culture as a professional paper, Bulletin 370. These tests have been made by the Office of Public Roads and Rural Engineering to give highway engineers information in regard to the various physical properties of the different rocks most frequently used in road construction. The three most important of these properties are defined in the bulletin as *hardness,* or the resistance which the rock offers to the displacement of its surface particles by abrasion; *toughness,* or the resistance which it offers to fracture under impact; and *binding power,* or the ability which the dust from the rock possesses, or develops by contact with water, of binding the large rock fragments together.

A POSTAL vote was recently taken of the members of the British Institution of Electrical Engineers on the proposed exclusion of alien enemies, and the details of the result were as follows: Cards issued, 3,244; cards returned, 1,470. In favor of (*a*) to expel members who are subjects of enemy-countries or states, 1,320, against, 88; in favor of (*b*) to expel members who, being naturalized British subjects, have retained enemy nationality, 1,307, against, 79; in favor of (*c*) not to expel members who are naturalized British subjects and were formerly subjects of a country or state now at war with Great Britain and Ireland, but who have under the laws of such country or state definitely lost their alien nationality, provided they are able to prove this to the complete satisfaction of the council, 1,081, against, 264; in favor of (*d*) that no person shall after the —— of ———— 19—, be eligible for election as a member of the Institution who is a subject of any country or state with which the United Kingdom of Great Britain and Ireland is or shall have been at war on or after the date mentioned, 1,120, against, 200.

ONE of the provisions of the federal aid road bill, which was signed by the President on July 11, appropriates $1,000,000 a year for ten years to be spent by the Secretary of Agriculture for the construction and maintenance of roads and trails within or partly within the national forests. The bill provides that, upon request of the proper officers of the states or counties, the money shall be used for building roads and trails which are necessary for the use and development of resources upon which communities within or near the national forests are dependent. The work is to be done in cooperation with the various states and counties. Not more than 10 per cent. of the value of the timber and forage resources of the national forests within the respective county or counties in which the roads or trails will be constructed may be spent. Provision is made for the return of the money to the Treasury by applying 10 per cent. of the annual receipts of the national forests in the state or county until the amount advanced is covered. Officers in charge say that the bill will make possible the construction of many roads which are greatly needed. Since 1913 ten per cent. of the receipts of the national forests have been used in road and trail building, but the funds have been inadequate to meet the needs. Many isolated communities within the national forests are entirely dependent on the government roads and trails. In some instances these settlements are said to be almost entirely without means of communication. According to Forest Service officials the money now made available will permit the construction of many roads necessary to open up inaccessible territory, and will greatly facilitate the development of large areas. It is said that detailed plans covering the policy to be followed in building roads are now being made.

UNIVERSITY AND EDUCATIONAL NEWS

THE jury in the Surrogates' Court of New York City has declared invalid the will of Amos F. Eno, according to which Columbia University was made the residuary legatee and would receive an amount estimated at over four million dollars. It is understood that Columbia University will seek to obtain a new trial.

THE merger of the medical school of the University of Pennsylvania and the Jefferson Medical College will not be consummated this year. The following statement was made by

a dean of one of the institutions: The members of the United Medical Committee, in charge of the medical school of the University of Pennsylvania and the Jefferson Medical College, of Philadelphia, have agreed that it is advisable to postpone the consummation of the union agreed on by the plan adopted by the trustees of the two institutions, in order that further opportunity may be afforded for considering a number of important matters relative to the mode of administration of the new school, and have, therefore, determined that each of the schools shall conduct, separately from and independently of the other and of the United Medical Committee, the work of its college term for 1916–17.

Professor Walter S. Hunter, of the University of Texas, has been appointed professor of psychology in the University of Kansas, to fill the vacancy caused by the removal of Professor Robert M. Ogden to Cornell University.

At Indiana University, Professor W. N. Logan, director of the school of general science in the Mississippi Agricultural and Mechanical College, has been appointed associate professor of economic geology; and Mr. C. A. Malott has been appointed instructor in physiography and geology. Dr. J. J. Galloway, instructor in paleontology, has accepted a position as curator of paleontology at Columbia University.

Harrison R. Hunt, Ph.D. (Harvard, '16), has been appointed instructor in zoology in West Virginia University. He takes the place of J. Theron Illick, who will sail for China in the autumn to accept a teaching position there.

At the Michigan Agricultural College, Mr. G. R. Johnstone has resigned his instructorship in botany which he has held for three years, in order to prosecute his studies further. The vacancy has been filled by the appointment of Mr. H. C. Young, who was at the Missouri Botanical Garden last year.

We learn from *Nature* that the Manchester City Council (governing body of the Manchester School of Technology) has established a new subdepartment of the school of postgraduate study and research in coal-tar products and dyestuffs, and has appointed Professor A. G. Green, F.R.S., to take charge of it. Professor Green recently resigned the chair of tinctorial chemistry at Leeds University in order to direct the research department of a firm of dyestuff manufacturers. His subdepartment will be under the general direction of Professor Knecht, who is head of the department of applied chemistry, and is expert in the use of dyestuffs, as Professor Green is expert in their manufacture.

It is announced in the London *Times* that Dr. A. E. Evans, lecturer in chemistry in University College, Reading, has been placed in charge of a new department of the Huddersfield Technical College for special study and research in coal-tar color chemistry. It is expected that a number of scholarships will be tenable in the department. The directors of British Dyes (Limited) are supporting the scheme, and are prepared to contribute substantially towards its institution. At Leeds University there is already a department of color chemistry and dyeing, the endowment of which was provided by the Clothworkers' Company.

DISCUSSION AND CORRESPONDENCE

AN ENGINEER'S IDEA OF ENERGY

To the Editor of Science: In a recent number of Science[1] Professor Kent takes exception to some criticisms of mine on the "current definition of energy." In his opening sentences he states that in seeking "some language in which to convey to students an engineer's idea of energy" he wrote: "Energy, or stored work, is the capacity for performing work" and proceeded to extend and illustrate his definition.

Now if he had only "stuck to his idea" and prefaced his statement in his book with the words he here uses in his above explanation, so that his statement would have read: "An engineer's idea of energy, or stored work, is the capacity for performing work, etc.," no one could have taken exception to his statement. It would have been *true* and, except by other engineers, not open to dispute. But when he

[1] June 9, 1916, p. 820.