will provide a scientific link between growers and manufacturers.

THE Bureau of Chemistry, U. S. Department of Agriculture, is now prepared to supply standard substances that conform to the biologic assay requirements of the Tenth U. S. Pharmacopeia, according to the *Journal* of the American Medical Association. Manufacturers are invited to apply, indicating the amount of material they desire against which to check their biologic assays. The new Pharmacopeia will state in the preface that biologic assays have now been made compulsory for a number of important drugs and preparations, and to facilitate the adoption of these standards and to provide a greater degree of uniformity in the application of these assays, the officials of the Bureau of Chemistry have indicated their willingness to supply substances conforming to the new standards. This service is the result of cooperation between the committee of revision, the manufacturers and the Bureau of Chemistry.

THE *Journal* of the American Medical Association writes that the degree of bachelor of science in hygiene will not be given after this year at the Johns Hopkins School of Hygiene and Public Health. The elimination of this degree will make the institution virtually a graduate school. Although conforming to the policy announced by the university last winter, Dr. William H. Howell, assistant director, said the step was taken largely to meet conditions outside rather than to follow the general scheme proposed by the president. This is the third step in the return of Johns Hopkins to its original standard as a graduate institution, the previous ones having been the proposal at Homewood to drop the first two years of college work and with them the A.B. degree (practically eliminating the College of Arts and Sciences), and the decision of the medical school to admit only those highly prepared. The degree of bachelor of science in hygiene was originally to train public health workers. Student candidates with two years of college work were instructed in special subjects for two years more at the School of Hygiene and Public Health, making the course four years in all. There have been a limited number of openings for the bachelors of science in hygiene, and therefore an increasingly smaller number of candidates for the degree. The new School of Hygiene will move into its new building in the hospital group about October 1. The celebration will be delayed until 1926, when the university observes its fiftieth anniversary.

Nature writes, "The German Chemical Society has recently published a 'warning' directing attention to the very large numbers of young chemists now coming from the universities, many of whom are unable to find suitable employment. Figures are given showing the extraordinary increase in graduates from the chemical faculty, as compared with those from other departments of the universities. It is anticipated that the number of chemical graduates this year will be about 1,100, whereas it is computed that German industry is only able to absorb about one third of that number, that is to say, about 350 per annum. Opportunities abroad for German chemists are now considerably less than they were before the war, partly for political or sentimental reasons, and partly because of the growing tendency in most countries having industrial aspirations to develop their chemical industry by employing their own chemists to the almost total exclusion of the foreigner."

UNIVERSITY AND EDUCATIONAL NOTES

THE greater part of the estate amounting to $2,300,000 of the late Edward Rector, the attorney of Chicago, is bequeathed to De Pauw University, at Greencastle, Ind., of which he was a trustee. Annual scholarships at De Pauw for every high school in Indiana were included in the bequest. At the time of his death, five hundred of its eighteen hundred students were being educated at the expense of Mr. Rector. The will provides for the addition of $100,000 for the retiring allowance of faculty and administration members, and for two dormitories, one for men and one for women, each to cost $250,000. About $1,700,000 is to be added to the Edward Rector scholarship fund, founded in 1918, with an endowment of $1,000,000. One of his benefactions is a fund, placed at the disposal of the university authorities, whereby money may be loaned to Rector scholars for living expenses. These loans may be repaid after graduation.

WITH $7,000,000 raised of the total of $10,000,000 necessary for the erection of the 52-story "Cathedral of Learning" of the University of Pittsburgh, the university trustees have appointed a building committee which is making preliminary surveys on the site. It is expected that ground will be broken in October, and that the remainder of the cost will be obtained in the near future. The university stadium, which has just been completed at a cost of $2,100,000, is being used for university athletic contests this fall. Its seating capacity is 70,000.

THE Johns Hopkins School of Hygiene and Public Health moved from its old site on West Monument Street to its new building at East Monument and Wolfe Streets on August 13.

SIR RICKMAN GODLEE, the well-known surgeon, who died on April 20 at the age of seventy-six years, left subject to a life interest for his wife the residue of his estate to University College, London, and to University College Hospital. The gross value of the estate is £94,148. Among special bequests is £10,000 to endow scholarships for students of the University College Hospital Medical School.

PROFESSOR HENRY T. MOORE, professor of psychology at Dartmouth College, who recently was elected to a professorship in the University of Michigan, has been elected president of Skidmore College, vacant through the death of the late Charles H. Keyes.

ALBERT BRITT, of the Frank A. Munsey Publishing Company of New York City, previously for fourteen years editor of *Outing*, has been elected to the presidency of Knox College, of which he is an alumnus, to succeed Dr. James L. McConaughy, who was recently inaugurated as president of Wesleyan University.

THE American University, at Washington, D. C., which has long existed as only a graduate school, and which during the war gave over its campus and buildings to government use, has again resumed control of the campus and will this autumn open a college of liberal arts, with Dr. Geo. B. Woods as dean; Dr. J. W. Hornbeck, recently of Carleton College, has been appointed professor of physics; Mr. F. A. Varrelman, recently biologist to the National Research Council Marine Investigations and special assistant of the Bureau of Fisheries, as assistant professor of biology, and Dr. E. W. Gurnsey, of the Fixed Nitrogen Laboratories of the Department of Agriculture, instructor of chemistry.

DR. ERNEST C. LEVY, formerly director of public welfare for the city of Richmond, Va., has been appointed professor of preventive medicine in the medical college of the University of Virginia.

DR. ARCHIE GARFIELD WORTHING, of the Nela Research Laboratory, Cleveland, Ohio, has been appointed professor and head of the department of physics of the University of Pittsburgh, succeeding Dr. Lee Paul Sieg, who has been made dean of the college and graduate school.

DR. ELMER O. KRAEMER, national research fellow in colloid chemistry, has been appointed assistant professor to conduct research and give instruction in colloid chemistry at the University of Wisconsin.

DR. VICTOR F. HESS, associate professor of experimental physics in the University of Graz (Austria), has been promoted to a full professorship. Professor Hess was director of the research laboratory of the U. S. Radium Corporation, New York, 1921 to 1923 and also consulting physicist to the U. S. Bureau of Mines.

J. S. HUXLEY, fellow of New College, Oxford, and senior demonstrator in the department of comparative anatomy, has been appointed to the university chair of zoology tenable at King's College.

DISCUSSION AND CORRESPONDENCE

EVOLUTION IN THE PHYSICAL WORLD

IN a recent number of SCIENCE (July 17) Professor Henry Fairfield Osborn states that "in chemistry and physics the evolution of the chemical elements has recently been demonstrated." What does Professor Osborn mean? Probably this, that we have rather recently learned that there are units or entities called electrons which help to form the atoms of all elements, and perhaps that there are other units or entities which some scientists have called protons which may also be constituents of all atoms so that we now picture the atoms of different elements as differing only in the number and arrangement and motions of these two kinds of entities. Probably also Professor Osborn has in mind the phenomenon of radioactivity which is exemplified chiefly by radium in which we see transformations going on and by means of which a complex atom breaks down and changes over into a simpler one. But are we justified in saying that we have *demonstrated* the *evolution* of the chemical elements? Certainly not in the sense in which that word is ordinarily used. Some of the changes taking place in radioactivity occur in minute fractions of time, others require ages, but all are associated with degeneration or changing from complex to simpler forms of matter. We have no evidence whatever for the opposite process, the building up from simple to complex and we have no evidence whatever that the atoms of chemical elements have by slow accretions acquired their present structure and characteristics. Does any physicist hold the view that electrons have come into existence only in recent times or that they gradually have selected partners and with these partners arranged themselves in groups to form our atoms of to-day? Perhaps so, but no physicist is giving much time to such speculation, for the vastly more important matter is to find out what is happening in the physical universe to-day. We can have no knowledge of the past except as we obtain it from our knowledge of the universe of the present.

And this brings me to emphasize one point which is not stressed in texts or courses on evolution. There are evidences everywhere that changes have taken place in the organic world, but to account for those