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August 10 at the age of seventy-nine years. He was president of the Australian National Research Council from 1911 to 1913 and was president of the Australasian Association for the Advancement of Science in 1911 and 1912.

DR. JOHN GORDON THOMSON, professor of medical protozoology in the London School of Tropical Medicine, died on August 14 at the age of sixty years. Dr. Thomson was exchange lecturer in protozoology in the School of Hygiene at the Johns Hopkins University in 1926.

PROFESSOR DAVID MORGAN LEWIS, emeritus professor of physics at University College, Aberystwyth, died on July 28 at the age of eighty-five years.

PROFESSOR ALFRED WILM, of the faculty of engineering of the University of Göttingen, discoverer of duralumin, died on August 11 at the age of sixty-eight years.

The Experiment Station Record states that ground has been broken for a new building for the New York State Veterinary College at Cornell University to be named in honor of the late Dean Veranus A. Moore. It is expected that this building will be completed about May 1, 1938, at a cost of about $300,000.

SCIENTIFIC NOTES AND NEWS

DR. WALTHER NERNST, professor of physics at the University of Berlin, and Dr. Hans Horst Meyer, professor of pharmacology at the University of Vienna, celebrated this month the fiftieth anniversary of their doctorates.

The Mittag-Leffler medal of the Mathematical Institute at Stockholm has been awarded to Dr. David Hilbert, professor of mathematics at the University of Göttingen.

SIR NAPIER SHAW, formerly director of the British Meteorological Office and honorary president of the Commission for the Exploration of the Upper Air, received the honorary degree of doctor of science at the recent celebration of the centenary of the University of Athens.

The Royal Society of Edinburgh has awarded the Gunning Victoria Jubilee Prize for the period 1932–36 to Professor C. G. Darwin, master of Christ’s College, Cambridge, formerly Tait professor of natural philosophy in the University of Edinburgh, for his “distinguished contributions in mathematical physics.”

At a meeting of the Royal College of Physicians, London, the Baly gold medal was presented to Professor E. L. Kennaway for his biochemical investigations, which have led to the identification of a group of substances provoking malignant growth of tissues and having relations in structure to certain hormones and vitamins. At the same meeting Sir Edward Mellanby was appointed Harveian orator for 1938. Sir Arthur Hurst will deliver the Harveian Oration for 1937 on October 18.

DR. HUGH H. YOUNG, professor of urology at the Johns Hopkins University School of Medicine, was presented with the Keyes gold medal of the American Association of Genito-Urinary Surgeons during its recent annual meeting in Quebec.

A golden anniversary reunion dinner and reception was given on June 12 by the alumni of the Agricultural College of the University of Vermont to Dean J. L. Hills, director.

In honor of Dr. Henry K. Pancoast, who has held the chair of roentgenology at the University of Pennsylvania since it was established twenty-five years ago, the issue for July of the American Journal of Roentgenology and Radium Therapy was dedicated to him.

The annual corporation meeting of the Rocky Mountain Biological Laboratory was held at Gothic, Colo., on July 15. The following officers were elected for the year 1937–38: President, Dr. A. O. Weese, professor of zoology, University of Oklahoma; Vice-president, Dr. Frances Ramaley, professor of botany and head of the department of biology, University of Colorado; Secretary, C. H. Stone, attorney-at-law, Gunnison, Colo.; Treasurer, George W. Hunter, III, assistant professor of biology, Wesleyan University, Conn.; Trustee (for five years), A. Richards, professor of zoology and director of the Biological Survey of the University of Oklahoma; Director, John C. Johnson, professor of biology and head of the division of science, Pennsylvania State Teachers College, West Chester.

The British Institution of Electrical Engineers has elected the following officers: President, Sir George Lee; Vice-presidents, Sir Noel Ashbridge and J. R. Beard; Honorary Treasurer, W. McClelland.

Dr. M. H. Jacobs, professor of general physiology at the University of Pennsylvania, presented his resignation as director of the Marine Biological Laboratory at Woods Hole at the annual meeting of the corporation on August 11. Dr. Jacobs was appointed associate director of the laboratory in 1925, becoming director in 1926.

DR. DONALD M. HETLER, assistant professor of bacteriology and immunology and of public health, Wash-
symptoms which have been considered characteristic of a deficiency of manganese.

Recently a problem involving the production of alfalfa has become acute in North Carolina. The terminal leaves become yellow without distortion, apical buds do not develop normally, plants wilt badly in dry weather and severe infestation with aphids and leaf-hoppers has been noted. Very heavy applications of lime have been made to the soil on which these characteristics were first noted.

Borax, applied at a rate of five pounds to the acre in March, effectively corrected the abnormal conditions during the same year, but a similar treatment applied late in May did not produce any visible effect until the following year. Tentatively, it is suggested that there is a photoperiodic factor involved.

Manganese appears to supplement the effect of borax, while zinc is antagonistic. The influence of copper is negligible.

A casual survey of alfalfa fields throughout the state has shown that this condition is general on all soils. It seems to have been aggravated by the liberal use of fertilizers high in calcium salts. It conforms in all respects to the description of "alfalfa yellows," which has been considered to be a transmissible disease.

Photographs illustrating this effect of borax were exhibited at the meeting of the American Society of Agronomy in Washington, from November 17 to 20, 1936.

L. G. Willis
J. R. Piland

NORTH CAROLINA AGRICULTURAL EXPERIMENT STATION

ENZYMATIC SYNTHESIS OF CO-CARBOXYLASE

Co-carboxylase has been obtained synthetically from vitamin B1 and orthophosphate (a) by an enzymic system of dried yeast from which the natural co-carboxylase had been removed by extensive washing, and (b) by an enzyme of the duodenal mucosa of the pig.

(a) Synthesis by Washed Yeast: To one mg synthetic vitamin B1, 2 cc of Sörensen's phosphate of pH 6.7 was added. The solution was adjusted to pH 6.7 and diluted to 3 cc with distilled water. Five cc of washed dry yeast2 in 6.7 phosphate was added. The mixture was kept at 30° for 24 hours. Then it was boiled for 4 minutes and centrifuged. The supernatant fluid contained the synthetic co-carboxylase.

(b) Synthesis by Duodenal Mucosa: Mucosa of pig's duodenum was washed with water, dried in a current of air at 38°, extracted once with ether and four times with acetone. Each extraction was applied for 10 minutes, using the same weight of solvent as the original weight of mucosa. The defatted mucosa was dried at room temperature and powdered. To 500 mg dry powder, 7 cc phosphate of pH 6.8 and one mg of vitamin B1 were added, and adjusted to pH 6.8. A control was prepared in a similar manner, the vitamin being added just before testing. Both samples were kept for 24 hours at 30°. Then they were boiled for four minutes and centrifuged. The supernatant fluid of the first sample contained the co-carboxylase.

Natural co-carboxylase had been recently isolated in crystalline form from bottom yeast by Lohmann and Schuster.3 They found that the co-carboxylase is pyrophosphoric ester of vitamin B1. More recently Stern and Hofer4 reported the synthesis of co-carboxylase from vitamin B1 and POCl3. These investigators, however, were unable to obtain co-carboxylase by an enzymic reaction.

The yield of co-carboxylase prepared by enzymic synthesis is nearly 100 per cent, while by POCl3 synthesis it is about 2 per cent.

HENRY TAUBER

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