(2) medical officers of the Royal Navy, the Royal Army Corps, the Royal Air Force, and the Indian and Colonial Medical Services, who have to attend postgraduate courses at stated intervals; (3) graduates from British colonies, India and Egypt, including those who have recently qualified, and wish to complete their medical education in England, and some senior men who fall into the same category as the men in Class 1; (4) graduates of allied countries, especially Americans, large numbers of whom have in the past studied in Germany and Austria, in many instances simply because they were unable to obtain equal facilities in England, as well as the French, who have hitherto rarely studied abroad, and the Japanese.

THE Civil List pensions granted by the British government during the year ended March 31 last, includes, as we learn from *Nature*, the following: Mrs. Edith Harrison, in consideration of the services rendered by her late husband, Colonel W. S. Harrison, in connection with inoculation against enteric and typhoid fevers, £50; Mrs. Cash, in view of the contributions of her late husband, George Cash, to the study of Scottish topography, £50; Mr. William Cole, in view of his contributions to the study of natural history and to scientific education, £50; Mrs. R. O. Cunningham, in view of the services of her late husband, Professor Cunningham, as naturalist on board H.M.S. *Nassau* during the survey of the Straits of Magellan and the west coast of Patagonia, and as professor of natural history in Queen's College, Belfast, £50; Mr. Benjamin Harrison, in view of his devotion to scientific work (in addition to his pension of £26 a year), £25; Mrs. E. A. Mettam, in view of the distinction of her late husband, Professor A. E. Mettam, as professor of pathology and bacteriology, and of his contributions to veterinary science, £75; Miss Helen Tichborne, in view of the late Professor Tichborne's scientific discoveries in chemistry and pharmacology, £60; Miss Eliza Standerwick Gregory, in view of her eminent services to botanical science, £60, and Lady Eleanor Charlotte Turner, in view of her late husband, Sir George Turner's services in the investigation and prevention of rinderpest, and in consideration of his death through contracting leprosy in the public service, £50.

UNIVERSITY AND EDUCATIONAL NEWS

BENNO LOEWY, a lawyer, has left the residue of his estate, said to amount to $250,000, in trust to his wife, to revert to Cornell University after her death. He gave his collection of stamps, pamphlets, engravings and illustrations to Cornell for immediate possession.

THE Connecticut state appropriations for the agricultural stations were increased by the last legislature. For the ensuing biennium the State Station will receive $45,000, an increase of $7,500, and the Storrs Station $25,000, an increase of $10,000.

DR. EDWARD G. BORING, recently of Cornell University, has been appointed professor of experimental psychology and head of the psychological laboratory at Clark University, to succeed the late Professor Baird. The staff of the department of experimental psychology will consist of Professor Boring, Professor Samuel W. Fernberger and Mr. Carroll D. Pratt.

THE department of forestry in Colorado College, which was suspended for the period of the war, is being revived under the charge of Mr. Gordon Parker, M.F. (Harvard), who has had charge of the Montezuma National Forest as supervisor for the past five years.

DR. HERMAN L. IBSEN, formerly connected with the University of Wisconsin, has been appointed assistant professor of animal genetics at the Kansas Agricultural College.

W. S. NELMS, Ph.D. (Columbia, '13), has been elected associate professor of physics, in charge of the department, of Emory University, in Atlanta, Georgia. He has been recently discharged from the army in which he was a first lieutenant in the technical staff of the Ordnance Department.

Dr. L. Bauman, formerly assistant professor of medicine and director of research, at the University of Iowa has been appointed associate in medicine at Columbia University and assistant visiting physician to the Presbyterian Hospital.

The following appointments to professorships in the University College of Wales, Aberystwyth, have been made: Professor G. Owen, of the University of New Zealand, in physics; Professor W. H. Young, of the University of Liverpool, in mathematics; A. E. Jones, of the University of Wales, in agriculture; Captain W. T. Pugh, in geology.

DISCUSSION AND CORRESPONDENCE

A POSSIBLE SOURCE OF COSMICAL ENERGY

According to the theory of J. J. Thomson, atoms are complex structures of systems of positively and negatively charged particles (such as, *e. g.*, helium nuclei and electrons) in rapid rotation and held in position by an equilibrium of their mutual forces.

Various phenomena can be explained and a possible source of cosmical energy be found by the simple assumption that some constituents of the subatomic structure retard their speed in eons and thereby increase the weight of the atoms.

It was recently pointed out[1] that the different atomic weights of the isotopes, such as, *e. g.*, the different forms of lead, may be due to "age" of the chemical elements, whereby the different types of atoms are subject to a chemical evolution. In the case of lead the radioactive or young lead possesses the lower atomic weight and density than the common or old lead. According to this hypothesis the radioactive, that is newly formed, lead will eons hence have a higher atomic weight and density, while the common or old lead had eons ago a lower atomic weight and density. All other elements should be subject to this aging process, and by the catching of further electrons and helium nuclei transmute into elements of higher atomic weight. Evidence of this is seen in the occurrence of the chemical elements and their distribution upon the earth's surface, where elements of the same period are mostly aggregated in definite mineral types.

Assuming that the orbital motion of the electrons is lessened in a certain time interval, it is evident that a steady and continuous amount of energy apparently disappears. This energy perhaps reappears as cosmical energy, for the principle of conservation makes it inconceivable that such a steady drainage of energy should be constantly wasted.

If such a theory is substantiated, a link between the extreme sciences of the macrocosmos and microcosmos, astrophysics and subatomic physics, will be established and stellar evolution will be based upon a chemical evolution whereby all types of atoms change until they finally become radioactive, that is unstable, and disintegrate again. The smoke-rings of some planetaries are then perhaps clouds of helium gas formed by the radioactive disintegration of the nuclear star, and would thus indicate the last stage of chemical and stellar evolution and the beginning of a new series.

Ingo W. D. Hackh

Berkeley, Calif.

[1] Science, 49, 328, 1919.

THE IMPERFECT STAGE OF LEPTOSPHÆRIA TRITICI OF WHEAT

In connection with studies of anthracnose of small grains a species of what seemed to be an *Ascochyta* has frequently been found on dead straw. Recently, while culturing *Leptosphæria tritici* the relationship of these two forms was revealed.

The pycnidial fruiting bodies grow side by side with the perithecia of *L. tritici* on dead wheat straw in the spring and are difficult to distinguish from them, both being dark, submerged and of the same size, though the ostioles of the perithecia are more protruding. The pycnidia are filled with guttulate spores, usually two-celled and approximately 12–20 $\times$ 3.5–4 μ, their shape, size and manner of production suggesting *Ascochyta graminicola* as described by Frank. Single spore cultures of the ascospores of *L. tritici* obtained by the