ment; paper, paper products and containers; and metals and metal products, as well as a commodity testing branch, are being organized.

Culver S. Ladd, for many years state food commissioner and chemist of North Dakota, is chief of the Food and Drugs Section. The head of the Textiles, Leather and Apparel Section is H. S. Schenker, of Philadelphia, whose entire business career has been devoted to textile qualities. Earl A. Graham, senior engineer of the engineering firm of Sanderson and Porter of New York, has been placed at the head of the Consumer Durable Goods Section. Erwin G. Adelberger, interior architect and designer, of Cleveland, Ohio, is head of the Home Furnishings Section. Elroy A. Ledwith, architect, who became associated with the defense program in September, 1939, as consultant on housing standards to the National Defense Advisory Commission, is chairman of the Lumber and Building Materials Section. H. Seymour Pringle, assistant professor of agricultural engineering on leave from Cornell University and since 1926 extension specialist in agricultural engineering at the New York State College of Agriculture, has been made head of the Agricultural and Industrial Machinery Section. The Rubber and Rubber Products Section has as its acting head Theodore M. Miller, of Baltimore, consulting chemist. M. L. Egert is the administrative officer of the division.

APPOINTMENTS AND RESIGNATIONS AT FIELD MUSEUM, CHICAGO

DR. FAY-COOPER COLE, chairman of the department of anthropology of the University of Chicago, has been appointed research associate in Malayan ethnology at Field Museum of Natural History. While his principal work will continue to be at the university, he will serve in a consultative capacity with other members of the museum staff. Dr. Paul S. Martin, chief curator of anthropology, has been appointed research associate (with the rank of full professor) in the department of anthropology of the university. Although continuing his work at Field Museum, Dr. Martin will from time to time give special lectures for classes at the university, and later will give a special course in museology or the technical operations of a museum. These appointments are in furtherance of a plan for closer cooperation that has been adopted by the university and the museum.

The appointment was also announced of Dr. Albert A. Dahlberg, formerly head of the dental clinics at Billings Hospital and now a Chicago practicing dentist, as research associate in paleontology.

Elmer S. Riggs retired on September 24 from active duty as curator of paleontology. He has been associated with the museum continuously since 1898. He will take up his residence in Lawrence, Kansas. Except for a year as museum assistant at the University of Kansas, from which he was graduated, Mr. Riggs has spent his working career as a member of the staff of the museum, going there shortly after he had completed his post-graduate work at Princeton University. During this period he has conducted sixteen important fossil-hunting expeditions—twelve in the western United States, two in Canada and two in Argentina and Bolivia, spending a full four years in the last-named countries.

He is succeeded as acting curator in charge of the division by Bryan Patterson, a member of the museum staff since 1926 and assistant curator of paleontology since 1935.

OFFICERS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

HAROLD V. COES, vice-president of Ford, Bacon and Davis, Inc., New York, according to an announcement made by C. E. Davies, secretary of the society, has been elected by a letter ballot of the 16,250 members of the American Society of Mechanical Engineers to be president of the society during 1943.

Vice-presidents elected at the same time to serve two-year terms on the council were Joseph W. Eshelman, president, Eshelman and Potter, Birmingham, Ala.; Thomas E. Purcell, general superintendent of power stations of the Duquesne Light Company, Pittsburgh, Pa.; Guy T. Shoemaker, vice-president, Kansas City Light and Power Company, Kansas City, Mo.; Walter J. Wohlenberg, professor of mechanical engineering, Yale University.

Managers of the society elected to serve on the council for three-year terms include Roscoe W. Morton, professor of mechanical engineering and head of the department of the University of Tennessee; Alexander R. Stevenson, Jr., staff assistant to the vice-president, General Electric Company, Schenectady, N. Y.; and Albert E. White, director of engineering research at the University of Michigan.

The new officers will be installed during the sixty-third annual meeting of the society to be held in New York, N. Y., at the Hotel Astor, from November 30 to December 4.

SCIENTIFIC NOTES AND NEWS

DR. CHARLES FREDERICK BURGESS, president of the C. F. Burgess Laboratories, Inc., New York City, has been awarded the Edward Goodrich Acheson Medal and $1,000 Prize by The Electrochemical Society.

THE honorary degree of doctor of letters was conferred on September 24 by Colgate University upon Dr. George D. Stoddard, formerly dean of the Graduate College and director of the Child Welfare Research Station at the State University of Iowa, now Commissioner of Education of the State of New York.

Nature reports that the medical faculty of the University of Basle has conferred an honorary doctorate on Professor Eugéne Pittard, rector of the University of Geneva, on the occasion of his seventy-fifth birthday, in recognition of his services to anthropology.

DR. G. S. WHITBY, until recently director of the Chemical Research Laboratory, Department of Scientific and Industrial Research, at Teddington, Middlesex, England, has been appointed professor of rubber chemistry at the University of Akron. For several months he has been connected with the British Raw Materials Mission in the United States.

KARL W. WOODWARD, for twenty-five years professor of forestry and head of the department at the University of New Hampshire and since 1940 consulting forester, has been appointed professor of forestry at the Massachusetts State College during the absence of Professor Robert P. Holdsworth, who is now a captain in the Army. Dr. R. E. Trippensee, professor of wildlife management, has been named acting head of the department.

CLIFFORD O. ANDERSON, of the University of Minnesota, has been appointed assistant professor of mechanical engineering at Iowa State College. Dr. Sara Kalar Merryman has been named assistant professor of hygiene.

DR. FRANK R. BLOOD, of the Haskell Laboratory of Industrial Toxicology of the du Pont Company, has been appointed assistant professor in chemistry at the University of Denver.

DR. JOSEPH T. ROBERTS, assistant professor of medicine and anatomy at the University of Texas Medical Branch, Galveston, has been appointed director of the Experimental Laboratory.

THE *Journal* of the American Medical Association reports that Dr. Alfred Cyril Callister, Salt Lake City, has been appointed dean of the School of Medicine of the University of Utah. Dr. Clay B. Freudenberger, professor of anatomy and formerly acting dean, has been appointed associate dean. Other new appointments include those of Dr. Louis P. Gebhardt, Jr., as associate professor of bacteriology and pathology and of Dr. Robert E. Hoyt as assistant professor. Dr. Gebhardt was formerly acting assistant professor of bacteriology at the School of Medicine, Stanford University, San Francisco, and Dr. Hoyt, instructor in bacteriology in the University of Minnesota Medical School.

DR. CHING CHEH, who has been acting for the past two years as consultant for the Universal Trading Corporation in New York City, has been appointed lecturer in chemistry at Bennington College, Vermont. Helen V. Crouse will lecture on biology.

DR. THOMAS R. WOOD, of the University of Illinois, and Dr. Edward M. Scott, of the University of Minnesota, have been appointed post-doctorate fellows in biochemistry at the University of Pittsburgh.

SIR HAROLD SCOTT retired on August 31 from the directorship of the British Bureau of Hygiene and Tropical Diseases which he has held since 1935. Dr. Charles Wilcocks, assistant director of the bureau, has become acting director.

DR. FRANK W. PARKER, agronomist, E. I. du Pont de Nemours and Company, Wilmington, Del., served during June and July as a consultant on fertilizer problems in the Office of Price Administration. He took part in conducting a series of regional conferences which led to reduction of the number of grades of fertilizer sold in all states, including the adjustment of the nitrogen content of fertilizers to fit the limited supply of chemical nitrogen in prospect for 1943.

DR. CLIFFORD KUH, New Haven, chairman of the committee on industrial health of the Connecticut State Medical Society, has become director of the Bureau of Industrial Health of the California State Department of Health.

FREDERICK W. SULLIVAN, JR., of the Barrett Division of the Allied Chemical and Dye Corporation, where he has been manager of chemical research since 1940, has become technical director of the Institute of Gas Technology, Chicago.

DR. ROBERT M. HEILMAN, of the U. S. Public Health Service, has been appointed head of a newly established division of the Kansas State Board of Health to provide consultant service for the industries of the state.

SARGENT RUSSELL, research assistant at Massachusetts State College since 1940, has resigned to become a member of the staff of the Agricultural Marketing Administration, Washington, D. C.

ACCORDING to *Chemical and Engineering News*, George S. Baldry, formerly connected with the Harvard School of Public Health, has been appointed director of the Division of Industrial Hygiene for the Province of Manitoba.

DR. WILLIAM BEEBE, of the New York Zoological Society, has returned to New York from a seven-month expedition in the jungles of eastern Venezuela.

Members of the expedition staff were George Swanson, staff artist; Jocelyn Crane, who helped in taking 6,000 feet of colored film; Mary VanderPyl, field associate, and Henry Fleming, entomologist. The expedition was sponsored by the Nelson Rockefeller Committee for Inter-American Intellectual Relations and the Standard Oil Company of New Jersey and Venezuela.

THE British Medical Research Council, according to *Nature,* has appointed members of its Industrial Health Research Board during the period 1942–45 as follows: The Rt. Hon. the Earl De La Warr, *chairman,* Professor F. C. Bartlett, Brigadier-General A. C. Baylay, Dr. J. C. Bridge, Dr. A. N. Drury, Dr. T. Ferguson, Dr. M. W. Goldblatt, Dr. A. Bradford Hill, Dr. Donald Hunter, Professor Esther Killick, Air Vice-marshal Sir David Munro and J. L. Smyth. Professor A. W. M. Ellis, director of research in industrial medicine under the council, will also attend all meetings. Dr. R. S. F. Schilling, a medical inspector of factories, has been seconded to the service of the Council by the Ministry of Labor to act as secretary of the board. The terms of reference of the board have recently been revised and are now as follows: "To advise and assist the Medical Research Council in promoting scientific investigations into problems of health among workers, including occupational and environmental factors in the causation of ill-health and disease, and the relation of methods and conditions of work to the functions and efficiency of body and mind, and in making known such results of these researches as are capable of useful application to practical needs."

THE *Journal* of the American Medical Association reports that "Public Health in New York City: Retrospect and Prospect" will be the subject of the first meeting on November 4 of the fall and winter series of the section on historical and cultural medicine of the New York Academy of Medicine. The meeting will be sponsored jointly by the historical section and the committee on public health relations. Topics to be discussed include "The Story of the Public and Voluntary Health Agencies" and "Glimpses into the Future." The following program has been announced for meetings of the historical section, which are held bi-monthly: Drs. Henry E. Sigerist and Arturo Castiglioni will speak on "Vesalius" on January 13, and Dr. Edward Rosen on "Copernicus," on March 10.

THE Rochester Academy of Medicine will open its series of autumn lectures on October 6, when Dr. Oswald H. Robertson, professor of medicine of the School of Medicine of the University of Chicago, will speak on "Air-borne Infections." Dr. Roy G. Hoskins, Boston, will lecture on November 3 on "The Endocrinology of To-day," and in December Dr. Fred W. Stewart, New York, will discuss "The Effect of Diet and Diet Deficiencies on the Production of Cancer."

THE forty-seventh annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held at the Palmer House, Chicago, from October 11 to 14, under the presidency of Dr. Ralph I. Lloyd, of Brooklyn.

THE council of the Mycological Society of America has cancelled the annual meeting which it was planned to hold in New York on December 28, 29 and 30.

THE Department of Chemistry of the University of Pittsburgh plans to offer free evening courses for the training of individuals in chemistry for war industries. The purpose of these courses is to prepare new men and women to replace those who have entered the armed forces and to train individuals already employed in industry for more advanced chemical service. The courses planned include introductory and advanced metallurgical analysis; microscopical testing of industrial materials; electrical and optical instruments for analytical control; practical food testing and control; food and water inspection; practical vitamin assaying; industrial quantitative organic analysis. An elementary course on chemical fundamentals for war workers is also planned to prepare individuals for the more advanced practical courses which are listed above. A descriptive bulletin of courses may be obtained by writing to Dr. Herbert Spencer, regional coordinator of engineering, science and management, war-training courses, Pennsylvania College for Women, Pittsburgh, Pa. Fall courses will begin on October 12, and registration will take place during the preceding week.

ACTING on the suggestions made by Government and military officials at the Institute on Education and the War recently held in Washington, the New York University College of Arts and Pure Science at University Heights inaugurated an optional first year academic program beginning on September 21 to train undergraduates for active participation in the war effort. The special curriculum includes general physics; trigonometry and college algebra; the preparation and interpretation of military maps and military geology; hygiene and sanitation; French, Spanish, military German or scientific German; English composition emphasizing clarity and precision of expression; a course in speech which will include the methodology of command and proficiency in oral exposition, and the basic course in military science and tactics offered under the Army's Reserve Officers' Training Corps. The curriculum is designed for those students who are not preparing for medicine, dentistry, chemistry or other fields heretofore recognized as critical occupations.

ACCORDING to *Museum News,* Miss Caroline Hazard, honorary president of the Santa Barbara Museum of Natural History, has given the museum an additional piece of property and endowment that will cover upkeep of the new gift and perpetuate her annual subscription to the museum's funds. The land is across the street from the museum and will be used for a residence for the director and for laboratories and work rooms. It consists of ten lots, approximately 300 feet square fronting on Mission Canyon Road. There is a California redwood house on the property.

THE *Times,* London, states that at a meeting on September 8 of the British Parliamentary and Scientific Committee, the recent appointment of three full-time scientific advisers to the Ministry of Production was considered and the following resolution was passed: "This committee, while welcoming the appointment of three full-time scientific advisers to the staff of the Ministry of Production in so far as it establishes the nucleus of a central scientific and technical board, regrets that their field of activity is apparently to be limited to the sphere of production and does not include the scientific and technical activities of the service departments or the other ministries outside the strict field of production. An extension of its functions is needed to ensure that all scientific considerations are coordinated and given full weight over the whole field of the national effort. The committee considers, therefore, that in order to cover this wider field, scientific advisers should have direct access to the War Cabinet and that accordingly the Lord Privy Seal should exercise his supervisory functions over the new body directly on behalf of the War Cabinet." It was reported that 126 members have now added their names to the motion on the Order Paper, which suggests that "present circumstances require the early establishment of a whole-time Central Scientific and Technical Board to coordinate research and developments in relation to the war effort."

DISCUSSION

VERTICAL ORIENTATION OF POWDERY MILDEW CONIDIA DURING FALL

HYDRODYNAMIC theory[1] indicates that flattened or elongated objects fall with the surface of greatest resistance normal to the direction of motion. From extensive observations of the fall of spores of Basidiomycetes and inert objects Buller[2] confirmed this and stated the general principle that "Any homogeneous elongated body falling in still air tends to orientate itself in such a way as to present the maximum amount of surface in the direction of the line of fall and thus fall as slowly as possible." The fall of powdery mildew conidia in a vertical position and in apparent disagreement with the above-stated principle is therefore of interest.

Conidia of *Erysiphe graminis* D.C. grown on barley plants in the greenhouse were mostly used, but limited observations of *Erysiphe polygoni* D.C. indicate that other powdery mildews may behave in a similar manner. Conidia of *E. graminis* are one-celled, ellipsoidal, symmetrical, 13×32 microns, with smooth walls, do not collapse during several hours of drying, have a large central nucleus and fall at approximately 1.2 cm per second in air. They are therefore much larger, and differ in several other important respects from the basidiospores studied by Buller. When caught on glass slides under field or greenhouse conditions most conidia are in a horizontal position with respect to the surface of the slide. However, when caught on glass slides after falling through a glass tube, many conidia are vertical on the slides, and the vertical conidia have fallen at a faster rate than the horizontal conidia. Many of the conidia also fell in a vertical position when suspended in water in a glass tube.

To determine whether the conidia actually fall in a vertical position in air or if the vertical orientation on the slides is an end effect, they were observed and photographed during fall in a glass tube with inside dimensions of 77×0.7 cm by means of a horizontal microscope. Dark-field illumination was obtained from a commercial adaptation of the Edgerton flash apparatus.[3] With intermittent flashes (30 times a second) and with a magnification of about one hundred diameters, it was easily possible to determine the orientation of every spore in focus during fall. Of 403 conidia clearly observed, 204 were vertical and 199 were horizontal. An average of two spore images per photograph was obtained when each frame was exposed with 50 microsecond flashes about ten times during a spore fall period. Of 65 single conidia photographed during fall, 34 were vertical and 31 horizontal. In the direct observations and in the photographs all conidia in focus were readily classified as vertical or horizontal and no conidia with intermediate orientation were found, indicating that the falling spores assume one or the other of these two apparently stable positions. With the same tube and with other conditions similar, but catching the conidia on slides, 307 out of 600 were classified as vertical and 293 as horizontal. On the slides some conidia were

[1] W. Thomson and P. G. Tait. "Treatise on Natural Philosophy." Article 333, 1867, Clarendon Press, London.

[2] A. H. Reginald Buller. "Researches on Fungi," II, 35, 1922. Longmans, Green and Company, London.

[3] General Radio Company, Type 648-A Strobolux.