

Swim'' method as a result of which his scientific progeny in this country occupy many of the key posts. Strength has produced strength.

His honesty and integrity as man and scientist have received universal commendation. His scientific career has justly secured recognition throughout the world. He bears his honors with simplicity. In all ways he is genuinely and affectionately known wherever biologists are gathered as "*The Chief*."

In all his honors he has shown the modesty, simplicity and kindness to those less gifted, which are characteristic sometimes of great minds. Retired from the field of active teaching, he gives his full time to research. He carries

with him the affection and the respect of all members of the Yale Brotherhood.

President Seymour:

Revered and beloved leader, eminent scholar, selfless and inspiring personality, for the services you have rendered to this university in its laboratories, its schools of the arts, science, medicine—undergraduate and graduate—for your investigations and discoveries, and for the example you have given to American universities as the perfect scientist, Yale honors herself in conferring upon you the degree of Doctor of Science, admitting you to all its rights and privileges.

SCIENTIFIC NOTES AND NEWS

THE doctorate of science of Harvard University was conferred on June 22 on Dr. Percy W. Bridgman, on Dr. Charles F. Kettering and on Dr. Hans Zinsser. President Conant made citations as follows: Percy W. Bridgman, Hollis professor of mathematics and natural philosophy, Harvard University—"An experimentalist who transforms stubborn matter by high pressures; a logician who alters physical theory by acute analysis." Charles F. Kettering, engineer, president of General Motors Research Corporation, Dayton, Ohio—"An engineer in the great American tradition, an inventor whose imagination has quickened both industry and science." Hans Zinsser, Charles Wilder professor of bacteriology and immunology, Harvard University—"A dynamic teacher whose vision extends beyond his laboratory; a famed investigator of the secret ways of man's microscopic enemies."

COLGATE UNIVERSITY, at its one hundred and eighteenth commencement on June 12, conferred the doctorate of laws on Dr. Charles August Kraus, professor of chemistry at Brown University, president of the American Chemical Society.

THE University of Pennsylvania, on June 20, conferred an honorary doctorate on Dr. Joel H. Hildebrand, professor of chemistry at the University of California.

BROWN UNIVERSITY conferred on June 19 the doctorate of laws on Dr. Vannevar Bush, president of the Carnegie Institution of Washington, previously dean of engineering and vice-president of the Massachusetts Institute of Technology.

AMONG the honorary degrees conferred at the one hundred and seventieth annual commencement exercises at Dartmouth College on June 18 was the doctorate of science on Charles Franklin Kettering, president of the General Motors Research Corporation.

THE University of Rochester conferred honorary degrees on June 19 on Dr. Peter Henry Buck, director of the Bishop Museum, Honolulu, and on Dr. Philip A.

Shaffer, dean of the Medical School of Washington University, St. Louis.

THE honorary degree of doctor of public health has been conferred by New York University on Dr. Sigismund S. Goldwater, commissioner of hospitals of New York City.

THERE was held at the University of Sofia, Bulgaria, from May 20 to 26 a celebration of the fiftieth anniversary of its foundation. On this occasion there were named ninety-two doctors *honoris causa* for outstanding achievement in various scientific and other directions. Of these the following were from America: Professor G. D. Birkhoff, Professor Claude Burton Hutchison, Professor Vladimir N. Ipatieff, Professor Albert Russell Mann, Professor William F. Russell, Professor Joseph Alois Schumpeter and Nikola Tesla.

THE Theobald Smith medal and prize of \$1,000 has been awarded by the American Association for the Advancement of Science to Dr. Albert B. Sabin, of New York City, associate of the Rockefeller Institute for Medical Research, in recognition of his work on pneumococcus infections.

THE Society for the Promotion of Engineering Education on June 21 awarded the Lamme Medal for achievement in engineering education to Dr. Stephen Timoshenko, professor of mechanical engineering at Stanford University.

THE Lord Mayor of London, on behalf of British foundrymen, on June 14 presented a gold medal to Dr. T. A. Schwartz, research manager for the National Malleable Steel Casting Company, of Cleveland, for his research contributions to the progress of the foundry industry. Dr. Schwartz at the time was in London to attend a meeting of the International Foundry Congress.

THE Albert Medal of the Royal Society of Arts for 1939 has been awarded to Sir Thomas H. Holland, principal and vice-chancellor of the University of

Edinburgh, in recognition of "his services to the mineral industries." The Albert Medal was established in 1862 as a memorial of the Prince Consort, who was for eighteen years president of the society. It is awarded annually for "distinguished merit in promoting arts, manufactures or commerce."

THE trustees of the Academy of Natural Sciences of Philadelphia have elected as corresponding members: Professor W. C. Allee, University of Chicago; Dr. Glover M. Allen, Museum of Comparative Zoology, Cambridge; Professor F. Baltzer, Zoological Institute, Bern; Dr. R. S. Bassler, United States National Museum; Dr. Albert F. Blakeslee, Carnegie Institution of Experimental Evolution; Dr. Willis S. Blatchley, Indianapolis; Professor Maurice Caullery, Paris; Dr. Lucien Chopard, Museum d'Histoire Naturelle, Paris; Dr. Hubert Lyman Clark, Museum of Comparative Zoology, Cambridge; Dr. J. A. Cushman, Sharon, Mass.; Professor Theodosius Dobzhansky, California Institute of Technology; Dr. F. E. Fritsch, East London College; Professor Jesse M. Greenman, Missouri Botanical Garden; Professor G. D. Harris, Ithaca, N. Y.; Dr. Wilhelm Michaelsen, Hamburg Museum; Dr. James P. Chapin, American Museum of Natural History; Professor A. S. Pearse, Duke University; Dr. Andeas Petrovitch Seminov, Leningrad; Dr. A. H. Westergaard, Geological Survey of Sweden.

HAROLD J. COOLIDGE, JR., has been elected an honorary member of the Cerele Zoologique Congolais, in recognition of his work on the fauna of the Congo.

DR. PATRICK MARSHALL, professor of geology at Otago University, New Zealand, has been made president-elect of the Australian and New Zealand Association for the Advancement of Science for the Adelaide meeting to be held in August, 1940.

AT the St. Louis meeting of the American Society for the Study of Allergy, officers for the coming year were elected as follows: *President*, Warren T. Vaughan, Richmond, Va.; *President-elect*, Robert L. Benson, Portland, Ore.; *Vice-president*, Milton B. Cohen, Cleveland, Ohio; *Secretary-Treasurer*, J. H. Black, Dallas, Texas.

THE following nominations for officers of the American Society of Mechanical Engineers for 1940 have been announced: *President*, Warren H. McBryde, consulting engineer, San Francisco; *Vice-presidents*, Kenneth H. Condit, consulting editor of *American Machinist*, McGraw-Hill Publishing Company; Francis Hodgkinson, honorary professor of mechanical engineering, Columbia University; J. C. Hunsaker, head of the department of mechanical engineering, the Massachusetts Institute of Technology; K. M. Irwin, Philadelphia Electric Company.

RETIREMENTS at the close of the academic year of

members of the faculty of Northwestern University include: Dr. Herbert A. Potts, professor of oral surgery; Dr. William C. Bauer, professor of electrical engineering; William H. Burger, professor of civil engineering; Dr. William H. Haas, professor of geology and geography; and William G. Smith, professor of engineering drawing.

REAR ADMIRAL WAT TYLER CLUVERIUS, U. S. Navy, retired, has been elected president of the Worcester Polytechnic Institute. He will succeed Rear Admiral Ralph Earle, retired, who died in February after serving for fourteen years as president of the institute.

DR. WILLIAM H. MARTIN, professor of plant pathology at Rutgers University, has been appointed dean of the College of Agriculture at the university and director of the New Jersey Agricultural Experiment Station, to succeed Dr. Jacob G. Lipman. Dr. Martin has been serving as acting dean and acting director since the death of Dr. Lipman in April.

DR. EDWARD J. MOORE, professor of physics at the University of Buffalo, has been appointed dean of the Graduate School of Arts and Science.

DR. G. KINGSLEY NOBLE, curator of herpetology of the American Museum of Natural History, has been appointed visiting professor of biology in the Graduate School of New York University.

DRS. ROBERT D. BOCHE, of the Carnegie Laboratory of Embryology, and Irwin C. Kitchin, of the Rice Institute, have been appointed assistant professors in the department of zoology of the University of North Carolina.

DR. GEORGE R. COWGILL, professor of physiological chemistry at Yale University, has been elected editor of *The Journal of Nutrition* in place of Dr. John R. Murlin, who recently resigned. Also elected to the editorial board are Dr. Icie Macy Hoobler, Dr. Henry A. Mattill and Dr. Harold H. Mitchell. The editorial office of the journal after July 1 will be at New Haven, Conn.

PROFESSOR ROSS G. HARRISON, of Yale University, chairman of the National Research Council, delivered the Linaere lecture at St. John's College, Cambridge, on May 16. He spoke on the "Development of the Internal Ear—a Study in Experimental Embryology."

THE following series of lectures will be given at the Biological Laboratory, Cold Spring Harbor, Long Island, by Dr. Fritz Eirich, of the department of colloid science of the University of Cambridge: July 19, "Oxidation in Monolayers"; July 21, "Serum Reactions with Colloidal Tungstic Oxide"; and July 24, 26 and 28, "High Molecular Compounds." These lectures will begin at 2 P.M.

THE exchange of visits between the Kaiser Wilhelm

Gesellschaft of Berlin and the Royal Society, London, was continued on June 22 with a lecture by Professor F. Wever, of Düsseldorf, entitled "A Review of the Development and Present State of Metallurgical Research"; and on June 23 with a lecture by Professor Otto Hahn, of Berlin-Dahlem, who spoke on "The Fission of Uranium Nuclei by Neutrons."

THE Puerto Rico chapter of the honor society of agriculture, Gamma Sigma Delta, held its initiation banquet on May 20. The guest speaker was Dr. Harry H. Love, professor of plant genetics of Cornell University. Rafael Menéndez Ramos, dean of the College of Agriculture and Mechanic Arts, introduced the speaker. The eight initiates included five graduating seniors of the College of Agriculture, two members of the Puerto Rico Experiment Station, and one from the Insular Department of Agriculture. Following the initiation election of officers was held and the following were elected for the coming year: *President*, Professor Rafael A. Toro; *Vice-President*, Dr. Arthur G. Kevorkian; *Secretary*, Professor José A. Ramos; *Treasurer*, Professor Jorge H. Rodríguez; *Historian*, Professor Rivera Valiente.

THE Louisiana State University has completed the equipment of its new astronomical observatory by the installation of a Clark refractor of eleven and a half inches aperture. The principal address at the dedication ceremonies was given by Professor W. L. Kennon, of the University of Mississippi, who spoke on "Astronomy in America." The director of the observatory is Dr. David Vance Guthrie, professor of physics and astronomy at the Louisiana State University.

THERE has been organized at Youngstown, Ohio, the Mahoning Valley Academy of Science with about sixty members, most of whom are engaged as instructors in the Youngstown College or as teachers in the local high schools.

ACCORDING to the *Journal* of the American Medical Association, a new National Institute of Hygiene and Public Health in Lima, Peru, has been opened officially by the president of the republic. The institute, created by a government decree on July 23, 1937, is under the supervision of the ministry of public health, labor and social welfare. Dr. Telemaco Battistini is the director. It has three departments: bacteriology and immunology, entomology and experimental medicine. The department of bacteriology and immunology, which are directed by Dr. Battistini, will engage in the manufacture of serums, vaccines and glandular extracts, which will be sold to government controlled hospitals, municipalities and certain other public agencies at cost. The department of entomology, under the direction of Dr. Marshall Hertig, formerly of the Harvard Medical School, will for the present work exclusively on Carrion's disease, or "verruugas," which is endemic in certain areas of Peru, notably in Verrugas, about 99 kilometers from Lima. Later it is expected that research will be instituted on malaria, which causes the greatest morbidity of any disease in Peru. The department of experimental medicine, which is directed by Dr. Alberto Hurtado, professor of medicine in San Marcos University, will cooperate with the department of entomology in its study of Carrion's disease.

DISCUSSION

PLANKTON AS A FOOD SOURCE FOR MAN

ACCORDING to a recent news report the German State Biological Institute at Helgoland is investigating the possibility of harvesting the plankton of the sea as a new food source for the German market to make Germany still more independent of foreign imports. Zooplankton was reported to have a nutritive value equivalent to the best meat and phytoplankton to be equal to rye flour. Since the nature and abundance of the marine plankton has been the subject of several recent investigations at the Woods Hole Oceanographic Institution, it is of interest to examine the feasibility of the German proposal from the quantitative point of view.

There is no question that plankton is rich in food materials. A typical zooplankton catch, consisting chiefly of copepods, yielded the following analysis when dried:¹ fat 7 per cent., protein 59 per cent., car-

bohydrate 20 per cent. and chitin and ash 14 per cent. In fact, the fat content of crustacean plankton sometimes exceeds 30 per cent. Certain whales, sharks and many kinds of fish feed on plankton almost exclusively.² Plankton has been claimed to be palatable by biologists who have eaten catches of it on occasion, and shipwrecked crews "are said" to have subsisted on plankton strained through handkerchiefs.

There is plenty of plankton in the ocean, but the essential problem in the practical application of the scheme is the difficulty of separating such small organisms from the water in sufficiently large quantities. Considering first the phytoplankton (including nanoplankton), we know that for the ocean as a whole it must bulk larger than the zooplankton since the latter subsists upon it, but the extremely small size of the individual cells presents a very serious obstacle to mass collection. The most efficient method which has

¹ J. Johnstone, "Conditions of Life in the Sea." Cambridge, 1908.

² G. L. Clarke, Fifth Pacific Science Congress, Vancouver, B. C. A5. 5 p. 2017, 1934.