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Published articles include: Bart J. Bok, UNESCO AND THE PHYSICAL SCIENCES, *Bulletin of the Atomic Scientists*, 4, 343, 1948; Bart J. Bok, SCIENCE AND THE MAINTENANCE OF PEACE, *Science*, 109, 137, 1949; FOOD AND PEOPLE, a reprint by Science Service of Washington, D. C. of two articles, one by Aldous Huxley, the other by Sir John Russell, single copy 10¢, 15 for \$1.00, 100 for \$5.00; W. A. Noyes, Jr., REPORT ON THE THIRD UNESCO CONFERENCE AT BEIRUT, *Chemical and Engineering News*, 27, 974, 1949.

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Cosmic Rays and the Sun

If cosmic rays are assumed to fill interstellar space, the total energy involved (being, in fact, comparable with that of starlight) is too great to be readily explainable. Each particle carries several million times more energy than an atom in even the hottest stellar interiors, so that it must acquire this energy from a highly cooperative and therefore infrequent process, rather than in a single elementary act, as does a quantum of radiation from a star's surface; or else elementary processes (atom annihilations) of hitherto unknown violence must be postulated. Recently, Fermi has proposed a cooperative mechanism, involving interstellar magnetic fields, that would seem to be enormously more efficient than any before proposed. But the recently discovered presence of composite particles (atomic nuclei) in cosmic rays causes difficulties: on the one hand, the composite particles would surely be torn apart by violent elementary processes; on the other hand they carry high charges and would lose energy rapidly, during long journeys, by ionizing the atoms of the interstellar gas through which they pass.

The authors of this paper propose that cosmic rays may originate in or near the sun—a companion paper by Alfvén, *Physical Review*, June 1, 1949, indicates a possible mechanism—and are then confined to the solar system by extensive magnetic fields therein. It is shown that a field strength of the order of 10^{-5} gauss would be required, and that the particles would circulate in complicated orbits for thousands of years, thereby becoming isotropic in direction, before being intercepted by the earth or other objects. There should then be no residual anisotropy due to the motion of the solar system as a whole relative to the galaxy—this is subject to experimental verification—and the necessity for an incredibly prolific mechanism to fill all space with cosmic rays is avoided.

R.D.R.

On the Origin of Cosmic Rays. By R. D. Richtmyer and E. Teller. *Phys. Rev.* 75: 1729, June 1, 1949.

The Mesotron Mass

The mesotron as normally found in nature has an energy of about one billion electron volts and a half life for disintegration of a few microseconds. The mass of this elusive particle is measured by observing its momentum from the curvature of the tracks it makes in a cloud chamber in a powerful magnetic field, and its range by the number of one-fourth inch lead plates it passes through in a subsequent journey into another cloud chamber, below the magnet. The observations show an ap-