

COSMOGONY

Super-Radium Supplied Energy For Rapid Cosmic Evolution

Its Wasted Fragments Now Our Most Potent Radioactive Elements; Its Wandering Rays Part of Cosmic Radiation

SUPER-RADIUM, a hypothetical element or group of elements resembling radium but with vastly greater energy content, whose wasted fragments are now our most potent radioactive elements and whose wandering rays, at large in the universe for ten thousand million years, are the much-discussed cosmic rays, formed part of the picture of the world "in the beginning" as delineated by the noted young Belgian physicist, the Abbé G. Lemaitre of the University of Louvain, in an address at the Johns Hopkins University.

Might Explain Discrepancies

Such a hypothetic element might help explain the present discrepancies between the apparent age of the earth as calculated by the newer school of mathematical physics and the seemingly much greater age demanded by modern astronomy. The universe seems to be rushing apart with almost incredible yet constantly increasing speed, the Abbé Lemaitre said. The most distant nebulae we can see are apparently receding at a velocity one-fifteenth that of light, or twelve thousand miles a second; nearer nebulae are running away at lesser rates. Mathematical considerations based on these phenomena by such modern physicists as Prof. Einstein, Dr. Willem de Sitter of Holland, and the Abbé Lemaitre himself lead to the conclusion that this cosmic dispersal has been going on for about two thousand million years.

Astronomers Not Satisfied

But two thousand million years is not enough time to satisfy the astronomers. This little pebble of an earth which we ourselves inhabit is at least that old, if calculations based on the rate of radioactive radiation from ancient rocks are to be trusted. The stars must surely be much more ancient than the planets that attend them.

As a way out of this dilemma, the Abbé Lemaitre suggested that the evolution of the universe went on at a much faster rate in the days of its flaming

youth, and that the energy with which it was then literally bursting may have come from radioactive elements much more massive and much more active than radium itself.

Projecting the story of his ever-expanding universe back into the past, like a motion picture film run backwards, the Abbé Lemaitre visioned a beginning-point when neither time nor space existed—when the whole universe as we partly know it today, spread across the diameter of millions of light-years, was all potentially contained in a single atom: a thing of no dimension, as we measure space, but massive enough and containing energy enough to furnish forth the uncountable billions of suns that since that movement have been rushing apart to the uttermost bounds of the cosmos. In a paper before the American Physical Society meeting at the University of Chicago, Prof. Lemaitre tied in his theory of a "superatomic" origin of the universe with recently observed facts about cosmic rays. Using the idea that cosmic rays are affected by the magnetism of the earth, just as electrons from the sun cause the aurora in its polar regions where magnetism is

strong, Prof. Lemaitre has evolved a mathematical theory that shows that electrons of ten thousand million volts cannot reach the earth's surface at the equator. The great earth-magnet pulls the electrified particles into streams over the two ends of the earth. Prof. M. S. Vallarta of Massachusetts Institute of Technology collaborated in this theory with Prof. Lemaitre.

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EDUCATION-PHOTOGRAPHY

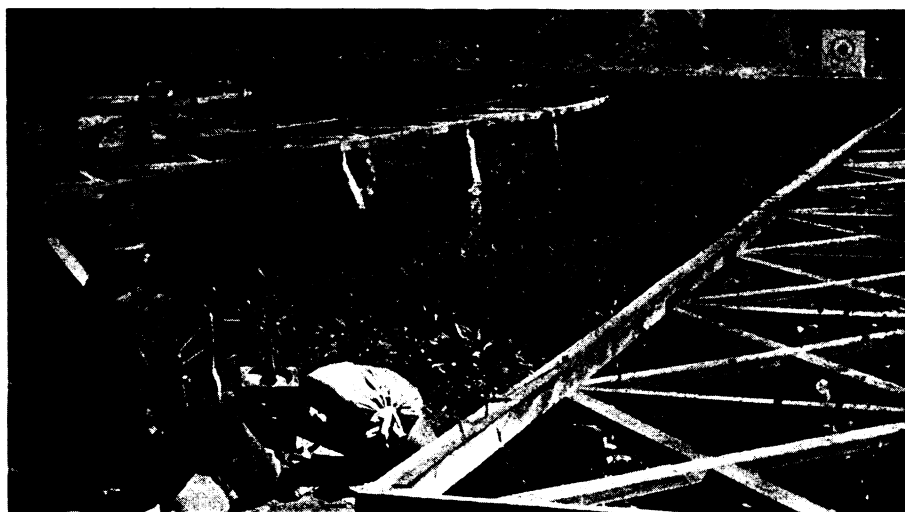
Talking Movies Become New Educational Tool

TWO ten-minute talking motion picture films, released by the University of Chicago, represent the entrance of the "talkies" into the university and high school classroom.

The films, called Oxidation and Reduction and The Molecular Theory of Matter, are said to provide in 20 minutes a presentation ordinarily requiring five or six hours in the classroom. They are dramatically illustrated with raging forest fires, burning oxyhydrogen blow torch and glowing coke oven. Apparatus found only in the best equipped universities is used and the voice of a master teacher explains the action of the experiments. Time-lapse and microscopic photography and animated drawings add to the effectiveness of the pictures.

Three other physical science subjects are now being "shot" as a part of a course of 20 films. Such courses are also planned for the biological and social sciences and the humanities.

Dr. Robert M. Hutchins, president



IN THE CLASSROOM

A machine gunner spatters a metal plate with bullets to explain the molecular theory of matter—striking illustration brought to the classroom with the new educational talkies.