

dian Marine (Terra Nova); Engineer Lieutenant E. W. Riley, R.N., chief engineer (Terra Nova); Surgeon G. M. Levick, R.N., doctor, zoologist, etc. (eastern party); Surgeon E. L. Atkinson, R.N., doctor, bacteriologist, parasitologist; Mr. F. R. H. Drake, R.N., secretary (Terra Nova); Mr. C. H. Meares, charge of ponies and dogs (western party); Captain L. E. G. Oates, Inniskilling Dragoons, charge of ponies and dogs (western party); Dr. G. L. Simpson, physicist (western party); Mr. T. Griffith Taylor, geologist (? western party); Mr. E. W. Nelson, biologist (western party); Mr. D. G. Lillie, biologist (Terra Nova); Mr. A. Cherry Garrard, assistant zoologist (western party); Mr. H. G. Ponting, photographer (western party); Mr. B. C. Day, motor engineer (western party); Mr. W. G. Thomson, geologist (? western party); Mr. C. S. Wright, chemist (western party); Mr. T. Gran, assistant (western party).

UNIVERSITY AND EDUCATIONAL NEWS

THE Cleveland College of Physicians and Surgeons, which has been the medical department of Ohio Wesleyan University, will be consolidated with the medical department of Western Reserve University at the close of the present college year. The trustees of Western Reserve University have elected from the teaching staff of the medical department of Ohio Wesleyan University one member to the faculty and eighteen other members to the teaching staff. President Thwing has announced a gift by Mr. H. M. Hanna of \$250,000 as an additional endowment fund for the medical department. This gift is the first quarter of an additional endowment of \$1,000,000 which the university now purposes to secure.

MR. DAVID J. RANKEN, Jr., of St. Louis, founder of the David J. Ranken, Jr., School of Mechanical Trades, has deeded his fortune, estimated at more than \$3,000,000, to the board of trustees of the school, to be used for its maintenance and enlargement.

MRS. RUSSELL SAGE has given a further sum of \$148,000 to Princeton University for a

tower and other improvements in connection with the dormitory she has given to the university.

DARTMOUTH COLLEGE receives an administration building by the gift of \$50,000 from Mr. and Mrs. Lewis W. Parkhurst, of Winchester. It is a memorial to their son, Wilder Lewis Parkhurst, who died during his sophomore year at the college.

By the will of Augustus L. Revere Harvard University receives \$20,000 to found a Revere family memorial fund.

THE recent commencement exercises at the University of Alabama were marked by the formal acceptance by the university authorities of two new buildings, Comer Hall and Smith Hall. The dedicatory address for Comer Hall, the engineering building, was delivered by Mr. F. H. Crockard, first vice-president and general manager of the Tennessee Coal, Iron and Railroad Company, and that for Smith Hall, the geological-biological building, by Dr. J. A. Holmes, of the United States Geological Survey. These two buildings were erected at an approximate cost of \$300,000. Smith Hall has been named in honor of Dr. Eugene A. Smith, who, as professor of geology and state geologist for many years, has rendered conspicuous service to the state. A native of Alabama, he was educated at the University of Alabama and at Heidelberg, receiving the doctor's degree at the latter in 1868. He has held his present position as professor of geology since 1871 and has been state geologist since 1873. Dr. Holmes, in his address dedicating Smith Hall, stated that, in having spent thirty-seven years continuously in the service of one state, Dr. Smith holds the record for length of service among living state geologists.

At the Johns Hopkins University, Dr. H. S. Jennings, now professor of experimental zoology, has been appointed Henry Walters professor of zoology and director of the biological laboratory, in succession to the late Professor W. K. Brooks.

GABRIEL CAMPBELL, of Dartmouth College, will retire from the Stone professorship of

intellectual and moral philosophy. He has been an officer of the college since 1883. Dr. W. H. Sheldon has been transferred to the professorship made vacant by the retirement of Professor Campbell. Dr. Walter Van Dyke Bingham, now instructor in educational psychology in Teachers College, Columbia University, will join the Dartmouth faculty as an assistant professor of psychology.

At the University of Missouri, Dr. O. D. Kellogg has been advanced from the rank of assistant professor to that of professor in mathematics.

Dr. A. S. PEARSE has been promoted to the position of assistant professor of zoology at the University of Michigan.

At Dartmouth College advances in grade from instructorships to assistant professorships have been voted to Charles E. Hawes, in anthropology, Leon Burr Richardson, in chemistry, and Dr. George Sellers Graham, in pathology.

H. S. JACKSON has been appointed professor of botany and plant pathology in the Oregon Agricultural College. Mr. Jackson has been, since August, 1909, research assistant in plant pathology at the Oregon Agricultural Experiment Station.

NELS C. NELSON and Thomas T. Waterman have been appointed instructors and assistant curators in anthropology at the University of California.

JACOB PARSONS SCHAEFFER, instructor in medical anatomy in the Ithaca division of the Medical College, has been promoted to an assistant professorship of medical anatomy.

MR. T. TOWNSEND SMITH, at present the holder of the Tyndall fellowship in physics in Harvard University, has been elected instructor in physics in the University of Kansas.

DISCUSSION AND CORRESPONDENCE

THE DEFINITION OF FORCE

THE discussion now going on in *SCIENCE* concerning the language to be used in explaining to students what force "is," must

be of great interest to students. They will observe that there is good reason for the obscurity of their own vision. In the physics department, the student might finally learn to distinguish between the pound and the weight of a pound. In the engineering department he learns that a pound is a pound, and that the weight of a pound is also a pound. In the physics class he will be assured that the weight of a pound is different at different places. He will learn that the weight of the earth is equal to the weight of any other body which it attracts. The weight of the earth is equal to the weight of a pound, of a gram, of a ton or of the moon. In the engineering department he will be taught that the weight of the earth is equal to the weight of $.135 \times 10^{26}$ pounds. There was a time when the use of the phrase "conservation of forces" was excusable. We do not discredit Helmholtz for saying in 1854 that "nature as a whole possesses a store of force which can not in any way be either increased or diminished," or that "all force will finally pass into the form of heat." The words had not yet been given definite meanings, which would enable one to say what he had in mind.

The electrical engineers of our time have no difficulty in using modern notation. The mechanical engineers continue to use the good old definitions of Weisbach and Rankin. "Thus the British unit of force is the standard pound avoirdupois."

The notation which makes a proper distinction between the pound and the weight of a pound, or between mass and weight, or force, does not require us to say that force "is" a rate of change of momentum. Some of us prefer not to say this. In a lecture before the British Association at Glasgow in 1876, Tait made a rather strenuous attempt to enlighten Tyndall on the nature of force. In this lecture we are informed that "force is the rate of change of momentum." Again, it is stated that "unit force is thus that force, which, whatever be its source, produces unit momentum in unit time." In the discussion which followed this lecture a writer