

PUBLIC HEALTH

AEC Report on Safety

Disposal of radioactive wastes and protecting future generations from harmful effects of radiation are two problems, among others, considered in the recent report.

► PROTECTING man from man-made radioactive death is still the big job for the Atomic Energy Commission, it appears from the AEC's Twenty-first Semiannual Report issued in Washington recently.

Establishing "graveyards" for radioactive wastes and keeping future generations from premature graveyards are but two of the many complex problems being tackled by scientists throughout the nation.

Here are some of the results of current research on the problems of radiation safety as contained in the latest AEC report:

1. Recent studies on the irradiation of mice in various stages of pregnancy at Oak Ridge National Laboratory and the New England Deaconess Hospital have shown that the effect on the young is closely correlated with the stage of embryonic development at which they were irradiated. By equating human and mouse gestation periods, it is thought that the most sensitive period for humans might be predicted.

"By this reasoning, the human embryo during the second through seventh week of a human pregnancy is potentially the most sensitive to radiation. Since pregnancy still may be unsuspected at such early times, it has been recommended that, whenever possible, pelvic irradiation of women of childbearing age should be restricted to the first two weeks following a menstrual period. This recommendation applies particularly to medical (diagnostic) irradiation. On the other hand, the present permissible weekly dose of irradiation which may be received in industry does not constitute a measurable hazard at any stage of pregnancy."

2. A number of studies support the theory that irradiated animals are more susceptible to injected bacteria, viruses and toxins, and that irradiation may stimulate a latent disease infection, such as typhus, to renewed activity.

3. Removal of oxygen before irradiation was found to protect cells against many kinds of radiobiological damage. Although impractical for man, the experiments demonstrated how widespread the effects of strong oxidizing substances were as a mechanism of biological damage resulting from penetrating radiation.

4. At least seven important research centers are currently engaged in studies to determine the effect radiation has on aging. The Commission says that "not very much is known about the quantitative relations between exposure to radiation and shortening of life," although the subject is considered very important.

The AEC's concern for radiation safety

was contained in a special report within the report.

"The total record of radiation safety in atomic energy operations," the AEC proudly stated, "is believed to be without parallel in industrial history."

The AEC claims that in 13 years no member of the public is known to have suffered an overexposure to radiation as a result of living near atomic energy production or laboratory centers or as a result of weapons testing.

Science News Letter, February 9, 1957

PSYCHIATRY

Mental Illness Key May Be in "Reward Centers"

► A POSSIBLE key to some varieties of mental illness may be "reward centers" in the brain and their selective control by drugs.

Research along these lines is being car-

ried out by Drs. James Olds, Samuel Eidson and Keith Killam of the University of California at Los Angeles Medical School in cooperation with the Los Angeles Veterans Administration Center.

It has been shown that some of these reward centers, which consist of tiny clumps of brain cells, are closely related to hunger drives, sex drives and others.

It was found that chlorpromazine modifies rewarding effects produced by stimulating some of these cells. Other tranquilizers seem to have similar selective effects.

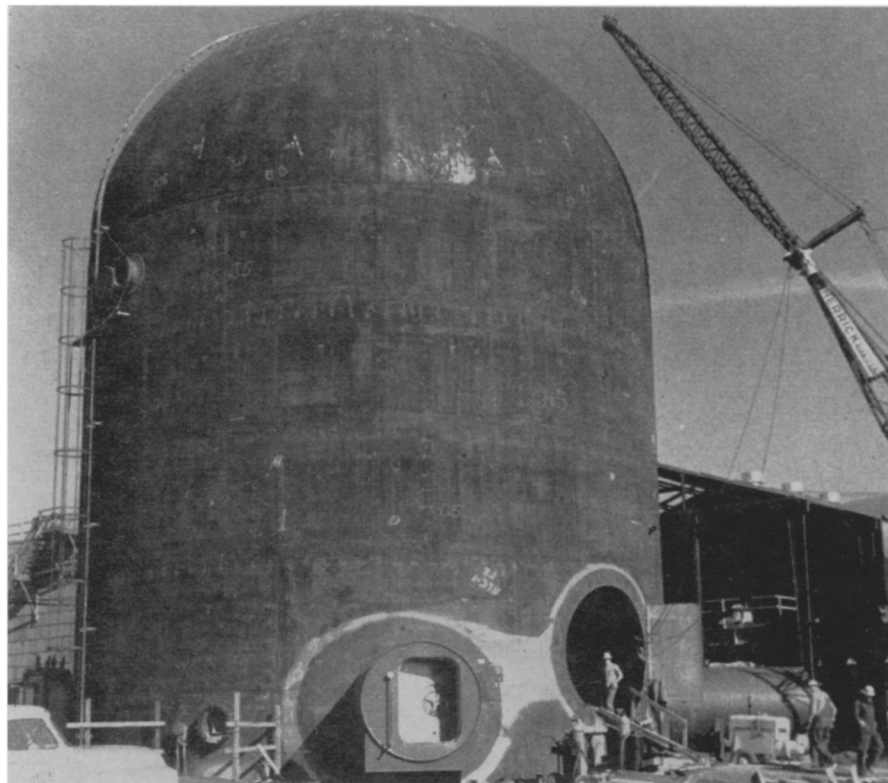
Schizophrenia, a catch-all category of mental illnesses, is thought to have its origin in an uncontrollable excess of basic drives or in insufficiencies of these drives, Dr. Olds points out.

Pinpointing of rewards systems associated with these drives and selective drug control within the systems may prove a breakthrough toward conquest of a number of mental diseases, he believes.

"Our preliminary studies have apparently provided us with a tool to evaluate drugs which exercise selective power to increase or decrease excitability in each of these reward centers," he says.

"Such drugs will augment or curb corresponding basic drives. This would provide us with a wide range of pharmacological agents to control many of the different kinds of mental illness that are now grouped loosely and called schizophrenia."

Science News Letter, February 9, 1957



FOR PRIVATE ATOMIC ELECTRIC POWER—The capsule-shaped containment vessel for the reactor at General Electric's Vallecitos Atomic Laboratory in California is nearing completion. The reactor will furnish steam for generating this country's first privately-financed atomic electric power.