UNIVERSITY AND EDUCATIONAL NEWS

IT is stated in *Nature* that the first list of donations in response to the appeal of the University of Birmingham for £500,000 shows gifts or promises to the amount of more than £250,000. Nearly half of this amount is given to the Petroleum Mining Endowment Fund. The largest single gift is an anonymous one of £50,000 for the general fund. A sum of £5,000 is for a chair of Italian, and an equal amount is given by the James Watt Memorial Fund for a James Watt research chair in engineering.

ASSISTANT PROFESSOR EUGENE TAYLOR, of the University of Wisconsin, has been appointed professor and head of the department of mathematics at the University of Idaho.

DR. J. C. WITT, assistant professor of analytical chemistry in the University of Pittsburgh, has resigned, to become chief research chemist for the Portland Cement Association with headquarters in Chicago. Dr. C. J. Engelder, of Hornell, N. Y., has been appointed to the position at the University of Pittsburgh.

MR. WILLIAM B. BROWN, associate physicist of the aeronautic power plants section of the Bureau of Standards, has been appointed instructor in physics at the Ohio State University.

DR. RODNEY B. HARVEY has resigned as plant physiologist, bureau of plant industry, Washington, D. C., to accept the position of assistant professor in plant physiology at the University of Minnesota and assistant plant physiologist in the Minnesota experiment station.

DR. BENJAMIN SCHWARTZ, assistant zoologist in the Bureau of Animal Industry, has been appointed professor of protozoology and parasitology in the University of the Philippines and will sail for Manila late in December.

DISCUSSION AND CORRESPONDENCE

HELIUM AND HYDROGEN MODELS

TO THE EDITOR OF SCIENCE: In a communication to the SCIENCE issue of June 18 Dr. Irving Langmuir proposed a model of the helium atom consisting of a nucleus of charge $2e$ accompanied by a pair of electrons which execute symmetrical oscillations about two nearly circular arcs on opposite sides of the nucleus. In the issue of November 5 he has proposed a similar model for the hydrogen molecule, and another, of a somewhat different type, for the positively charged H_2 ion. The writer was particularly interested in these models, for in each case the resultant angular momentum is zero, a circumstance which seemed to offer an explanation of the diamagnetic behavior of helium and hydrogen, and of the failure of the theories of the specific heat of hydrogen based on the assumption that the molecule is gyroscopic.

Unfortunately, Dr. Langmuir did not see how to apply the Wilson-Sommerfeld quantum conditions to the determination of the energies of these models, and therefore was not able to fix the theoretical energies and ionization potentials definitely. These quantum conditions are

$$\begin{aligned} \int \rho_1 dq_1 &\equiv \int \left(\frac{\partial T}{\partial \dot{q}_1}\right) dq_1 = n_1 h, \\ \int \rho_2 dq_2 &\equiv \int \left(\frac{\partial T}{\partial \dot{q}_2}\right) dq_2 = n_2 h, \\ &\cdots\cdots\cdots, \end{aligned} \tag{1}$$

where T is the kinetic energy of the atom or molecule, q_1, q_2, . . . are a properly chosen set of coordinates, p_1, p_2, . . . , are the corresponding momenta, and n_1, n_2, . . . are any integers. Each integral is to be extended over a complete cycle of values of the corresponding coordinate. Dr. Langmuir states that he is unable to apply these equations to his models[1] because he does not know what systems of coordinates to use. The choice of a proper coordinate system is not essential, however, to the application of these conditions to the type of problem under consideration. For whatever coordinates are used, they will have a common period t, which makes possible a con-

[1] With the exception of the positive H_2 ion. He does apply the conditions to this model, and correctly, but expresses doubt concerning the validity of the somewhat unsatisfactory result on account of his uncertainty regarding the coordinate system.