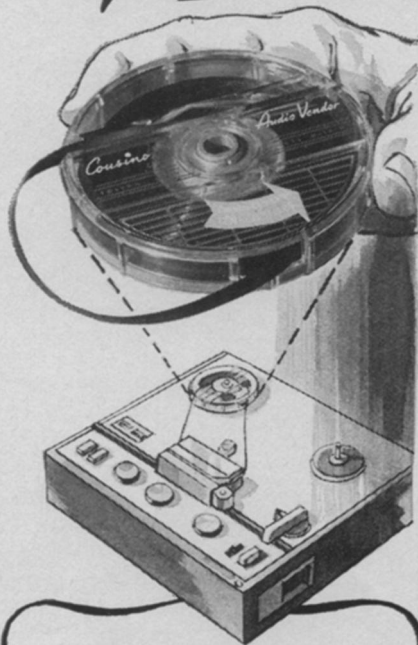


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RADIATION

UHF Changes Behavior

► **THE ULTRA-HIGH** frequency or UHF, radio waves broadcast by your local television station are being called a "potential hazard." The radiation has been found to affect the behavior of rats and could affect people.

The behavioral effects on rats, however are not permanent. The potential hazard to people remains to be evaluated.

The effects of UHF radiation at low power were reported to a seminar of science writers by Dr. Susan Korbel, psychology professor of the University of Arkansas. She said that her experiments, still underway, concentrated exclusively on low levels of power received for a few weeks up to two months—about equal to the radiation a person might receive within 10 to 20 miles of a UHF or radar transmitter.

The radiation levels inside the cages in which the rats are kept is 50,000 microvolts, an exposure for each square centimeter of surface much lower than the 10 milliwatts now approved by the Government for operators of commu-

nications and radar equipment. Previous studies have concentrated on the effects of UHF radiation at high intensities. These have shown that the heat generated damaged body tissues irreparably.

The effects of low power UHF at low levels, Dr. Korbel said, include a brief initial period of hyperactivity (over activity) followed by consistent long-term lethargic behavior. The rats were exposed to radiation at frequencies of from 320 to 945 megacycles for from 20 to 75 days.

The UHF range is from 300 megacycles to 3,000 megacycles. Dr. Korbel reported that her research indicated UHF-irradiated rats not only were more active but showed more "emotionality" than rats kept under identical conditions except for the UHF radiation. Both old and young rats are affected similarly.

She said the closest equivalent effects on rats would result from exposure to insecticides and nerve gases.

GEOPHYSICS

Particles From Sun May Penetrate Earth's Belts

► **CHARGED PARTICLES** from the sun may directly penetrate the earth's magnetic field. These particles, trapped in the field, become a part of the earth's radiation belts.

This possible mechanism was uncovered in experiments conducted by Dr. Allen G. Rubin of the Air Force Cambridge Research Laboratories, Bedford, Mass., which involved laboratory simulation of the solar wind-magnetic field interface.

Although physicists have known for some time that the particles comprising the radiation belts originate in the solar wind, there has been considerable speculation on just how the particles were able to penetrate the lines of force of the earth's magnetic field.

The most widely accepted theory is that they enter during the night and through the back door—that is, they stream past the boundary of the magnetic field (the magnetopause) on the earth's sunlit side and along the extended tail of the magnetic field on the side away from the sun. At some point where the lines of force are weak, they enter and work their way back toward the earth's radiation belts.

While this mechanism may, in fact, account for most of the particles, Rubin has demonstrated in laboratory experiments that some also penetrate directly.

PSYCHOLOGY

Sadness, Loneliness Seen Senility Roots

► **ISOLATION**, bereavement, alcoholism, or a certain type of personality are the reasons given (in the British Medical Journal of Oct. 29) for senile breakdown in the aged—a group of 72 persons—mostly past 70 years of age in Nottingham, England.

Some 165,000 senile Americans are currently living alone and are a serious danger to their neighbors.

Drs. Duncan MacMillan and Patricia Shaw report an investigation of some 72 septuagenarians in Nottingham who have ceased to maintain standards of cleanliness and hygiene acceptable by their neighbors.

"The usual picture is that of an old woman living alone," the Nottingham researchers explain, "although men and married couples suffering from the condition are also found." The clothing is filthy, as is the house, which may contain vermin and human excreta.

Tolerated for years by their neighbors, these people become intolerable after attempts are fruitless to improve their condition. Police or health officials are called, and it is discovered that a number need psychiatric care.

Investigators concluded that the senile group rejects the outside community, and their reaction is one of hostility toward the neighborhood standards. Old people resist offers of help and may have to be placed in institutions.