in plant development which require generations of effort can be carried on, an exhibition garden, a training school for gardeners, a public park and an experimental laboratory for both professors and students. One million dollars will be necessary before a start can be made, according to Comptroller A. E. Roth. The ultimate development of the garden would require an endowment of from $6,000,000 to $10,000,000. The project is being advanced at present by a group of scientists and others under the organization name of Pacific Botanical Gardens, whose executive committee includes Comptroller A. E. Roth and Professor G. J. Peirce, of Stanford; Professor E. B. Babcock and Comptroller Robert Sproul, of the University of California; Dr. H. M. Hall, of the Carnegie Corporation; George C. Roeding, of Fresno, and Milton B. Drury, secretary of the Save-the-Redwoods League.

ANNOUNCEMENT is made of a gift of $200,000 by Mr. J. P. Morgan to the Neurological Institute, New York, for the establishment of a fund for research and treatment of encephalitis. The fund will be administered through the new hospital of the institute to be erected as part of the Columbia-Presbyterian medical center in New York City. A complete floor will be equipped, including a ward of forty-eight beds, for the treatment of the disease.

## UNIVERSITY AND EDUCATIONAL NOTES

THE General Education Board has appropriated $750,000 towards the sum of $1,500,000 required by Yale University for the construction of a new surgical laboratory and the extension of the pathological laboratory.

MR. AND MRS. JOHN ROBERTS have given to the University of Chicago $1,000,000 for the construction and endowment of a hospital for children.

HARVARD UNIVERSITY will get the bulk of the estate of Dr. Charles A. Brackett, long oral pathologist in its dental schools, amounting to nearly half a million dollars.

PRESIDENT EDWARD M. LEWIS, of the Massachusetts Agricultural College, has been elected president of the University of New Hampshire, to succeed Dr. Rudolph D. Hetzel, who recently resigned to become president of the Pennsylvania State College.

ROGER LOWELL PUTNAM was named by the late Guy Lowell his successor as trustee of the Lowell Observatory, in accordance with the provisions of the will of Percival Lowell, who founded the observatory at Flagstaff, in 1894, and there, until his death in 1916, pursued the study of astronomy—with particular regard to the planets. Mr. Putnam is a nephew of the noted astronomer.

THE department of pathology of the University of Pennsylvania has been reorganized under the chairmanship of Dr. E. L. Opie, who is, however, to continue his work at the Phipps Institute. Dr. E. B. Krumbhaar has resigned his position as director of laboratories at the Philadelphia General Hospital to follow Dr. Allen J. Smith as professor of pathology, and Dr. Herbert Fox has been appointed professor of comparative pathology. Dr. Baldwin Lucké has been promoted to an associate professorship.

DR. ELMER FUNKHOUSER, instructor in pathology at the medical school of Indiana University, has been promoted to be an associate.

AT the University of Bristol Dr. William Edward Garner, of University College, London, has been appointed professor of physical chemistry in succession to Professor J. W. McBain. In the department of physics Dr. J. E. Lennard Jones, reader in mathematical physics, has been promoted to the professorship of theoretical physics.

PROFESSOR HANS WINTERSTEN has succeeded Professor Karle Hürthle in the chair of physiology at Rostock.

## DISCUSSION AND CORRESPONDENCE

### PRESSURE DECOMPOSITION AS A SOURCE OF SOLAR ENERGY

IN a recent paper[1] Bridgman points out that if atoms are subjected to extremely high pressures, the superstructure of quantum orbits may give way, freeing the kinetic energy of the orbital electrons which would then become available as heat. Bridgman asks, "Has this been considered as a source of stellar energy?" I have made the following computations.

The kinetic energy of an electron in its orbit, including the relativity correction, which becomes appreciable for K-electrons in elements of high atomic numbers, is given by

$$E_{kin} = c^2 m_0 \left[ \frac{1}{\sqrt{1 - \frac{\alpha^2}{n^2} Z^2}} - 1 \right] \qquad (1)$$

where c is the velocity of light, $m_0$ the statical mass of an electron, Z the atomic number and n the azimuthal quantum number. $\alpha$ is the so-called constant of fine structure, equal to $\frac{2\pi e^2}{ch}$, e being the charge on the electron and h Planck's constant. Numerically,

$$\alpha = 7.29 \times 10^{-3} \text{ and } \alpha^2 = 5.31 \times 10^{-5}$$

[1] *Phys. Rev.* 29, 188, 1927.