

gifts have been wedded to profound scientific knowledge and unflagging industry, Yale University confers upon you the degree of Doctor of Letters, admitting you to all its rights and privileges.

FRANK RATTRAY LILLIE

Professor Phelps—Zoologist. Born in Toronto, student of that university, he took his doctor's degree at the University of Chicago. Like several other million scholars, he was a member of the faculty of the University of Michigan, the foremost professorial training school in America. He is professor of embryology at the University of Chicago, dean of the School of Biological Science and Medicine, director of the Marine Biological Laboratory at Woods Hole. He is a member of many learned societies in Europe and in America. He has to

an extraordinary degree combined executive management with individual research. His investigations in embryology, cytology and physiology have won for him an international reputation. The growth of the famous laboratory at Woods Hole is a monument to his scientific and administrative ability. He has taken a leading part in the organization of biological research, having trained a large number of young men, who are inspired both by his teaching and by his example.

President Angell—A distinguished biologist, a sound and fruitful investigator, a stimulating teacher and trainer of men, your long career has been marked by constant advance to larger and more important achievement. In recognition of your eminent services, Yale confers upon you the degree of Doctor of Science, and admits you to all its rights and privileges.

SCIENTIFIC NOTES AND NEWS

DR. EDWARD LAURENS MARK, Hersey professor of anatomy, emeritus, at Harvard University, attained his eighty-fifth birthday on May 30. In recognition of the event, his colleagues, friends and former students arranged in his honor a dinner which was held on the evening of May 27 at the Faculty Club. After dinner Professor H. W. Rand, of Harvard University, introduced speakers who made brief congratulatory and reminiscent addresses. Those who spoke were: Dr. C. B. Davenport, of the Carnegie Institution; Professors Ephraim Emerton, E. H. Hall and F. W. Taussig, of Harvard University; Dr. F. B. Lund, of Boston; Professor F. T. Lewis, of the Harvard Medical School; Professor H. V. Neal, of Tufts College; Professor R. P. Bigelow, of the Massachusetts Institute of Technology; Professor J. F. Fulton, Jr., of the School of Medicine of Yale University. After the addresses Dr. Mark replied.

THE honorary degree of doctor of science was conferred by the University of Maryland on Dr. A. F. Woods, director of scientific work of the Department of Agriculture, at commencement on June 4. Dr. Woods was president of the University of Maryland from 1917 to 1926. In addition, the Alumni Association at its annual luncheon presented to the university a full-figure, life-size oil portrait of Dr. Woods, as a recognition of his accomplishments for the university during his presidency.

THE commencement exercises of the Johns Hopkins University included the presentation to the university of portraits of Dr. Hugh H. Young, clinical professor of urology, and Dr. Dean Lewis, professor of surgery.

THE doctorate of science has been conferred by Wesleyan University on Dr. Duncan S. Johnson, professor of botany and director of the Botanical Garden

at the Johns Hopkins University; on Dr. Alfred L. Loomis, the physicist, Tuxedo Park, New York, and on Dr. Henry S. White, professor of mathematics at Vassar College.

AT the one hundred and thirty-eighth commencement of Williams College, an honorary degree of doctor of science was conferred upon Dr. Chester N. Myers, the organic chemist, of New York City.

THE Rensselaer Polytechnic Institute conferred at commencement honorary degrees of doctor of engineering on Dr. William Lispenard Robb, head of the department of electrical engineering for the last thirty years, and on Clarence F. Hirshfeld, chief of the research department of the Detroit Edison Company.

THE Worcester Polytechnic Institute recently conferred the doctorate of engineering on Alfred D. Flinn, director of the Engineering Foundation, New York City.

THE degree of doctor of science was conferred on June 13 by the Michigan State College at Lansing upon Dr. Lyman J. Briggs, assistant director for research and testing of the National Bureau of Standards.

THE honorary degree of doctor of science was conferred on June 15 on William A. Hamor, of the Mellon Institute of Industrial Research, at the fifty-second commencement of Grove City College, Pennsylvania.

DR. CARL NEUBERG, director of the Kaiser Wilhelm Institute for Biochemistry, Berlin, has been elected an honorary member of the Danish Biological Society.

SIR HENRY WELLCOME, founder of the Wellcome Research Institution, has been elected an honorary

fellow of the Royal College of Surgeons. Sir Henry is the second person not holding a medical degree on whom this distinction has been conferred, the other being Lord Roberts of Kandahar.

As reported in *Nature*, British knighthood has been awarded as follows: Dr. H. B. Brackenbury, chairman of the council of the British Medical Association; Mr. R. H. Davis, governing director of Messrs. Siebe Gorman and Company, Ltd., inventor of the Davis submarine escape apparatus and of a submersible decompression chamber for use in deep-sea diving; Dr. Robert L. Mond, president of the Faraday Society and of the Egypt Exploration Society; Mr. MacPhereson Robertson, for services in connection with the Antarctic Research Expedition, 1929-31, and Professor W. Wright Smith, regius professor of botany in the University of Edinburgh and regius keeper of the Royal Botanic Garden, Edinburgh.

A CORRESPONDENT of the American Medical Association writes that the distinguished Spanish histologist, S. Ramon y Cajal, has passed his eightieth birthday, but that the anniversary passed unobserved by his pupils and friends. When he was seventy years old, his bust was unveiled. He spent his eightieth birthday, as every day of his life, over his microscope.

DR. OTTO STRUVE, assistant director of the Yerkes Observatory, has been appointed director of the observatory and professor of astrophysics at the University of Chicago, from July 1. He succeeds Professor E. B. Frost, who retires at the end of the present academic year. Professor Frost will continue to reside at Williams Bay.

PROFESSOR W. F. GANONG, since 1894 professor of botany and director of the Botanic Garden at Smith College, retires this June under the age limit, and has been made professor emeritus. He will continue residence for the present at Northampton.

THE Board of Trustees of Wellesley College has made Dr. Margaret C. Ferguson research professor of botany. She retires from active service in the department of which she was appointed chairman in 1904. Dr. Ferguson will continue her cytological and genetic studies of *Petunia* at the college. Dr. Laetitia M. Snow has been appointed professor of botany and has been granted leave of absence for the coming year. She will continue her work on bacteria in wind-blown sand at the Hopkins Marine Station, Pacific Grove, California.

AT Cornell University Dr. Cornelius Betten has been named dean of the university faculty, filling the vacancy created two years ago by the retirement of Dean W. A. Hammond. Dr. Carl E. Ladd has been appointed dean of the Colleges of Agriculture and

Home Economics; Dr. W. A. Hagan becomes dean of the College of Veterinary Medicine, and Miss Flora Rose succeeds to the position of director of the College of Home Economics.

AT Harvard University Dr. Frederick H. Verhoeff, professor of ophthalmic research since 1924, has been appointed director of the Howe Laboratory of Ophthalmology; Dr. Theodore J. Blanchard Stier, instructor in general physiology, has been appointed associate director of the laboratory of general physiology, and Dr. John T. Edsall, instructor, will become assistant professor of biological chemistry and tutor in the biochemical sciences.

PROMOTIONS to professorships at the Massachusetts Institute of Technology include: Carl G. A. Rossby, meteorology; Dr. Louis B. Slichter, geology, and Dr. Norbert Wiener, mathematics.

DR. M. C. WHITAKER has been elected a director and vice president of the American Cyanamid Company, New York City.

DR. ABRAHAM WHITE has been appointed Porter Fellow for the year 1932-33 by the council of the American Physiological Society.

DR. EARLE R. HEDRICK, professor of mathematics and chairman of the department of mathematics of the University of California at Los Angeles, has been appointed chairman of a committee on the teaching of mathematics in the colleges and universities of the North Central Association. His headquarters for the summer will be divided between the University of Minnesota and the University of Chicago. Members of the committee include Professor H. E. Slaught, professor of mathematics at the University of Chicago, and Professor Dunham Jackson, professor of mathematics at the University of Minnesota.

D. E. BULLIS, who has leave of absence from the Agricultural Experiment Station at Oregon State College, has undertaken chemical research on low-temperature food preservation for Pacific Frosted Foods, Inc., at Oakland, California.

DR. ARNOLD A. ZIMMERMANN, assistant professor of anatomy in the College of Medicine of the University of Illinois at Chicago, will be a laboratory guest of the Wistar Institute of Anatomy, Philadelphia, during the next two months. He plans to make a study of the lymphatics of the developing opossum.

DR. JOSEPH A. CUSHMAN, director of the Cushman Laboratory for Foraminiferal Research, at Sharon, Massachusetts, and two assistants will spend this summer in Europe making studies of the types of European Cretaceous foraminifera, comparing these directly with the Cretaceous fauna of America.

These studies were made possible by grants from the Milton Fund at Harvard University and the Permanent Science Fund of the American Academy of Arts and Sciences.

DR. ROBERT CUSHMAN MURPHY is now in England superintending the packing and shipment of the Rothschild collection of birds which has been acquired by the American Museum of Natural History.

DR. GUY E. PILGRIM, who recently retired from the India Geological Survey after a service of thirty years, is visiting the United States.

DR. HARLOW SHAPLEY, director of the Harvard College Observatory, delivered the commencement address at the University of Pennsylvania.

DR. WILLIAM L. RUSSELL, professor of psychiatry, Cornell University Medical College, has been appointed Thomas W. Salmon Memorial Lecturer for 1933. Dr. Adolf Meyer, Baltimore, recently delivered the first series of these lectures, established in January, 1931, in memory of Dr. Salmon, professor of psychiatry at Columbia University, College of Physicians and Surgeons.

THE Alpha Alpha chapter of the honorary physics fraternity, Sigma Pi Sigma, was installed at the University of Chicago on June 6. Twenty-one members were initiated as the charter group, including Dr. Henry G. Gale, head of the physics department, and Dr. Harvey B. Lemon, faculty adviser of the new chapter. The installing officers were Dr. Marsh W. White, of the Pennsylvania State College and executive secretary of the society; Dr. M. N. States, national president, and Mr. A. W. Coven. After the installation dinner at the Quadrangle Club the members and guests from near-by chapters of the fraternity inspected the new Science Museum being developed under the direction of Professor Lemon.

PUBLIC lectures at the New York Botanical Garden during July and August are: "Forestry and Forest Planting," Dr. Forman T. McLean, supervisor of public education; "Crops and Civilizations," Dr. Elmer D. Merrill, director-in-chief; "Summer Wild Flowers," Dr. John Hendley Barnhart, bibliographer; "Lilies," Dr. A. B. Stout, director of laboratories; "The Plant Life of the Sea," Dr. Marshall A. Howe, assistant director; "Deserts of the South-west," Dr. Arthur Hollick, paleobotanist; "Jungles and Gardens in Florida and Elsewhere," Dr. H. Beaman Douglass, physician; "Summer Garden Flowers," Mr. Kenneth R. Boynton, head gardener; "Gladiolus," Dr. Forman T. McLean, supervisor of public education. The lectures are given on Saturdays at 3:30 in the afternoons.

Museum News reports that the New York Zoolog-

ical Society has remodelled the one-story brick building, south of the Aquatic Bird House in the Zoological Park, and has equipped it as a laboratory for the tropical research department. There is a main laboratory room, 36 by 26 feet, a library and record room, and two additional rooms for library and storage. The department's collections installed in this building include all the specimens taken during the British Guiana, *Noma*, *Arcturus*, Haitian and Bermuda expeditions; also the paintings and drawings made during these expeditions.

THE Rockefeller Foundation is reported in the London *Times* to have offered a grant of \$40,000 to the department of physics at the University of Durham.

Nature writes that the Committee of Management of the Lewis Evans Collection of Scientific Instruments has issued its annual report. Details are given of the important collection of astronomical, optical, magnetic and mathematical instruments presented by the Royal Astronomical Society of London. This collection is especially valuable as illustrating the period in the history of astronomical measuring which immediately preceded the time when photographic methods began to be employed for the accurate determination of stellar positions.

ACCORDING to *Museum News*, a plan to assist members of the museum profession during the coming season by giving them preferential consideration in making up lecture programs has been suggested by the council of the American Association of Museums. The council urges that, so far as possible, museums that are arranging lecture programs engage lecturers who are connected with museums. Museums are invited to send to association headquarters at Washington the names of members of their organizations who would like to obtain lecture engagements at other museums, together with notes as to the subjects on which speakers are prepared and any other facts that will be helpful. Lists of such speakers will be made available for distribution to museum authorities who may desire such data in arranging their schedules.

MR. CAMILLE BLAISOT, French minister of public health, has decided, according to the Paris correspondent of the American Medical Association, on the manner of distributing the sum of 385,000,000 francs, which has been placed by parliament at the disposal of his department as a portion of the appropriations made for the improvement of the national equipment for the promotion of public health. The dominant idea governing the distribution was the desire to use the appropriated sums chiefly for undertakings that would necessitate the employment of a large amount of man power. The distribution as affecting hospital

centers was influenced, in part, by a consideration of the needs and the local possibilities for absorption of the appropriated sums during 1932. For the hospital units the subsidies allowed amount to 180,000,000 francs. Subsidies amounting to 30,000,000 francs were accorded to societies that support the crusade against child mortality. The sum of 5,000,000 francs was granted to the vacation camps and the camps located adjoining hot springs. As regards the organizations carrying on the crusade against the social diseases, it will be observed that the anticancer centers are to receive 27,000,000 francs; the societies devoted to the eradication of venereal disease, 16,000,000; the sanatoriums, 33,000,000; the preventoriums, 21,250,000; the antituberculosis dispensaries, 2,960,000, and the schools for the training of nurses, 15,590,000. Certain societies that have an appeal from the scientific or social point of view are to receive efficient financial aid; such, for example, as the Institut du radium of the Curie Foundation, 12,500,000 francs; the anticancer center at Villejuif, 12,500,000; the Renaissance sanitaire (hospitals of the mutual aid societies), 11,500,000; the Ecole de puériculture de la Faculté de médecine de Paris, 8,091,000; the Foch Foundation, 4,000,000, and the society for the mutual protection of railway employees, 2,000,000.

It is reported in the London *Times*, that after having been lost, perhaps for centuries, fossils which formed part of the first geological collection at Oxford have been discovered at Oriel College. The discovery is announced by Mr. R. T. Gunther, curator

and secretary of the Lewis Evans Collection, which is housed in the Old Ashmolean Museum. In the annual report Mr. Gunther states that the collections illustrating the original association of the Old Ashmolean with the study of natural history in Oxford have received a most unexpectedly appropriate addition from Oriel College in the form of a small oak chest-of-drawers containing some early natural history specimens dating from the beginning of the eighteenth or perhaps from the end of the seventeenth century. The college has had this cabinet cleaned and repaired and deposited with the Lewis Evans Collection for examination, with the result that some of the contents have been discovered to be a part of the great Lhuyd collection of fossils which passed to Oxford at the death of Edward Lhuyd, the Celtic scholar and naturalist and second-keeper of the Old Ashmolean. How the fossils came to be removed from the Old Ashmolean and lost will probably always remain a mystery. Most of the fossils are inclosed in their original paper wrappings inscribed with the name of the locality and a serial number, all of which have been discovered to agree with the descriptions written by Lhuyd and published by him in 1699 in his pioneer work on British paleontology. The fossils that have been discovered are therefore of the highest historical interest, not only because they were part of the first geological collection in Oxford and a part of the world-famed Ashmolean collection, but especially because they are the original type specimens described and in some cases figured by Lhuyd in his classical work.

DISCUSSION

THE WORD ALGEBRA

Few terms in elementary mathematics have such an interesting history as the word algebra. In the first place it is one of the few mathematical terms which were derived directly from the Arabian language and point to the time when the center of mathematical activity was among the Arabs and the Persians. In the second place a number of different views as regards the meaning of this term have been published, and quite recently Professor O. Neugebauer, Göttingen, Germany, supported a view which is in discord with the ones commonly adopted in our histories of mathematics and elsewhere. This view was published earlier as a hypothesis by S. Gandz and appears now also in the opening note of volume 2 (1932), "Quellen und Studien zur Geschichte der Mathematik," part entitled Studien.

It is well known that the term algebra has been derived from the title of a work written in about 825 by a Persian mathematician named Mohammed

ibn Musa, al-Khowarizmi. The title of this work has been transliterated somewhat differently in various of our larger dictionaries as well as in the histories of mathematics. One of these transliterations is as follows: *al-jabr w'al muqabalah*. A common translation of the former of these terms, which actually gave rise to the word algebra, is the transformation of an equation which involves positive and negative terms so that only positive terms appear in each member of the equation, and it has been noted that the Greek mathematician Diophantus emphasized this transformation. In the article noted in the preceding paragraph Professor O. Neugebauer supports the view that *muqabalah*, which is the second term in the given title, is simply the Arabic translation of the former term in the title which is of Assyrian origin and means an equation.

If this view is correct practically all the explanations of the meaning of the term algebra which appear in the literature are in need of revision. What is