in which stained preparations are examined at the completion of the experiment for organisms within leucocytes fail to reveal the events preceding engulfment, i.e., the potential opsonizing role of the erythrocyte. The present observations suggest the necessity for control of the number and species of erythrocytes in quantitative measurements of phagocytosis *in vitro*. Moreover, if antibody and C′ are present in the reaction mixture, it is obvious that phagocytosis alone is not measured by the technique of Maaløe (*10*), in which clearing of the supernate fluid from mixtures containing bacteria and whole blood is used as an end point. The present data demonstrate that in such measurements washed erythrocytes and C′ may be quantitatively as reactive as whole blood.

The observation that erythrocytes play a role in an immunologic reaction with organism, antibody, and C′ offers advantages to studies on the *in vivo* resistance of the host to infection, and also may lead to the development of clinical diagnostic procedures involving the use of preparations of erythrocytes and microorganisms for the detection of circulating antibody.

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News and Notes

Sixth International Congress for Microbiology

THE Congress was held in Rome Sept. 6–12, in the halls of the Città Universitaria. Concurrently six symposia on topics of general interest in microbiology were held in the adjacent Istituto Superiore di Sanità. Under the presidency of V. Puntoni, the organizers of the Congress were host to some 2000 delegates from 60 nations; the actual number of registrants, including guests and students, was undoubtedly much higher. In recognition of the Congress, the Italian Government issued a postage stamp that appropriately bore the picture of Agostino Bassi who, in 1834, showed for the first time that a microorganism was the causative agent of a disease in an animal. The Congress medal, presented to all delegates, was a very handsome relief of Franciscus Redi, done in heavy white metal from the design by Mistruzzi.

An elaborate program of entertainment was arranged for the members of the Congress and included a party in the beautiful garden of the Istituto Superiore di Sanità, a reception by civic officials at the Campidoglio, a symphony concert, and an excursion to the excavations at Hadrian's villa and to Tivoli. It was obvious to all that the organizers of the Congress, and especially the general secretary, E. Biocca, and his staff had striven to make every arrangement for the details of the Congress. That they succeeded nobly, was generally agreed.

Over 1000 communications were presented in the 4½ days devoted to the work of the Congress. The papers, covering an extremely wide range of topics, were arranged in 32 sections and subsections. Competition for attendance among sections covering closely related fields was intense and was aggravated by the competition from the some 60 papers of general interest presented concurrently among the six symposia. Most of the sections and subsections were devoted to subjects that have come to comprise the traditional structure of an international congress of microbiology. Many of the sections were well organized and featured arrays of papers of considerable general interest. However, one or two of the sections reflected the inability, or unwillingness, of the organizers of the Congress to reject papers offered to them. It was, indeed, a travesty on the large amount of substantial work contributed to the Congress that much of the press coverage was devoted to a few lurid accounts that ought not to have appeared on the program. The press coverage, in general, concerned itself with the spectacular and with the outlandish; although only the former might be classed as news for the average reader, a substantial level of science reporting would seem to be incumbent upon the metropolitan daily press.

Among the several pounds of printed matter handed each of the delegates were the abstracts of papers to the Congress (over 1000 abstracts contained in 3 large volumes) and a volume of abstracts of the symposia papers. It is especially noteworthy that the full texts of papers presented at the symposia were available in print while the Congress was still in session. The director of the Istituto Superiore di Sanità, Domenico Marotta, and his staff deserve commendation for getting the 6 sizeable volumes into print with such speed. The relatively low prices of the symposia volumes and the general interest of many of the papers contained therein will undoubtedly assure a wide demand for these books. The subjects of the symposia were: Bacterial Cytology, Microbial Metabolism, Nutrition and Growth Factors, Growth Inhibition and Chemotherapy, Biology of Actinomycetales, and Interaction of Viruses and Cells. It is impossible to single out for comment individual contributions from the 65 papers presented at the symposia or from the 1000 papers

presented at the sections of the Congress. However, it might be noted that among the latter those in a special subsection on Toxoplasma (F. Bamatter, Geneva, president), at which 24 papers and a round-table conference were scheduled, appear to merit being printed together and in full. The same might be said for certain groups of papers presented in the very large sections on Immunology and Immunochemistry (O. G. Bier, São Paulo, and Michael Heidelberger, New York, presidents).

With the increasing size of the congresses, and the lavish scale of entertainment and accouterment that have become traditional, it has become more and more difficult for member countries of the International Association of Microbiologists to accept the responsibility for future congresses. The VIth Congress adjourned without a site for the next congress being determined. In view of the sectionalized tendencies that are becoming increasingly apparent in international congresses and in the large national meetings, the question might well be raised whether the pattern in international meetings exemplified by the Cold Spring Harbor Symposia is not one which will prove to be more informative and beneficial than meetings on so gigantic a scale as the Sixth International Congress for Microbiology. There is much to be said in favor of small international gatherings of 100–200 persons for the discussion of restricted areas—the work of the group can be reviewed in detail, its proceedings can be published in one or two volumes, and limitations on the site for the meeting would be few.

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Science News

Harlow Shapley of Harvard College Observatory has selected the following eleven top **astronomical highlights** of the past year:

1. A conference this past summer of photoelectric astronomers at the Lowell Observatory, meeting under the auspices of the National Science Foundation, during which definite progress was made in discussions of the advisability of establishing, in the near future, a cooperatively-operated research observatory, probably in the Southwest. It would give special reference to the immediate requirements of photoelectric programs and be available also for possible expansion for general astronomical research.

2. The starting of construction of the 3000-inch steerable radio telescope at Jodrell Bank near Manchester, England, where work will be continued on nearby meteors and remote radio stars. A. C. B. Lovell of the University of Manchester reports that the new instrument will be used in an attempt to penetrate the dust clouds found in the Milky Way's rift in order to discover what lies beyond.

3. The design and preliminary testing by André Lallemand and his associates of the Observatory of Paris, France, of a device for electric photography, which promises to speed up greatly the recording of faint stellar objects.

4. Attainment for the first time of stars of magnitude 23 on the photographic scale, by means of the 200-inch Hale reflecting telescope on Mt. Palomar. W. A. Baum of Mount Wilson and Palomar Observatories achieved this by employing new photon-counting devices in photoelectric photometers.

5. As an important step in the analysis of the structure of galaxies, the exploration by radio of the Magellanic Clouds by Frank Kerr and J. V. Hindman of the Radiophysics Laboratory, Sydney, Australia, using for the first time the rapidly developing tool of the 21-centimeter radiation emitted by neutral hydrogen atoms in interstellar clouds. They found that the volumes of the Magellanic Clouds are larger and their motions more turbulent than those recorded on photographic plates.

6. Further developments in the revision of the extra-galactic distance scale, first reported as a highlight last year. The new work includes contributions by Walter Baade and associates at Mt. Wilson and Palomar Observatories; Gerald E. Kron of Lick Observatory and S. C. B. Gascoigne of Australia's Commonwealth Observatory, while working in Australia; A. D. Thackeray of Radcliffe Observatory, Pretoria, South Africa; Harold Weaver of the University of California; and Virginia McK. Nail and Harlow Shapley of Harvard College Observatory, who find, from a study of the brightest stars in the Magellanic globular clusters, that the previous distances to galaxies beyond our own should be multiplied by 2.2.

7. The measurement photoelectrically and the analysis at the McDonald Observatory, Tex., by Gerard P. Kuiper, Daniel L. Harris, III, and I. I. Ahmad of Yerkes Observatory, of the light variations of ten asteroids. Their studies confirm the belief that most asteroids are irregular rotating fragments, with the amount of reflected light of the sun varying with the asteroid's rotation, but with no change in color.

8. Studies of the night sky by Franklin E. Roach of the Naval Ordnance Test Station, Inyokern, Calif., in which he demonstrated the connection of the corona and the zodiacal light.

9. Pioneer theoretical work, by G. C. McVittie of the University of Illinois, on the application of certain Einstein relativity equations to gas dynamics, with potential usefulness in the study of interstellar material and phenomena associated with novae.

10. The detection in the solar spectrum, by a group from the Naval Research Laboratory working at White Sands, N. Mex., of the ultraviolet Lyman alpha line of hydrogen having a wavelength of 1216 A. The research team's observation, made by using rocket-borne photon counters shot above the ozone blanket to a height of some 50 miles, has been confirmed by William A. Rense and associates at the University of Colorado, also through the use of high-altitude rockets.

11. The observation by K. E. Machin and F. G. Smith of the Cavendish Laboratory, Cambridge, England, of the occultation of the strong radio source in

the Crab Nebula by the outlying parts of the solar corona when the nebula is still at a distance from the sun of as much as ten times the sun's apparent radius. This is far beyond the coronal streamers that can be recorded photographically.

On Oct. 28 a **ceremony in memory of Colin G. Fink,** who died in September, was held at Columbia University, in Havemeyer Hall. The focus of interest was the removal at that time of a pair of old door-knobs from a laboratory door and their installation in the Chandler Museum. These door-knobs, in use for nearly 30 years, are the first objects to have been chromium-plated by the process that Fink developed, the process that proved commercially successful and filled America with its present plenitude of shiny metal.

"**Sensational investigations** pose a serious threat to the scientific research which supports our national defense," the Council of the Federation of American Scientists, meeting in Chicago, declared. "Investigations which are characterized largely by sensational headlines and wholesale suspensions can, by crippling our defense research, actually result in a net gain for those who work against the interests of the United States." In expressing its concern, the Council called attention to important facts and issues that "have been largely overlooked so far in reports on the situation" at Fort Monmouth.

In support of its views, the Federation's Council pointed out that "no charges of actual espionage or subversive activity have been made against any of the approximately 30 scientists implicated. . . . Although the possible existence of espionage in any defense laboratory must always be conceded, it is difficult to see how the present suspensions . . . which have had such a serious effect on the operations and morale of the laboratories . . . are connected with the implications of espionage."

The scientists stressed that "the effect on our national security would be extremely serious if such investigative methods are allowed to spread to other areas of this country's scientific effort."

This statement has an obvious relation to the editorial comment printed after the summary of the report of the Committee on Battery Additives in SCIENCE, 118, 684 (Dec. 4, 1953).

Scientists in the News

Louis H. Ahrens, Assistant Professor of Geochemistry in the Department of Geology and Geophysics, Massachusetts Institute of Technology, has resigned to accept a Readership in Mineralogy at Oxford University commencing in January, 1954. Prof. Ahrens is widely known for his spectrochemical research on geological age and will continue similar work in England.

Anderson Coelho de Andrade, a plant pathologist of the Instituto Biologico in São Paulo, Brazil, has joined the staff of The Connecticut Agricultural Experiment Station for a year. He is a specialist in the control of diseases of potatoes and tomatoes, particularly late blight.

John Alexander Ferguson, a specialist in the mineralogy of clays and formerly research officer with the Division of Building Research, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia, has joined the staff of the Illinois Institute of Technology as geologist.

William F. Finzer, Director of the Guidance Institute of Berks County, Pa., has been named Director of the Pittsburgh Child Guidance Center in the University of Pittsburgh Medical Center, effective Dec. 1. He will also be an assistant professor in child development at the Pittsburgh School of Medicine.

Wiley D. Forbus, author of the 2-volume *Reaction to Injury,* has accepted a 6-month assignment in Formosa as a Mutual Security Agency consultant. Duke University School of Medicine has granted him a leave of absence.

The appointments of a superintendent for Stanford University Hospitals and of an acting assistant dean for Stanford Medical School have recently been announced. **Warner P. Geigenmuller,** Assistant Superintendent of the Hospitals, has been promoted to Superintendent. **George Bernard Robson,** San Francisco physician, has been named Acting Assistant Dean of the Medical School. He is an associate clinical professor of the school. Both posts were previously held by **William H. Northway,** who is also Professor and Head of the Division of Physical Medicine. Dr. Northway had asked to be relieved of the two administrative jobs in order to spend full time on medical and teaching duties.

The appointment of **Oliver Leroux** of Canada as the World Health Organization's South East Asia representative has been announced. Dr. Leroux's headquarters will be in New Delhi, India, where he is expected to act as the main link between the WHO regional office and the national health services of the participating countries. He will also be responsible for close cooperation with the health work administered by the Foreign Operations Administration (U.S.) and the Colombo Plan (British Commonwealth).

Lars Melander of the Nobel Institute, Stockholm, recently completed a month-long series of lectures on the general subject of "The Use of Nuclides in the Investigation of Organic Chemical Reaction Mechanisms." The lectures were presented at the University of Notre Dame under the auspices of the P. C. Reilly Chemistry Lecture Series.

George D. Stoddard, former president of the University of Illinois, has accepted the chairmanship of the Directing Committee of New York University's Self Study, now being conducted under a grant from the Carnegie Corporation. After February 14, 1954,

Dr. Stoddard will give full time to the study for a seven-month period. At present he is an educational consultant with Encyclopaedia Brittanica Films.

Theodore P. Wright, vice president for research at Cornell University, has been appointed chairman of the board of trustees of Associated Universities, Inc. The corporation is made up of a group of nine eastern universities which administer the Brookhaven National Laboratory.

Education

At the 64th annual meeting of the Association of American Medical Colleges, John M. Stalnaker of Chicago, an Association staff member, presented a paper entitled **"A Survey of Applicants."** His report indicated that students wanting to become physicians now have a better than 50-50 chance of being enrolled in the nation's medical schools. The survey showed that since the peak academic year, 1949–50, when 24,434 students applied for admission, the number of applicants has declined to a postwar low of 14,651 for the current year, 1953–54. The number of applicants has also dropped over the past four years from 88,244 in 1949 to 48,270 this fall. In 1949 each student applied to an average of 3.6 schools, while the current ratio is 3.29.

Duke University recently dedicated its **William B. Bell Research Building.** The late Mr. Bell was president of American Cyanamid Company and a trustee of the Duke Endowment, which helped finance the first unit of the building with a contribution of $190,000. The initial wing of the H-shaped $750,000 structure was begun in 1945 and the final section completed in 1952. The second addition to the original building was made in 1948 at a cost of $180,000. The financing was from the Duke Hospital and Medical School building fund. This wing houses the high-altitude chamber and several areas for experimental studies in surgery and medicine. A final $370,000 section was added in 1950, financed largely by the cancer and heart divisions of the U.S. Public Health Service. This third wing is used primarily for heart and cancer studies. All departments of Duke Medical School are carrying out research in their fields with space in the Research Building.

Stanford University has anounced the construction of a new $200,000 microwave laboratory. Work on the 15,000-square-foot building, which will be located next door to the present laboratory, will begin at once if weather permits. It is hoped that the structure will be ready for occupancy by next spring. The new laboratory will house approximately 75 staff members.

The Department of Biological Sciences, **University of Delaware,** announces a program of graduate study leading to the Ph.D. degree in biological sciences. General areas of graduate instruction and research in the department are: bacteriology; botany, including plant physiology; marine biology, including ichthyology and estuarine studies; general and cellular physiology; and zoology, including invertebrate zoology, embryology, and genetics. Inquiry concerning details of the program should be directed to Dr. James C. Kakavas, Chairman, Department of Biological Sciences, University of Delaware, Newark, Del.

The Division of Graduate and Postgraduate Medical Education, **University of Utah College of Medicine,** supported in part by a grant from the W. K. Kellogg Foundation, has utilized a new approach to give physicians an opportunity to participate in clinics and rounds. In cooperation with KDYL-TV, Salt Lake City, a series of **Postgraduate Television Clinics** is being presented weekly. These clinics are televised from the amphitheater of the Salt Lake General Hospital between 7:00 and 8:00 A.M., two hours before the regular broadcast day begins. Announcement of the time of broadcast was made only to physicians, but it is expected that a certain proportion of the lay population will tune in accidentally. Audience participation in this program is encouraged, and unlisted telephone service directly to the broadcast amphitheater is provided so that the doctors may ask questions during the program. Only the physicians in the area will be given the phone number for this type of participation.

These clinics represent the initial use of open circuit television for postgraduate medical education. Evaluation of Postgraduate Television Clinics is being carried out and will be published after completion of the present series.

Grants, Fellowships, and Awards

Eric Hodgins, author and member of the board of editors of *Fortune,* and Nathan S. Haseltine, science editor of *The Washington Post,* have won the **AAAS-George Westinghouse Science Writing Awards for 1953.** The $1000 awards will be presented Dec. 29 at a special luncheon in the Hotel Statler, Boston, during the annual meeting of the AAAS. Mr. Hodgins, who is the author of the novel, *Mr. Blanding Builds His Dream-House,* is being honored for his paper entitled "Power from the Sun," which appeared in the September issue of *Fortune.* Mr. Haseltine's prize-winning series of three articles on prisoner medical volunteers was published September 6, 7, and 8 in *The Washington Post.*

In his thought-provoking work, Mr. Hodgins states that "the best scientific [belief] . . . is that in the ultra-long run, solar energy will beat out atomic energy as the prime mover of the future world."

Mr. Haseltine's newspaper series revealed for the first time how convicts volunteered their bodies to medical science, first as a willing contribution to the war effort and later to enable continuation of studies which have "paid off handsomely in reducing human misery and saving American lives."

The judges voted honorable mention to two free-lance magazine writers, Albert Q. Maisel of New York City, and Norman John Berrill of McGill University.

Mr. Maisel's article, "They Fight for the Health of Kids They'll Never See," was published in the March issue of *Parents' Magazine*. Mr. Berrill's paper, "The Virgin Egg," appeared in the September issue of the *Atlantic Monthly*.

Entries were judged on the basis of their initiative, originality, scientific accuracy, clarity of interpretation, and their value in promoting a better understanding of science by the layman. The works entered in the competition were identified by number only; therefore, the judges could not know names, locations, or affiliations of the authors until after winners had been named.

In fulfilling their assignment, the judges felt impelled to draw up the following additional citation:

In the Science Writing Awards for 1953, the judges have, as in the past, endeavored to honor individuals for excellence in science writing. One of the entries before the judges was the result of the coordinated effort of many individuals and therefore not eligible for an award or honorable mention. The judges were unanimous, however, in regarding this entry as a distinguished example of science journalism, worthy of special recognition. Hence, a citation is awarded to *Life*'s Science Department and Mr. Lincoln Barnett for the series, "The World We Live In."

The **American Heart Association** has awarded the following research grants-in-aid for 1953–54:

University of California. D. M. Greenberg, Medical School. Tracer studies of certain components of proteins in relation to the development of high blood pressure and hardening of the arteries, $5250.

University of California. D. W. Peterson, College of Agriculture. Dietary factors influencing tissue levels of cholesterol, $5250.

University of Southern California. D. R. Drury, School of Medicine. The role of heredity and environment in the occurrence of high blood pressure, $4725.

Cedars of Lebanon Hospital. H. Goldblatt, Institute for Medical Research. Circulation in the minute terminal blood vessels in high blood pressure, produced experimentally in the dog, $3780.

University of California. I. S. Edelman, Medical School. Absorption and excretion of sodium, potassium, and water in the intestines, $7708.

Mount Zion Hospital. M. Friedman, Harold Brunn Institute. Cholesterol metabolism, $3150.

Stanford University. V. Richards, School of Medicine. Results of increased pressure in the blood vessels of the lungs on absorption of oxygen, $5250.

Mount Zion Hospital. R. H. Rosenman, Harold Brunn Institute. The role of potassium in maintaining blood pressure and in regulating the calibre of blood vessels in persons with normal or with high blood pressure, $3150.

Yale University. A. V. N. Goodyer, School of Medicine. The effects of alterations in the circulation on electrolytes and their excretion from the kidneys, $6048.

University of Colorado. J. K. Aikawa, School of Medicine. The development of immunity, especially in relation to rheumatic fever, $4252.

Georgetown University. E. D. Freis. School of Medicine. The work of the heart and its output, based on the use of a mechanical heart pump, $5250.

Emory University. E. B. Ferris and A. A. Brust, School of Medicine. The effect of restricting sodium on the circulatory system, $5250.

Medical College of Georgia. R. P. Ahlquist. The effects of certain adrenal-affecting drugs on the heart and blood vessels in experimental high blood pressure, $4462.

Medical College of Georgia. W. F. Hamilton and R. P. Ahlquist. Training program for research workers in the cardiovascular field, $8400.

La Rabida Jackson Park Sanitarium. E. P. Benditt. The nature of a substance derived from male sex glands and its effect on the permeability of blood vessels, $5376.

Northwestern University. G. R. Graham, Medical School. The flow of blood through the coronary arteries, $4200.

University of Chicago. R. J. Jones, School of Medicine. Study of a substance in the brain which lowers the amount of serum cholesterol, $5250.

Michael Reese Hospital. J. Stamler. Factors which regulate the work of the kidneys and the control of the body salts in experimental congestion of the blood vessels, $4200.

University of Illinois. G. E. Wakerlin, College of Medicine. Certain types of experimental high blood pressure, $5250.

Indiana University. J. D. Ebert, School of Medicine. Study of actin and myosin, $9607.

State University of Iowa. J. W. Culbertson, College of Medicine. The effects of surgical and medicinal treatment on the circulation to the liver and kidneys in certain diseases of the heart and blood vessels, $3150.

State University of Iowa. S. M. Horvath, College of Medicine. Results of sudden blocking of the aorta and vena cava, $5250.

University of Maryland. F. H. J. Figge, School of Medicine. Factors which cause overweight, and its effect on hardening of the arteries and other diseases of heart and blood vessels, $5680.

Johns Hopkins University. W. H. Gantt, School of Medicine. The mode of production of rapid heart action by nervous influences, $5250.

Johns Hopkins Hospital. W. R. Milnor. Results of shortcuts in the blood vessels on the volume of circulating blood, $5499.

Harvard Medical School. D. G. Cogan, Howe Laboratory of Ophthalmology. Studies of the cornea of the eye to determine the changes which result from aging, and specifically the relation of fat deposits in the cornea to fatty degeneration in the blood vessels, $4725.

Harvard Medical School. O. Krayer. A study of compounds of protoverine and germine and their action on the heart and blood vessels, $7875.

Harvard Medical School. S. M. Kupchan. A study of the veratrum alkaloids, which are able to lower blood pressure, $4181.

Massachusetts General Hospital. A. Leaf. Regulation of the fluid content of the body in health and disease, $4961.

Peter Bent Brigham Hospital. J. P. Merrill. Relation of kidney failure to various types of heart and blood vessel disease, $5250.

Harvard Medical School. M. J. Schlesigner. Coronary artery disease, $4200.

New England Center Hospital. M. Stefanini. Relation of the hormones to blood-clotting; possible agents to dissolve clots within blood vessels, $5250.

Harvard Medical School. G. W. Thorn. Relationship of the adrenal gland to high blood pressure, $4200.

Harvard Medical School. L. Tobian, Jr. A biochemical study of metabolic changes in the walls of normal blood vessels and those altered by high blood pressure, $4200.

Woods Hole Marine Biological Laboratory. A. Szent-Györgyi. Further studies on the molecular changes within muscle during contraction, $10,000.

Wayne University. C. Djerassi, College of Medicine. The isolation, chemical study, and effect on the body of a substance from *Pilocereus sargentianus* Orcutt, $4935.

University of Minnesota. R. A. Good, Medical School. The causes of and pathological changes which occur in rheumatic fever, studied by means of immunologicial, endocrinological, and biochemical methods, $6825.

University of Minnesota Heart Hospital. R. W. Von Korff. The chemistry of certain fundamental metabolic processes with probable bearing on the work of the heart and blood vessels, $5250.

Washington University. R. F. Furchgott, School of Medicine. Metabolic factors in the production of experimental heart failure, $5250.

Washington University. O. H. Lowry, School of Medicine. A specific protein in heart muscle, with the property of absorbing heart drugs, $2940.

Washington University. J. R. Smith, School of Medicine. The effects of certain allergic phenomena on the vascular system, and their relation to the occurrence of the collagen diseases, $3932.

University of Buffalo. D. G. Greene, School of Medicine. The influence of certain defects of the heart valves on the expulsion of blood, $4725.

Mary Imogene Bassett Hospital. J. Bordley III. Restricted expansion of the lung as a stimulus for breathing in normal persons and in those afflicted with diseases of the heart or lungs, $5250.

Mary Imogene Bassett Hospital. J. W. Ferrebee. The cor-

relation between certain types of cell damage and the changes in cell function, $7140.

Bellevue Hospital. A. P. Fishman, Cardio-Pulmonary Laboratory. The effects of the volume of circulating blood on heart failure; the sensitivity of the respiratory center of the brain to heart disease resulting from disease of the lungs, $5171.

State University of New York Medical Center. N. O. Fowler. The effect of lung expansion and respiration on the output of the right ventricle of the heart and on the resistance of the lungs to blood circulating through them, $3150.

Columbia University. G. H. Humphreys II, College of Physicians and Surgeons. Certain surgical problems of heart disease, $4200.

Montefiore Hospital. E. Hurwitt. Surgical treatment of mitral valve insufficiency due to rheumatic heart disease, $3150.

St. Luke's Hospital. J. H. Keating. Circulation in the kidney in relation to the excretion of albumin and electrolytes, $5250.

Montefiore Hospital. L. Leiter. Circulation in the leg muscles in heart disease, $5775.

New York University Bellevue Medical Center. J. J. Osborn. The use during surgery of refrigeration and a heart-lung machine for temporary interruption of circulation, $8268.

Cornell University. W. C. Robbins, Medical College. Experimental studies in rheumatic fever, $3543.

Council on Rheumatic Fever and Congenital Heart Disease. D. D. Rutstein. Cooperative study on the relative effectiveness of ACTH and cortisone in the treatment of rheumatic fever and the prevention of rheumatic heart disease, $3750.

Mount Sinai Hospital. J. H. Sirota. The role of the kidney in the development of heart failure, $3150.

Cornell University. R. C. Swan, Medical College. The regulation of salt balance in kidney malfunctioning, $5250.

New York University. M. B. Zucker, College of Dentistry. The influence of blood platelets on blood clotting, $4620.

State University Medical Center at Syracuse. A E. Farah. The influence of agents that control metabolic functions on heart functioning, $4158.

State University Medical Center at Syracuse. J. S. Robb. The action of digitalis compounds on heart muscle, $5250.

University of North Carolina. C. B. Taylor, School of Medicine. The suitability of the *Macacus rhesus* monkey for experimental studies of artificial hardening of the arteries and cholesterol metabolism, $9450.

Duke Univeristy. J. V. Warren, School of Medicine. Results of altered blood pressure on the circulation through the lungs, $5250.

Wake Forest College. H. D. Green, Bowman Gray School of Medicine. The ability of the blood vessels to expand or to constrict according to the need for blood of organs which they supply, $4830.

University of Cincinnati. G. H. Acheson, College of Medicine. The fate of veratrine in the blood, and the possible role of the red blood cells therein, $3150.

Ohio State University. L. A. Sapirstein, College of Medicine. The composition of tissue fluid and the changes in it resulting from high blood pressure, $5250.

Antioch College. L. C. Clark, Fels Research Institute. Further studies on a heart-lung machine, $7728.

Oklahoma Medical Research Institute. C. D. Kochakian. The effects of the adrenal cortex on heart function, $5433.

Hahnemann Medical College and Hospital. C. P. Bailey. Changes in the work of the heart, blood vessels, and respiration following the surgical treatment of heart valve disease, $5250.

Temple University. D. A. Collins, School of Medicine. The preparation and study of liver angiotonase, and its role in the development of high blood pressure, $4725.

University of Pennsylvania. J. H. Comroe, Graduate School of Medicine. Measurement of the work of breathing and the efficiency of the lungs in persons suffering from shortness of breath, $6300.

University of Pennsylvania Hospital. F. C. Dohan. Changes in the urine by certain adrenal hormones, $7875.

University of Pennsylvania Hospital. J. R. Elkinton. The control by certain areas in the base of the brain over blood circulation and its importance in heart failure, $4058.

University of Pennsylvania. S. Gurin, School of Medicine. The formation of cholesterol and fats in the body and the effects of hormones on the process, $10,500.

University of Pittsburgh. T. S. Danowski, School of Medicine. The effects on the heart and circulation of using an artificial kidney (vivo-dialyzer) to remove salts from the blood, $6195.

University of Pittsburgh. R. E. Olson, School of Public Health. Effects upon the metabolism of heart muscle of heart failure resulting from heart valve disease, $8925.

Providence College. F. C. Hickey. The roles of certain metabolic products in various organs and tissues including the heart, $2003.

University of South Dakota. F. E. Kelsey, Medical School. The development of a highly purified preparation of digitalis for experimental use, $5985.

University of Tennessee. C. R. Houck, College of Medicine. The influence of various organs on high blood pressure produced experimentally in animals by removal of the kidneys, $7770.

University of Tennessee. R. C. Little, College of Medicine. Heart sounds, especially in relation to the filling of the heart with blood, $2992.

Vanderbilt University. F. Gollan, School of Medicine. The use of a mechanical heart-lung apparatus in experimental coronary occlusion to determine its value for patients with coronary heart attacks, $3780.

University of Texas. J. C. Vanatta, Southwestern Medical School. The use of ion exchange resins for experimental purposes, $4095.

University of Utah. S. C. Harvey, College of Medicine. The action of digitalis on the heart, $6300.

University of Utah. V. C. Kelley, College of Medicine. Adrenal hormones in relation to rheumatic fever and similar diseases, $5250.

University of Washington. R. F. Rushmer, School of Medicine. Factors which regulate the filling and emptying of the heart, $6615.

University of Wisconsin. D. R. Sanadi, Medical School. A study of some of the intermediate products of metabolism in heart muscle, $4200.

Institutio de Biologia y Medicina Experimental, Argentina. B. A. Houssay. Studies on experimental high blood pressure, $10,000.

McGill University. G. L. Duff, Faculty of Medicine. Appearance of cholesterol and other fatty substances during the early development of experimental hardening of the arteries, $6819.

Montreal General Hospital. J. H. Quastel, Research Institute. Fat metabolism in heart muscle, $5512.

The Middlesex Hospital, London. C. V. Nelson, Medical School. Electrical impulses in the heart, $1546.

American University of Beirut. G. Fawaz. The metabolism of the heart under the influence of certain metabolites, and the study of certain adrenal cortex hormones on the excretion of salt and water under experimental conditions, $4725.

Institutio Nacional de Cardiologia, Mexico City. J. B. Brumlik. Abnormal rhythms of the heart, especially fibrillation, involving interference with the normal conducting system of the heart, $5000.

The **Damon Runyon Memorial Fund** research grants for October are as follows:

Tulane University. A. Segaloff. The relationship of hormones in neoplasia, $10,000.

The Institute for Cancer Research. S. P. Reimann. Physiochemical study of cancer patients, $20,000.

Hahnemann Medical College. A. W. Wase. Investigation into the mechanisms of chemical carcinogenesis, $9700.

University of Minnesota. H. S. Diehl. Endocrine aspects of malignant growth, $10,000.

New York University, Washington Square College. H. C. Dalton, Dept. of Biology. Developmental control of melanophore differentiation, $3000.

Rutgers University. J. B. Allison and M. L. Crossley. Biochemical action of ethylenimines with tumor regression, $10,000.

Tuskegee Institute. J. H. M. Henderson, Carver Foundation. Auxin metabolism of crown gall and normal tissue in vitro, and an inhibitor of auxin production in tumor and normal tissue, $5000.

Fellowships

J. V. Landau, for training at New York University, $4800.

J. R. Vinas, to study at New England Center Hospital, $4000.

The following research programs are being supported by the **Muscular Dystrophy Associations of America, Inc.:**

New York Hospital. A. T. Milhorat, Cornell Medical College. Pathogenesis of progressive muscular dystrophy, $290,358.

New York Hospital. J. T. Ellis. Nature and pathogenesis of muscular degeneration in cortisone-treated rabbits, $8856.

University of Paris. G. Schapira. Biochemistry of muscle in progressive muscular dystrophy, $18,500.

Institute for Muscle Research, Woods Hole, Mass. A. Szent-Györgyi. Relation of electric charge-distribution in muscle fibers and in actomyosin to muscular contraction, $60,000.

New York Medical College. A. S. Abramson. Electromyographic studies on muscular dystrophy, $1750.

University of Washington. H. S. Bennett. Structure and cytochemistry of normal and degenerating muscle, $14,364.

University of Buffalo and Edw. J. Meyer Memorial Hospital. H. G. Dayman. Ventilatory force and quantitative measurement of diaphragmatic strength in health and in muscle disease, $3700.

Massachusetts General Hospital. J. Gergely. Paper-electrophoretic studies on muscle proteins, $4331.

Washington University. E. F. Gildea. Biochemical investigation of muscular dystrophy, $20,000.

University of Wisconsin. J. W. Harman. Relation of structure on the myofibrillar and mitochondrial systems of normal and dystrophic skeletal muscle, $18,387.

Alabama Polytechnic Institute. E. L. Hove. Relation of diet to the production and cure of muscular dystrophy in laboratory animals, $10,280.

University of Arkansas. W. K. Jordan. The role of nucleic acid in muscular dystrophy, $12,866.

University of Illinois. R. M. Kark. Carnitine metabolism in muscular dystrophy. $5000.

University of California. A. S. Rose. Muscle disorders studied by means of exchangeable radioactive potassium determination, $8164.

Bird S. Coler Hospital. J. S. Tobis. Proposed training program in physical medicine and rehabilitation of muscular dystrophy patients, $25,000.

University of Texas. R. J. Williams. Study of metabolic patterns of muscular dystrophy patients, $1700.

University of Utah. M. M. Wintrobe. Preparation of laboratory space for the study of hereditary and metabolic disorders, $8000.

University of Iowa. T. Winnick and H. M. Hines. Metabolic origin of carnosine and anserine and their possible physiological roles in muscle, $11,880.

Worcester Foundation for Experimental Biology. H. Rosenkrantz. Effect of steroid hormones on the incubation of tocopherol with skeletal muscle, $10,190.

University of Colorado. H. Herrmann. Chemical analysis of developing muscle tissue, $8343.

University of Colorado. A. R. Buchanan and V. Van Breemen. Electron microscopic studies of neuromuscular relationships under normal and pathological conditions, $7722.

Western Reserve University. P. J. Vignos, Jr. Muscle enzymes in progressive muscular dystrophy, $4860.

University of Pittsburgh. R. E. Olson. Synthesis and metabolism of glycocyamine, $9330.

Children's Hospital of Pittsburgh. T. S. Danowski. Muscular dystrophy survey studies, preliminary to trials of purified growth hormone, $8316.

Columbia University. T. Hayashi. Studies of surface-spread actomyosin fibers, $3240.

Columbia University. D. Nachmansohn. Interaction between ions and muscle proteins, $12,474.

University of Rochester. K. E. Mason. Structural and metabolic studies on degeneration and repair of skeletal muscle in experimental muscular dystrophy, $16,135.

National Institute of Neurological Diseases and Blindness. Potassium exchange, actomyosin tensile strength, metabolic changes, and endocrinological studies on a series of neuromuscular cases, $1714.

Johns Hopkins Hospital. K. L. Zierler. Relation of vitamin E to glycolysis in skeletal muscle, $8087.

Cornell University Medical College. Muscular Dystrophy Associations of America, Inc. Fellowship. M. L. Schoelly. Emotional factors in muscular diseases.

At the September meeting of the advisory committee of the **Research Corporation,** 60 grants totaling $150,000 were approved. The awards were made to the following 49 colleges and scientific institutions in this country, Canada, and Lebanon for support of research in the physical sciences, engineering, and mathematics:

Loyola University of Los Angeles. J. R. Schwartz. The nature of the bonding in aliphatic C-Nitroso compounds.

Howard College. John Xan. Completion of a small cyclotron.

University of Arkansas. E. S. Amis. A study of the dielectric constant and temperature dependences of the equivalent conductances of electrolytes at infinite dilutions.

University of California. C. D. Jeffries. Study of nuclear moments.

University of California. O. Struve. Study of B cephei stars and related objects.

University of California. R. K. Brinton and D. H. Volman. Photochemical and thermal studies of free radicals.

Colorado Agricultural and Mechanical College. M. L. Albertson. Sediment movement in closed conduits.

George Washington University. T. P. Perros. A kinetic study of the displacement reaction involving the fluoroplatinate ion.

Rollins College. H. A. Suter. Reactivity of selected derivatives of 8-quinolinol with metal ions.

Bradley University. A. H. Laurene. The solvent extraction of Co(II) as a means of separating cobalt from other metals.

DePaul University. F. S. Prout. The relationship of optically active quaternary carbon compounds.

Northwestern University. A. S. Hussey and R. H. Baker. The determination of configuration of the 10-methyl-2-decalols.

Northwestern University. R. L. Letsinger. An investigation of the chemistry of pyridazine.

Northwestern University. F. H. Seubold, Jr. Fundamentals of free radical processes.

Northwestern University. K. A. Strand. Research in double-star astronomy.

Southern Illinois University. J. W. Neckers. Periodates, composition and properties.

Rose Polytechnic Institute. S. G. Bankoff. Effect of fluid physical properties on heat transfer to boiling binary liquid mixtures.

State University of Iowa. R. Benesch. Polarographic investigations on the structure of proteins.

Kansas State Teachers College. E. W. Crandall. The reaction of aromatic hydrocarbons with carbon monoxide.

Kentucky Research Foundation. W. T. Smith, Jr. The preparation of an optically active benzo(c)cinnoline.

University of Louisville. R. H. Wiley. Infrared spectroscopic studies of 2-pyrones and 8-quinolinols.

Boston University. W. J. Gensler. Rearrangement of tetrahydrofurfuryl alcohol.

Clark University. G. Kegeles. Chromatographic separations and studies of protein cleavage products.

Harvard University. R. B. Woodward. Synthesis of cortisone.

Massachusetts Institute of Technology. N. A. Milas. Continuing work on synthesis of vitamin D_3 and vitamin A.

Kalamazoo College. R. O. Kerman. Light charged particle scattering cross-sections as a function of angle.

St. Louis University. H. B. Donahoe. Synthesis of drugs which paralyze striated muscle.

University of Kansas City. W. J. Rost. The synthesis of some dialkylaminoalkyl esters of some N-substituted carbamic acids.

Colgate University. A. S. Brown. The electro-chemical and surfactant behaviors of soluble penicillin-G salts.

New York University. B. R. Sundheim. The radial distribution function of an ionic fluid.

Rensselaer Polytechnic Institute. J. O. Hougen. Synthesis of control systems for physical and chemical processes.

Syracuse University. P. H. Barrett. Analysis of the decay of heavy mesons in nuclear emulsions.

University of North Dakota. R. E. Frank. The polarography of cyclooctatetraene (COT).

University of North Dakota. H. W. Hoyer. Foam fractionation of surface-active materials.

Bowling Green State University. A. J. Hammer. For anion absorption.

Ohio State University. J. G. Daunt. Nuclear orientation at low temperatures.

Oklahoma Agricultural and Mechanical College. O. H. Hamilton. An investigation into classes of continua having the fixed point property for continuous transformations.

Oklahoma Agricultural and Mechanical College. E. M. Hodnett. The isotope effect in the alkaline hydrolysis of ethyl methyl-t-benzoates.

Willamette University. R. L. Purbrick. An investigation of diatomic molecules formed from elements in the same column of the periodic system.

Duquesne University. T. L. Chu. Magnetic and spectroscopic studies of free radicals.

Duquesne University. K. C. Schreiber. A comparison of the reactivity of heterocyclic compounds.

Franklin and Marshall College. F. A. Snavely. Investiga-

tion of the relative strength of the O, S, and N bonds in the metal derivatives of *o,o*-disubstituted azo compounds.

Haverford College. O. T. Benfey. Studies in the identification of organic compounds.

Temple University. M. D. Stern. An equilibrium dialysis study of complex formation between proteolytic enzymes and enzyme-specific amino acids and polypeptides.

University of Pennsylvania. S. Shore. Model studies of the torsional rigidity of space frameworks.

University of Pittsburgh. B. E. Douglas. The racemization of optically active coordination compounds.

Carson-Newman College. C. T. Bahner. Synthesis of triazolopyrimidines and related compounds.

University of Tennessee. J. F. Eastham. Transformation of a resin acid into a steroid.

University of Tennessee. G. K. Schweitzer. The separation of carrier-free radionuclides by Szilard-Chalmers recoil from organometallic complexes.

The Rice Institute. M. G. Ettlinger. Chemistry of unsaturated three-membered rings.

Texas Southern University. R. F. Wilson. Spectrophotometric and polarographic study of certain rare earth and transitional elements that give color-producing reactions when treated with suitable reagents.

University of Texas. S. L. Brown. Study and applications of streaming potentials.

Utah State Agricultural College. M. C. Cannon. Chemistry of reactions at elevated temperatures.

University of Wisconsin. J. G. Winans. Retrograde motion of cathode spot of an arc.

University of Wyoming. J. E. Douglas. Low pressure thermal polymerization of ethylene.

Canadian Mathematical Congress. Associateships at summer research institute, $8600.

American University of Beirut. C. H. Issidorides. Reactions of trimethylene oxides with alcohols.

American University of Beirut. R. H. Linnell. Studies on N-heterocyclics.

University of Oregon. E. G. Ebbighausen. Anomolous effects in the behavior of spectroscopic binaries.

University of Oregon. G. Gorin. Metal-catalyzed oxidation of cysteine.

In the Laboratories

The Armour Laboratories have opened a new $12,000,000 manufacturing plant, known as the **Armour Pharmaceutical Center,** in Kankakee, Ill. It will produce Armour's line of special biological drugs, including ACTH and other pituitary hormones, trypsin and other enzymes, insulin, thyroid extracts, various liver extracts, and bovine albumin. Part of the facilities are devoted also to the production of blood fractions, i.e., gamma globulin and human serum albumin.

The **Bendix Aviation Corporation** has announced that it will concentrate an important part of its engineering work on oxygen systems for high-altitude aircraft at the Pioneer-Central Division in Davenport, Ia.

Hillary Robinette, Jr., has announced the formation of **Robinette Research Laboratories, Inc.,** with offices and laboratories at 16 E. Lancaster Ave., Ardmore, Pa. The new firm will provide research assistance for the textile, leather, paper, and chemical industries, as well as make technical and economic surveys of the chemical and chemical process industries.

The **Stanford Research Institute** has announced the acquisition of the facilities of the Microwave Engineering Co. of Los Angeles. With the transfer SRI has retained Microwave's staff of fifteen.

The **Wm. S. Merrell Company** of Cincinnati is expanding its Basic Medical Sciences unit by constructin a new Gerontological Laboratory. Ground will soon be broken for the new building, the fourth in Merrell's $2,000,000 research development program launched in 1951. Organic chemistry, autoclave, and microbiology laboratories have already been completed.

Meetings and Elections

The **American Foundation for Allergic Diseases** has been organized by the American Academy of Allergy and the American College of Allergists.

Officers of the new organization are: pres., Horace S. Baldwin, N.Y.; v. pres., J. Warrick Thomas, Richmond, Va.; sec., Bret Ratner, N.Y.; and treas., Theodore L. Squier, Milwaukee, Wis.

By terms of its charter, the foundation is to promote through public education an accurate understanding of the problems of allergic disease; to inform and educate the medical profession in the problems of allergy; to cooperate with medical institutions, hospitals, and other organizations in the development of facilities for the treatment and prevention of allergic diseases; and to finance facilities for research in the field of allergic diseases, including fellowships and residences. Provision is also made for the eventual establishment of local or regional branches of the central organization.

In stressing the need for the foundation, Dr. Baldwin pointed out that asthma alone is a leading factor in over 10,000 deaths in the United States each year, yet it is difficult for the average asthma patient of moderate means to get adequate treatment. Dr. Baldwin said:

It is common experience that most general hospitals will not accept such patients because of the prolonged period of intensive medical and nursing care required. Hospitals treating acute diseases are reluctant to admit asthma patients because of the chronicity and the probable long-term stay, and the institutions for chronic care are poorly equipped to treat asthma. There is also a deficiency in the number of allergy clinics.

Organized research on any sizable scale is likewise lacking. Some promising discoveries have been made recently in the mechanisms and therapy of allergic diseases, but these are often the accomplishment of individual workers and practitioners, operating in their spare time and with limited facilities

Trained investigators, who can give full time are being attracted into other fields. Furthermore, the research that is being done under present conditions is frequently duplicated in several clinics and laboratories at the same time, resulting in inefficient efforts and wasted opportunities.

The teaching of allergy in the medical schools is haphazard and inadequate. In some medical schools, allergy is neglected entirely. Due to the lack of hospital and clinic services, interns and residents have few opportunities for observation of patients. As a result there is a dearth of well trained young specialists.

Too late for either the Preconvention Issue of SCIENCE or the General Program-Directory is the announcement that the **Annual Illustrated Lecture of the National Geographic Society** at the Boston Meeting

of the AAAS will be "Into the Heart of Africa," narrated by Volkmar Wentzel of the Society's photographic staff, instead of the topic originally scheduled. The lecture promises to be outstanding; Society and Association members alike can expect this event to be as instructive and entertaining as have been all other annual special sessions of the National Geographic Society.

The first **Arab Science Congress,** meeting at Alexandria, Egypt, in September, took steps to organize Arab scientists and the scientific institutions of the Arab states into a permanent Arab Scientific Union. A committee will prepare the plans and secure the cooperation of the governments and scientists during the year ahead, then it expects to call a second congress in 1954 or 1955 for the organization of an Arab Scientific Union.

The publication of a general science journal in Arabic and the encouragement of the study of the history of Arab science are included in the objectives. The public lectures at the congress included a review of the great names of Arab science, such as Jabir-ibn-Haiyan, known in the western world as Geber, and Ibn Sina, known as Avicenna. Other lectures reviewed the historic contributions of Arabic scientists to mathematics, physics, and the nautical sciences.

The congress was called by the Cultural Administration of the Arab League and was opened by Pres. Mohammed Neguib of Egypt. A total of 321 scientists attended from eight Arab countries: Egypt, Iraq, Jordan, Koweit, Lebanon, Syria, Saudi Arabia, and Yemen. Sixty-five scientific papers were presented, and there was active discussion of the problems of the Arab countries with respect to scientific terminology, the translation into Arabic, publication of scientific papers and books, the training of science teachers, and the relation of science to the national economies.

The heads of the major delegations attending the congress were: Prof. Mustafa Nazif, Vice-Rector of the University of Ibrahim (Egypt); Dr. Sheeth Nu'mann, Director of the Research Council (Iraq); Mr. Mohammed Adib el Amry (Jordan); Melle Solwa Nassar (American University, Lebanon), and Prof. Toufik Mounadjed, Dean of the Faculty of Science of Damascus (Syria).

A feature of the congress was an exhibit of manuscripts and scientific publications concerning Egypt, installed at the Faculty of Commerce of the University of Alexandria. Pres. Neguib also formally opened the UNESCO science exhibition on "New Materials" at the Polytechnic Faculty. This exposition, containing more than 3000 items manufactured from modern plastics and from new metals and special alloys, was on exhibit during the entire congress and has now been moved to Cairo, where it will be on public view for about a month. The exhibit had previously been shown at Belgrade, Ljubljana, and Zagreb in Yugoslavia, and at Istabul in Turkey.

In September the **Lipotropic Research Fund** was organized by a group of industrial companies who are interested in stimulating clinical research with the lipotropic substances; in encouraging the publication of results of this research; and in disseminating to the medical profession and other interested scientific groups information relative to the value of the lipotropic substances. Grants from the Fund have been allotted to the following:

W. E. Cornatzer, Department of Biochemistry, University of North Dakota.

Thaddeus D. Labecki, Heart Disease Control Unit, Mississippi State Board of Health, Jackson.

Julius Pomeranze, Section of Nutrition, New York Medical College, New York City.

William B. Rawls, arthritis departments of St. Clare's and Poly-Clinic hospitals, New York City.

Additional information may be obtained from Louis Freedman, Chairman, Executive Committee, Lipotropic Research Fund, 52 E. 41 St., New York 17.

The 37th annual meeting of the **Mathematical Association of America** will be held at The Johns Hopkins University on Dec. 31. Of special interest will be the round table discussion on mathematics for social scientists by the faculty of the 1953 Summer Institute: W. G. Madow, University of Illinois; R. M. Thrall, University of Michigan; R. R. Bush, Harvard University; and Howard Raiffa, Columbia University. Another significant discussion will be a symposium, entitled "New College Mathematics," that will explore some aspects of the problems presented by efforts to introduce major reforms into the undergraduate program in mathematics. The participants are: G. B. Price, University of Kansas; C. V. Newsom, Associate Commissioner for Higher Education, State of New York; W. L. Duren, Jr., Tulane University; A. W. Tucker, Princeton University; and B. W. Jones, University of Colorado.

Two papers dealing with the transition from school to college will be presented, by H. W. Brinkmann of Swarthmore and E. G. Begle of Yale. Prof. Brinkmann is chairman of the Subcommittee on Mathematics of the School and College Study of Admission with Advanced Standing sponsored by 12 colleges and universities—Bowdoin, Brown, Carleton, Haverford, Kenyon, Massachusetts Institute of Technology, Middlebury, Oberlin, Swarthmore, Wabash, Wesleyan, and Williams. Prof. Begle was a member of the Mathematics Panel of the School and College Study of General Education sponsored by three schools—Andover, Exeter, and Lawrenceville; and three universities—Harvard, Princeton, and Yale. Both of these studies were aided by grants from the Fund for the Advancement of Education, established by the Ford Foundation. The retiring presidential address, "Of Course and Courses," will be delivered by Saunders MacLane, University of Chicago.

M. T. Carpenter, administrative director, Standard Oil Company of Indiana, has been elected president of the **Scientific Manpower Commission** for 1954, succeeding Howard A. Meyerhoff, the Commission's first president. Dr. Meyerhoff will continue to direct SMC activities, under the title of executive director. Mr.

Carpenter is also chairman of the American Chemical Society's Committee on Manpower and will retain this post in 1954.

Other new officers named in the election are: John S. Nicholas, of Yale University, succeeding E. G. Begle, as vice president; and Dael Wolfle, of the National Research Council Commission on Human Resources and Advanced Training, who will take over the responsibilities of secretary-treasurer from Milton O. Lee. Dr. Lee and B. R. Stanerson, of the American Chemical Society, will continue to serve as Executive Board members.

At the Commission's first annual meeting, five commissioners were re-elected for terms of three years starting Jan. 1, 1954: Howard A. Meyerhoff, on nomination of the American Geological Institute; George R. Harrison, American Institute of Physics; Leonard Carmichael, American Psychological Association; Milton O. Lee, Federation of American Societies for Experimental Biology; and Stewart S. Cairns, Policy Committee for Mathematics. Eleven other members of the Commission were not up for re-election this year.

The Commission voted unanimously for cooperation with the Engineering Manpower Commission of Engineers Joint Council (N.Y.) on all manpower matters of common interest. The EMC *Newsletter,* now circulated by the engineering organization, will become a joint publication of the two commissions with the first issue of 1954.

At the end of October, leading American and Canadian research scientists joined in a **symposium on protein metabolism** at the University of Toronto. Recent developments regarding pernicious anemia, infectious diseases, growth, and other problems related to metabolism in health and disease were discussed. The symposium was held under the joint auspices of the university's School of Graduate Studies and Department of Public Health Nutrition. The National Vitamin Foundation provided a grant to pay expenses for the meeting.

Jesse M. Shaver, Professor of Biology at George Peabody College, was honored at a dinner in Oak Ridge at the 63rd meeting of the **Tennessee Academy of Science** for his 25 years as editor of the Academy's journal. The speakers included Henry H. Hill, President of George Peabody, representing the staff of the College; John A. Behnke, Associate Administrative Secretary of AAAS, for the Association; Nathan Woodruff, Assistant Manager of Operations of the AEC, for Dr. Shaver's host of former students; and Aaron J. Sharp, Head of the Botany Department of the University of Tennessee and President of the Academy, for the Academy. Dr. Hill and Dr. Shaver were made honorary members of the Academy, and Dr. Shaver was presented with a gift from the Academy.

The two-day annual meeting, Nov. 27–28, featured the reading of papers in the various scientific fields and an impressive paper-reading session by members of the Junior Academy. These members enjoyed a tour of the Museum of Atomic Energy sponsored by the Oak Ridge Institute of Nuclear Studies. Honorary AAAS Membership Awards were made to four college and high school students; in addition, four Junior Academy members received Tennessee Academy Awards.

Officers of the Academy for the coming year are: pres., Myron S. McCay, University of Chattanooga; v. pres., Frederick T. Wolfe, Vanderbilt University; sec., Isabel H. Tipton, University of Tennessee; treas., James W. White, University of Tennessee; and editor, Jesse M. Shaver. The last three were re-elected.

Miscellaneous

Individuals and organizations with an interest in medical education may become members of the **Association of American Medical Colleges,** 185 N. Wabash Ave., Chicago 1, as a result of changes in the AAMC constitution made at the 64th annual meeting in October. The institutional membership had been limited to accredited medical schools. Membership is now open to medical school faculty members and others professionally linked to medical schools for a fee of $10 per year. Sustaining memberships, at $1000 a year, may be held by interested organizations.

The **Botanical Society of America** has established a new journal, to be called *Plant Science News,* that will begin publication on a quarterly basis in 1954. Harry J. Fuller of the University of Illinois is editor, and the following scientists are members of the editorial board: George S. Avery, Brooklyn Botanical Garden; Harlan P. Banks, Cornell University; Harriet B. Creighton, Wellesley College; Sydney S. Greenfield, Rutgers University; and Paul B. Sears, Yale University.

Functions of the new journal will be: (1) to publicize special fellowships, research fund sources, awards and prizes, etc.; and (2) to indicate to the members of the society, to the general public, to scientists in fields other than botany, to academic administrators, and to the national press services the implications of botanical sciences in contemporary life.

The World Health Organization has announced the publication of the first ***World Directory of Medical Schools*** which lists the more than 500 medical teaching institutions now open throughout the world, in 84 countries and territories, and gives essential data about each of these schools.

The information gathered by WHO for this bilingual, English and French publication includes the following: date of foundation, administration, academic year, conditions for admission, teaching staff, total enrollment, annual admissions, language of instruction, duration of studies, degrees obtainable, annual number of graduates, and tuition fees.

The International Association of Universities (and its executive organ, the International Universities Bureau) assisted the World Health Organization in compiling the directory, which is considered to meet a long-felt need and lay the foundation for more complete and more exact succeeding editions.

National Science Foundation Reports Estimates of Federal Obligations and Expenditures for Scientific Research and Development for Fiscal Year 1954

BOTH obligations and expenditures of Federal agencies for scientific research and development are expected to drop in fiscal year 1954 from the record totals established in previous years, according to the latest estimates compiled by the National Science Foundation.

decline in obligations for 1954 will presumably be reflected in a further decrease in expenditures in fiscal 1955.

These estimates, revised as of August 24, 1953, were based on appropriations approved by the 83d Congress, 1st Session. These 1954 estimates are still tentative, since several agencies plan further revisions in their programs.

The Department of Defense estimates constitute the largest portion of the totals for both obligations and expenditures. Present figures indicate that in fiscal year 1954 the Department may obligate $1556 million,

TABLE 1*

OBLIGATIONS AND EXPENDITURES OF FEDERAL AGENCIES FOR SCIENTIFIC RESEARCH AND DEVELOPMENT IN FISCAL YEARS 1952, 1953, AND 1954†

(Millions of dollars)

Agency	Obligations‡			Expenditures‡		
	1952	1953	1954 (Estimate)	1952	1953	1954 (Estimate)
Department of Defense	1,705	1,650	1,556	1,315	1,646	1,636
Atomic Energy Commission	229	247	239	250	260	266
National Advisory Committee for Aeronautics	82	79	73	67	79	88
Department of Agriculture	56	57	68	57	58	63
Department of Health, Education and Welfare	53	67	63	65	74	61
Department of the Interior	36	36	32	33	37	33
Department of Commerce	31	23	17	28	24	17
Other Agencies	25	28	26	24	26	24
Total, all agencies	2,217	2,187	2,074	1,839	2,205	2,187

* Source: National Science Foundation.
† Revised: August 24, 1953.
‡ Column items may not add to totals because of rounding.

Estimates of obligations for research and development are $2074 million for 1954 compared to $2187 million for 1953; expenditures are estimated at $2187 million in 1954 and $2205 million in 1953. Since the lag between obligations and expenditures has averaged about 9 months over the past several years, the

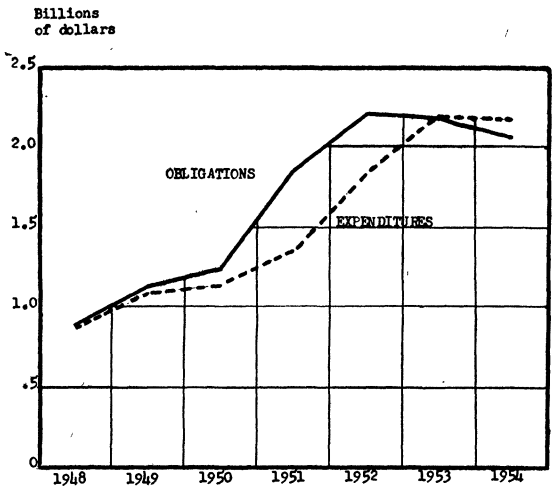

FIG. 1. Obligations and expenditures of federal agencies for research and development, fiscal years 1948–1954* (millions of dollars).

TABLE 2

OBLIGATIONS AND EXPENDITURES OF FEDERAL AGENCIES FOR RESEARCH AND DEVELOPMENT, FISCAL YEARS 1948–1954*

(Millions of dollars)

Fiscal years	Obligations	Expenditures
1948	877	865
1949	1,122	1,097
1950	1,244	1,143
1951	1,852	1,342
1952	2,217	1,839
1953†	2,187	2,205
1954 (Estimate)†	2,074	2,187

* Sources: Bureau of the Budget and National Science Foundation, and revised August 24, 1953.
† Revised August 24, 1953.

including a carry-over of $142 million from previous years.

The total obligations and expenditures for the major agencies for fiscal 1952, 1953, and 1954 are summarized in Table 1. The trend of research and development obligations and expenditures for the period 1948 through 1954 is shown in Fig. 1.

This information was compiled by the Foundation in connection with its continuing studies of the research and development activities of the Federal Government.