

New Study Shows Mankind Could Survive Atom Fallout

Washington, (Science Service)—If man survives the initial blasts, fires and other dangers of nuclear war, his long-term survival, even in countries directly attacked, seems possible.

This is the conclusion of Columbia university scientists engaged in a world-wide study being made of the concentration of radioactive fallout in the bone structure of man. Since the start of the study in 1953, about 9,000 samples of human bone have been obtained. The program is supported by the Division of Biology and Medicine of the U.S. Atomic Energy Commission.

The scientists say in the fourth report of "Strontium-90 in Man" that human bones would probably not collect as much strontium-90 as had been estimated earlier. Strontium-90 is an isotope produced and released into the atmosphere by nuclear explosions.

The isotope's ability to kill when collected in quantity in the human body has been one of the major reasons to fear for the long-term survival of man after a nuclear attack.

Publishing their report recently in Science, the journal of the American Association for the Advancement of Science, the scientists say also that the quantity of strontium-90 in the stratosphere from bomb tests is much less than previously estimated.

Dr. J. Laurence Kulp, director of the Geochemistry section of Columbia's Lamont Geological observatory in Palisades, N.Y.; Dr. Arthur R. Schulert, research associate at the observatory, and Miss Elizabeth J. Hodges, research assistant at Lamont, prepared the report.

The study concludes that "if 3,000 megatons of fission (an explosive force equal to 3,000 million tons of TNT) were detonated in the Northern Hemisphere, it is probable that, away from the areas of local and immediate fallout, the long-term strontium-90 level in the diet would reach about 180 micro microcuries per gram of calcium, or an equilibrium bone level of 45 micro microcuries.

"Thus, under these extreme conditions, the contamination of non-combatant areas would raise the average level of strontium-90 in the population to the point at which the bone dose from natural sources would be approximately doubled (0.60 micro microcuries).

"Food grown in the area of intermediate fallout — a large portion of the United States — would yield an equilibrium of strontium-90 in the diet in the range of 40 to 4,000 micro microcuries per gram of calcium.

"These concentrations would produce bone levels up to the maximum permissible

Red Foothold In Cuba Threatens Latin America

By HENRY RAYMONT
United Press International
San Jose, Costa Rica—(UPI)—A Soviet foothold in Cuba threatens every Latin American nation, Secretary of State Christian A. Herter told Western Hemisphere foreign ministers Wednesday.

He warned that Russian intervention through Cuba would create an operational base "designed in the last analysis to overthrow by force every government in the hemisphere."

Herter called on the emergency conference to act now against the threat, saying "it constitutes foreign intervention no less than does overt armed intervention."

Herter called on the conference to vigorously condemn Communist interference in American affairs and to rebuke Cuba for its "tolerance and encouragement" of such outside intervention.

He described foreign-directed Communism as "20th century imperialism" and said Soviet Russia and Red China "have made abundantly clear their determination to exploit the situation in Cuba as a means of intervening in inter-American affairs."

The secretary's decision to maintain a firm stand came as a surprise to many delegations in view of persistent reports that Cuban Foreign Minister Raul Roa was backing off previous threats to condemn the United States as an "imperialist aggressor."

Universe Reported To Be Million Billion Years Old

Mexico City, Mexico (Science Service)—The universe may be a million billion years old, not just 12 or so billion years old, an astronomer reported here.

Dr. Fritz Zwicky of Mt. Wilson and Palomar observatory told the American Astronomical society meeting that a million billion years was the least time required for the formation of galaxies, the vast stellar systems of which the earth's Milk Way is only one of billions.

Dr. Zwicky bases his estimate for the age of the universe on the fact that atomic nuclei, the building blocks of matter, can radiate—because atoms react, characteristic groupings of matter are built up. Among these groupings, the stars, of which the sun is only one of millions within the Milky Way, are the most prominent.

Stars cannot grow beyond a certain size because of destructive effects of the energies released when atomic nuclei react. Dr. Zwicky reported. The next higher units of matter are those of the centers of galaxies.

Galactic centers, also, cannot build up beyond a certain size because of certain destructive effects. If they could continue building, they would grow in size indefinitely.

Since there is a limiting size, however, Dr. Zwicky suggests that the cores of galaxies represent a new unit of cosmic matter, the true character of which has not yet been recognized.

This character is, however, "just as distinctive as the character of stars," Dr. Zwicky reported. He described galaxies as follows: "Around a dense and very luminous nucleus, a large

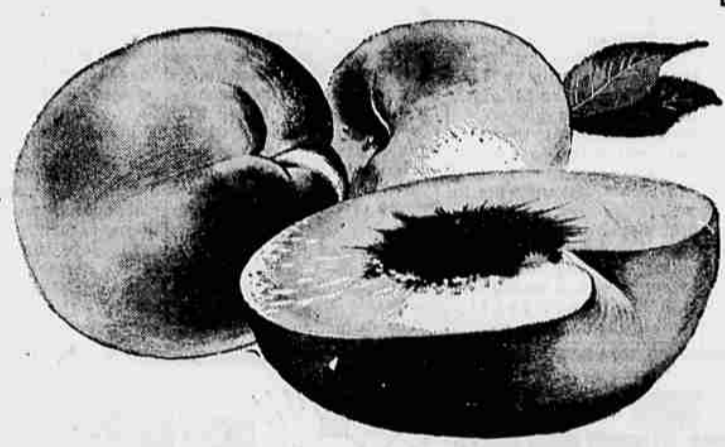
disk of much lower brightness is found. The nucleus is some tens of light years in diameter, a light year being the distance light travels in a year at 186,000 miles a second, or some six million million miles.

The disk is surrounded first by a scattered "suburban" population of stars, gas and dust clouds that may be lined up along a number of more or less well defined spiral arms. Around this suburban population there may be a faint halo of stars and dark gases. Finally there are intergalactic formations hovering around the galaxy.

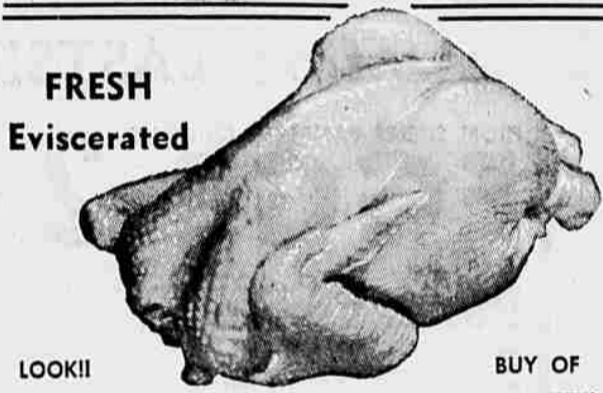
The disk, suburban population, halos and intergalactic formations have dimensions of a few to many thousands of light years, always much larger than the nuclei of galaxies.

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