

Pink, University College, Nottingham, and University of Oxford, at the Massachusetts Institute of Technology; Mr. V. E. Yarsley, University of Birmingham, at the Polytechnic, Zürich; Dr. R. Campbell, Armstrong College, Newcastle-upon-Tyne, and University of Oxford, at the department of chemical engineering, University College, London. Fellowships have also been awarded to—Mr. E. A. Bevan, East London College, University of London; Mr. R. M. Deanesly, University of Oxford; Mr. R. Edgeworth-Johnstone, College of Technology, University of Manchester; Mr. H. B. Spalding, University of Oxford. The Salters' Institute has also awarded fifty-one grants-in-aid to young men employed in chemical works to facilitate their further studies.

UNIVERSITY AND EDUCATIONAL NOTES

AMONG the announcements of gifts at the recent convocation of the University of Chicago was the sum of a million dollars given by Douglas Smith for medical research.

By the will of the late Sir John Williams, Bart., president of the University College and of the National Library of Wales, who died on May 24, the residue of the property, which will amount to nearly £100,000, is bequeathed to the two institutions of which he was president.

DR. RALPH D. HETZEL, for nine years president of the University of New Hampshire, has been elected president of Pennsylvania State College. He succeeds Dr. John M. Thomas, who resigned about a year ago to become president of Rutgers University.

DR. ROBERT MULLIKEN, formerly of Harvard University, has been appointed assistant professor in physics at New York University. Dr. Lloyd B. Ham, in charge of the elementary laboratories, has been promoted to the rank of assistant professor in the same department.

R. B. MOORE has resigned his position as general manager of the Dorr Company to become head of the department of chemistry at Purdue University.

AFTER a year spent in study at the University of Chicago, Dr. E. H. Johnson has resumed his work as professor of physics in Kenyon College. Dr. John Coulson, formerly of the Westinghouse Electric Company and of the faculty of the University of Pittsburgh, has been appointed assistant professor of physics. With the opening of the current academic year the department of physics will be housed in the new Samuel Mather Science Hall, the gift of Mr. H. G. Dalton, of Cleveland.

AFTER six years of service with the Michigan De-

partment of Health, Dr. George H. Ramsey has become associate professor of epidemiology in the School of Hygiene and Public Health, the Johns Hopkins University.

LEON S. WARD, Ph.D. (Wisconsin), has been appointed associate professor of chemistry at the Michigan College of Mines, Houghton.

APPOINTMENTS have been made in the department of zoology at Syracuse University as follows: Julian D. Corrington, Ph.D. (Cornell, '25), assistant professor of zoology; M. Thelma Holmes, M.A. (Syracuse, '26), instructor in zoology; Norman E. Phillips, A.B. (Allegheny, '16), instructor in zoology.

DR. NOEL J. G. SMITH, of the department of botany of the University of Aberdeen, has been appointed professor of botany in the Rhodes University College.

DISCUSSION

THE DISCOVERY OF THE INSECTICIDAL PROPERTY OF CARBON DISULPHIDE

SINCE the sixth decade of the last century, a period of about seventy years, carbon disulphide has been our chief reliance as a fumigant for killing injurious insects in stored grain and in the soil. Attempts to replace it with something better have failed. It has been used in large quantities and the benefits that have resulted have been great. It is therefore worth while to know to whom we are indebted for the discovery of the insecticidal property of this chemical.

W. E. Hinds's "Carbon Bisulphide as an Insecticide"¹ is our standard reference on the use of this material as a fumigant. Dr. Hinds says (page 8), "So far as the writer can learn, the first use of carbon bisulphide as an insecticide was made in 1856 and 1857 by M. Doyère, who demonstrated that a small amount of the liquid poured into a pit of corn or barley would kill all the weevils and their eggs . . ." W. H. Goodwin, in an article on "Carbon Bisulphid and its Use for Grain Fumigation,"² also gives credit to M. Doyère for introducing the material as an insect fumigant. The evidence that follows indicates that Doyère discovered the insecticidal use of carbon disulphide independently, but that his work was anticipated by another investigator, M. Garreau.

In July, 1854, Garreau published³ the results of experiments with various compounds against grain

¹ U. S. Dept. Agr., Farmers' Bull. 145, 1902. (A revision, Farmers' Bull. 799, 1917, omits the historical review of the subject.)

² Mo. Bul. Ohio Agr. Exp. Sta., v. 1, no. 3, 1916, pp. 86-90.

³ Archives de l'Agriculture du Nord de la France (Lille), t. 2, pp. 195-198.

weevils, and he reported that *sulfure de carbone* was far more effective than any of the other agents tested. It acted quickly, small dosages were sufficient to kill the insects and the odor of the fumigant disappeared rapidly from the grain upon aëration.

Doyère's account of his discovery of the value of *sulfure de carbone* as an insecticide was published in May, 1857,⁴ and described the results of experiments carried on at Algiers. His work with anesthetics against stored-grain insects was inspired, he wrote, by similar experiments made with benzine vapor by M. Milne-Edwards. Doyère did not mention Garreau's investigation.

At the October 12 meeting of the Academy at Paris,⁵ a communication from Garreau claimed priority in the discovery. Garreau stated that in 1854 he had sent to Doyère the result of his experiments, but that the latter apparently had neglected to read the published report of the work.

Doyère replied at the November 2 meeting of the Academy,⁶ emphatically denying that he had received any communication from Garreau or that he had known of Garreau's work with *sulfure de carbone*.

During November, 1857, Garreau published⁷ a second paper on *sulfure de carbone* in which he gave detailed directions for applying it and for avoiding explosions. The matter of priority was discussed during the same month at a meeting held on the 11th by the Agricultural Assembly of the District of Lille.⁸ A member stated that most journals had given credit for the discovery to Doyère; and that, at about the time of Doyère's announcement, the invention had been patented by M. Millon, a chemist, but that the honor rightly belonged to Garreau. The assembly then decided to send to the minister of war the published evidence in support of Garreau's claim.

Louis-Michel-François Doyère (1811-1863)⁹ devoted a number of years to studies on the conservation of grain. He published on several subjects, including milk, ensilage and economic entomology. In 1854 he received a prize for the invention of a machine for killing grain-infesting insects by mechanical shock. During the greater part of his life he was a teacher, serving at the Lyceum of Henry IV as professor of natural history, as professor of zoology applied to agriculture at the Agronomic Institute of

Versailles, and as professor at the Central School of Arts and Manufacturers.

Dr. Lazare Garreau (1812-1892)¹⁰ started as a military pharmacist and served several years in Algeria. From 1844 to 1855 he was professor of materia medica at the Lille Military Hospital of Instruction, resigning to devote himself entirely to the teaching of chemistry and pharmacy at the Preparatory School of Medicine and Pharmacy. For the ten years preceding his retirement in 1886 Garreau was professor of medical chemistry and toxicology in the Faculty of Medicine at Lille. He published on a variety of subjects and was especially interested in the respiration of plants.

PEREZ SIMMONS

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A NEW LONGEVITY RECORD

DURING the course of the accumulation of data for the study of the rôle of the thyroid apparatus in growth and differential organ development in the albino rat, it happened that the control animal of one of the litter groups died. In this group there was a stunted little thyroidless male rat which had been thyroidectomized at thirty days of age on the sixth of November, 1923. Since, with the loss of the control, the test animal was obviously of no use in the investigation as organized, it was allowed to live on in order to see just how long a rat would live minus its thyroid gland. One year passed, two years passed and still the little runt, never weighing over fifty or sixty grams, played and ate heartily in the cage with its brothers. It never showed any signs of illness or lethargy. Its coat of hair was slightly ruffled, as is usual for thyroidless rats, and its eyes were prominent, but otherwise it seemed healthy and normal. Not knowing its real age one would have taken it to be a rat of about fifty days. Time went on until the thirteenth of July, 1926, when our specimen was found dead in the cage at the ripe age of two years and nine months, having lived two years and eight months without a thyroid gland. This was proven by careful post-mortem examination. The noteworthy thing is that this animal lived to almost the maximum age assumed to be the natural span of life for the species by Donaldson; i.e., three years. And a rat of three years, even under the best of conditions, is hard to get, and if he lives that long he is an old, old rat, practically equivalent to a man of ninety years. On Donaldson's idea my rat lived without his thyroid until he was as old as a man of

⁴ C. R. Hebd. Séances Acad. Sci. (Paris), 1st semester, pp. 993-996.

⁵ *Ibid.*, 2nd semester, 1857, pp. 533-534.

⁶ *Ibid.*, pp. 690-691.

⁷ Archives de l'Agriculture du Nord de la France (Lille), Ser. 2, t. 1, pp. 369-372.

⁸ *Ibid.*, p. 382.

⁹ Larousse, P., Grand Dictionnaire Universel du XIX^e Siècle, 1865.

¹⁰ Journal de Pharmacie et de Chimie, 5th Series, a. 27, p. 109, 1893.