Members of the associated societies are urged to submit their titles and abstracts to their secretary at once to meet the requirements of the Joint Program Committee.

AWARD OF THE WILLIAM H. NICHOLS MEDAL

DR. DUNCAN A. MACINNES, of the Rockefeller Institute for Medical Research, has been awarded the 1942 William H. Nichols Medal of the New York Section of the American Chemical Society in recognition of his "outstanding investigations on electrolytes and the development of techniques which have immeasurably enriched both the theory and practice of modern electrochemistry." His researches have contributed to the development of the glass electrode, widely used in industry. He has also made important investigations in the field of biological chemistry.

According to the statement given out by the jury of award

For many years Dr. MacInnes has been engaged in fundamental researches on the theory of solutions, and his precise studies have furnished much of the information which we now possess on the behavior of electrolytic solutions. He was one of the pioneers in studying the properties of the glass electrode and in establishing the conditions under which this very useful device may be used for the precise measurement of hydrogen ion concentration.

On the basis of these studies the electrode is now a recognized and dependable device which finds wide industrial use. More recently, Dr. MacInnes and his associates at the institute have turned their interest to the motion of biologically important solutions in an electric field and their experimental investigations in electrophoretic phenomena have greatly increased our knowledge of the protein content of the blood serum. These more recent investigations and the successful results are largely based on Dr. MacInnes's earlier studies on simpler inorganic systems.

The presentation will be made at a meeting of the New York Section on March 6. Founded in 1902 by the late Dr. William H. Nichols, a charter member of the American Chemical Society and chairman of the board of the Allied Chemical and Dye Corporation, the medal is awarded annually to "stimulate original research in chemistry."

Previous recipients of the award were: John M. Nelson, Phoebus A. Levene, Joel H. Hildebrand, Irving Langmuir, James Bryant Conant, Frank C. Whitmore, William M. Clark, Charles A. Kraus, Hugh S. Taylor, Julius A. Nieuwland, Gilbert N. Lewis, Charles L. Parsons, Claude S. Hudson, Marston T. Bogert, Henry C. Sherman, Roger Adams, William A. Noyes, Thomas Midgley, Samuel C. Lind, Leo H. Baekeland, H. C. P. Weber, Edward C. Franklin, M. A. Rosanoff, C. W. Easley, T. B. Johnson, Charles James, M. H. Walker, M. B. Bishop, E. B. Voorhees, William L. Evans, Moses Gomberg, Samuel E. Sheppard, John A. Wilson and Dr. Linus Pauling, head of the division of chemistry and chemical engineering at California Institute of Technology.

Members of the 1942 medal jury in addition to Professor MacTavish were Professor Louis P. Hammett, of Columbia University; Dr. Robert Calvert, consulting chemist and chemical patent attorney; Professor Ralph H. Muller, of New York University, chairman of the section, and Dr. Cornelia T. Snell, secretary.

SCIENTIFIC NOTES AND NEWS

AT the thirty-second annual dinner of the Radio Club of America on November 1, the fourth award of the Armstrong Medal for "outstanding contributions to the radio art" was made to Harry William Houck. The citation reads: "After assisting at the birth of the superheterodyne in Armstrong's (Major Edwin H. Armstrong, of Columbia University, inventor of the superheterodyne receiver and father of the current FM system) wartime laboratory in Paris he designed the second-harmonic superheterodyne, first type to be placed in large commercial production. Radio receivers operating from alternating current power lines leaned heavily on the technique, designs and inventions of the medalist."

A TESTIMONIAL dinner in honor of Dr. George H. Meeker, dean emeritus of the Graduate School of Medicine of the University of Pennsylvania, was given on September 29, marking his retirement as dean. Dr. George M. Coates was chairman, and Dr. George Morris Piersol, toastmaster. Dr. Thomas S. Gates, president, and Dr. Alfred N. Richards, vice-president for medical affairs, spoke for the university; Dr. William R. Nicholson for the Graduate School, and Dr. George E. Pfahler for the Medico-Chirurgical College of Philadelphia, where Dr. Meeker taught before the school was taken over by the university.

DR. GILBERT H. CADY, senior geologist and head of the Coal Division of the Illinois State Geological Survey, was honored at a testimonial dinner in Urbana on the evening of September 27, immediately following the close of the fiftieth anniversary celebration of the University of Chicago, in which Dr. Cady had led the symposium on coal geology. The occasion was in recognition of his thirty-five years of service

in geology, during which he has contributed in a major degree to the training of his students, assistants and associates, many of whom were present at the dinner to do him honor. A portrait of Dr. Cady was presented.

THE honorary degree of doctor of science was conferred on October 6 by Northwestern University on Dr. Irving S. Cutter, since 1925 until his retirement this year as dean emeritus, dean of the Medical School. Dr. Leslie B. Arey, Robert Laughlin Rea professor of anatomy, presided, and Dr. James Roscoe Miller, the new dean of the Medical School, reviewed his service to the school. A portrait of Dr. Cutter was unveiled.

THE Clement Cleveland Medal, awarded annually for conspicuous service to cancer education, was presented on October 22 at a meeting held at the Advertising Club of New York to Abbott Kimball, president of the Kimball Advertising Agency, at the opening of the campaign to raise funds for the New York City Cancer Committee.

THE James H. McGraw Medal and purse of the National Electrical Manufacturers was presented at a luncheon held at the recent New York meeting to Dwight G. Phelps, vice-president of Colt's Patent Fire Arms Manufacturing Company. The award was made in recognition of his "distinguished contribution to the manufacturing branch of the electrical industry in the surveying of wage experience within the industry to establish a sound basis for company policy and for minimum wage control under the Walsh-Healy law."

SIDNEY DALE KIRKPATRICK, editor of *Chemical and Metallurgical Engineering,* has been elected president of the American Institute of Chemical Engineers for the year 1942. James LeRoy Bennett, manager of chemical operations for the Hercules Powder Company of Wilmington, Del., has been elected vice-president.

THE National Institute of Psychology, at a meeting at Northwestern University, Evanston, Ill., on September 4, elected officers as follows: *President,* Dr. John A. McGeoch, the State University of Iowa; *Vice-president,* Dr. Ernest R. Hilgard, Stanford University; *Secretary-treasurer,* Dr. G. R. Wendt, Wesleyan University; *Directors,* Dr. Walter R. Miles, Yale University, and Dr. L. L. Thurstone, University of Chicago.

THE Society for the Study of Growth and Development at its annual meeting and symposium at Dartmouth College, which was held from July 7 to 11, elected the following officers: *Chairman,* Dr. Paul Weiss, Chicago; *Treasurer,* Dr. J. Walter Wilson, Brown; *Secretary,* Dr. Kenneth V. Thimann, Harvard; *Members of the Executive Committee,* Dr. B. H. Willier, the Johns Hopkins; Dr. E. W. Sinnott, Yale, and Dr. O. L. Sponsler, California. The executive committee is developing plans for a closer relation with the journal *Growth,* and the adoption of *Growth* as the official organ of the society.

THE Virginia Chapter of Sigma Xi on October 22 elected the following officers: *President,* Dr. A. N. Vyssotsky, astronomy; *Vice-president,* Dr. L. B. Snoddy, physics; *Secretary,* Dr. Joseph K. Roberts, geology; *Treasurer,* Dr. Lawrence R. Quarles, engineering.

NEW national officers for the Wasmann Biological Society, to serve for the year 1941–1942, are: *President,* Dr. Harold A. Harper, University of San Francisco; *Vice-president,* the Rev. Charles J. Wideman, S.J., Loyola University, Chicago, and *Secretary-Treasurer,* the Rev. Dominic LaPorte, S.J., Gonzaga University. Other new members of the General Council are: Dr. Carl G. Kadner, Loyola University, Los Angeles, and the Rev. Frank Gubbins, S.J., Gonzaga University. Dr. Edward L. Kessel will continue as managing editor of *The Wasmann Collector.*

JOSEPH W. BARKER, dean of the School of Engineering of Columbia University and chief of the Division of Training Liaison and Coordination of the United States Navy, has been appointed professor of electrical engineering and acting executive officer of the department of electrical engineering. He succeeds Professor Frederick W. Hehre, who died on July 27.

JAMES L. GABBARD, instructor in chemistry at the University of Kentucky, has become professor of chemistry at the Michigan State Normal College, Ypsilanti.

DR. L. D. WOOSTER, for thirty years head of the department of zoology of the Fort Hays Kansas State College at Hays and during the past two years dean of the undergraduate division of the college, has been made president. In a recent note in SCIENCE it was stated incorrectly that Dr. Wooster had become president of "the State Teachers College."

AFTER serving fifteen years at Field Museum of Natural History as assistant curator and curator of physical anthropology, Dr. Henry Field has submitted his resignation. Dr. Field began his services at the museum on October 1, 1926. Since February 16, 1941, he has been associated with the Library of Congress in Washington, D. C., being on leave of absence from the museum.

DR. MARTIN D. YOUNG has been appointed director of the Malaria Research Laboratory, U. S. Public

Health Service, at the South Carolina State Hospital, Columbia, S. C. He succeeds the late Dr. Bruce Mayne.

F. S. BLANCHARD, of Scarsdale, N. Y., president of the United States Institute for Textile Research, has been appointed textile consultant in the Bureau of Industrial Conservation of the Office of Production Management.

FRANK E. MOORE, chairman of the department of poultry husbandry and extension poultryman of the North Dakota Agricultural College, has been appointed poultry coordinator to assist in the administration of the National Poultry Improvement Plan. Mr. Moore, whose appointment was effective on October 24, succeeds J. D. Sykes, who resigned several months ago.

JAMES D. BUMP, instructor in geology and museum curator and technician at the South Dakota School of Mines, Rapid City, has been made director of the museum.

C. N. BALDWIN, director of the Washington Zoological Park at Portland, Ore., formerly in charge of the collection of animals on San Simeon Ranch, owned by William Randolph Hearst, has been appointed director of the San Francisco Zoological Garden.

CHARLES G. BRANNAN has been appointed regional director of the Forest Service Administration, Region Ten, with headquarters at Denver, Colo., to have charge of activities in Montana, Wyoming and Colorado except in the fourteen southeastern counties.

IT is reported in *Industrial Standardization* that E. W. Ely, chief of the Division of Simplified Practice of the National Bureau of Standards, and Robert A. Martino, of the Codes and Specifications, have been released by the Department of Commerce to work with the new Conservation Bureau of the Office of Production Management. The National Bureau of Standards announces that in connection with the new set-up it has changed its procedure to make it possible for the government to initiate simplification projects, either through the Office of Production Management or the Department of Commerce. Hitherto, only non-governmental organizations have had the authority to initiate these projects.

DR. W. R. COE, professor emeritus of zoology at Yale University, has returned to the Scripps Institution of Oceanography, La Jolla, of the University of California, to resume studies of the California mussel made in collaboration with Dr. Denis L. Fox, assistant professor of marine biochemistry.

PHYSICIANS from various parts of the world who have recently visited the Medical School of the University of California include, from Argentina, Dr. Juan Allende, clinical professor of surgery at the Cordoba University; Dr. Felipe Carranza, specialist in malignant disease at the University of Buenos Aires, and Dr. Jose A. Saralegui, of the University of Buenos Aires and director of the Municipal Institute of Radiology and Physiotherapy, and from China, Dr. Chien-liang Hsu, instructor in radiology, and Dr. W. A. Ma, of the department of anatomy of the Peiping Union Medical College.

DR. KARL F. MEYER, professor of bacteriology and director of the Hooper Foundation of the Medical School of the University of California, will give the Craig Lecture at the annual meeting of the American Society of Tropical Medicine in St. Louis on November 10, and on November 14 and 15 he will speak before the Southern California Medical Association.

THE first Edwin R. Kretschmer Memorial Lecture of the Institute of Medicine of Chicago, under a foundation established by Dr. and Mrs. Herman L. Kretschmer in memory of their son, will be delivered on November 11 by Dr. John H. Lawrence, assistant professor of medicine in the University of California Medical School. The title of the lecture is "Studies on Leukemia and Allied Diseases with Artificial Radioactivity."

THE final dates for the Salmon Memorial Lectures which Dr. Robert D. Gillespie, psychiatric specialist of the British Royal Air Force, will deliver in key cities of this country and Canada, have been announced as follows: Toronto, November 19; Chicago, November 21; New Orleans, November 22; Washington, November 24 and 25; San Francisco, November 27; Philadelphia, November 30.

THE thirty-fourth annual meeting of the American Society of Animal Production will be held at the Hotel Sherman, Chicago, on November 28, 29 and 30.

PRESENTATION has been made to the New York Botanical Garden of the herbarium of the late Howard J. Banker, as announced in a biography of Dr. Banker in the July–August issue of *Mycologia*. The gift was made by Mrs. Banker to carry out her husband's request. The herbarium consists of 4,477 specimens, and while the majority represent the lower plants, principally fungi, there are more than 2,000 examples of the higher plants, many of them carefully and artistically mounted.

THE Association of Medical Students is sponsoring a scholarship competition among medical students. The Schering Award of the association offers scholarships to medical students preparing the best dissertations on the history of endocrine research. The scholarships have been donated by the Schering Corporation in order to encourage the current interest

in endocrinological developments by offering talented medical students a chance to pursue an inquiry into the history of endocrine research. Further information can be obtained by addressing the Committee on the Schering Award, Association of Medical Students, 25 Madison Square North, New York, N. Y.

DISCUSSION

THE TERMINOLOGY OF THE COMPONENTS OF COMPLEMENT[1]

IT is well established that hemolytic complement is composed of four functionally distinct components which individually are inactive.[2-8] Treatment of serum with distilled water,[2] carbon dioxide,[9] or dilute hydrochloric acid[10] has been shown to separate complement into two thermolabile components. One globulin fraction has been designated the "mid-piece," and the so-called albumin fraction has been termed the "end-piece." In addition, it has been shown that yeast cells or an insoluble carbohydrate isolated from yeast inactivate a relatively heat-stable component of complement, the "third component."[3,7] It has also been shown that dilute ammonia and amino compounds capable of reacting with carbonyl groups destroy another thermostable fraction, the "fourth component."[4,6]

The two thermolabile components of complement owe their terminology to their action rather than to their nature. The two thermostable fractions were named "third" and "fourth" components after their order of discovery.

During studies on the separation and characterization of the components of complement,[11] electrophoretic diagrams were obtained of mid-piece and end-piece prepared by the carbon dioxide method, as well as of complement deprived of its third component (zymin-treated) and of its fourth component (ammonia-treated). The diagrams are presented in Fig. 1, and indicate that the so-called globulin fraction or mid-piece contains at least four distinct proteins, two of which have mobilities faster than any of those

Electrophoretic Schlieren Patterns of Normal Guinea Pig Serum and Guinea Pig Serum Treated With Various Reagents Which Separate or Destroy the Components of Complement

Descending Boundaries of the Proteins in Phosphate buffer of pH 7.7 of ionic strength 0.2. Scanning exposures made after electrolysis for 2½ hours.

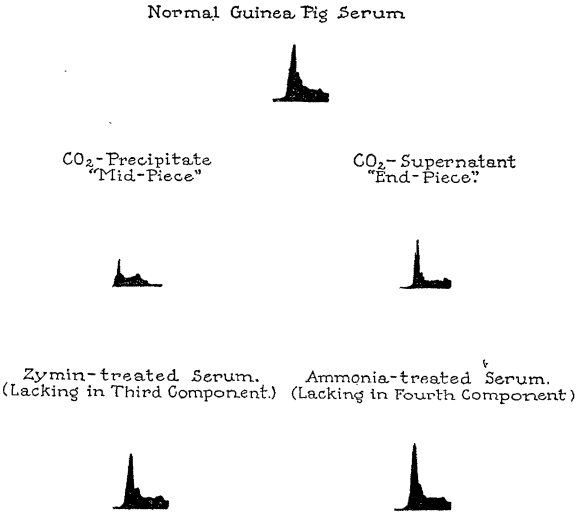

FIG. 1

originally present in whole serum; while the end-piece or so-called albumin fraction also contains at least four distinct proteins as judged electrophoretically, one of which appears to be γ-globulin. No significant difference is detected electrophoretically between normal serum and serum deprived of its fourth component. Serum lacking in third component shows a disturbance of the α-globulins.

It is evident from these diagrams that the terms "mid-piece," "end-piece," "albumin fraction," "globulin fraction" are misleading and unsatisfactory. Therefore, it is suggested that the four components of complement be designated by the following symbols:

C′1—mid-piece
C′2—end-piece
C′3—third component
C′4—fourth component

The terminology proposed for the complement components was arrived at after discussion and agreement with Dr. Michael Heidelberger.

L. PILLEMER
E. E. ECKER

INSTITUTE OF PATHOLOGY,
WESTERN RESERVE UNIVERSITY AND THE
UNIVERSITY HOSPITALS OF CLEVELAND

[1] Aided by a grant from the Commonwealth Fund.

[2] H. von Buchner, *Arch. f. Hyg., Berlin*, 17: 179, 1893.
[3] E. von Dungern, *München. med. Wchnschr.*, 47: 677, 1900.
[4] J. Gordon, H. R. Whitehead and A. Wormall, *Biochem. Jour.*, 20: 1028, 1036, 1044, 1926.
[5] H. R. Whitehead, J. Gordon and A. Wormall, *Biochem. Jour.*, 19: 618, 1925.
[6] L. Pillemer, J. Seifter and E. E. Ecker, *Jour. Immunol.*, 40: 89, 1941.
[7] L. Pillemer and E. E. Ecker, *Jour. Biol. Chem.*, 137: 139, 1941.
[8] L. Pillemer, J. Seifter and E. E. Ecker, *Jour. Immunol.*, 40: 101, 1941.
[9] H. Liefmann, *München. med. Wchnschr.*, 56: 2097, 1909.
[10] H. Sachs and K. Altmann, cited from Handbuch der Technik und Methodik der Immunitätsforschung, Bd. 2: 969, 1909.
[11] L. Pillemer, E. E. Ecker, J. L. Oncley and E. J. Cohn, *J. Exp. Med.*, 74: 297, 1941.