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 published[7] 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.

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[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 XIXe Siècle, 1865.

A NEW LONGEVITY RECORD

DURING the course of the accumulatoin 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

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

eighty-two or thereabouts. And this is a new longevity record. It should be noted that this rat received no thyroid substance in the diet or in any other way, from the time the thyroid was removed up to the time of his death.

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THE VENOM OF NEW BORN PIT VIPERS

PROFESSOR ALBERT M. REESE, in his notes on "The Venom of New Born Copperheads,"[1] solicits information upon the age at which pit vipers acquire their power of injecting venom.

Professor George E. Beyer, in his "Contributions on the Life Histories of Certain Snakes,"[2] gives two very personal observations in connection with the poisonous qualities of the young of these snakes.

In speaking of a one-day-old water moccasin, *Agkistrodon piscivorus*, he makes the following statement: "To test their poisonous qualities I permitted one of them to bite me, but outside of the peculiar penetrating sensation attendant upon all venomous snake bites, and not unlike a bee sting, I did not feel other results."

In the same paper, speaking of *Sistrurus miliarius* he shows how he was mistaken in rating the toxic qualities of very young venomous snakes. During the noonday hour of August 20, 1894, exactly eight days after the birth of a brood of the young ground rattlers, he picked up one and presented the first joint of the little finger of his right hand for a bite. The snake bit with a vengeance, producing a momentary sensation resembling the sting of a bee; at the same time a lightning-like pain seemed to shoot up to the shoulder. In a few minutes the local pain extended to the second joint, the wound became discolored and edema set in. Increased swelling and pain gradually extended to the wrist and forearm. He carefully describes the symptoms which continued to be serious until half past eleven, when he went to bed. By daybreak the swelling had extended well down the right side and upwards, involving the same side of the face. The pectoral region was extremely painful. After 10 A. M. the reaction set in and the symptoms gradually subsided, but an uncomfortable feeling throughout the entire system remained up to thirty-six hours, and the inflammation did not disappear entirely until after three days. He concludes by stating that no remedy had been applied from beginning to end.

The evidence at hand seems conclusive that the venom glands of pit vipers are completely functional eight days after birth, but it seems doubtful that they secrete venom to any extent until some time after the first day.

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[1] SCIENCE, April 2, 1926.

[2] *The American Naturalist*, Vol. XXXII, No. 373, January, 1898.

SYMBOLS FOR MUTATIONS IN MICE

IN an attempt to standardize the symbols used for the mutations in mice, the Mouse Club, at its meeting in New Haven on December 27, 1925, agreed on the following symbols.

The following factors were recognized as orthodox and the symbols appearing herewith were voted into the code.

Agouti series:
- A^y—dominant yellow, A^w—White Bellied Agouti, A—Agouti, a—non-agouti.

Albino series:
- C—Full color, c^{ch}—Chinchilla dilution, c^d—Detlefsen extreme dilution, c—albinism.
- B—black, b—brown.
- D—dark coat, d—dilute coat (blue dilution).
- H—Normal head, h—haemoragic head.
- P—Dark eye, p—pink eye.
- R—Rodded or normal retinae, r—rodless retinae.
- S—Self coat dominant to recessive spotting, s—recessive spotting.
- S^E—Normal size ears, s^e—short ears.
- T—Normal length tail, t—short tail (tailless).
- V—Normal walking or running, v—waltzing.
- W—Black-eyed-white, w—recessive self allelomorph.

The following characters were passed as non-orthodox and will not be accepted until more work has been done upon them, but the symbols here recorded have been reserved tentatively for them.

- F—Normal foot, f—haemoragic foot.
- J—Normal jaw, j—haemoragic jaw.
- K—Normal tail, k—kinky tail.
- DP—Normal pupil, dp—dilate pupil.

Strong's carcinoma factors for immunity, A^{st}—1 factor, B^{st}—2 factor, C^{st}—factor were discussed, but no decision was reached concerning their status.

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EDUCATION IN MANITOBA

THE June 4th issue of SCIENCE contains a review of A. H. R. Buller's Researches on Fungi, Vol. III, the review concluding with the following statement: "Manitoba seems very remote even to an American, yet when an English trained botanist makes it his home and turns out such stimulating and exact work we realize more fully than ever that the man rather