

ern United States between January and May 1969. In Rayleigh waves, vibration is in the form of an ellipse, back and forth in the direction of wave motion; Love waves vibrate at right angles to the direction of wave motion.

The Rayleigh wave patterns for explosions show a pronounced difference from those for earthquakes at this level of sensitivity, they found. Specifically, the ratios between the maximum ground motion from waves with periods near 20 seconds and the maximum ground motion from 40-to-60-second waves is always less than 5.6 for earthquakes and always more than 7.4 for explosions.

Because of this distinction in the patterns, says Dr. Sykes, "instruments of this type would contribute substantially to test detection." He and his associates are now trying to find out whether the distinction can be recorded at the surface as well as deep in a mine. Random noise is much greater at the surface and the control of the seismograph's environment may not succeed as well there as it does in the mine.

But even if the observations must be done in mines, there are still enough deep mines around, says Dr. Sykes, to set up a monitoring network. The equipment is not difficult to build. It could be done by any number of institutions, says Dr. Sykes, so long as they have the recipe. □

NEWSBRIEFS

DDT catalyst; UFO

The Interior Department announced last week progress in developing a catalyst that will cause DDT pesticide to lose its toxicity (SN: 7/26, p. 84). Preliminary test results of the compound on mice showed that DDT toxicity was reduced to 10 percent.

"We're very pleased with the results of this project so far," says Assistant Secretary Carl L. Klein.

The catalyst is combined with the pesticide, and starts to break it down as little as six hours after application.

Although specific details have not been released, it is likely that iron plays a key role by removing three of the DDT's five chlorine atoms. □

The U.S. Air Force, having completed its 22-year study of unidentified flying objects, shut the study down last week and wants to destroy the records, which failed to prove the existence of flying saucers. At a special session at the AAAS meeting in Boston devoted to UFO's, most scientists agreed that the records should be preserved and published. The Air Force feels this will be too costly. □

REACTOR RADIATION

Dispute over the standards

There seem to be few areas involving the interaction of a scientifically based technology with society where opinions tend to be polarized as much as they are concerning the safety of nuclear reactors.

The Atomic Energy Commission continually finds itself embattled on the subject.

The latest attack was delivered in Boston this week at the annual meeting of The American Association for The Advancement of Science. It was directed not so much at the AEC and the power industry as at the accepted Federal guidelines for radiation exposure. The nuclear power industry, in fact, seems to be acting in a responsible manner by operating well below the Federally established acceptable limits, says Dr. Arthur R. Tamplin, a biophysicist at the University of California Lawrence Radiation Laboratory in Livermore, Calif.

The problem, he contends, is that there is no solid basis for believing that the guidelines is safe.

The present guidelines, set forth by the Federal Radiation Council and adopted by the AEC as a regulation, set the average dosage deliverable to the population at large at 170 millirems per year.

This is far too liberal an allowance, contends Dr. Tamplin. He reports that an examination of the available evidence, carried out by him and colleague Dr. John W. Gofman, suggest that, if the United States population were exposed to this dose rate, the result could be some 17,000 additional cancer deaths each year.

He proposes that the FRC guidelines be reduced by a factor of 10.

Basic data used by the scientists in their analysis came from several continuing studies by the Atomic Bomb Casualty Commission on Japanese survivors of the Hiroshima and Nagasaki atomic bomb blasts during World War II. These studies indicate to them that an exposure for 30 years at 170 millirems per year would result in a five percent increase in the subsequent cancer death rate.

The AEC disputes Dr. Tamplin's estimates. You are painting the picture too black," Dr. Floyd L. Culler, assistant director of Oak Ridge National Laboratory, told him. Dr. Culler points out that present nuclear power plants release no more than about 2 to 5 millirems, an insignificant share of the natural background radiation. Background, he says, ranges from about 100 millirems for many locations to higher than 170 millirems for cities at

high elevations where air is thin.

"The opinions and scientifically questionable derivation of Gofman and Tamplin," an AEC rebuttal concludes, "do not make a case for revision of radiation protection standards." All the pertinent information referred to by the two scientists, it claims, has already gone into the analyses by radiation protection agencies.

Nevertheless, Dr. Tamplin is adamant about the need to reduce the exposure guidelines. "History tells us that if you have a guideline, you gradually creep up to it. The nuclear industry has to realize that it does not have a large margin of safety. The accepted levels should be lowered," he says.

FOOD ADDITIVES

The Delaney amendment

The Delaney amendment, passed in the 1950's, empowers the Food and Drug Administration to ban any food additive related to cancer detected in any animal tested. This led to the removal of cyclamates last fall and sparked a controversy over the application of the amendment (SN: 10/25, p. 369).

Last week, Sen. Gaylord Nelson (D-Wis.) introduced a bill intended to broaden immeasurably the powers of the FDA under the amendment. He would include the banning of food additives as a result of tests revealing birth defects, mutations and other biological damage, as well as cancer.

Nelson is also calling for retrospective testing of the 2,000 already-approved additives, many of which, he points out, were initially sanctioned without laboratory analysis for safety.

"Unless food safety laws are vastly reformed, the American public will continue to serve as a massive testing ground for a variety of sweeteners, preservatives, spices and coloring agents that are marketed without safety research," he says.

Under current regulations, an additive manufacturer can offer a food agent as safe without safety testing, if qualified scientists regard the item as not harmful for human consumption.

Nelson also questioned basing additive regulations on administrative judgment rather than on laboratory tests.

"When we are learning more and more about the hazards of chemicals in our environment, it is no time to be retreating from consumer safety," he says. □