DR. ALBERTO MARSAL, acting professor of biochemistry, Medical School of the National University of Cordoba, Argentina: Studies in the biochemistry of the thyroid gland, chiefly at the Harvard University Medical School.

DR. ENRIQUE SAVINO, bacteriologist of the Institute of Bacteriology of the National Department of Hygiene, Buenos Aires, Argentina: Continuation of studies in the field of public health, with emphasis on epidemiology, at Harvard University. (Renewal.)

PROFESSOR SANTOS SORIANO, acting professor of microbiology, University of Buenos Aires, Argentina: Studies of the artificial production of bacterial variations, in certain research institutions in the United States. Professor Soriano has published the results of many studies in the field of microbiology, some in collaboration with his wife, who is a doctor of natural history.

DR. SILVIO ARTURO ZAVALA, research assistant at the National University, Mexico: A comparative study of the systems of forced labor in the Spanish and English colonies of North America, in consultation with scholars in the United States.

The trustees of the foundation are Senator and Mrs. Guggenheim, Francis H. Brownell, Carroll A. Wilson, Charles D. Hilles, Roger W. Straus and Charles Earl.

The Committee of Selection consisted of President Frank Aydelotte, Swarthmore College, *chairman;* Dr. Thomas Barbour, professor of zoology and director of the Museum of Comparative Zoology, Harvard University; Dr. Elmer Drew Merrill, administrator of the Botanical Collections of Harvard University; Dr. Antonio G. Solalinde, professor of Spanish at the University of Wisconsin; Dr. Hans Zinsser, professor of bacteriology and immunology at the Harvard Medical School.

SCIENTIFIC NOTES AND NEWS

AT the commencement of Yale University on June 23 the doctorate of science was conferred on Dr. John Howard Northrop, Princeton, N. J., member of the Rockefeller Institute for Medical Research, and on Dr. Ernest Orlando Lawrence, professor of physics at the University of California.

RUTGERS UNIVERSITY conferred on June 13 the degree of doctor of laws on Dr. James Rowland Angell, retiring president of Yale University, and the degree of doctor of science on Dr. Edward R. Weidlein, director and vice-president of the Mellon Institute, Pittsburgh.

THE degree of doctor of science was conferred at the commencement of Tufts College on June 14 on Dr. Leonard Carmichael, professor of psychology and dean of the Faculty of Arts and Sciences of the University of Rochester.

DARTMOUTH COLLEGE at commencement conferred the degree of doctor of laws on Rear Admiral Richard E. Byrd and the degree of doctor of science on Dr. Edward R. Baldwin, director of the Edward L. Trudeau Foundation at Saranac Lake, and on Dr. Waltman Walters, surgeon of the Mayo Clinic.

THE degree of doctor of science was conferred by Coe College on June 7 on Dr. Horace W. Stunkard, professor of biology, New York University. Dr. Stunkard received the degree of bachelor of science from Coe College twenty-five years ago.

AT its commencement exercises on June 14, the University of Colorado conferred the degree of doctor of science on Dr. Sara E. Branham, senior bacteriologist of the U. S. Public Health Service at Washington, in recognition of her contributions to bacteriology in relation to public health.

DR. IRVIN ABELL, since 1904 professor of surgery at the University of Louisville, Kentucky, was made president-elect at the eighty-eighth annual meeting of the American Medical Association, held in Atlantic City from June 7 to 11.

DR. HENRY A. CHRISTIAN, Hersey professor of the theory and practice of physic at the Harvard Medical School, has been elected a corresponding member of the Medico-Chirurgical Society of Edinburgh.

AT the annual convention of the American Laryngological Association at Atlantic City, the De Roaldes Medal for research on nose and throat ailments was awarded to Dr. Lee Wallace Dean, head of the nose and throat department of the Washington University School of Medicine, St. Louis.

W. H. SWANGER, chief of the section of mechanical metallurgy and assistant chief of the division of metallurgy of the National Bureau of Standards, and G. F. Wohlgemuth, associate metallurgist, have been awarded the Charles B. Dudley Medal for 1937 for their paper entitled "Failure of Heat-Treated Steel Wire in Cables of the Mt. Hope, R. I., Suspension Bridge," which describes the extensive work undertaken by the National Bureau of Standards to determine the causes of the failure. This medal, which commemorates the name of the first president of the American Society for Testing Materials, is awarded to "the author or authors of a paper presented at the preceding annual meeting which is of outstanding merit and which constitutes an original contribution on research in engineering materials." The medal will be presented to Messrs. Swanger and Wohlgemuth on June 30 during the fortieth annual meeting of the society in New York City.

THE Emil Chr. Hansen Gold Medal and a prize of 3,000 Danish crowns has been awarded to Dr. Aurelio Quintanilha, professor of botany at the University of Coimbra, for his investigations on sex in the Hymenomycetes.

THE Adlerschild of the German Empire has been awarded to Dr. Vladimir Köppen, professor of meteorology at the University at Graz.

THE Albert I of Monaco Prize of 100,000 francs has been given by the French Academy of Medicine to Dr. Paul Bouin and Dr. Ancel for their work on the sex hormones and the interstitial glands in man.

DR. PHILIP A. SHAFFER, professor of biological chemistry and head of the department in the Washington University School of Medicine, St. Louis, has been appointed dean. He succeeds the late Dr. W. McKim Marriott, who shortly before his death had resigned to become dean of the Medical School of the University of California.

DR. EDWARD J. VAN LIERE, acting dean of the School of Medicine of West Virginia University, has been made dean. He has been professor of physiology at the university since 1922.

DR. HENRY B. HASS, director of research of the department of chemistry of Purdue University for the past year and a member of the staff since 1928, has been made head of the department. He will take over the work that has been conducted by an administrative committee of which he was a member.

DR. ABEL WOLMAN, chief engineer of the Maryland State Department of Health, has been appointed professor of sanitary engineering at the Johns Hopkins University. John C. Geyer, assistant professor of hydraulic and sanitary engineering at the University of North Carolina, has been appointed associate.

DR. J. H. RUSHTON, assistant professor of chemical engineering at the University of Michigan, has been appointed professor of chemical engineering at the University of Virginia.

DR. GEORGE W. KIDDER, of the department of biology at the College of the City of New York, has been appointed assistant professor of biology at Brown University.

DR. THOMAS PARK, associate in the department of biology of the School of Hygiene and Public Health of the Johns Hopkins University, has been appointed instructor in zoology at the University of Chicago.

DR. WALTER C. LOWDERMILK has been appointed chief of the Soil Conservation Service. He will assume full responsibility for the development and prosecution of a broadened research program adequate to meet the pressing need for additional basic information in the relatively new field of soil erosion control. He will continue for the present to serve as associate chief of the service. Dr. Lowdermilk was formerly project leader in charge of studies in erosion and stream flow at the California Forest Service Experiment Station. In 1933 he was named vice-director of the Soil Erosion Service of the Department of the Interior. When this agency was transferred to the Department of Agriculture as the Soil Conservation Service, he became associate chief.

DR. OSKAR BAUDISCH has been appointed director of research at the New York State Research Institute for Hydrotherapy at Saratoga Spa. The new research institute is a memorial to the late Professor Simon Baruch, of Columbia University.

DR. RICHARD PEARSON STRONG, professor of tropical medicine at the Harvard Medical School, who has spent five months in Peru in connection with his study of parasitic pernicious anemia, returned to New York on June 15. He was accompanied by Mrs. Strong and by members of the expedition: Dr. Emory Pinkerton, pathologist; Dr. David Weinman, research fellow; Dr. Marshall Hertig, entomologist, and M. L. Bennett, technician.

DR. MAX MASON, member of the executive council of the California Institute of Technology, formerly president of the University of Chicago and of the Rockefeller Foundation, was the commencement speaker at the institute on June 11.

DR. WALTER TIMME, professor of neurology at the College of Physicians and Surgeons of Columbia University, addressed the graduates at the ninety-first commencement exercises of the College of the City of New York.

DR. WARFIELD T. LONGCOPE, professor of medicine at the Johns Hopkins University and physician-in-chief of the Johns Hopkins Hospital, gave the address to graduates of the Albany Medical College on June 14.

THE seventh John Mallet Purser Lecture was recently delivered by Professor E. D. Adrian at Trinity College, Dublin. His subject was "The Physiology of Sleep."

THE new exhibit hall of the Mount Wilson Observatory and an auditorium seating 275 people was dedicated on June 14. Dr. John C. Merriam, president of the Carnegie Institution of Washington, D. C., made the principal address.

THE Case Chapter of the Society of the Sigma Xi held its annual initiation on the evening of June 4. Four faculty members and sixteen students were elected to full membership. Officers elected for the

next year were Professor G. L. Tuve, *president;* Professor G. E. Barnes, *vice-president;* Professor T. M. Focke, *treasurer,* and Professor Richard S. Burington, *secretary.* Following the ceremonies, at which Professor J. R. Martin, retiring president, presided, Professor Philip Morse, of the Massachusetts Institute of Technology, spoke on "Physics in Industry."

THE Executive Committee of the International Council of Scientific Unions will meet at Paris, to meet the Committee of Scientific Experts, on July 9 and 10, by invitation of the Organisation Internationale de Coopération Intellectuelle of the Society of Nations.

A SUMMER evening course on modern aspects of organic chemistry is being given at the University of Chicago on Monday evenings from 7 to 9 P. M., beginning on June 21. The program for this course is as follows: "The Application of the Theory of Absolute Reaction Rates to Some Typical Organic Reactions," Professor Henry Eyring, Princeton University; "Unit Processes in Organic Synthesis," Dr. P. H. Groggins, Bureau of Chemistry and Soils; "The Mechanism of Organic Reactions in Gaseous State," Dr. Louis S. Kassel, Universal Oil Products Company; "Some Problems in the Field of Carbohydrate Chemistry," Professor William Lloyd Evans, the Ohio State University; "Infra Red Absorption Spectra of Organic Compounds," Dr. Oliver R. Wulf, Bureau of Chemistry and Soils; "A Survey of the Sulfur Compounds," Professor E. Emmet Reid, the Johns Hopkins University; "Chemistry and Physiological Function of Vitamin B_1," R. R. Williams, the Bell Telephone Company; "Recent Advances in Rubber Chemistry," "Organic Fluorides," Thomas Midgley, Jr., Ethyl Gasoline Corporation; "The Theoretical Principles of Catalytic Reactions," Dr. V. N. Ipatieff, Universal Oil Products Company, and "Heavy Hydrogen in Organic Chemistry," Dr. Weldon G. Brown, University of Chicago.

THE annual spring meeting of the Indiana Academy of Science was held under the presidency of Dr. Will E. Edington, at Winona Lake, Ind., on May 21 and 22. On the evening of May 21 a brief business session was held; and talks were given on lake borings by Dr. Ira T. Wilson, and on the work of the Indiana University Biological Station on the lakes of Northern Indiana and lake problems by Dr. Will Scott. On May 22 there was an early morning bird tour of the region, and a demonstration of lake-boring apparatus and types of work done at the Biological Station. In the afternoon there was a visit to the near-by state fish hatcheries; and the botanists devoted themselves to an exploration of the spring flora of the vicinity. Over one hundred members were in attendance.

LECTURES and demonstrations of the most modern treatments of all types of eye diseases and disorders given by sixteen leading ophthalmologists during a six-day post-graduate course in ophthalmology were conducted by the School of Medicine of the George Washington University during the week from May 31 to June 5. Those who took the course spent an afternoon at Walter Reed Hospital, where they heard lectures and attended demonstrations by Major Frederic Thorne, Captain R. F. Brandish, Lieutenant-Colonel James E. Ash and Captain Elbert DeCoursey, all of the United States Army Medical Corps. Another afternoon session was held at the National Bureau of Standards, where the group were conducted on a tour of the laboratories of the optics division. Members of the staff devoted the afternoon to the discussion of problems in the field of physics and optics and of allied subjects of practical value to clinical ophthalmologists. Those who spoke were Dr. K. S. Gibson, Dr. D. B. Judd, Dr. W. F. Meggers, Dr. I. C. Gardner, Dr. M. G. Lloyd, F. J. Bates and A. N. Finn.

A COURSE in dental science will be given under the auspices of the department of anthropology at Columbia University during the next academic year. It will be directed by Dr. M. Russell Stein, instructor in dental anatomy at the Columbia School of Medicine, and will include the anatomy of human dentition, evolution and comparative anatomy, evolutionary theories, dental fossils of apes and primitive man, primitive dental customs, folk lore of the teeth, comparative and human dental pathology and early and modern dental therapy. Students will be instructed by visual methods. The lectures will be illustrated by dental specimens carved in soap, as well as with lantern slides, blackboard drawings and charts. Examinations will consist of identifying animal and human teeth from small collections as they might be gathered in archeological research.

APPLICATIONS, accompanied by recommendations from directors of museums, for the position of interne, are invited by the Buffalo Museum of Science, where six vacancies in biology, anthropology and the physical sciences are to be filled. These positions have been provided for by a grant of $50,000 from the Rockefeller Foundation.

THE Council of the British Association has resolved, according to *Nature,* that the association should become a constituent member of the Parliamentary Science Committee, and appointed as its representative Professor Allan Ferguson, one of the general secretaries of the association. The arrangement made is subject to revision after three years. *Nature* points out that the announcement will afford particular pleasure to the members of the British Science Guild,

which has now been incorporated with the British Association. The Guild and the Association of Scientific Workers were the parent bodies of the Parliamentary Science Committee, which came into being in October, 1933, almost immediately after the presidential address of Sir Frederick Gowland Hopkins at the Leicester meeting of the British Association.

FIGURES have recently been issued by the Soviet Union Year Book Press Service, according to *Nature*, relating to the increase in the number of Soviet professional workers in the Ukraine. In 1914, the territory now constituting Soviet Ukraine had 44,083 teachers; at the beginning of the school year 1936–37 the number had risen to 150,000. The number of medical men in 1913 was 5,192; in 1936 it was 19,266. The number of secondary medical staff in 1913 was 8,357 and in 1936 40,243. In 1934 there were 83,390 engineers and technical experts employed in the Ukraine; in 1936 the number had increased to 116,600. The number of agronomists employed by the Commissariat of Agriculture in the Ukraine three years ago was 8,200; in January, 1936, it was 12,346.

DISCUSSION

COBALT—AN ESSENTIAL ELEMENT IN ANIMAL NUTRITION—AUSTRALIAN INVESTIGATIONS

IN 1933 Filmer,[1] working with Underwood in Western Australia on a disease of cattle and sheep (characterized by progressive emaciation and anemia followed by death), to which he gave the name "enzootic marasmus," pointed out the similarity between this disease and "bush-sickness" in New Zealand, "nakuruitis" in Kenya, "pine" in Scotland, and "salt-sick" in Florida. The iron deficiency theory which had been advanced to explain the etiology of these diseases was criticized and the hypothesis advanced that enzootic marasmus was due to a deficiency in the herbage of some trace element which was present as a contaminant of the iron compounds which cured and prevented the disease. This hypothesis was based in the main on the following experimental findings.

(1) Extremely high doses of iron compounds were required for curative results, with very little correlation between the size of these doses and the amount of iron which they supplied.

(2) Fresh and heat dried whole liver was curative in doses which supplied insignificant amounts of iron.

(3) The iron content of "unsound" (*i.e.*, disease-producing) pastures was very little lower than that of normal pastures.

(4) The livers and spleens of affected animals contained excessive stores of iron—the reverse of the condition expected in iron-starved animals.[1, 2]

These workers then produced an iron-free extract of one of the curative iron compounds (limonite $Fe_2O_3 \cdot H_2O$) and found it to be fully as potent in the cure of enzootic marasmus as whole limonite.[3] This effectively settled the iron deficiency theory and gave strong support to the trace element hypothesis. Twelve months later it was shown by a fractionation method[4] that the potency of this extract, and therefore of whole limonite, was due to the cobalt which it contained. Normal growth and health of sheep in the affected area was obtained with doses of cobalt chloride supplying as little as 0.1 mg cobalt and of cattle with 0.3 to 1.0 mg cobalt daily, and it was suggested that cobalt must be considered an essential element in animal nutrition.

At this time Marston and Lines were working on a rather similar problem in South Australia known as "coast disease" of sheep. They could neither cure nor prevent the disease with the particular iron compounds used in the doses supplied and tried the effect of adding a number of trace elements, including cobalt, to the sheep's diet. The cobalt was suggested by its known effect in producing polycythemia in rats. Success with doses of cobaltous nitrate supplying 1 mg cobalt daily per sheep was reported by Marston and Lines[5] and to these workers must be given the credit of having first successfully used cobalt in the treatment of a disease of animals.

During this time the iron deficiency theory was not proving an entirely satisfactory explanation of the etiology of "bush-sickness" in New Zealand. Rigg and Askew found only very small differences in the iron contents of "sound" and "unsound" herbage in the south island and suggested soil contamination with iron as a factor in the incidence of the disease. Later they found that the curative effect of certain soil and limonite drenches did not depend solely on their iron contents. In the north island Grimmett and Shorland[6] found the iron contents of various iron ores inadequate to account for their differences in curative value. The experiments of Filmer and Underwood with "iron-free" extracts were then repeated with "bush-sick" animals. Successful results with such extracts were obtained both in the north and south islands.[7] Significant amounts of cobalt were noted in

[1] *Aust. Vet. Jour.*, ix: 163.
[2] Underwood, *Aust. Vet. Jour.*, x: 87, 1934.
[3] Filmer and Underwood, *Aust. Vet. Jour.*, x: 84, 1934.
[4] Underwood and Filmer, *Aust. Vet. Jour.*, xi: 84, 1935.
[5] *Jour. Council Sci. and Indust. Res. Aust.*, 8: 111, 1935.
[6] *Trans. Roy. Soc. N. Z.*, 64: 191, 1934.