak Company

Rochester, New York
Booth Nos. 50–51

Photography's role as the aid to human perception and memory in observing, recording, and teaching is the theme of the Kodak display. The central feature is a huge photomicrograph of an etched cast-iron surface as shown by Ektachrome, the new user-processed Kodak color film. Varying phase retardation of polarized light results in imparting separate color to the metallurgical constituents and makes for conspicuous differentiation. Alongside there is to be a "live" display of crystal growth viewed by transmitted polarized light. Projected on a screen at 200× magnification, brilliant birefringence colors succeed each other as the crystal thickness changes and the polarization plane rotates in a demonstration of a principle widely used in mineral and chemical identification. Still another application of polarized light interference is to be presented in studies of photoelastic models to trace strain distribution in engineering structures. Motion pictures made at thousands of frames per second will be continuously on view to show stretched out in several minutes economically important processes that are over a second or less. Other features of the Kodak exhibit range from broad fields, such as the photovisual concept in teaching, to such specialized applications of photographic materials as in spectroscopy, mass spectrography, and electron microscopy.

The Electrodyne Company

Boston, Massachusetts
Booth No. 78

The Electrodyne Company is engaged in research, development, and manufacturing of laboratory and industrial devices employing the principles of electronics, mechanics, and optics. Among the specially developed devices to be exhibited are a stimulator for research use, providing rectangular pulses of various durations and accurately controlled magnitude triggered from the sweep circuit of a cathode-ray oscillograph over a wide range of frequencies; a vibrometer for optical simulation of the task of reading under conditions of vibration; and an impulse-rate indicator, useful in demonstrating and studying electrical phenomena in insect and other nerves, including the effects of nicotine, DDT, etc. The Electrodyne Stimulator, now in production, is designed for use by students in physiology courses. Providing electronically generated pulses readily controlled in magnitude up to 250 volts at frequencies from 0.5 to 100 cycles per second, this instrument is more convenient and reliable than the induction coils formerly used. Other features are signal magnet operation without batteries, reversible polarity of stimulus, and a neon light for visual indication of each pulse. Members of the Electrodyne staff will be in attendance and will be glad to discuss any special instrumentation requirements or other electronic, mechanical, or optical problems for which solutions are needed.

J. H. Emerson Company

Cambridge, Massachusetts
Booth No. 75

The Emerson exhibit will feature two important items of laboratory apparatus; the new Barcroft-Warburg apparatus and the Emerson Micromanipulator. The Emerson Micromanipulator is the only instrument of this kind on the market with the unique lever control whereby horizontal motions are so coordinated that the apparent motion of the needle under the field of a compound microscope is identical with the actual motion of the control lever. In addition to this unusual feature, it is the only manipulator which can be adjusted for high-power or low-power work. Visitors to the International Science Exhibition are invited to see the home plant of the Emerson Company, located in Cambridge.

Gamma Instrument Company, Inc.

New York, New York
Booth No. 30

The exhibit of the Gamma Instrument Company, Inc., features a few of the scientific instruments and appara-

tus which have been introduced by this company during past years. Outstanding among them will be a complete line of Gamma automatic pH meters, the Microflex camera, and various micromanipulators with accessories. The Gamma pH meters are battery-operated machines which combine sturdy construction and easy operation with great accuracy. A new research model with a guaranteed accuracy of .01 per cent will be shown at the exhibit in addition to the standard instruments. The Microflex camera, which has attracted wide attention among people interested in photomicrography, may be used with or without a microscope and permits speedy operation by means of a built-in mirror reflex arrangement. Gamma micromanipulators are offered for research work at high magnifications ("Chambers" model) and for chemical operations with minute quantities. More than 100 of these manipulators were used in various laboratories connected with research work on the atomic bomb. Much of this work is likely to cause a wider use of micromanipulators in chemical operations if and when knowledge of it becomes universal.

General Biological Supply House

Chicago, Illinois
Booth No. 46

The Turtox exhibit will feature both microscopic slides and Kodachrome lantern slides, as well as new Turtox biological charts published during 1946. Microscope slides available for examination will include a number of new parasitological preparations. The new charts on display include subjects dealing with botany, entomology, parasitology, and comparative anatomy. Dr. Harvey M. Smith and Mr. A. C. Lonert will be in charge of the booth.

General Radio Company

Cambridge, Massachusetts
Booth No. 40

The General Radio exhibit will include electronic instruments for making a wide variety of laboratory and industrial measurements. One of the most important of these is a counting-rate meter, with its associated Geiger-Müller counter for indicating directly the rate of radiation from radioactive substances. It is designed for use in nuclear physics, particularly in conjunction with radioactive isotopes. Other instruments to be displayed include stroboscopes, impedance bridges, frequency meters, a continuous-film, high-speed camera, and samples of the new line of General Radio Variacs. A machine for winding toroidal inductances, designed and built in the General Radio plant, will be exhibited in operation. Convention guests interested in General Radio equipment and its production are cordially invited to visit our plant and laboratories in nearby Cambridge.

Gradwohl Laboratories

St. Louis, Missouri
Booth No. 71

Booth No. 71 shows the activities of the Gradwohl organization: (1) publication of a monthly laboratory guide, called the *Laboratory Digest*; (2) the manufacture of laboratory reagents, particular attention being called to the efficiency of this company's Grouping Sera, including anti-Rh serum; and (3) a training school for laboratory and X-ray technicians. Full literature and information will be furnished by the Gradwohl representative.

Harper & Brothers

New York, New York
Booth No. 29

The Harper & Brothers booth will exhibit books from the college textbook and various trade departments, as well as from the medical book department, Paul B. Hoeber, Inc. On display will be a number of established books published in 1945 and earlier, and the following 1946 publications: *Astronomy* (4th ed.), by John Charles Duncan; *People in quandaries*, by Wendell Johnson; *Medical biochemistry* (2nd ed.), by Mark R. Everett, M.D.; *The child from five to ten*, by Arnold Gesell, M.D., and Frances L. Ilg, M.D.; *A treasury of science* (Rev.), edited by Harlow Shapley and others; *The working electron*, by Raymond F. Yates; *Primer for star-gazers*, by Henry M. Neely; *Radar*, by Orrin E. Dunlap, Jr.; *Hindu psychology*, by Swami Akhilananda; *Economics in one lesson*, by Henry Hazlitt; and *An American dilemma* (1-vol. ed.), by Gunnar Myrdal.

International Equipment Company

Boston, Massachusetts
Booth No. 90

International Equipment Company's booth will feature the new Portable Refrigerated Centrifuge, Model RP–1. This machine permits control of temperatures inside the centrifuge guard bowl during the centrifuging process within the range of $-10°$ C. to $+10°$ C., with an accuracy of $\pm 1°$ C. Centrifuge and compressor are combined in one attractive cabinet, mounted on casters, and both units are operated from a single cord and plug which can be connected to the lighting circuit. Special accessories for use on this machine will also be displayed, including the Multispeed Attachment and high-speed heads for six 7-ml. or four 25-ml. tubes at 18,000 r.p.m.; angle heads for 15-, 50-, and 100-ml. tubes at speeds up to 5,000 r.p.m.; as well as the conventional horizontal tube-carrying heads. Also on display will be other models included in International's complete line of laboratory centrifuges.

Jarrell-Ash Company

Boston, Massachusetts
Booth Nos. 80–81

The Jarrell-Ash Company will exhibit spectrographic equipment consisting of a Jaco-Wadsworth Stigmatic Grating Spectrograph employing a grating 4″ in diameter, a 480-cm. radius of curvature, 15,000 lines to the inch, giving a dispersion in the first order of 7 A./mm. up to 2.3 A./mm. in the third order, automatically focus-

ing from 1,800 A. to 10,500 A.; a Hilger Non-Recording Microphotometer with Galvoscale Reading Unit for measuring spectrum line densities; and a Hilger Judd-Lewis Spectrum Plate Comparator—a comparison microscope with suitable stage for examining a reference and unknown spectrum side by side in qualitative analysis. Polarimeters and refractometers will be displayed including the following Bellingham & Stanley instruments: a research Polarimeter with divided glass circle reading to .01° and two industrial Polarimeters, one with glass circle and drum reading to .05°, the other reading by vernier to .1°; an Abbey Refractometer with divided glass circle reading by estimation to the fourth decimal place from 1.30 to 1.70; and a Projection Refractometer to read indices for such poorly transmitted substances as jams, from 1.380 to 1.517 by .002. Microscopic equipment will include a Spencer Research Petrographic Microscope with spiral focusing Bertrand lens and slow-motion attachment for the stage; a Spencer Metallurgical Microscope with built-in vertical illuminator; and Stereoscopic, Research, and Medical Microscopes. A Freezing Microtome; a Spencer GK Projector; an air-cooled, 750-watt lamp projector suitable because of its high intensity, especially for colored slides; the VA Combination Projector for opaque materials up to 6″ × 6″; and standard lantern slides will be displayed.

McGraw-Hill Book Company, Inc.

New York, New York
Booth Nos. 43–44

The McGraw-Hill booth will display not only the recent McGraw-Hill and Whittlesey House publications in the various scientific fields, but also our standard texts, handbooks, and reference materials, supplementing the 68 volumes which we are sending for inclusion in the Science Library. New catalogues will be available at the Exhibit, listing and describing the forthcoming McGraw-Hill publications—notably the M.I.T. Radiation Laboratory Series, in which so many scientists have expressed interest. McGraw-Hill representatives from all educational departments will be present.

The Macmillan Company

New York, New York
Booth Nos. 59–60

The book exhibit sponsored by the Macmillan Company will consist of approximately 700 titles, including publications of the Cambridge University Press. In addition to undergraduate and graduate textbooks and reference works, there will be a large number of technical and scientific books of interest to the general reader. Books in the fields of various hobbies and avocations—photography, gardening, radio, outdoor life, and others—are to be represented, as are books of special interest to young readers. The major classifications will be agriculture, the biological sciences, chemistry, engineering, history and philosophy of science, home economics, mathematics, medical science, and physics. Representatives of the Macmillan Company at this exhibit will be: Mr. J. B. Bennett, Jr., science editor; Mr. C. J. Hylander, visual aids editor; Mr. Harry H. Cloudman; Mr. Joseph G. Sutton, Jr.; Mr. Richard T. Tuffin; and Mr. S. Russell Williams.

Macalaster Bicknell Company

Cambridge, Massachusetts
Booth No. 91

The booth of the Macalaster Bicknell Company will describe the complete laboratory supply and research glass apparatus service provided by this company. The main attraction will be a complete glass-blowing exhibit, where actual work will be done daily at the afternoon sessions. All types of burners and tools used by the glass blower will be displayed and actually put to use. Supplementing this display, all visitors will be invited to visit our nearby plant, where glass-blowing, engraving, and grinding shops may be seen in full operation. Our dealership in all lines of laboratory supplies and apparatus will be shown by sample groups of items of Pyrex ware, Kimble Exax ware, Coors Porcelain ware, Mallinckrodt chemicals, Laboratory Iron ware, rubber goods, filters and filter paper, laboratory instruments of all kinds, as well as special items of general interest. We also will exhibit special apparatus of our own manufacture, including the Van Slyke Manometric Blood Gas Apparatus, the Rehberg Micro-Burette, the Krogh-Keyes Syringe Pipette, the M. B. Co. Mercury Manometer and Mercury Cleaner, and other items. We take this opportunity to welcome the convention to Boston and promise the most hospitable reception.

The Medical Bureau

Chicago, Illinois
Booth No. 15

The Medical Bureau, an organization acting as counselor in the fields of medicine and science, will occupy Booth No. 15. M. Burneice Larson, director of the organization, will be present to confer with those interested in the completion or organization of their staffs. The records of scientists who are interested in relocating will be available to those who have opportunities meeting the requirements of the candidates. The service of The Medical Bureau is nationwide, extending beyond continental United States. Men and women of science are available for all types of positions, including those with schools and universities, hospitals and institutions, and industry.

Merck and Company, Inc.

Rahway, New Jersey
Booth Nos. 61–62

The discovery of penicillin by Sir Alexander Fleming is now a well-known story. Since then, important strides have been made in the virtually unlimited field of antibiotic chemistry. Knowledge regarding penicillin has been refined to the extent that four individual forms, known as Penicillins G, F, K, and X, have been recognized. It is the G form that is of most importance in

medicine today, and it is this form, in high purity and without the presence of the F, K, and X entities, that is supplied as Crystalline Penicillin G Sodium Merck. Streptomycin, now also well known by the medical profession for its established value in the treatment of certain diseases, as well as its potential value in others, is the result of one of the most profound and inspiring research programs ever recorded. Streptomycin was discovered by Dr. Selman A. Waksman, microbiologist at the New Jersey Agricultural Experiment Station, located at Rutgers University. It is now being manufactured by Merck in rapidly increasing quantities, so that adequate supplies soon may be available for medical needs. Antibiotics have been chosen by Merck for this display at the 1946 meetings of the AAAS. Chemical, pharmacological, and medical information will be given. Other fields, medical and nutritional, in which the Merck Research Laboratories are vitally interested, include the amino acids, the vitamins, the sulfonamides, choline derivatives, and anesthetic agents.

G. & C. Merriam Company

Springfield, Massachusetts
Booth No. 89

Our exhibit will display copies of Merriam-Webster publications: *Webster's new international dictionary* (2nd ed.); *Webster's collegiate dictionary* (5th ed.), in various bindings; *Webster's biographical dictionary*; and *Webster's dictionary of synonyms.* There will also be shown pamphlet material illustrating and explaining the use of the above publications. Souvenir booklets will be provided for those who visit the booth.

The C. V. Mosby Company

St. Louis, Missouri
Booth No. 63

The C. V. Mosby Company will exhibit its scientific publications in its booth. Among the newer editions to be displayed will be the following: Kleiner's *Human biochemistry*; Dougherty-Lamberti's *A textbook of bacteriology and immunology*; Beaver's *Textbook of general biology*; Kleiner-Dotti's *Laboratory instructions in biochemistry*; McClendon's *Physiological chemistry*; and Zoethout-Tuttle's *Textbook of physiology.* Visitors to the convention are cordially invited to inspect these and other popular Mosby text and reference books.

The National Geographic Society

Washington, D. C.
Booth Nos. 67–68

The exhibit of the National Geographic Society will show four pieces of apparatus used last summer by the Cosmic Ray Expedition, sponsored by the Foundation. The apparatus was carried in a B–29 which flew at altitudes of from 4,000 to 35,000 feet, between the Canadian border and the Magnetic Equator. The pieces of apparatus to be displayed are as follows: (1) apparatus comprising a battery of cosmic-ray Geiger counters arranged in a manner analogous to optical telescopes, to record the intensity of the penetrating part of the vertical cosmic radiation. Two systems of recording were used. The first comprised a set of dials to record the rays received by the telescopes. The second utilized moving photographic paper on which was imprinted a mark for every ray received. The same paper also photographed the dials; (2) apparatus demonstrating the principle of cosmic-ray telescopes, and comprising three Geiger counters (set A) out of line and three (set B) in line. Each counter lights its own individual lamp when discharged by a cosmic ray. Only by the rare event of three rays arriving simultaneously can all three lamps of set A be simultaneously lighted. However, in set B, the three lights shine simultaneously whenever a single ray passes through all three counters; (3) a Geiger counter arranged to demonstrate the detection of various kinds of radiation, including ultraviolet light; and (4) a special type of Geiger counter called a proportional counter, so arranged as to light a white light when it is discharged by a photon, a red light when it is discharged by a cosmic ray, and a green light when it is discharged by an alpha particle. The exhibit also will include a scale model of the B–29 airplane used in the expedition. The model is a Boeing-designed, Bell-built, B–29 Superfortress.

The New York Medical Exchange

New York, New York
Booth No. 86

It is suggested that you visit Booth No. 86, where representatives of The New York Medical Exchange will be glad to talk with you and suggest opportunities open in your field. Then too, if you wish to secure any well-trained and qualified personnel for any openings that you may have existing at the time of the convention, advice and counsel will be given in an intelligent and courteous manner. In 1926, The New York Medical Exchange was established to assist scientific and medically trained people to find happy, congenial, and satisfied occupation. Perhaps we may have exactly the position you are seeking.

Polaroid Corporation

Cambridge, Massachusetts
Booth Nos. 72–73

The Polaroid Corporation booths will contain displays of natural polarizing crystals and synthetic polarizing sheets. These displays will include the early synthetic sheet polarizers made of iodoquinine crystals and the later types made of polyvinylalcohol and polyvinylene. Visitor-participation demonstrations of several applications of the properties of polarizers will also be set up in the Polaroid booths. Three-dimensional vectographs will be displayed. A novel feature of the vectograph display includes a representation with models of the principles of stereoscopic perception and its application in vectography. During the war, Polaroid Corporation developed a practical process for manufacturing precision optical elements of plastic. The fabrication technique of this process is to be presented at the exhibit,

and samples of precision elements will be shown. Exhibition visitors are invited to see a new motion picture in color, entitled "Light Control Through Polarization." The film will be shown twice daily at the Polaroid plant in Cambridge during the week of the Exhibition.

W. B. Saunders Company

Philadelphia, Pennsylvania
Booth Nos. 55–56

The W. B. Saunders Company exhibit will include a complete line of textbooks and reference books dealing with the medical and biological sciences. Of special interest are the new editions of Arey's *Development anatomy*; Howell-Fulton's *Textbook of physiology*; Harrow's *Textbook of biochemistry*; Marshall and Lazier's *Introduction to human anatomy*; Greaves and Greaves' *Elementary bacteriology*; Rand, Sweeny, and Vincent's *Growth and development of the young child*; and the new manuals: McClung's *General bacteriology laboratory manual*; and Millard and Showers' *Laboratory manual of anatomy and physiology*. The representatives present during the convention will be: Messrs. John A. Behnke, Paul K. Schneider, J. P. Hughes, and E. R. Zieber.

Schwarz Laboratories, Inc.

New York, New York
Booth No. 82

Schwarz Laboratories, consulting chemists and manufacturers of fine chemicals, will feature a sample display of yeast nucleic acid derivatives and other fine chemicals produced in their laboratories. Molds and the enzymic preparation, Polidase, produced by the growth of these molds, will also be on display. In addition, two instruments developed by the laboratories will be featured: (1) new apparatus for quick and accurate measurement of carbon dioxide and the air content of bottled beverages, and (2) Lipeometer Fat Tester for testing the fat or oil content of expeller cake, seeds, beans, and meats. Our representative will be glad to discuss with you your fine chemical requirements and to offer their services in any problem on food technology which you may have.

The Science Press Printing Company

Lancaster, Pennsylvania
Booth Nos. 41–42

The Science Press Printing Company prints about 40 scientific journals and will have copies of these on exhibit, not only to show the extent of the work of The Science Press Printing Company, but to make it a sort of headquarters for our editors, who are welcome to use our booth at any time. We print many books as well as periodicals, and they also will show the printing which emanates from the press. We shall be glad to be of service to those attending the meeting and to discuss their printing problems with a view to working with them on printing a journal or book. The Science Press Printing Company during the war period succeeded in keeping a fairly regular schedule. We are confident for the future, because we know that the editors with whom we are dealing have complete confidence in our knowledge of the importance of the scientific printed matter. We hope that we can continue to serve science through the printed word for many years to come. Attendants at the booth will be Mr. Jaques Cattell, our president, and one of his printing assistants.

The Seoscope

Delaware, Ohio
Booth No. 85

The Seoscope—Tomorrow's micro-projector is here today. The improvements in the field of optics as well as new discoveries during the past war are almost unbelievable to those not familiar with the field. This is partly due to the combined use of our huge government agencies and funds along with the regular optical research laboratories. Realizing this great advance and at the same time being fully conscious of the need for a better micro-projector, we have spared no cost in obtaining the very best possible combination of light source and optics. These have been incorporated in an entirely new projector designed around the light-optics combination so as to secure nearly perfect utilization of these components. At the Boston meeting we will feature the projection, on a screen at a distance, with remarkable clearness of image and fidelity of detail such phenomena as the circulation of blood, heart beat, polarized light with interference figures, chemical reactions such as displacement of metals, etc. This projection can be observed by an audience such as a class or lecture group, and each member of the audience is able to observe the same specimen at the same time as it is presented by the instructor. Other uses such as projection of film strips, serving as a complete optical bench, etc. will be demonstrated.

Serdex, Inc.

Boston, Massachusetts
Booth No. 74

The Serdex hygrometric element will be shown as an actually working part of various types of recording meteorological equipment. The exhibit will also have a complete ground station for reception of chronometric radiosonde signals and other complete sondes for specialized purposes. Visitors to the Exhibition and the AAAS meetings are cordially invited to the offices and plant of the company, located in Boston.

Sparkler Manufacturing Company

Mundelein, Illinois
Booth No. 48

Sparkler Manufacturing Company will display stainless-steel Horizontal Plate filters in various sizes, from the small Spa Filter-Purifier for domestic, office, or laboratory use to large industrial process filters. The principle of horizontal plate filtration will be illustrated by a glass-walled laboratory model with plates installed. Production models on exhibit will be the Model 14–D–4, with a capacity of 400 G.P.H.; the Model W–8–2, with a capacity of 180 G.P.H.; and the Model W–5, with a capacity of 60 G.P.H. The Spa display consists of

a nickel-plated Spa Filter-Purifier mounted on a faucet backed by a sheet of polished stainless steel.

The University Presses

Chicago, Illinois
Booth No. 22

The exhibiting of books from university presses is an outgrowth of the American Association of University Presses. Each press represented is a separate publishing company devoted to the production of important technical and scholarly works which might otherwise go unpublished, as well as general books of vital interest to all Americans. Because of their common goal and because some of them are too small to sponsor exhibits alone, these presses have combined to present their books in a single group.

Ward's Natural Science Establishment, Inc.

Rochester, New York
Booth Nos. 69–70

Ward's exhibit will feature new teaching materials which the Establishment has developed. It will include new models; a beautiful Animal Kingdom chart in full color; embryological, zoological, and entomological specimens embedded in plastic; plastic corrosion preparations; a new fluorescent lamp for displaying minerals; and many other new items. Ward's will introduce at its exhibit a new preservative which is destined to replace formaldehyde in the preservation of biological specimens. This wonderful new fluid does not affect the skin or mucous membrane of the worker, has a pleasing odor, retains the natural color of the animal structures, and gives perfect preservation. Ward's considers this new preservative one of the most outstanding developments in anatomical and zoological technique in the past 50 years.

W. M. Welch Manufacturing Company

Chicago, Illinois
Booth No. 1

The following scientific equipment will be on display: laboratory apparatus, including vacuum pumps, electric meters, tubular rheostats, resistance boxes, photometers, balances, chemical apparatus, biological apparatus, specimens, mounts, models, and slides; charts, including those for physics, chemistry, and biology, Metric Chart, Aeronautics Charts, Eye Test Charts, Electromagnetic Radiations Charts, Spectrum Chart, Periodic Chart, Transmutation Chart, Chart of Metals, Atomic Weight Chart, Electrochemical Series Chart, Bunsen Burner Chart, Organic Chemistry Chart, Atomic Structure Chart, Botany and Zoology Charts, and Physiology Charts; and laboratory manuals—a new plan of publishing your own laboratory manual for all science subjects.

John Wiley & Sons, Inc.

New York, New York
Booth No. 65

Members of the AAAS will have an opportunity at the 1946 meeting to examine at first hand many of the most recent and significant publications of John Wiley & Sons. Wiley will have on display over 200 titles in the various fields of pure and applied science, including biology, chemistry, physics, psychology, agriculture, geology, and geography. Representatives of the firm will be on hand to answer questions and discuss matters of interest with members of the Association. Among the books featured in the exhibit will be *The path of science*, by C. E. Kenneth Mees, vice-president in charge of research at the Eastman Kodak Company. This book presents the development of the scientific method against the background of history, with particular emphasis on the growth of biology, chemistry, and physics. It is a revealing analysis of present-day organization of scientific research, applications of science in industry, and the relation of science to society. Another work to be shown is the long-awaited *Russian-English chemical and technical dictionary*, by Ludmilla Ignatiev Callaham, which will be published shortly before the meeting. Wiley feels that, with the increasing importance of technical literature from the Soviet Union today, this book will find wide use in scientific circles. Other titles featured will be: Gregory and Shave's *The U.S.S.R.—A geographical survey*; Porter's *Bacterial chemistry and physiology*; and the second edition of Clark's *Photography by infra-red.*

Williams & Wilkins Company

Baltimore, Maryland
Booth No. 83

The Williams & Wilkins Company will exhibit new books and the latest editions of their established textbooks in anatomy, histology, embryology, pathology, bacteriology, biochemistry, physiology, and other allied medical sciences, as well as their up-to-date reference works for the research worker. In addition, their group of more than 20 scientific periodicals will be on display.

Atomic Energy

American Chemical Society
Washington, D. C.

The American Chemical Society exhibit on nuclear energy consists of 12 panels, each telling dramatically about one aspect of the research involved in "splitting the atom." Some of the panel titles are: "Thermal Diffusion," "Centrifugal Separation," "Nuclear Fissions and Chain Reactions," and "Electromagnetic Separation."

Lead in Air Analyzers

Ethyl Corporation
Baton Rouge, Louisiana

The Ethyl Corporation exhibit will contain two pieces of equipment for the analysis of minute amounts of tetraethyl lead in air; both are sensitive to a few micrograms of lead per cubic foot of air; both utilize the dithizone method. The first machine is a manually operated, portable field kit analyzer capable of making a lead deter-

mination in eight minutes, which is a decided improvement over previous methods. The second is an automatic analyzer which makes and records lead readings every six minutes. It is planned to demonstrate the field kit analyzer by periodically making actual lead determinations. The automatic analyzer will be operated continuously. The operation of both will be explained verbally and by means of descriptive signs. This exhibit should be of great interest to all concerned with the determination and the prevention of lead contamination in air.

Weather Instruments

U. S. Weather Bureau
Boston, Massachusetts, and Washington, D. C.

The U. S. Weather Bureau will exhibit the latest instruments available with emphasis on those instruments that are used in solar radiation and upper air work. It is intended to have as many of these instruments as possible showing an active operation. In addition, it is planned to have a ceilometer recorder operating, using a small dummy projector as the light source, and operating teletypes showing the modern method of collection of weather reports. If possible, there will be a demonstration of facsimile transmission of weather maps. Since several fields of work are to be demonstrated, it is planned to have specialists in each field available for demonstration purposes.

Brazilian Botanical Paintings of the Early 19th Century

Flora de Campos-Porto Castaño Ferreira
Rio de Janeiro, Brazil

This exhibit will feature a large number of the original water colors, done on parchment in the early part of the 19th Century, by Pancrace Bessa for the French periodical *L'herbier général de l'amateur*. Made by order of Charles X of France, the complete set of 500 paintings was presented as a New Year's gift in 1826 to his daughter-in-law, the Duchess of Berry, who was the sister of Teresa Christina, second empress of Brazil. The 500 paintings have now been in Brazil for about a century. Since 1922 they have been in the possession of Paulo Campos-Porto, former director of the Botanical Garden of Rio de Janeiro. They have been brought to North America by his daughter, Flora de Campos-Porto Castaño Ferreira, who will be in attendance. These paintings rank among the finest of an era in which this type of art reached its zenith of perfection.

Electronic Drying for Moisture Determination

Paul D. Zottu and Wilfrid L. Atwood
Newton, Massachusetts

This exhibit undertakes to demonstrate rapid drying of many types of materials for moisture determination in contrast to the usual method of moisture determination by the hot-oven method. Usually the most difficult materials to dry are in the class of nonconductors or dielectric materials. Heating by any surface method is extremely slow due to the nature of the materials, and since the water is removed in the form of steam, the slow heating involves long periods of time. In this exhibit visitors will see a small electronic generator used to apply heat by dielectric means. By this method the heat is generated in the material itself by means of molecular friction which eliminates the problem of heat transfer. Electronic heating generates steam uniformly throughout the material and equalizes the pressure for removal.

The National Bureau of Standards

Washington, D. C.

Three representative phases of the Bureau's work will be presented in the exhibit, which will consist of (1) The Making of Optical Glass, (2) Ionospheric Studies, and (3) Research in Hydrocarbons. The optical glass exhibit will show through photographs and specimens the making of optical glass in the experimental glass shop of the Bureau, which made large quantities of special optical glass for the armed forces. The steps include showing the raw materials, melting of the glass, cooling of the pots, inspection, molding, and annealing. Samples of pressed shapes and also the ground and polished elements will be part of the display. The ionospheric exhibit will show the location of the world's ionospheric stations and the organization of the Radio Propagation Division of the Bureau. The significance of the ionospheric research will be indicated pictorially by presentation of the behavior of radio waves in relation to the ionospheric layers. The gathering, analysis, and summation of ionospheric data is to be shown through the use of photographs and charts, as well as the dissemination of the results. The research on hydrocarbons exhibit will feature the cooperative work of the National Bureau of Standards and the American Petroleum Institute, which maintains two research projects at the Bureau. A phase dealing with the analysis of hydrocarbons will be illustrated with a flow sheet showing the isolation of individual hydrocarbons from a typical petroleum fraction by the physical processes of distillation (both regular and azeotropic), and adsorption, extraction, and crystallization. A second phase will deal with the purification of hydrocarbons in the preparation of Standard Samples. The sources of the starting materials, the method of purification, the method of establishing the purity of the finished product, and the method of sealing each sample in vacuum will be shown diagrammatically and pictorially. The third phase outlines the procedure leading to the final compilation of a complete self-consistent set of tables of selected values of physical and thermodynamic properties of hydrocarbons, and to catalogues of selected spectrograms and spectral data. Typical tables, spectrograms, and published reports of investigations will be used.

National Roster of Scientific and Specialized Personnel

U. S. Employment Service, Department of Labor
Washington, D. C.

This exhibit will include poster displays of the work of the National Roster. In addition, copies of the various

publications of the Roster will be available for limited distribution. These publications include a considerable number of bulletins of an occupational and vocational guidance nature covering the various professional fields. Also included will be bulletins providing statistical information concerning the professions. A chief objective of the exhibit will be to provide the professional personnel attending the meetings with a fuller understanding of the services which the Roster can make available to them.

A Fungus Enemy of Future Forests—White Pine Blister Rust

Philip L. Rusden
U. S. Department of Agriculture
Cambridge, Massachusetts

This exhibit will be based upon original observations over a period of eight years showing the regeneration of eastern white pine on New England areas laid waste by the September hurricane of 1938. Regeneration of wild currant and gooseberry bushes, alternate hosts of the blister rust fungus, has been studied in relation to these new stands of pine. The interrelation of the two groups of host plants has in many cases made conditions ideal for the rust. The observations are applicable not only to the thousands of acres of new pine coming in on hurricane-swept areas but also on the equally impressive large acreage of new white pine following the extensive and rapid depletion of our eastern white pine forests to meet wartime demands for lumber. Present postwar demands continue to take their toll of standing merchantable and near-merchantable trees. The back panel of this exhibit will depict a composite scene to show how the blister rust may become a serious menace to the white pines seeded in on the hurricane-swept areas or on similar areas where the mature trees have been cut off. Labels will explain the principal features of the backdrop picture, while side-panel illustrations will tell the detailed life story of the blister rust fungus. Living and preserved specimens of infected pine and currant and gooseberry (*Ribes*) plants will be used to acquaint visitors with the pathology of the white pine blister rust fungus. From time to time a series of $2'' \times 2''$ color slides will be projected in the booth to further explain the nature of the study and to show the method of controlling the blister rust disease. Emphasis will be placed upon the importance of the study of hurricane-devastated areas in New England which constitute the basis of the study. Basic data and explanatory notes will be passed to visitors interested in the story told by the exhibit.

Science Service

Washington, D. C.

The exhibit will show the variety of work done by Science Service in the popularization of science. This includes: services to newspapers—Wire Service, Daily News Report, Wire by Mail, Science Page, Your Health —Here's How, Star Map, Science Shorts, and Isn't It Odd?; *Science News Letter,* the weekly summary of science covering new developments in 137 science subject classifications; *Chemistry,* the monthly magazine of new developments in chemistry, edited to serve intelligent laymen, industrialists, teachers, and students of science; Things of Science, the monthly kits of practical exhibits, experimental materials, and instructional information in what is new in science; FUNdamentals of Science, the kits designed for 10- to 15-year-old experimenters, containing all the apparatus necessary for carrying out dozens of experiments, for which careful directions are given; books edited and published by Science Service; magazine articles by members of the staff; Science Clubs of America, the materials now being sent at no cost to the more than 10,000 sponsors of clubs affiliated with Science Clubs of America, the international organization for young scientists which now numbers more than 250,000 members; the Annual Science Talent Search for the Westinghouse Science Scholarships, conducted by Science Clubs of America, which is an open competition to high school seniors; Science Clubs of America Cooperators, the work of the 37 cooperating organizations now working with Science Clubs of America to provide opportunities for young scientists in 31 states; Adventures in Science, a weekly nationwide broadcast by Science Service over the Columbia Broadcasting System, a portion of which is devoted to an open meeting of Science Clubs of America; and Science News of the Week, a compilation of the scientific developments of the week which is prepared for use by any radio station. Members of the staff of Science Service who will be present at the meeting include: Watson Davis, director; Mrs. Helen Davis, editor of *Chemistry*; Dr. Frank Thone, staff writer in biology; Miss Martha Morrow, editor of the Science Page; and Miss Margaret E. Patterson and Henry Platt, Science Clubs of America.

National Foundation for Infantile Paralysis

New York, New York

This exhibit will consist of seven individual panels. *Virus Rescarch* represents studies conducted at the Stanford University School of Medicine under the direction of Dr. Hubert S. Loring, associate professor of biochemistry, and shows methods of purification and determination of characteristics of the poliomyelitis virus. *Body Mechanics,* developed from studies conducted at the University of California at San Francisco under the direction of Drs. Verne T. Inman, John B. Saunders, and LeRoy C. Abbott, is a graphic visualization of the rhythm of action of muscles of the shoulder joint. *Epidemiology,* based on studies conducted at the University of California, the George Williams Hooper Foundation, under the direction of Drs. Karl F. Mayer, W. McD. Hammon, W. C. Reeves, and Walter N. Mack, is a visual demonstration of the host factors and transmission of poliomyelitis, the epidemiology, and the differential diagnoses of the St. Louis and Western equine encephalitides. *Pathology,* based on studies conducted at the Stanford University School of Medicine under the direction of Dr. Harold K. Faber, and research conducted at Johns Hopkins University under the direction of Drs. Kenneth F. Maxey, Howard A. Howe, and David Bodian, shows the distribution of

poliomyelitis lesions and sources of virus recovery in the human and presents the chromatolysis of nerve cells. *Muscle Function* represents the results of studies conducted at Massachusetts General Hospital under the direction of Drs. Robert Schwab, Mary A. B. Brazier, and Arthur L. Watkins, and shows electromyographic and ergographic studies of muscle function in normal and paralyzed muscles. *Treatment*, developed from studies conducted at Stanford University, Division of Physical Therapy, under the direction of Miss Lucille Daniels and staff, as well as Drs. William H. Northway and E. B. Shaw, and the Committee on Diagnosis of the National Foundation for Infantile Paralysis, shows the acute diagnostic signs of infantile paralysis, the phases of treatment, and techniques of muscle testing. *Orthopedic Surgery Rehabilitation*, representing some of the studies completed at the Orthopedic Hospital, Los Angeles, under the direction of Dr. Charles L. Lowman and consisting of a series of translights showing "before and after" views of actual cases, provides visual evidence of correction of orthopedic deformities through orthopedic surgery.

Important Tropical Parasitic Diseases

Willard H. Wright
Zoology Laboratory, National Institute of Health
Bethesda, Maryland

This exhibit is designed to present the most interesting features relative to important tropical parasitic diseases, including Chagas' disease, filariasis, schistosomiasis, leishmaniasis, and onchocerciasis. The distribution of these diseases will be given in the exhibit, and methods of transmission of the parasite from host to host presented. The control and treatment of each of the infections will be covered. The exhibit, being prepared on the basis of original paintings covering the different phases, has not been presented elsewhere. It is designed primarily to present an over-all picture of this field with no undue emphasis being placed on detailed scientific matter.

Forest Maps and Aerial Photographs

Stephen H. Spurr and C. T. Brown, Jr.
Harvard Forest, Harvard University
Petersham, Massachusetts

This exhibit will feature two closely related topics: (1) a series of maps showing historically changes in land use and forest composition of a portion of the Harvard Forest, and (2) recent research in mapping and in estimating the volume of forests from aerial photographs. The Harvard Forest is perhaps the oldest intensively managed piece of forest land in this country, and the map series constitute possibly the best-recorded forest succession in this country. The nine maps are on an identical basis and are done with a constant coloring scheme. These include a detailed soils map; maps showing the land use and forest composition in 1830, 1880, 1908, 1919, 1929, 1937, and 1946; and a map showing the ultimate expected forest composition. Each map will be illustrated by a photograph of the corresponding Harvard Forest model. The 1946 map was prepared by the aerial technique demonstrated, and a brief cost and accuracy note will tie together the two topics of the exhibit. This map series, which has just been completed and has not been exhibited previously, will serve as the basis for a paper to be delivered before the meetings. The aerial photography exhibit will include recent developments in this field by the Harvard Forest, including a new technique of infrared photography, a simplified stereoscopic mapping instrument, a simplified instrument for measuring tree heights on aerial photographs, and the photomensurational approach to aerial timber cruising now being studied. Illustrative photographs will show a portion of the same area covered by the maps, and will include a series of photographs of the same area taken by panchromatic, color, and infrared photography.

Three-dimensional Weather Models

U. S. Naval Aerological Section
United States Navy

The exhibit of the U. S. Naval Aerological Section presents three units, all showing three aspects of the weather. *The World of Clouds* shows various stages in the formation and development of clouds in the atmosphere and the basic types of clouds encountered. *The Cold Front* illustrates the structure, cloud formations, and weather associated with the typical cold front of midlatitudes. *The Tropical Cyclone* gives an excellent picture of the structure and weather of a tropical cyclone, or hurricane, at the peak of its development. The models are mechanically actuated with special illumination effects so that the origin of these weather phenomena are easily traced.

Useful Electronic Instruments

Con Fenning, M.D.
University of Utah

This exhibit demonstrates the use of electronic instruments such as the modulated RF generators, Capacigraph, moisture meters, and foreign body locators. In addition to the operation of individual instruments, there will be combined and associated circuits from which readings will be taken. These results, with other important data, will be presented in chart form.

Map Projection Demonstration Apparatus

Robert F. Collins
Smith College

The exhibit consists of a self-contained instrument for demonstrating optically the simpler geometry of map projections. It is equally valid for gnomonic and stereographic projections of spherical segments on the developable surfaces of cylinders, cones, and planes. The instrument is ingenious rather than complex, and the best demonstration is for the visitor to operate the apparatus himself. This is entirely feasible and should proceed without disturbing others. An attendant will be available to provide instruction, conversation, and debate.