and Lesley H. Spooner, '03, instructors in neurology and bacteriology, respectively.

In the department of chemistry of the West Virginia University the following additions have been made to the teaching staff: Dr. C. A. Jacobson, professor; Dr. E. C. H. Davies, associate professor; Lily B. Sefton, assistant professor, and A. E. Owens, instructor.

New additions to the staff of the division of agricultural biochemistry at the University of Minnesota are: instructors, Arthur K. Anderson, Paul F. Sharp and G. S. Taylor; assistants, Walter F. Hoffman, Earl R. Norris, Martin W. Sandstrom, Clifton W. Ackerson and Edward F. Danielson. S. D. Wilkins, special analyst, recently resigned to enter commercial work and his position has been filled by the appointment of Mr. Arnold H. Johnson.

David F. McFarland, M.S. (Kansas), Ph.D. (Yale), formerly associate professor of industrial chemistry and metallurgy at the University of Illinois, has been appointed professor and head of the department of metallurgy in the school of mines of the Pennsylvania State College.

Dr. Joshua M. Slemons, professor of obstetrics and gynecology in Yale University School of Medicine, New Haven, has resigned and is succeeded by Dr. Arthur H. Morse.

Dr. Ardrey W. Downs, formerly assistant professor of physiology at McGill University, Montreal, has accepted the chair of physiology in the University of Alberta.

Dr. W. S. Lazarus-Barlow has been appointed to the university chair of experimental pathology at Middlesex Hospital Medical School, London.

DISCUSSION AND CORRESPONDENCE

GALILEO'S EXPERIMENT FROM THE LEANING TOWER

To the Editor of Science: Professor Cajori's article entitled "Aristotle and Galileo on Falling Bodies"[1] recalled to mind a question recently asked by a member of the department of science in this school. The question was: "Just what experiment did Galileo perform from the leaning tower of Pisa?" The writer did not know, and endeavored to find out, without success. Some notes he made may be of interest.

Poggendorf, "Geschichte der Physik," p. 224, 1879, says "Galileo dropped balls of different sizes" and gives no citation of authority.

Rosenberger, "Geschichte der Physik," 1882, Vol. I., p. 141, states that Galileo proved by experiment from the leaning tower of Pisa in 1590 that light bodies fall as fast as heavy bodies. No citation.

The same author in Vol. II., p. 16, states that Galileo let fall stones singly and tied together and they fell in the same time. Also says that Galileo dropped a 100 lb. shot and a ½ lb. shot and that they reached the ground not the width of a hand apart. No citation.

Heller, "Geschichte der Physik," Vol. I., p. 346, 1882, states that Galileo dropped from the leaning tower of Pisa, pieces of wood, lead and marble and that they fell in nearly the same time. No citation.

Cajori[2] gives a circumstantial account of the celebrated experiment and says, "One morning before the assembled university, he ascended the leaning tower, and allowed a one pound shot and a one hundred pound shot to drop together. The multitude saw the balls start together, fall together, and heard them strike the ground together." No citation.

Apparently all of the above statements have their foundation in Viviani's "Racconto Istorico di Vita di Galileo Galilei," written some time after 1654, at the request of Leopold of Tuscany. Viviani[3] states that Galileo demonstrated by repeated experiments made from the leaning tower of Pisa that bodies of different weights falling through the same medium move with equal velocity. He also states that the experiments were made in the presence of the other readers, philosophers and all the students. Viviani knew Galileo from

[1] Science, 60, 615, 1920.

[2] "History of Physics," p. 32, 1899.

[3] "Opere di Gal.," Edizione Nazionale, XIX., p. 606.

1639 to Galileo's death in 1642. In 1639 Viviani was seventeen years old.

No account by Galileo himself is to be found in the Edizione Nazionale of his works, if the elaborate index is to be trusted. Further as Gerland, "Geschichte der Physik," p. 316, 1913, points out, Galileo in his treatise "De Motu," which dates from the time of his readership in the University of Pisa, cites experiment from a high tower as proving that wood at the beginning of its fall moves more rapidly than lead, but that a little later the lead will pass the wood and will precede the wood by a great space. Galileo further states, "and on this I have made experiment frequently."[4]

Renieri (born in 1606, knew Galileo from 1633 to 1642 and during that time wrote Galileo at least sixty letters) wrote a letter to Galileo dated March 13, 1641,[5] in which he gives an account of some experiments performed by Renieri from the leaning tower of Pisa. Renieri dropped a sphere of wood and one of lead the same size; on reaching the ground the lead was three "braccia" ahead of the wood. He also dropped a cannon ball and a musket ball and on reaching the ground the cannon ball was a palm ahead. Renieri makes no reference to Galileo's experiments, which is difficult to explain except on the ground that he had never heard of them.

Realizing the slippery nature of historical deduction, I draw no conclusion except this, that we do not know exactly what experiment Galileo performed from the leaning tower.

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THE BOOMING LIZARD OF AUSTRALIA

IN July, 1913, I was hunting in the Cove's River Ranges with two companions—Andrew and John Duncan, of Megalong. We found a black-and-yellow banded monitor lizard about five feet long concealed in a crevice on the face of a wall. We had no intention of injuring him, but out of mischief Andrew Duncan suggested that we should make him yell. I was sceptical, but both men assured me that the lizard could, and would yell under persuasion. On condition that there should be no cruelty, I consented to a demonstration. They laughed at the idea of cruelty. Andrew picked up a stick and began poking the reptile in the ribs and tickling him under the arm. It stood it for a while, merely squirming closer down in the crevice, then, having had enough of it, blew himself out and emitted a most comically doleful bellow that could be heard several hundred yards away. This he did repeatedly until we had laughed ourselves tired. It was funny, on looking back after we had gone fifty yards, to see the lizard stick his head around the corner to make sure that we had really departed.

I have had for the last four years at my hunting-box on the Naltai River, a tame monitor whom I have called "Joseph" on account of his coat of many colors, and who is the interesting companion of my solitude—and incidentally keeps the snakes away. With the above in my mind, I experimented on him. I found him camped under the bench beneath the window, and irritated him with the end of a stick. He did as the other had done—filled himself with wind and then emitted it in a prolonged bellowing groan. By the way, our "bookbook owl" does much the same thing. He fills himself nearly to bursting in a succession of gasps, and then says "Hoo-hoo hoo" till he has no more breath, then fills up again.

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LINNÆAN SOCIETY OF NEW SOUTH WALES, SYDNEY

QUOTATIONS

THE BRITISH ASSOCIATION

THE British Association begins its annual meeting at Cardiff to-day. Our correspondents report that the increase in railway fares has not reduced the attendance below that of a fair average, and that the arrangements made for the housing of the visitors and the accommodation of the sectional meetings are excellent. By a useful innovation the daily

[4] Op. Ed. Naz. I., 334.
[5] Op. di. Gal. Ed. Naz., 18, p. 305.