drugs for a period of three days following the last treatment. In addition, the National Milk Producers Federation, which reaches some 500,000 farmers, is assisting in this education program through their state agents.

2) On 23 Jan. 1957 we published in the *Federal Register* notice of a proposal concerning the warning statement regarding disposition of milk from treated cows which is required in the labeling of antibiotic drugs intended for intramammary infusion. It was proposed that this warning be placed on the immediate container of the drug rather than in the literature accompanying it. This is now in effect.

3) On 9 Feb. 1957 a "Notice of Proposed Rule Making" was published in the *Federal Register,* limiting the penicillin content of mastitis preparations to 100,000 units per dose. This became effective on 12 August.

It is hoped that these three steps will alleviate the problem of antibiotics, particularly penicillin, being present in our milk supply. However, if these procedures are unsuccessful, it may be necessary to ban the use of penicillin in mastitis preparations in the United States.

Complex Problem

The control of antibiotics in our food supply becomes more complex daily. We now have before us for consideration the use of chlortetracycline and oxytetracycline in fish as a means of extending "shelf life." Unfortunately, in contrast to demonstrations with poultry, we have been unable to demonstrate that ordinary methods of cooking treated fish (broiling, frying, boiling, or baking) eliminate the residual antibiotic. Furthermore, some fish are eaten raw, smoked, or pickled, and in all these cases the consumer would ingest antibiotic residues. Before tolerance levels can be established for these antibiotics in fish it will be necessary for those requesting them to demonstrate that the residues found are not dangerous to public health.

As we attempt to feed more and more people better and better, and as more and more uses are found for antibiotics in foods, those charged with the responsibility of seeing to it that such foods are safe will find themselves in an increasingly difficult position. In the United States we plan to move slowly and cautiously in response to each new proposal concerning antibiotics in foods, keeping in mind the fact that if the public, or any unfortunate segment of it, has reservations concerning the safety of our food, it must at the same time question the effectiveness of our operations.

AAAS Meeting in Indianapolis

Raymond L. Taylor

Since the appearance of the preliminary announcement of the fourth Indianapolis meeting, which will be held from 26 to 30 December, inclusive [*Science* **125**, 1047 (24 May 1957)], the symposia and other programs listed there have been developed and augmented. From such program details as the names and addresses of the authors of the hundreds of papers, and from such data as the advance registrations and applications for housing accommodations, which have been received in increasing volume since July, it is quite apparent that this year's AAAS meeting—the 124th—will enjoy an excellent attendance and that all sections of the United States and many foreign countries will be represented.

The Annual Exposition of Science and Industry, as the alphabetical directory of exhibitors and the descriptions of their exhibits makes evident, will fill the large Egyptian Room of the Murat Temple and would in itself be worth a trip to Indianapolis.

As the outline of symposia shows, virtually no principal field of science will be neglected, and the number and variety of special events, characteristic of AAAS meetings, are greater than usual. A conspectus of these follows.

Conferences and Special Programs

In recent years, in addition to the Academy Conference, several conferences have become recurrent events at AAAS meetings. Also, not infrequently, interest in special subjects may develop to the point where a special program is arranged. These conferences and special programs are open to all who are interested.

Academy Conference; 28 Dec., morning, afternoon, evening.

Conference on Scientific Editorial Problems; 26 to 29 Dec., mornings and afternoons (five sessions).

Conference on Scientific Manpower; 30 Dec., morning and afternoon.

Mathematics Instruction; a program of AAAS Section A–Mathematics, cosponsored by the National Council of Teachers of Mathematics and the AAAS Cooperative Committee on the Teaching of Science and Mathematics; arranged by John R. Mayor, educational director, AAAS; 27 Dec., morning.

Social Aspects of Science as Illustrated by the Radiation Problem; a general session sponsored by the AAAS Committee on Social Aspects of Science, arranged by Chauncey D. Leake, chairman; 29 Dec., afternoon.

AAAS Special Sessions

One of the characteristic and most important features of the annual meetings of the Association is the series of outstanding general addresses by distinguished experts, sponsored by organizations that meet regularly with the AAAS. These special events are joint sessions with the Association and are open to the general public of the city in which the meeting is held.

Special Address of the Biometric Society, Eastern North American Region; 27 Dec., morning; Boyd Harshbarger, department of statistics, Virginia Polytechnic Institute, and president, Biometric Society, Eastern North American Region, presiding. "Smoking and Lung Cancer: An Example of the Interpretation of Statistical Data in the Observational Sciences," by Sir Ronald A. Fisher, Arthur Balfour professor of genetics, Cambridge University, England.

Joint Annual Address of the Society of the Sigma Xi and the Scientific Research Society of America; 27 Dec., evening; George H. Boyd, dean of the Graduate School, University of Georgia, and president, Society of the Sigma Xi, presiding. "The Fickle Fashions of Science," by Crawford H. Greenewalt, president, E. I. duPont de Nemours and Company.

Inc. Edward R. Weidlein, director, Mellon Institute for Industrial Research, and chairman, Scientific Research Society of America, will award the William Procter prize. Wallace R. Brode, president elect, American Association for the Advancement of Science, will represent the AAAS.

Annual Address of United Chapters of Phi Beta Kappa; 27 Dec., evening; A. Logan Steele, president, Indianapolis Association of Phi Beta Kappa, presiding. "A long search for understanding," by Elvin C. Stakman, emeritus chief, Division of Plant Pathology and Botany, University of Minnesota, and past president, AAAS. Laurence H. Snyder, president, American Association for the Advancement of Science, will represent the AAAS.

AAAS Presidential Address; 28 Dec., evening; Laurence H. Snyder, dean of the Graduate School, University of Oklahoma, and president of the AAAS, presiding. "The inexorable problem of space," by Paul B. Sears, director, Conservation Program, Yale University, and retiring president of the AAAS. Preceding the address, A. H. Fiske, vice president of Eli Lilly and Company and general chairman of the Indianapolis meeting, will speak briefly. Following the address there will be an informal AAAS presidential reception in the ballroom and adjacent rooms of the Hotel Claypool. All registrants and members of the local committees are cordially invited to attend.

General Session Sponsored by AAAS Committee on Social Aspects of Science; 29 Dec., afternoon; Chauncey D. Leake, Ohio State University, chairman of the committee, presiding. "Social Aspects of Science as Illustrated by the Radiation Problem."

Annual Lecture and Film of the National Geographic Society; 29 Dec., evening; Paul A. Scherer, treasurer of the AAAS, presiding. "The *Bounty* and Pitcairn Island," by Luis Marden, foreign editorial staff, National Geographic Society.

Religious Events

Science Sunday Service and Mass; Sunday, 29 Dec., morning; Cathedral of Saints Peter and Paul; sponsored by the Albertus Magnus Guild, the Most Reverend Paul Schulte, Archbishop of Indianapolis, presiding. "Man—the master of science," by the Rev. Francis J. Reine, president, Marian College, Indianapolis. All visiting scientists are welcome.

Downtown Protestant churches extend a welcome to all visiting scientists for their morning services and will give special recognition to the importance of the AAAS convention and to its religious implications.

Luncheon and Business Meeting of the Albertus Magnus Guild; Sunday, 29 Dec., 2:30 P.M.; Marian College Dining Room; E. M. K. Geiling (University of Chicago), president, Albertus Magnus Guild, presiding.

Protestant Interdenominational Service; Sunday, 29 Dec., afternoon; Roberts Park Methodist Church; "An honest faith," by D. Elton Trueblood, professor of philosophy, Earlham College, Richmond, Indiana, and author of *Philosophy of Religion.*

Symposia

AAAS General Symposium. "Ideas That Mold Our Work."

Mathematics. "Mathematics Instruction"; "Mathematics of Guided Missiles"; "Computer Research and Applications"; "The Teaching of Mathematics."

Physics. "Wavelength Standards and Problems of Vacuum Ultraviolet Spectroscopy"; "Spectra of Lanthanides and Actinides: Isotope Shift"; "Theory of Spectra: Applied Spectroscopy"; "Some Recent Advances in Physics."

Chemistry. "Acetylene Chemistry" (two sessions); "Pyridine Chemistry" (two sessions); "Significant Trends in the Chemistry of Disease."

Astronomy. "Cepheid Variable Stars."

Geology and Geography. "Continental Glaciation and Its Geographic Importance as an Environmental Factor" (four sessions); "Mississippian and Pennsylvanian Rocks of the Midwest" (two sessions); "Karst Phenomena"; "Cave Fauna of the Ohio River Valley."

Zoological Sciences. "Current Understanding of Pituitary Function"; "Low Level Irradiation" (two sessions).

Biological Sciences. "Some Unsolved Problems in Biology, 1957." Part I: "Geographic Distribution of Contemporary Organisms"; Part II: "Biochemistry and Embryology."

Botanical Sciences. "Polarity, Heads or Tails?"

Psychology. "Human Engineering: Research Planning for Space Flight"; "Psychopharmacology"; "Effects of Early Experience on Behavior"; "Contemporary Research on Psycholinguistics"; "Decision Theory, Signal Detection, and Psychophysics"; "Problems and Progress in Statistical Learning Theory."

Social and Economic Sciences. "Social Aspects of Urban Agglomeration"; "Current Researches on Population"; "Advances in Theoretical Criminology and Penology"; "Advances in Interdisciplinary Approaches to Crime and Delinquency"; "Police–Crime Symposium"; "Advances in Police Administration"; "Advances in Scientific Crime Detection."

History and Philosophy of Science. "Can Science Provide an Ethical Code?"; "Organization for Humans, Cells, and Artifacts."

Engineering. "Man and His Environment" (two sessions).

Medical Sciences. "The Human Integument — Normal and Abnormal" (four sessions); "Premedical and Predental Education"; "Space Medicine" (two sessions); "Rehabilitation of the Mentally Ill: Social and Economic Aspects" (four sessions).

Dentistry. "Physiology and Pharmacology of Fluorides" (three sessions).

Pharmacy. "A Pharmacological Approach to Mental Illness"; "Recent Trends in Medications"; "Metric Implementation in Pharmacy, Medicine, and Chemistry."

Agriculture. "Biological and Chemical Control of Plant and Animal Pests" (four sessions).

Industrial Science. "Science, Technology, and General Welfare in a Capitalistic Society"; "Some Areas in Industrial Microbiology."

Education. "Problems of Gifted Children"; "Teaching the Major Concepts"; "Methods and Techniques—Problem Solving in Biology"; "Strengthening Some Classroom Foundations"; "The Junior Museum and Its Relation to the Public Schools"; "Stimulating Interest in Nature Study"; "Natural History of Indiana and the Midwest"; "Teacher Certification—Content versus Method—Marriage or Divorce"; "Implementation of Recommendations of Chicago Conference on Junior Academies."

AAAS Business Sessions

Meetings of the Board of Directors. The Board of Directors of the Association will meet after breakfast in a private suite of the Hotel Claypool, at 9:30 A.M., Friday, 27 Dec. Dates and hours of subsequent sessions of the board during the Indianapolis meeting will be decided at this session.

Council Meetings. The Council of the Association will meet Friday afternoon, 27 Dec., at 4 P.M. in the Chateau Room, Hotel Claypool. A second session of the Council is scheduled for Monday, 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) are usually first brought before the Board of Directors through the executive officer of the AAAS. During the meeting, communications for the Board of Directors should be submitted in writing and left at the Hotel Claypool mail desk, addressed to Dael Wolfle.

Meeting of all Section Chairmen and Section Secretaries. There will be a

luncheon and business meeting of the officers of all AAAS sections on Sunday, 29 Dec., in the Empire Room, Hotel Claypool, at 12 noon. Dael Wolfle and Raymond L. Taylor will be cochairmen.

Hotel Headquarters

The Hotel Claypool is the official headquarters of the AAAS for the Indianapolis meeting; there the Council of the Association will meet and other business sessions will be held. The press room —for receipt of authors' abstracts and distribution of press releases—is in the Florentine Room on the mezzanine floor.

The Main Registration-Information Center, the Visible Directory of Registrants, the AAAS Office, the AAAS Science Theatre, and the Annual Exposition of Science and Industry are all in the Murat Temple.

A list of the headquarters of the 18 sections and participating societies follows; (the societies are grouped in the same sequence as the letters of the sections with which they are affiliated).

Downtown Zone

Claypool. AAAS; Press; AAAS Sections F (Zoological Sciences), G (Botanical Sciences), M (Engineering), and N (Medical Sciences); American Society of Zoologists, Society of Systematic Zoology; American Society of Naturalists, Beta Beta Beta Honorary Biological Society, Biometric Society, ENAR, Ecological Society of America, Genetics Society of America, Society of General Physiologists; American Society of Plant Physiologists, Botanical Society of America; Engineering Manpower Commission; Alpha Epsilon Delta, American Medical Association Committee on Cosmetics, American Physiological Society, American Psychiatric Association, Society for Investigative Dermatology; National Association of Science Writers, Scientific Research Society of America, Sigma Delta Epsilon, Society of the Sigma Xi, United Chapters of Phi Beta Kappa; U.S. Atomic Energy Commission, Argonne National Laboratory.

Sheraton-Lincoln. AAAS Sections H (Anthropology), I (Psychology), K (Social and Economic Sciences), and P (Industrial Science); American Economic Association, American Political Science Association, American Sociological Society, American Statistical Association, AAAS Committee on the Social Aspects of Science, Association for the Psychiatric Treatment of Offenders, Institute for Research on Crime and Delinquency, Metric Association, Midwest Conference of Political Scientists, National Academy of Economics and Political Science, Pi Gamma Mu, Society for the Advancement of Criminology; American Industrial Hygiene Association, Society for Industrial Microbiology (Washington Section); Conference on Scientific Manpower, National Academy of Sciences–National Research Council, National Science Foundation, Scientific Manpower Commission.

Antlers. National Association of Biology Teachers; National Association for Research in Science Teaching, National Foundation for Junior Museums, National Science Teachers Association; American Nature Study Society.

Continental. AAAS Sections A (Mathematics), B (Physics), and E (Geology and Geography); Association for Computing Machinery, National Council of Teachers of Mathematics; American Meteorological Society, Sigma Pi Sigma; Association of American Geographers, Geological Society of America, National Geographic Society, National Speleological Society; AAAS Cooperative Committee on the Teaching of Science and Mathematics; American Geophysical Union.

Severin. AAAS Sections C (Chemistry), Nd (Dentistry), Np (Pharmacy), and Q (Education); American Association of Clinical Chemists, American College of Dentists, American Dental Association, International Association for Dental Research; American Association of Colleges of Pharmacy, American College of Apothecaries, American Pharmaceutical Association (Scientific Section), American Society of Hospital Pharmacists, National Association of Boards of Pharmacy; American Educational Research Association, International Council for Exceptional Children, National Association for Gifted Children; Acaddemy Conference.

Warren. AAAS Section L (History and Philosophy of Science), Philosophy of Science Association, Society for General Systems Research.

Washington. AAAS Section O (Agriculture); Conference on Scientific Editorial Problems, Society of Technical Writers and Editors.

North Zone

Marott. AAAS Section D (Astronomy), American Astronomical Society, Astronomical League, Indiana Astronomical Society.

Facilities for Eating

Throughout the meeting period, light refreshments and popularly priced cafeteria-style meals will be available in the Murat Temple. Also, luncheon facilities will be made available at Turners Athenaeum, diagonally across the street, through special invitations which can be obtained by guest card applications at the AAAS Office.

The restaurants and public eating places in Indianapolis, in addition to the hotel coffee shops and dining rooms, are so numerous and varied that it is not feasible to list them here. For those who are interested, however, data will be available at the AAAS Information Center in the Murat Temple.

Those who wish to join the Association at this time are cordially invited to visit the headquarters of the AAAS New Member Service, at the Annual Exposition of Science and Industry, in the Egyptian Room, Murat Temple.

Registration

Main Registration-Information Center. The AAAS Main Registration-Information Center is located in the lobby of the Murat Temple. It will be open daily 26–30 Dec., 8 A.M. to 6 P.M., with the exception of Sunday, 29 Dec., when it will remain open till 11 P.M. to accommodate any nonregistrants who wish to attend the AAAS Smoker.

Badges and General Programs may also be obtained at the supplementary registration desks, but the Main Registration Center is the only place where one can receive supplementary literature, maps, and the like. Advance Registrants (who have received programs and badges prior to the meeting) are urged to visit the Main Registration Center, at any convenient time, to receive these additional items.

Supplementary registration desks. For the convenience of those attending the 124th meeting, there are four supplementary hotel registration desks, as follows: Hotel Claypool, 26 Dec., 9 A.M. to 9 P.M., 27 Dec., 8 A.M. to 8 P.M., 28 Dec. 8 A.M. to 8 P.M., 29 Dec., 8 A.M. to 8 P.M.; Hotel Antlers, 26 Dec., 11 A.M. to 9 P.M., 27 Dec., 8 A.M. to 8 P.M., 28 Dec., 8 A.M. to 8 P.M.; Hotel Continental, 26 Dec., 1 P.M. to 9 P.M., 27 Dec., 8 A.M. to 8. P.M., 28 Dec., 8 A.M. to 8 P.M.; Hotel Severin, 26 Dec., 1 P.M. to 9 P.M., 27 Dec., 8 A.M. to 8 P.M., 28 Dec., 8 A.M. to 8 P.M.

Guests at the hotels Sheraton-Lincoln and Washington will find the Claypool convenient for registration; guests at the Warren will find the Severin convenient. Astronomers will register at the Hotel Marott, 27 Dec., 2 to 6 P.M.

Registration fee. The AAAS registration fee, which, intentionally, has been kept at a minimum, is $3 for all; a spouse or child not wishing a separate Program may register for $1, if registering at the same time. Each registrant receives a receipt, a convention badge, and the General Program-Directory—the only publication that contains the programs of the 18 AAAS sections and of the 66 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, has agreed to com-

plete his registration—and is expected to do so—at the Main Registration Center or at one of the four supplementary registration desks; after this he will receive his convention badge and the privileges that go with it.

AAAS convention badge. Every thoughtful person will wish to register and thus pay his share of the expenses of the meeting. Your AAAS convention badge will indicate that you are a complete participant in the 124th Convention of the Association. The badge should be worn throughout the meeting because it reminds others to register, it is needed for admission to the AAAS Science Theatre, the AAAS Smoker, and the reception that follows the presidential address, and it helps your friends to find you.

Visible Directory of Registrants. The Visible Directory of Registrants is located, for the maximum convenience of all, on the second floor of the Murat Temple, near the Annual Exposition of Science and Industry. The hours it will be open correspond exactly with the hours the Main Registration Center is open—daily from 8 A.M. to 6 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 will have been 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, exhibit 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 Murat Temple. 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 of those for whom they are intended will be posted on a bulletin board.

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

Local Travel Directions

At the 124th meeting, the fact that the Murat Temple, World War Memorial, and the downtown hotels have numerous public rooms has made it possible for almost all the sessions to be held in one compact area, with no hotel more than a few blocks from the Hotel Claypool or the Temple, all within walking distance. For those who desire transportation, taxi fares are moderate (several passengers are carried for a single fare), and there are special buses.

AAAS chartered-bus shuttle service. During the period of the meeting, the Association will operate regular Indianapolis Transit System buses, marked "AAAS," between the downtown hotels and the Murat Temple. These buses will follow a circular route, with stops at the Antlers, Continental, Claypool, and Severin hotels, at the Murat Temple, and again at the Antlers. Buses will run on a ten-minute schedule immediately before and after sessions and at slightly longer intervals the rest of the day.

AAAS Public Information Service

Each person who will deliver an address or present a paper at the Indianapolis 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 have already 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, Virginia. If you are to deliver an address or paper and have not done this, please send 100 copies of your nontechnical abstract to Dr. Negus, *to arrive in Richmond on or before 15 Dec.* If it is impossible for you to send this material to Richmond to arrive by 15 Dec. (*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, Florentine Room, on the mezzanine of the Hotel Claypool, before or during the convention. As an aid to the Association's Public Information Service, please send copies of your abstract to your local newspapers with indication of the time when the paper is to be presented in Indianapolis.

The necessity for keeping the general public 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 very 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 the Association is fortunate not only in having the continued services of Dr. Negus, chairman of the department of biochemistry, Medical College of Virginia, but also in its Local Committee on Public Relations, headed by James W. Carr, executive secretary, James Whitcomb Riley Memorial Association.

Tours and Points of Interest

At this meeting there will be no formal tours sponsored by the AAAS as a whole, but certain sections and participating societies have planned tours and field trips, as may be noted in their programs.

Points of Special Interest

The literature on Indianapolis—available to all registrants and distributed only from the Main Registration-Information Center, in the Murat Temple—displays and lists all principal local points of interest. The following are of special interest:

Butler University (Sunset Ave. between Hampten and 52nd Sts.). Take M2 bus.

Benjamin Harrison home (1230 N. Delaware St.). Open week days 10 A.M. to 4 P.M.; Sunday 12:30 P.M. to 4 P.M.

Indiana State Library (140 N. Senate Ave.). Open week days 8 A.M. to 5 P.M.

Indiana Soldiers' and Sailors' Monument (Monument Circle). Open daily 9 A.M. to 3:30 P.M.

Indiana University Medical Center (1100 Michigan St.).

John Herron Art Institute (16th and Pennsylvania Sts.). Open week days 9 A.M. to 5 P.M.; Sunday 1 P.M. to 8 P.M. Free on Saturday and Sunday.

James Whitcomb Riley's home (528

Lockerbie St.). Open 10 A.M. to 4 P.M. daily except Monday.

State House (facing Capitol Ave. at Market St.). Museum open week days 8 A.M. to 5 P.M.; closes at noon Saturday.

World War Memorial (Meridian St. between Michigan and Vermont Sts.). Open daily 10 A.M. to 5 P.M.

AAAS Science Theatre

The AAAS Science Theatre, a permanent feature of the association's annual meeting, presents each year a selection of the latest domestic and foreign scientific films at intervals throughout the meeting period. The theatre will be on the stage of the Egyptian room of the Murat Temple, in immediate proximity to the Annual Exposition of Science and Industry. The association is greatly indebted to those who made and lent these films.

Hours of the Science Theatre are 9 A.M. to 1 P.M. and 1:30 P.M. to 5:30 P.M. on 27 and 28 Dec., 9 A.M. to 1 P.M. and 1 P.M. to 5 P.M. on 29 Dec., and 10:30 A.M. to 2:30 P.M. on 30 Dec.

Friday Morning, 27 Dec.

A Piece of Wood. U.S. Department of Agriculture, Forest Service film. Color, 15 min.

Antarctic Adventure. Produced by the New Zealand National Film Unit. Black and white, 22 min.

Natural Enemies of Insect Pests. Produced by the University of California. Color, 27 min.

American Indians of Today. Produced by Encyclopaedia Britannica Films, Inc. Color, 16 min.

The Life of the Molds. Produced by Affiliated Film Producers, Inc., for Chas. Pfizer & Co., Inc. Color, 28 min.

Motion Picture in Medical Education. Produced by the American Medical Association. Color, 30 min.

Coronary Heart Disease. Produced by Churchill-Wexler Films for the American Heart Association. Color, 6 min.

The Copper Network. Produced by Phelps Dodge Copper Corporation. Color, 23 min.

Speaking of Air Power. Produced by the Bendix Aviation Corporation. Color, 33 min.

Man High. Produced by the Columbia Broadcasting System. Black and white, 20 min.

Friday Afternoon, 27 Dec.

Machine Retrieval. Produced by Smith, Kline & French Laboratories. Color, 13 min.

High Blood Pressure. Produced by Churchill-Wexler Films for the American Heart Association. Color, 7 min.

Coccidioidomycosis, Its Epidemiologic and Clinical Aspects. Produced by the Communicable Disease Center, U.S. Public Health Service. Color, 19 min.

The Spruce Bog. Produced by the National Film Board of Canada. Color, 23 min.

The Great Adventure. Produced by Arne Sucksdorff, Sweden; distributed by Louis de Rochemont Associates. Black and white, 75 min.

The Thunderbirds. Produced by the U.S. Air Force. Color, 14 min.

Man in Space. Produced by Walt Disney Productions. Color, 35 min.

Behavior of Explosives. Produced by the Naval Ordnance Laboratory. Color, 29 min.

Saturday Morning, 28 Dec.

The Armour Research Reactor. Produced by Atomics International, Division of North American Aviation, Inc. Color, 14 min.

Our Friend the Atom. Produced by Walt Disney Productions. Color, 50 min.

Water for the West. U.S. Department of Agriculture, Forest Service. Color, 25 min.

A Report on Smog. Produced by Stanford Research Institute. Color, 28 min.

Disorders of the Heartbeat. Produced by the American Heart Association on a grant from Wyeth Laboratories, Division of American Home Products, Inc. Color, 20 min.

Formed Elements in the Peripheral Circulation. Produced by George P. Fulton, Herbert J. Berman, and Kenneth A. Arendt, Boston University. Color, 30 min.

The Story of the Blood Stream, Part I: *The Heart and Circulatory System.* Produced by the Moody Institute of Science. Color, 28 min.

Honey Bees and Pollination. Produced by the National Film Board of Canada. Color, 30 min.

Saturday Afternoon, 28 Dec.

Same as Friday morning, 27 Dec.

Sunday Morning, 29 Dec.

Same as Friday afternoon, 27 Dec.

Sunday Afternoon, 29 Dec.

Same as Saturday morning, 28 Dec.

Monday, 30 Dec.

Our Magic Land. Produced by the U.S. Department of Agriculture and the U.S. Department of the Interior. Color, 17 min.

Coronary Heart Disease. Produced by Churchill-Wexler Films for the American Heart Association. Color, 6 min.

High Blood Pressure. Produced by Churchill-Wexler Films for the American Heart Association. Color, 7 min.

Strokes. Produced by Churchill-Wexler Films for the American Heart Association. Color, 6 min.

An Introduction to Arthropod-Borne Encephalitis. Produced by the Communicable Disease Center, U.S. Public Health Service. Color, 17 min.

The Story of the Blood Stream, Part II. *The Red Blood Cells.* Produced by the Moody Institute of Science. Color, 27 min.

Man in Space. Produced by Walt Disney Productions. Color, 35 min.

Man High. Produced by the Columbia Broadcasting System. Black and white, 20 min.

The Great Adventure. Produced by Arne Sucksdorff, Sweden; distributed by Louis de Rochemont Associates. Black and white, 75 min.

Annual Exposition of Science and Industry

The large-scale AAAS Annual Exposition of Science and Industry will be located in the Egyptian room on the second floor of the Murat Temple. The exposition will be open to (i) all registrants who attend the meeting and (ii) interested adults who have applied for, and received, complimentary tickets of admission.

The hours of the exposition are as follows: Friday, 27 Dec., 9 A.M. to 5:30 P.M.; Saturday, 28 Dec., 9 A.M. to 5:30 P.M.; Sunday, 29 Dec., 9 A.M. to 5 P.M. and 8 to 10 P.M.; Monday, 30 Dec., 10 A.M. to 3 P.M.

AAAS New Member Service—Science—AAAS Publications

Booth 37. Whether or not he 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 January 1. Those who are already members can conveniently nominate others for membership.

Included in the annual dues of $8.50 (for 1958), each member receives the new, enlarged *Science,* the scientific newsweekly, which also has the content of *The Scientific Monthly* just merged with it. Free sample copies will be distributed, and all who are not familiar with this leading journal of science should visit this booth, where symposium volumes and AAAS membership insig-

nia are also on display. Prospective advertisers may obtain sample copies of the magazine and the rate card.

AAAS-Traveling High School Science Library

Booth 38. The AAAS administers this experimental traveling library program at the request of and with the financial support of the National Science Foundation. The exhibit consists of the 200 books comprising the library which is being circulated to 216 senior high schools representing every state and the Territory of Hawaii. Two well-read high school students will be at the exhibit to discuss the books. The program's objectives are to interest young people in science, to assist those with an aptitude in science in the choice of a scientific career, and to demonstrate the kinds of books that should be purchased by high school and community libraries in order to satisfy the interests of young people and nonspecialist adults. An annotated list of the books in the library may be purchased for 25 cents, and a selected list of paperbound science books is available for 10 cents.

Now in its third year of operation, the program has proved that it is fulfilling its objectives, and hundreds of school and community libraries are basing their new acquisitions on the list of books. Institutes for high school teachers sponsored by the National Science Foundation, and special summer workshops for promising high school students are using the traveling library books for collateral reading.

Ace Glass Incorporated

Booth 21. The primary feature of the Ace exhibit will be the famous Mini-Lab line of small-scale, interchangeable glassware equipment. Mini-Lab consists of a number of basic assemblies and components which can be arranged in various combinations, and has proved to be ideal for the study of chemical processes on a scale intermediate between true micro and conventional micro. In addition to Mini-Lab, the exhibit will feature Ace Trubore stirrers, wide-mouth reaction flasks of stainless steel and glass, a distilling head, and weighing bottles. Also displayed will be sintered glass filters, a McLeod gauge, and Ace's Rota-Kit, an accurate, general-purpose flow-rate test kit for measuring liquids and gases. The kit is portable and is specifically designed to meet the needs of research and pilot plant laboratories. A display of Kimble Glass Company's new Kimax glassware will be shown for the first time. Kimax is manufactured from a new borosilicate glass which is interchangeable with, and can be sealed to, present borosilicate glassware.

American Telephone and Telegraph Co., Indiana Bell Telephone Co., Inc., and Western Electric Co.

Booths 40, 41, and 42. The theme of this exhibit will be the Bell System science shows and their contribution to the advancement of science.

American Tobacco Company, Inc.

Booths 54 and 55. The exhibit of the Research Laboratory of the American Tobacco Company will display two full-color reproductions depicting the growing and curing of tobacco. Samples of the four main types of tobacco used in the manufacture of the modern American blended cigarette will also be on display. Representatives from the Research Laboratory will be in attendance and will answer questions concerning research and quality control in the American Tobacco Company. Technical literature will be available for distribution.

Arvin Industries, Inc.

Booth 7. Our exhibit will be based on research work that we have been conducting in the fields of laminates, foams, and sandwich structures. This work on laminates consists largely of the adhering of such plastic sheeting as vinyl and Mylar to steel, aluminum, hardboard, and so forth. The foam exhibit will be represented by vinyl foams and urethane foams in structures applicable to the automotive and furniture fields. Sandwich structures will represent the use of foams in table tops, desk tops, and wall paneling. We also will have exhibits of electrically heated, laminated paneling.

Association of American University Presses

Booth 20. Each university press represented in the exhibit is a separate publishing company producing technical, medical, and scholarly works. This joint exhibit enables you to see books from a number of the university presses and, if you so desire, to order them direct from the booth or from the publishing press. A check-list of all of the books on display will be available.

Bendix Aviation Corporation

Booths 60 and 61. A scaled down model of a gas turbine engine which shows the general relation and function of the matched elements of an electronic fuel and engine control system built by Bendix will highlight the product display of the Bendix Products Division of the Bendix Aviation Corporation. Shown in the usual location and scaled down in size are models of main and after burner fuel metering units, the exhaust nozzle area control unit, and the amplifiers that work in conjunction with these components. Other items shown include the fuel pumps and all connecting wiring and fuel lines and a jet engine ignition system built by the Scintilla Division of the Bendix Aviation Corporation. The Bendix electronic control system for jet engines is said to serve as an "electronic flight engineer." The airplane pilot needs only to "signal" for a change in engine thrust by moving a control lever into position to obtain the thrust desired.

Biological Abstracts

Booth 63. A more complete coverage of the world's biological literature, and a greatly improved abstracting and indexing service will be featured. In 1958 *Biological Abstracts* will collect, condense, classify, and index at least 42,500 articles of biological research interest selected from some 2900 biological periodicals published throughout the world. This provides scientists with the largest and most comprehensive information service available in the field of biology, and is made possible only by the volunteer efforts of thousands of biologists, biological societies, and biological industries who have joined efforts to make this nonprofit, cooperative venture a success. Coverage of the Russian biological research literature will be doubled in the 1958 *Biological Abstracts* through the generous assistance of the Foreign Science Information Program of the National Science Foundation in providing the funds for translation. Because of the tremendous growth in biological research, originally published in thousands of journals in many languages, *Biological Abstracts* is even more necessary as an implement of research and teaching than ever before. A representative will be in attendance.

Cambridge University Press

Booth 52.

Coca-Cola Company

Booths 17 and 18. Ice-cold Coca-Cola will be served through the courtesy and cooperation of the Coca-Cola Bottling Company of Indianapolis, Inc., Indianapolis, Ind., and the Coca-Cola Company.

Consultants Bureau, Inc.

Booth 90. World's leading scientific translation company. Translations in 19 languages, by bilingual scientists, with special emphasis on Russian. Currently translating 28 Russian research journals (including four for the AIBS and three for the AIP), on yearly subscription basis; single articles also available. Definitive Russian-English physics dictionary will be published in 1959; interim glossaries available in nuclear physics and engineering, electronics, solid state, atomic physics, spectroscopy, optics, and so forth. Collections of papers from all our translated Russian journals, 1949–

1955, on catalysis, glass and ceramics, fused salts, and pharmaceuticals. Important symposia: Radiobiology; Radiation Chemistry; Remote Consequences, Injuries Caused by Ionizing Radiation. April 1957 All-Union Conferences on Applications of Radiation and Isotopes, in Biology, Chemistry, Physics, Metallurgy, Automation. Journal supplements, such as "Physics of fission," supplement to the *Soviet Journal of Atomic Energy*. Original Russian theoretical monographs, such as: "The Statistical Theory of Phase Transitions," by Geilikman, or "Quantum Electrodynamics," by Akhiezer and Berestetsky. Also custom translation.

George F. Cram Company, Inc.

Booth 83. The Cram booth will feature the beautiful Cram 16-inch illuminated celestial globe, designed as a visual aid in the study of astronomy. A celestial globe is a globe which shows selected stars of the celestial sphere. When we look out into the night sky, all the stars and planets seem fixed to a great sphere encircling the earth. Of necessity, a celestial sphere must be constructed so as to be seen from the outside, but in using this globe it is necessary to imagine one's self on the inside looking outward. When properly adjusted, then, the stars appear just as they would were you actually observing them in the sky. Also on display will be a representative of Cram's graded program of visual aids for the social studies, edited to the mental maturity of the student at each grade level.

Current Contents—
Eugene Garfield Associates

Booth 95. *Current Contents* features reproductions of advance or current tables of contents of 250 journals in human and veterinary medicine, physiology, pharmacology, pharmacy, and chemistry. By regularly scanning *Current Contents*, subscribers obtain up-to-date coverage of those publications reporting new information on drugs and chemicals and their physiological effects. The weekly, pocket-size booklets of contents pages enable the reader to cover conveniently and rapidly more publications than can be covered in routing procedures or visits to libraries. The *Current Contents* service also includes a reprint expediting service and a procurement service for purchasing single copies of individual journals. *Current Contents* is compiled by arrangement with the publishers of foreign and domestic periodicals, including several scientific societies, which provide advance of tables of contents. *Current Contents* is rapidly produced and provides more than 3500 current contents pages per year. Eugene Garfield Associates, a firm of information engineers, also publishes *Current Contents of Management Publications* and other custom editions for individual organizations.

Delco-Remy Division,
General Motors Corporation

Booths 84, 85, 86.

Denoyer-Geppert Company

Booth 74. Denoyer-Geppert Company will display a wide variety of visual teaching aids for many subjects in the science field, with emphasis on biology and related areas of interest. Unbreakable plastic models will make up the main portion of the exhibit. There will be a fine array of colored wall charts. A greatly increased assortment of plastic embedded specimens will be available for inspection, along with the well-known museum jar preparations and representative samples from the D-G osteology laboratories. Among new items will be additional charts on the atomic theory. Denoyer-Geppert representatives will be on hand to demonstrate the visual appliances, and there will be ample opportunity to discuss problems of visual presentation.

Educational Testing Service

Booth 31. Tests, testing programs, research, and services for selection, guidance, scholarship competitions, placement, and educational evaluation. ETS develops tests for direct sale to qualified users in schools, colleges, business, governmental agencies, and professional associations; administers nation-wide testing programs; builds programs tailored to special needs; conducts fundamental research in measurement; and provides professional advisory services.

Folkways Records and
Service Corporation

Booth 100. The products of the world's largest producers of authentic folk music illustrate, in phonorecord form (documented), the sounds, music, and cultures of many places and peoples of the world. Over 400 peoples have been recorded in the Ethnic Folkways Library, which includes background notes by leading social anthropologists and ethnologists. In its Science Series, Folkways has released record albums dealing with phenomena such as the rain forest, and sounds of the American Southwest, the "talk" of fish, and the happenings during an actual operation. A complete catalog is on display at the Folkways booth.

General Electric Research Laboratory

Booths 79 and 80. The General Electric Research Laboratory will exhibit samples of its man-made diamonds, which are now in extensive pilot-plant production at GE's Metallurgical Products Department, as well as another result of superpressure research: borazon. Borazon—cubic boron nitride—is the first material ever found to compare with diamond in hardness, and it easily resists temperatures at which diamond burns in air. Other items in the General Electric Research Laboratory exhibit will be the most recent versions of the laboratory's tiny ceramic vacuum tubes, some new types of miniature batteries, samples of a new silicon sheet material that is easily magnetized in four directions, and a motion-picture demonstration of a flame burning in the absence of convection.

General Motors Corporation,
Allison Division

Booths 57, 58, and 59. A full-scale cutaway model of the Allison 501 prop-jet engine and Aeroproducts turbopropeller will comprise the exhibit of the Allison Division of General Motors Corporation during the 1957 Annual Exposition of Science and Industry of the AAAS.

The model 501 prop-jet engine incorporates all the improvements and refinements developed through years of experience by Allison, America's pioneer producer of turbine aircraft engines. The prop-jet engine—like a straight turbo-jet —is a turbine engine. Instead of delivering its power through "jet" thrust, the engine delivers its power through Aeroproducts turbopropellers, also designed and produced by the Allison Division.

The turbine drives at 13,820 revolutions per minute a turbine shaft which is connected to a gear box. The gear box transmits this tremendous power from the turbine shaft at a reduced speed of 1020 revolutions per minute to the propeller. The jet exhaust itself furnishes an additional 10 percent thrust. The Allison model 501 prop-jet engine and Aeroproducts turbopropeller run at constant speeds throughout the flight range. Regardless of whether the plane is taking off, climbing, cruising, or letting down for a landing, the engine and propeller are turning up 100 percent. Power is obtained by moving a single lever for each engine which meters the amount of fuel to the engine. While this change in fuel flow is taking place, the blade angle of the propeller changes. As the fuel flow increases, the propeller or blade angle becomes greater. For take-off and climb the pitch angle is greater than it is for normal cruising and let-down for landing.

The Allison model 501 prop-jet engine weighs only 1750 pounds; it is 145 inches long and 27 inches in diameter. Its approximate frontal area is only 5.4 square feet; this results in a much slimmer nacelle than that which can be used with a conventional piston engine. It produces 3750 horsepower, or nearly 2.3 horsepower per pound of engine weight.

The Allison T56 prop-jet engine, a military version of the model 501, and Aeroproducts turbopropellers power the USAF four-engine C-130 Lockheed Hercules combat-cargo transport plane now in operational service with the Tactical Air Command in the U.S. and Europe. The model 501 prop-jet engine and Aeroproducts turbopropeller will power America's first prop-jet commercial airliner, the four-engine Lockheed Electra.

Graf-Apsco Company

Booth 73. If you have any microscope troubles, it would be well to stop at Booth No. 73 of The Graf-Apsco Company, "America's Leading Microscope Repair House." Also exhibited are new Graf-Apsco microscopes with exclusive features designed into the stand to keep the instrument in good working order indefinitely. If you do not know what to do with your obsolete microscope, The Graf-Apsco Co. will buy it for cash or accept it in trade. Be sure to see this interesting exhibit.

D. C. Heath and Company

Booth 45. In these days of heavy class loads for teachers, the choice of textbooks assumes greater importance than ever before. We invite visitors to examine our college texts in chemistry, physics, biology, and botany; our high school texts in biology, chemistry, and physics; and our elementary school texts in science.

Indiana Gear Works, Inc.

Booth 2.

International Harvester Company

Booth 36. International Harvester will display industrial applications of experimental-stress-analysis tools and methods, developed in scientific and university laboratories, to the solution of practical problems in manufacturing and engineering. The exhibit will include multichannel strain recorders, photoelastic methods of analysis, brittle lacquer strain-sensitive coatings, and electric resistance strain gages for use at normal and elevated temperatures. The value of participation in the activities of technical committees of national societies will be shown by results obtained in a program in residual stress measurement and effect undertaken cooperatively by 20 industrial and university laboratories.

Jet Division, Thompson Products, Inc.

Booth 39. Processes used at the Jet Division in the production of precision assemblies that rotate at high speeds in elevated temperatures will be illustrated by lighted transparencies and animation. These processes include draw-forming of unusual alloys of steel and rare nonferrous metals, automatic welding in inert atmospheres, machining, unusual heat treatment for extra strength, and several unusual types of inspection. Processes on display have been developed to provide aircraft and missile designers and manufacturers with mechanisms and structures capable of standing up under high stresses, high temperatures, and extremes of temperature encountered by piloted aircraft and missiles of every size. By animation, automatic welding of cylinders up to 10 feet in diameter will be illustrated. The five plants which house the Jet Division's complete development, engineering, production, and testing facilities are also shown.

P. M. Lennard Co., Inc.

Booth 62.

Eli Lilly and Company

Booths 11 and 12. Eli Lilly and Company's exhibit will illustrate the role of scientists and trained technicians required in the vast operations of the pharmaceutical industry, particularly in the areas of research, control, and development. As Eli Lilly and Company continues in its growth and multiplies its facilities to anticipate the future, the need for such qualified professional personnel becomes progressively more important. Consequently, the exhibit will point out the professional advantages of research work at Eli Lilly and Company, such as participation in challenging scientific work and association with leading research scientists. By illustrating these facets of the company, the exhibit will indicate the scientific advances achieved by Eli Lilly and Company in its traditional quest for improved medical health.

P. R. Mallory and Company, Inc.

Booths 77 and 78. "Tomorrow's Products Today" will be the theme of the P. R. Mallory exhibit at the Annual Exposition of Science and Industry, 26–30 December, in Indianapolis. A sound-slide presentation entitled "Electronics in your future" will give booth visitors a glimpse of flat-screen color, three-dimensional television; electronic heating, cooling, cooking, and air purifying; transistorized golf balls; Dick Tracy wrist radios; electronically controlled family automobiles; and superhighways with speed and safety governed by electronic brains in control towers. New Mallory developments in electronic components and the AAAS Section P citation-winning powdered iron will show what Mallory is doing to hasten tomorrow's electronic marvels. Part of the exhibit will tell the scientifically fascinating story of the new Mallory powdered iron—how it was developed after four decades of pioneering in powdered metallurgy, how it is processed, and how it will help designers make a reality of tomorrow's futuristic products for home and industry.

Merz Engineering, Inc.

Booth 19. Merz Engineering will exhibit a few of the products that have established for it a world-wide reputation for progressive engineering and manufacturing of highest quality precision products. Electronic gaging instruments, for laboratory and industrial use, that measure accurately up to one millionth of an inch, will be shown. Automatic gaging and sorting machines will be operating. Complete information on the manufacturing process of a disposable medicinal syringe will be available. The application of this product is another tremendous advancement in practical medical science. Merz Engineering personnel will be present to demonstrate equipment and to answer questions.

Microcard Foundation

Booth 1. Publishers of Microcard editions of scholarly source books, scientific and technical periodicals, research reports, and primary data in various disciplines of the physical and biological sciences; distributors of Microcard copies of the unclassified and recently declassified reports of the U.S. Atomic Energy Commission made available to the foundation by the Technical Information Service Headquarters, Oak Ridge, Tenn. The latest model "library" and "pocket size" Microcard readers as manufactured by the Microcard Corporation, West Salem, Wis., will be displayed. Literature describing specifications and prices of Microcard readers, cumulative catalogs listing all publications of the Microcard Foundation to date, and information concerning Microcard publication projects planned for the near future will be available without charge.

Miles Laboratories, Inc.

Booths 14 and 15. This exhibit will emphasize the research facilities and research program which support Miles Laboratories in its effort to serve the public. The centrally administered research organization also supports the subsidiaries and divisions of Miles Laboratories, Inc.: Ames Company, Inc., Sumner Chemical Division and Takamine Division. These affiliated organizations offer products for home medication, prescription pharmaceuticals, fine chemicals, and enzymes for industrial uses. The phrase "Behind the Label" is used as the theme of the exhibit to emphasize that a wide diversity of activities—research, control, product development, product testing, and substantiation—are essential to the development and maintenance of pharmaceutical products which can safely be offered to the public. A booklet "Behind the Label," which will shortly be ready for distribution, will be sent to those who indicate their interest by signing at the Miles Laboratories booth. This booklet will give in more detail the story of the

entire Miles organization and the many activities which must be carried out in order that the labels on Miles' products may mean that these products deserve public confidence.

Miles Reproducer Company, Inc.

Booth 35. You are urged to see a demonstration of the Walkie-Recordall, the light-weight, self-powered, briefcase-sized conference recorder. The recorder operates mobile or stationary, in a closed briefcase or as a separate unit—in office, field, car, train, plane, or boat. It picks up and records voice 60 feet away. No wires, no plugs. No installation or acoustical room conditions are required. Records clearly as surrounding noises are screened out. Perfect for recording of case histories, research, house calls, hospital rounds, lectures, conferences, interviews, group therapy, investigation, assembly panels, staff meetings, dictation, telephone conversations, and so forth. To adapt this conference recorder for dictation in noisy places, an optional built-in feature permits the exclusion of everything except the voice spoken or whispered close to the microphone. The voice-actuated "self-start-stop" optional feature automatically starts and stops the recording from microphone or telephone, thus eliminating supervision and the recording of silent periods. While facilities for transcribing are incorporated in the same unit, transcription may be eliminated due to ease of handling the inexpensive, identifiable, compact, indexed recordings without rewinding—a huge saving of clerical time. Up to 8 hours of permanent, unalterable recordings may be accumulated at intervals on a belt costing 25 cents.

Moody Institute of Science

Booth 34. This exhibit presents the cardiac pulse duplicator recently developed at Moody Institute of Science. This device makes the isolated human heart "beat" in a very realistic manner, simulating closely the hydrodynamic and muscular action of the living heart. By means of glass ports, the action of the heart valves can be studied or photographed, opening up new opportunities for instruction and research. The Moody Institute of Science produces science instructional films for classroom use. These films are designed to implement the moral and spiritual program, especially in elementary and secondary schools, and to excite the student's interest in scientific subjects and to encourage the selection of science as a life work. High levels of technical and photographic excellence are the goal.

Muscular Dystrophy Associations of America, Inc.

Booth 8. This exhibit consists of three panels. (i) Color transparencies, with descriptions, show the manifestations of muscular dystrophy; the genetics of the condition is discussed. (ii) Postural changes in early and late stages of progressive dystrophy are shown. (iii) Transparencies of personnel involved in various MDAA-sponsored research projects under the grants-in-aid program are presented; the dystrophic mouse, now being used in research, is shown and described. The Institute for Muscle Disease, now being built, is functionally described—an automatic play-back tape features an informational interview with the scientific director of the MDAA.

National Geographic Society

Booths 64 and 65. 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 Science Foundation

Booth 75. The National Science Foundation is an independent agency of the Federal Government established by Act of Congress in 1950 to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense. Its exhibit illustrates such foundation activities as (i) initiating and supporting basic scientific research through grants for research projects; (ii) awarding fellowships for graduate study and work, including postdoctoral; (iii) supporting programs for improving the quality of science teaching; (iv) fostering interchange of scientific information; (v) providing a clearinghouse for information about scientific and technical personnel; (vi) undertaking studies of scientific activity to help the Federal Government in making policy decisions about scientific research and education in the sciences; and (vii) cooperating in international scientific research activities.

Oak Ridge Institute of Nuclear Studies

Booth 72. The Oak Ridge Institute of Nuclear Studies is a nonprofit educational corporation of 36 southern universities, operated under contracts with the U.S. Atomic Energy Commission and the National Science Foundation. Its primary aim is the integration of the unique research facilities at Oak Ridge in the pattern of scientific education in the South. ORINS administers several AEC special fellowships; a research participation program through which university faculty members carry out research at Oak Ridge; a graduate program for doctoral candidates who need the specialized Oak Ridge facilities for thesis research; a traveling lecture program which sends Oak Ridge scientists to speak on university campuses; and numerous other educational programs. The Institute also operates a medical-research hospital; a radioisotope-techniques training program; and, in the field of public education, an atomic-energy museum and traveling atomic-energy exhibits.

Office of Naval Research

Booth 89. The success of naval operations depends ultimately upon the abilities of the individual Navy man. Therefore, since its inception in 1946, the Office of Naval Research has supported a vigorous program of psychological research. Today's complex machines and operational procedures require ever-increasing degrees of skill and diversity on the part of the individual. Psychological research finds ways to select and train the individual for these complex tasks and to combine individuals and machines into efficient fighting units. Four major areas of research are depicted in the exhibit: personnel and training, physiological psychology, group psychology, and engineering psychology. Also shown are some of the typical research problems: how to select those who will work well together as a team; how to design equipment for maximum utilization; and the most efficacious training methods. These problems cover a wide range—from those affecting a pilot high above the earth, the men and ships on the surface, to the submariner below the sea. Today's technological advances include ultrasonic flight, atomic submarines, and electronic sensing mechanisms. But the success of naval operations still depends ultimately upon the skills of the individual which are constantly being improved as a result of psychological research.

Pergamon Press, Inc.

Booth 13.

Pitman-Moore Company

Booths 68 and 69.

The Rayoscope Company

Booth 16. At the Rayoscope booth, images of microscopic specimens will be projected on a screen at a distance so that a large number of people can observe simultaneously. Especial emphasis will be placed on projection of living specimens and on the minute detail of the projected image. Our specially designed lenses and pure white light source make it possible to show intricate detail of both living and stained specimens. You no longer have to be satisfied with generalities. Also, for the first time, a

revolutionary new type of projection screen will be demonstrated. This screen permits projection in a well-lighted room —even in a room such as a television studio where numerous flood lights are burning. For the best and finest in microprojection, come to the Rayoscope booth.

Ronald Press Company

Booth 91. The Ronald Press Company invites members of the AAAS to visit booth 91 to see a representative display of Ronald Books, as well as the first comprehensive exhibit of Chronica Botanica books. Books at the Ronald booth represent the biological sciences, chemistry, conservation, engineering, forestry, geology, geography, history of science and technology, mathematics, philosophy, physics and astronomy, psychology and psychiatry, and sociology. Representatives of the company will be present.

The Science Center

Booth 10. The Science Center was organized in 1952 on a nonprofit basis as a personal philanthropy by William Guild to make available to teachers in the elementary grades a selection of classroom-tested projects in the fields of physics, chemistry, mathematics, geology, zoology, and electronics. There are now 106 projects from which teachers may make selections. This third annual exhibit at the AAAS convention also marks our twentieth preview for teachers.

The Science Library

Booths 3, 4 and 5. 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.; Basic Books, Inc.; Cambridge University Press; The Chemical Publishing Co., Inc.; Consultants Bureau, Inc.; The Dryden Press, Inc.; Emerson Books, Inc.; Engineering Management Reports; W. H. Freeman and Company; Harpers & Brothers; Houghton Mifflin Company; Iowa State College Press; Josiah Macy, Jr. Foundation; C. V. Mosby Company; Prentice-Hall, Inc.; Reinhold Publishing Corporation; St. Martin's Press Incorporated; Charles Scribner's Sons; Simon and Schuster; University of Chicago Press; University of Minnesota Press; University of Washington Press; D. Van Nostrand Company, Inc.; John Wiley & Sons, Inc.; The Year Book Publishers, Inc.

Ivan Sorvall, Inc.

Booth 96. Ivan Sorvall, Inc., Norwalk, Conn., will have on display a number of completely new Servall centrifuge developments, some of which are right in line with the modern trend toward automation. Shown in operation will be the Szent-Gyorgyi–Blum continuous-flow centrifuge for uninterrupted processing of large quantities of solution at high speeds. Also, the type SS-3 push-button superspeed (the first automatic unit in its range), the enclosed type SS-4 superspeed, the dependable Servall superspeed refrigerated centrifuge—all three of unmatched versatility; a new type GS large capacity, high-speed rotor, and some of the well-known smaller Servall table model centrifuges; the Servall Omni-Mixer and the improved Servall Porter-Blum microtome, both with a new range of accessories; a number of LBK chromatography instruments.

Special Libraries Association—Indiana Chapter

Booth 6. The Indiana Chapter of Special Libraries Association will exhibit materials showing the types of services offered by special libraries in academic, industrial, professional and public organizations with special emphasis on libraries in Indiana. A reference service designed to answer questions concerning scientific bibliography will also be maintained for the use of scientists attending the convention. Assistance will be available to those scientists and organizations who are seeking to employ librarians or to organize special libraries.

Stewart-Warner Corporation, South Wind Division

Booth 87. Stewart-Warner Corporation's South Wind Division will exhibit items taken from its activity in the field of airborne evaporative cooling. A cooling system, used on one of America's newest missiles, will be on display, and a new concept in evaporative heat exchanger design will be presented. The missile cooling system uses ammonia as a coolant. The major components are a coolant tank and an exchanger-blower combination. A special control maintains a constant outlet temperature regardless of heat load. The system is built as a unit for ease of servicing. During stand-by operations chilled water from a ground reservoir is pumped through the exchanger. At take-off an explosive valve closes the water line and admits ammonia into the exchanger. Vapor is dumped overboard. The new concept in evaporative heat exchanger design is the result of a 3-year study to develop a compact, simple water boiler for aircraft and missiles. Basically, water, or any liquid coolant, is made to conform to any surface regardless of gravity or other external forces. This holding action is made possible without valves or baffles, and submerged boiling is thereby accomplished in a container far less bulky and complicated than current heat exchangers of comparable performance.

Joseph W. Still, M.D., George Washington University Medical Center—Permanent Aortic Intubation in Rats—Scientific Uses

Booth 9. The exhibit outlines, in words and pictures, the surgical technique of performing the intubation procedure. It also shows pictures illustrating various uses of the preparations which have already been made and reported. In addition, it indicates some important further uses which have not been extensively exploited up to this time.

Street and Smith Publications, Inc.

Booth 88. *Science World,* the science magazine for high school students, will exhibit sample copies of recent issues and a display of premiums made available to subscribing teachers. Panels behind booth 88 will display a sampling of editorial coverage. A representative of the magazine will be present.

Tobacco Industry Research Committee

Booth 51. The exhibit describes the research program developed by the Scientific Advisory Board to the Tobacco Industry Research Committee. The program, covering all phases of tobacco use and health, has three main areas of investigation within which fall the separate, specific fields of investigation. The three main areas are: (i) the physical and chemical composition of tobacco and accompanying products, such as cigarette papers and additives; (ii) tissue changes in human beings and in animals exposed to tobacco or tobacco smoke, in normal life or under laboratory conditions; (iii) smoking and other tobacco habits and the comparative emotional and physical makeup of smokers and nonsmokers.

W. M. Welch Manufacturing Company

Booths 32 and 33. The W. M. Welch Manufacturing Company plans to display most of the selected apparatus used in physics, chemistry, and biology laboratories. These will include those especially adapted to the teaching of science in the secondary schools and colleges as well as some items specifically designed for special use in research and industrial laboratories. A partial list includes stain-

less-steel balances, high vacuum and smooth-operating vacuum pumps, electrical measuring instruments, electronics teaching devices, Densichron for measuring optical density, color saturation, paper chromatograms, and so forth. Many charts and other visual aids for teaching science, mathematics, and physiology, as well as preserved specimens, synthetic skeletons, and other biological models, will be shown.

Yellow Springs Instrument Company, Inc.

Booth 56. Yellow Springs Instrument Company will display our thermistor temperature-measuring devices, our new thermistor regulator, and some of our psycho-physiological equipment. The single-channel and multiple-channel telethermometers with a full display of interchangeable thermistor probes will be featured. Special noninterchangeable probes mounted in hypodermic needles, and for use in catheters and tissue implantation, will be shown. Personnel will be on hand to answer questions on special temperature-measuring problems. The model 63 temperature regulator, a new low-priced, thermistor-based regulator sensitive to ±1°F will be demonstrated. H. W. Trolander, president, and Raymond I. Schiff, sales manager, will be in attendance.

News of Science

Habitat of Early Vertebrates

The first vertebrates appear in deposits of the Ordovician period, which is dated some 450 million years ago. They were unquestionably aquatic forms; but the nature of their original habitat—whether marine, brackish, or fresh water—has been a moot subject. Some students—perhaps most—have favored a fresh-water, fluviatile origin of vertebrates. Others, however, have argued for a marine origin. Still another view is that which adopts an intermediate position and regards the matter as debatable, believing that the widespread ostracoderm group of jawless fishes—the oldest and most primitive of known fossil vertebrates—had both fresh-water and marine representatives.

J. D. Robertson [*Biol. Rev.* **32**, 156 (1957)] has recently reviewed the evidence bearing on this problem, considering both the geological and the morphological and physiological data. He regards the following points as indicating a marine habitat for the early vertebrates: (i) geochemical estimates that the early Ordovician seas were very similar in salinity and ionic composition to present-day seas, indicating that the first marine and fresh-water vertebrates likely were subject to the same physicochemical environmental stresses as those affecting present-day fishes and other marine chordates; (ii) common occurrence of the remains of early vertebrates (both Ordovician and Silurian) in association with those of marine invertebrates; (iii) the fact that all three existing protochordate groups (Hemichordata, Urochordata, Cephalochordata) are marine; (iv) the high salt concentration of the internal medium in the cyclostome marine order Myxinoidea—equivalent to that of the surrounding sea water, as in marine Urochordata and marine invertebrates—possibly a primary character acquired directly from ancestral marine chordates; and (v) the presence of well-developed glomerular kidneys in the marine myxinoids and elasmobranchs, which suggests that this type of kidney probably existed in marine protovertebrates, subsequently becoming a useful preadaptation for life in fresh water.

Robertson thus concludes that the vertebrates were originally a marine group. The arguments that have been advanced for their fresh-water origin he rejects as either erroneous or improbable.

Although Robertson presents an interesting case for a marine origin, the evidence which he advances appears to be somewhat short of completely convincing, although, perhaps, no less convincing than the evidence which has been advanced for a fresh-water origin. The resultant dilemma is probably inevitable, since, as the author states in his introduction, any conclusions concerning the original vertebrate habitat "must always remain in the realm of probability."

—W. L. S. JR.

International Physiological Expedition

The stress of antarctic weather on the human body will be studied by an international team of scientists from the University of California, Great Britain, and West Germany this winter. A six-man group left Berkeley early this month to participate in the International Physiological Expedition to Antarctica, which is a merger of separate American and British research groups and which is being financed by the Office of Naval Research.

An American expedition, organized by Nello Pace, professor of physiology, and also financed by ONR, started a series of studies on Naval personnel in the "Deepfreeze I" expedition to Antarctica 2 years ago. The Berkeley group plans to follow up the earlier work, study personnel who have wintered in the polar region, and determine the effects of long exposure to the cold environment.

Meanwhile, in Britain, an expedition to make the first land crossing of Antarctica has been planned. The crossing will start from the Luitpold Coast of the Weddell Sea and proceed across the South Pole to the U.S. base at Ross Island in the Ross Sea. A New Zealand party led by Sir Edmund Hillary and based at Ross Island will act in support, traveling inland to establish a supply depot on the Beardmore Glacier on the last leg of the route.

The British Medical Research Council Laboratories has set up a program for physiological studies of the 15-man expedition. One British physiologist, Alan Rogers, will actually make the trek with the party. Two others, L. G. C. Pugh and James Adam, British Army medical officer, will meet the expedition at the terminus and carry out tests on the trekkers as well as on members of the New Zealand support group.

Other members of the International Physiological Expedition are Jack W. Millar, commanding officer of the U.S. Naval Medical Research Unit No. 1 at Berkeley; William E. Siri, of the Donner Laboratory, who is experienced in expeditions and will serve as operations director; and Gerhard J. Hildebrand, physiologist from Karlsruhe, Germany, who is joining Pace's laboratory staff.

The work of the expedition consists of two parts. First, detailed physiological observations will be made on personnel in Antarctica. For example, tests will be