

PHYSICS

High Voltage Neutrons May Be Most Effective Atom Splitters

Helium Atom Nuclei, Speeded With Million-Volt Potential, Produce Great Numbers of Neutrons

ARTIFICIALLY produced neutrons, made in the Norman Bridge Laboratory of Physics at Pasadena, Calif., by the use of high voltage rather than radium, may prove to be more effective in splitting the hearts of atoms than anything previously known.

In the brief time that neutrons have been known, they have proved particularly useful for atom smashing. It does not seem to matter how much energy they have. They slip into atomic hearts or nuclei and make trouble that gives physicists important information on the composition of matter.

Neutrons are released from atomic hearts by artificially speeded helium ions corresponding to radium-emitted alpha

particles but with lower energy.

Several months ago H. R. Crane, a graduate student, Dr. C. C. Lauritsen, and Dr. A. Soltan, an international research fellow from Poland, working with the large X-ray tube at the California Institute of Technology, Pasadena, Calif., found that artificially speeded helium hearts could be used in

producing neutrons. At that time they did not formally publish their results as they desired to perform checking experiments. A report has now been made to the *Physical Review*.

Helium atom hearts are speeded with a potential of a million volts, the limit of the present tube. These slow helium ions are ten thousand times less efficient than alpha particles in producing neutrons. They are, however, so much more numerous in the electrical apparatus that more neutrons can be produced in this way than from any radium source at present available anywhere. In fact, slow neutrons such as those artificially induced by the Pasadena experimenters can not be obtained in appreciable numbers from any radioactive source.

Science News Letter, September 30, 1933

CHEMISTRY

Chemist Promises a Longer, More Virile Life to Mankind

THE EXPECTATION of life will be extended from 70 to 77 years by the application of the chemistry of nutrition. Men will be at the height of their powers at 65 instead of 58. These are the beliefs of Prof. H. C. Sherman of Columbia University expressed before the meeting of the American Chemical Society in Chicago.

Nutrition chemists are awakening to their duties towards human welfare and are concentrating their efforts around six "pillar concepts" enumerated by Prof. Sherman as:

"The quantitative studies of the energy relations, the protein chemistry of nutrition, the mineral elements, the vitamins, the inter-relationships between the different nutritional factors, and the principle that in the chemistry of nutrition the ultimate concern is essentially the nutritional reactions of the living body as a whole."

Prof. Sherman stated:

"While chemistry will not make blondes or brunettes, it will by providing the suitable environment make men and women more powerful constitutionally."

Among the hopes held out for the future are: the age at which it is difficult to get new jobs in a field will be 52 instead of 45, age will yield less readily to youth, and newer generations

will be taller and stronger than their parents. This last prediction is borne out by the fact that men and women at Harvard and Vassar are taller than their parents.

This improved internal environment brought about by the application of the knowledge gained by nutritive chemists will pass on to succeeding generations, form a bulwark against disease, enlarge the prime of life, and postpone senility, Prof. Sherman asserted.

The conclusions reached were based on experiments with more than 27 generations of rats, an animal very similar to the human in its reaction to nutrition. Small changes in a seemingly perfect diet resulted in much more rapid and efficient growth, lower death rates and higher vitality at all ages, an increase of 10 per cent. in the average longevity of adults, and greater extension of the prime of life.

Popular belief attributes longevity to hereditary factors, but these experiments seem to establish very conclusively that it is greatly influenced by food.

Science News Letter, September 30, 1933

The Library of Congress has received a map of Disko Bay region made by a Greenland Eskimo who used driftwood to model the islands and other features and fastened them to a sealskin base.

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