

logical Society. The chair was taken by Sir Napier Shaw, F.R.S.

A MEMORIAL service in honor of the late President C. R. Van Hise will be held by University of Wisconsin late in April, according to plans now in preparation. The speakers will be: Professor T. C. Chamberlin, of the University of Chicago, who will speak on Dr. Van Hise's relation to science; Dr. Albert Shaw, of *The Review of Reviews*, who will speak on Dr. Van Hise's relation to the public, and President E. A. Brige, of the university, who will speak on Dr. Van Hise's relation to the university.

DR. FREDERICK DU CANE GODMAN, the distinguished English naturalist, died on February 19.

J. J. T. SCHLÆSING, professor of agricultural chemistry in the Paris Conservatoire des Arts et Métiers, died on February 8 at the age of ninety-four years.

ANDRÉ CHANTEMESSE, professor of hygiene in the Paris faculty of medicine and inspector general of sanitary services, has died in his sixty-fifth year.

ANDREW MELVILLE PATERSON, professor of anatomy at the University of Liverpool, died on February 13, aged fifty-six years.

• THE British Association for the Advancement of Science will resume its series of annual meetings this year at Bournemouth from September 9 to 13, under the presidency of the Hon. Sir Charles Parsons.

A CONSIDERABLE fund has been given to Montefiore Home and Hospital, Gun Hill Road, New York City, the income of which is to be devoted to medical research independent of the hospital laboratory work. The selection of a director of research is at present under consideration and is in the hands of the laboratory committee.

THE ninth session of the Marine Biological Laboratory at Laguna Beach, California, will begin on June 25 and last six weeks. General courses in marine zoology, botany and entomology will be given. There are eight small private rooms for the use of special investigators. Copies of the announcement may be

obtained by writing to the Department of Zoology, Pomona College, Claremont, California.

### UNIVERSITY AND EDUCATIONAL NEWS

DR. J. B. HURRY has offered to increase the value of the Michael Foster research studentship in physiology, founded by him at the University of Cambridge in 1912, and tenable biennially, from a hundred guineas to £200.

DR. WITHROW MORSE, of the Michael Reese Hospital at Chicago, has received an appointment as professor of physiological chemistry in the medical school of the University of West Virginia, Morgantown.

DR. EUGENE L. PORTER, instructor in physiology in the University of Chicago, has been appointed assistant professor of physiology at the Western Reserve University Medical School.

DR. FRANK J. SMILEY, has been appointed assistant professor of economic botany and assistant botanist in the Agricultural Experiment Station, University of California.

THE Manchester City Council has approved the appointment of Arthur James Turner, to the chair of textile technology in the College of Technology, Manchester. Professor Turner will be assisted in conducting the work of his department by colleagues who are practical experts in various branches of the textile industries.

### DISCUSSION AND CORRESPONDENCE

#### "OLD AGE" OF CHEMICAL ELEMENTS

TO THE EDITOR OF SCIENCE: In his presidential address Professor Richards discussed the interesting problem of radioactive lead.<sup>1</sup> The present conception regarding the structure of atoms and the theory of electrons seems to indicate that the chemical elements may be subject to "old age." According to this hypothesis "common" lead possessed eons ago, probably at the time of the formation of the earth, an atomic weight of 206.08 and density of 11.27 and by slowing up in the speed of its electrons increased its

<sup>1</sup> SCIENCE, 49, p. 1, 1919.

atomic weight to 207.19 and density to 11.34. Similarly "neo" lead, or freshly created lead, formed by radio-active disintegration, would very slowly increase its mass and eons hence have a higher atomic weight and density.

All other elements should be subject to an increase in mass and it could therefore be predicted that *e. g.*, helium of the atmosphere and of minerals will have an "atomic weight" which is .0214 higher than the atomic weight of helium from radioactive disintegration, that is: there should be an "old" or "common" helium with atomic weight of about 3.94, and a "neo" helium of atomic weight 3.92.

There is at present no evidence for the fallacy of such a speculation, in fact it seems to be supported by certain widely different phenomena to wit:

(a) *Radio-activity*.—The difference in the atomic weights of "leads" is explained in a plausible way. It is a safe guess to predict that common lead can not be separated. While a mixture of common and radioactive lead might be separated by fractional diffusion.

(b) *Astro-physics*.—The stellar evolution, revealed by characteristic types of stellar and nebular spectra, points to a close relationship between the constituents of celestial bodies and the periodic law. This indicates an evolution of chemical elements following the periodic system.

(c) *Geo-chemistry*.—Here the remarkable fact is shown that over 99 per cent. of the elements upon the known earth surface are those of low atomic weight. These elements occupy neighboring places in the periodic system which seem to indicate that the earth has reached a certain definite stage of evolution, practically halfway of the third period in the periodic system.

(d) *Bio-chemistry*.—From 96-99.5 per cent. of all living matter is composed of the four elements C, H, O and N, all four being neighbors in the periodic system. The other elements essential to life are closely grouped around.

Therefore is it not possible that biological

evolution follows stellar evolution, and stellar evolution follows chemical evolution? If stellar and chemical evolution go hand in hand; then the physical, chemical and biological condition of a celestial body will depend entirely upon its age.

Where is the evidence that the elements of to-day were eons ago the same substances and preserved their properties unaltered? It is possible that the electrons of the atom might very slowly lessen their orbital motion and thereby attract and hold additional free electrons thus increasing in valency and mass. Thus, *e. g.*, a sodium-atom by catching an electron would increase in its valency and become a magnesium-atom. Magnesium in time transmutes into aluminum and so on.

Just as the astronomical experience of mankind is recognized to be a snapshot of the universe, so all chemical and physical knowledge of man is the limited inventory, taken during an infinitesimal fraction of eternity.

INGO W. D. HACKH

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#### DESICCATED VEGETABLES

AN admirable exposition of the anhydrous food industry has recently appeared in a government bulletin entitled "Relation of Dehydration to Agriculture" and written by Major S. C. Prescott. After reading this paper one can not fail to come to the conclusion that the preparation of dried foods is destined to become a very important industry. However, before such an industry can yield the maximum return it is essential that the eaters of the dried foods be scientifically assured that desiccated foods possess proper nutritive value. Some such investigations have been made but there is a need for very comprehensive studies.

It is a matter of common knowledge that desiccated vegetables, for example, will assume a form closely approaching that of the fresh vegetable after having been immersed in water for a few hours. This fact is often cited as demonstrating that there has been no alteration in the structure of the vegetable cell during the dehydration process. However, if we