universities and philanthropic institutions in New Jersey permission to make experiments on animals under certain restrictions. The Rockefeller Foundation for Medical Research will now begin work on the construction of a laboratory near Princeton for the study of animal diseases. The ground, buildings and equipment of the new laboratory will cost, it is estimated, $1,000,000. As has already been announced, Dr. Theobald Smith, professor of comparative pathology at Harvard, will direct the institution.

WE learn from the *Journal* of the American Medical Association that the Langenbeck-Virchow building, the new home for the medical and surgical societies of Berlin, is on the point of completion. The library is already being moved into the new quarters. By combining several scattered medical libraries, it starts with 113,000 volumes.

ACCORDING to a cablegram from Nish, dated April 11, the British and French governments are sending large numbers of military surgeons into Serbia to fight the epidemic of typhus. Thirty English surgeons have already arrived. Fifty French physicians arrived on April 10 and fifty more are expected shortly, as well as a party sent out by the Rockefeller Foundation and the American Red Cross.

THE *Journal of Criminal Law and Criminology* is entering upon the publication of a series of monograph supplements which will be known as Criminal Science Monographs. The first monograph is now in the press. It will appear early next fall under the title "Pathological Swindling and Lying." Dr. William Healy, of Chicago, is the author. The volume will approximate two hundred pages. Each number in this series will be bound in cloth, and will come from the press of Little, Brown and Co., Boston, Massachusetts. Persons who have manuscripts in hand or in preparation, which they wish to have considered for publication in this series should communicate with Professor Robert H. Gault, Northwestern University, Evanston, Illinois.

THE Prussian department of education has petitioned the legislature for a continuance of the appropriation of 25,000 marks, which for six years has been granted for cancer research, on condition that private subscriptions would double the amount. This has always been done, and the private subscriptions are already assured for 1915. The appropriation is devoted mainly to the cancer research work being done under Professor Ehrlich's supervision.

AN institution for ethnological research has been founded in Leipzig. The new institution forms part of the King Friedrich August Foundation for Scientific Research. It is affiliated with the Ethnographic Museum of Leipzig, and is furthermore in close connection with the Ethnological Seminar at the university. Dr. Karl Weule, director of the museum, is also director of the research institution. It may be expected that excellent results will be obtained by this concentration of effort, which contrasts favorably with the dispersion of energy as found in cities like Vienna and St. Petersburg and in most cities of the United States.

UNIVERSITY AND EDUCATIONAL NEWS

HARVARD UNIVERSITY receives $100,000 by the will of James J. Myers, of Cambridge.

GIFTS amounting to $72,908, to be devoted to cancer research at the Harvard Medical School, are announced. The sum of $50,000 was provided by the will of Philip C. Lockwood.

BY the will of Mrs. Laura L. Ogden Whaling, of Cincinnati, Miami University receives $250,000 for a dormitory with $10,000 for its support. $10,000 is bequeathed to the alumni loan fund. The residue of the estate is to be divided between Miami University and the Cincinnati Museum Association, and it is said that each institution may receive $200,000.

THE Addison Brown collection of plants offered to Amherst College by Mrs. Brown in memory of her husband, at one time a member of the class of 1852, has now come into possession of the college. Containing many thousands of specimens collected in the United States, Mexico, Porto Rico, the Hawaiian Islands and elsewhere, it is by far the largest accession ever received by the department.

Plans have been drawn for the construction of four greenhouses, a heating plant, wells and windmills, and an underground piping system for irrigation purposes, on the new botanical garden for the department of botany of the University of Michigan. The old botanical garden east of the city with the 10,000 trees and shrubs which have been planted there, will be made into a tree and shrub park in about a year.

Dr. Henry C. Cowles, Dr. C. J. Chamberlain and Dr. O. W. Caldwell have been promoted to full professorships of botany at the University of Chicago.

Dr. Julius Stieglitz, professor of chemistry and director of analytical chemistry in the University of Chicago, has accepted an invitation to give courses in chemistry at the University of California during the summer term that begins June 21 and closes on August 1.

Professor Daniel Starch, of the University of Wisconsin, will give courses in educational psychology and educational measurements at the University of Washington, Seattle, during the coming summer session.

At the University of Birmingham Dr. Douglas Stanley has been appointed to the chair of therapeutics, and Dr. L. G. Parsons to a newly created lectureship in infant hygiene and diseases peculiar to children.

DISCUSSION AND CORRESPONDENCE

THE FUNDAMENTAL EQUATION OF DYNAMICS

The difference of opinion between Professor Huntington and myself is probably less than might be inferred from his recent communication.[1] I do not object to the use of the equation $F/F' = a/a'$, which indeed is a useful one. But it seems to me misleading to call this *the* fundamental equation of dynamics, because there is something equally fundamental that is quite independent of this equation—the fact that the *mass* of a body is one of the factors determining what acceleration it has under the action of a given force. The same fact is expressed by Professor Huntington in the words[2] "different bodies require different amounts of force to give them any specified acceleration," which he refers to as "this central fact of dynamics." My view is that this "central fact" should receive explicit and quantitative[3] statement in whatever equation or equations may be adopted for expressing the fundamental law of acceleration. The principle which such equations must express may be stated in different ways. In the review[4] which called forth Professor Huntington's comment I expressed the opinion that the method most intelligible to the beginner is to introduce at the outset the body-constant which was called by Newton *mass* or *quantity of matter*, and to make the fundamental principle a statement of the way in which the acceleration of a body depends quantitatively upon both the applied force and the mass of the body. The principle then takes the following form:

(*a*) *A force acting upon a body otherwise free would give it, at every instant, an acceleration proportional directly to the force and inversely to the mass of the body.*

The meaning is perhaps more clearly brought out by writing a definite proportion:

(*b*) *Forces F, F', acting upon bodies whose masses are m, m', cause accelerations a, a' such that*

$$\frac{a}{a'} = \frac{F}{F'} \cdot \frac{m'}{m}. \qquad (1)$$

It is instructive to consider the following partial statements of the general principle:

(*c*) *If the same body is acted upon at different times by forces F, F' and if a, a' are the accelerations caused, then*

$$\frac{a}{a'} = \frac{F}{F'}. \qquad (2)$$

[1] Science, February 5, 1915.

[2] These words seem to be a very definite corroboration of the statement (quoted with disapproval by Professor Huntington) that "an equation which results from comparing the effects of different forces *upon the same body* can not be regarded as a complete expression of the fundamental law of motion; it is equally important to compare the effects of forces *acting upon any different bodies.*"

[3] The mere qualitative statement above quoted is no more satisfactory than the statement that "different forces acting at different times upon the same body cause different accelerations."

[4] Science, December 4, 1914.