

BIOPHYSICS

Radiation Impairs Fertility

Even relatively low doses may mean that children die before birth, experiments with rabbits exposed to whole body radiation show.

► A WARNING that even relatively low doses of radiation may keep men from fathering live children appears in research by Drs. R. L. Murphree, W. M. Whitaker, J. L. Wilding and J. H. Rust in the University of Tennessee-Atomic Energy Commission Agricultural Research Program, Oak Ridge, Tenn.

In view of their findings with male rabbits exposed to X-rays at the "relatively low levels" of 100, 200 and 300 roentgens, they state:

"Extreme caution should be exercised in the voluntary exposure of humans to ionizing radiation approaching this order of magnitude until further experimental evidence is available."

Their studies were made on rabbits given radiation over the entire body. Most other studies have been on the effects of radiation on either the sperm in test tubes or on the male sex organs with the major parts of the body shielded. The rabbits were mated to normal females that had not been irradiated.

The males had been test-mated before irradiation to make sure that they were fertile before the study.

The irradiation did not affect the ability of the rabbit male cells to fertilize the eggs in the female body. But almost one-third, 32.7%, of the rabbits from the fertilized eggs died before birth. And the average litter size of rabbits born alive was only a little over half that in matings between normal females and non-irradiated males.

Whether the live-born rabbits fathered by irradiated males were healthy and continued to live and grow was not learned.

"It is conceivable," the scientists state, "that not all the defective offspring died before or at the time of birth."

In other words, the irradiation to their fathers may have damaged them, even if it did not damage them so badly before birth that they could not survive till birth.

Details of the research are reported in the journal *SCIENCE* (June 27).

Science News Letter, July 12, 1952

ASTRONOMY

Smallest Known Star

► DISCOVERY OF a star only about one-third as large as the earth has just been announced by Dr. W. J. Luyten of the University of Minnesota, Minneapolis, and Dr. E. F. Carpenter of the Steward Observatory at the University of Arizona, Tucson.

This star, the smallest known, is only 2,500 miles across. It is not much larger than the moon and is smaller than the smallest planet, Mercury.

It would take 300 stars such as this to form a body as large as our sun. The midget star shines so faintly 60,000 stars like it would be needed to give off as much light as the sun. Thus it is one of the faintest stars in the heavens, only a dense red dwarf star being known to be fainter.

The star is only about 150 million million miles from our solar system, which is relatively near astronomically speaking. But it glows so feebly that it is 10,000 times too faint to be seen with the unaided eye.

This smallest star is a white dwarf star known only by its catalogue number L 886-6. White dwarfs are noted for their small size, high surface temperature and fantastically high densities.

"The average material of which the star is composed is about 55,000,000 times as dense as water," Drs. Luyten and Carpenter estimate. "As much of the star as you could

put into a match box would weigh 1,000 tons here on earth."

The tiny star is believed to be about 40% heavier than the sun. While it is apparently not a double star, and thus its weight cannot be measured directly, enough is understood about the material in white dwarf stars for the astronomers to compute its mass from its diameter.

Discovery of this midget star is an outgrowth of a long systematic study of faint stars conducted by Dr. Luyten. More than 80% of the 205 known white dwarf stars have been discovered by Dr. Luyten and his associates during the last decade or so.

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ELECTRONICS

TV Piped in to Residents Of New Hampshire Town

► THE OLD joke about piping sunlight into towns nestled deep within mountains is more fiction than fact. But when it comes to television, that is a different story.

Such a television piping system is now in effect in Laconia, N. H., so that residents can receive video programs that are otherwise blocked by mountains. A 40-foot antenna placed on top of Mount Belknap

scrapes the sky at an elevation of about 2,400 feet and can pick up TV signals from Boston 120 miles away.

More than 30,000 feet of coaxial cable carry the received signal from the mountain top to residents below. Five amplifiers scattered along the 40-pole route boost the signal as it goes by.

Although Laconia is not the first town to pipe video in from a nearby mountain, it is the first New England town to use the RCA Antenaplex system. Laconia's TV pipeline is owned and operated by Community T-V Corporation.

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