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Study of Atom Workers' Deaths Raises Questions About Radiation

Exposure Below U.S.-Approved Levels Found to Increase Deaths—Data Under Review

By DAVID BURNHAM

Special to The New York Times

WASHINGTON, Oct. 24—Two Federal agencies and health scientists from throughout the country are reviewing the findings of a Government-financed cautious study about the cause of death of atomic workers that, if verified, could have a far-reaching impact on the use of nuclear power.

The study, based on the death certificates of 3,883 atomic workers who died between 1944 and 1972, concludes that occupational radiation exposure well below present Government standards results in some increase in cancer deaths.

The study, financed for the last 12 years by \$5.2 million in Government grants, was announced two weeks ago at a health symposium by a widely respected team of scientists. But its statistical analysis has already been questioned.

Roger Matson, director of health and safeguards standards at the Nuclear Regulatory Commission, said in response to an inquiry that a preliminary review of the study "raised questions concerning the scientific methods used in the study."

Could Affect Standards

The official added, however, that the study's conclusions required expeditious, detailed examination because they could be interpreted as showing that the existing national standards adopted by the National Academy of Science "seriously underestimated the risk of cancer arising from exposure to radiation."

The study, based on a comparison of the radiation exposures experienced by workers at the Federal nuclear facility at Hanford, Wash., and their cause of death, is highly technical and involves complex statistical methods. It was done by Dr. Thomas F. Mancuso of the University of Pittsburgh; Dr. Alice Stewart, a British physician and epidemiologist with a worldwide reputation, and George Kneale, a research statistician.

The study, if confirmed, could have a profound effect on the nuclear industry, which, according to the latest available statistics, has about 85,000 employees who may be exposed to radiation.

The effects could be of two kinds. One serious question is whether additional radiation shielding that might be required to prevent cancer would be so costly that it would adversely affect the economic viability of generating electric power with nuclear reactors.

A second question, not limited to em-

ployees, is whether the Mancuso-Stewart findings will require a major increase in the official Government estimates of the deaths that would be caused among the public in the event of a major reactor accident.

According to the death certificates examined by the researchers, 473 of the 3,883 atomic workers exposed to radiation well below the present exposure levels died of cancer. Of the 473 cancer deaths, the study concluded, about 6 percent, or 30 cases, would not have occurred if the workers had avoided the radiation.

Dr. Arthur Tamplin and Dr. Thomas B. Cocran, radiation experts on the staff of the Natural Resources Defense Council, said that their reading of the statistical tables of the Mancuso-Stewart study suggested that a worker assigned to an atomic reactor for three years increased his chance of dying of cancer by 18 percent and one who worked in a reactor or similar environment for 16 years would double his chance of dying of cancer.

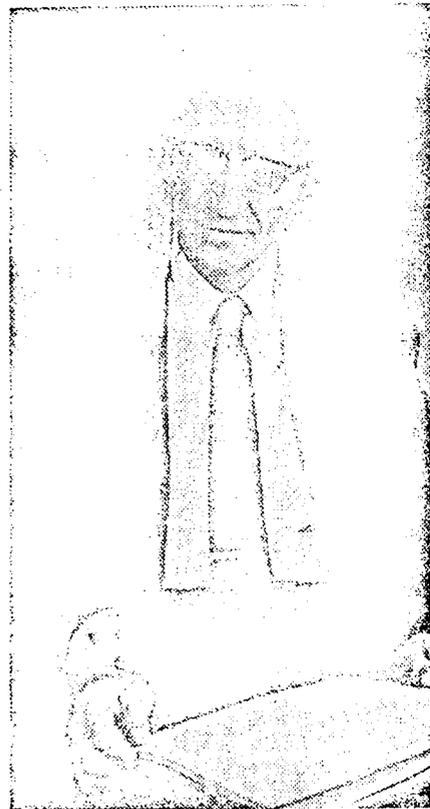
Critical of Nuclear Power

Both men, one a biophysicist and the other a nuclear physicist, are highly critical of nuclear power. They said that if the results of the study were applied to radiation exposures now being experienced at nuclear power reactors, "each year of plant operation will, on the average, ultimately cause three to four workers to die of cancer."

The Mancuso-Stewart study itself did not attempt to make such projections.

The findings of the Mancuso-Stewart study appeared to parallel the findings of a somewhat different study completed in 1974 by Dr. Sam Milham, then at the University of Washington, of the cause of death by occupation of 310,000 workers who died in the state between 1960 and 1971. According to the Milham study, financed by the National Institute for Occupational Health and Safety, there appeared to be somewhat more deaths from cancer among atomic workers than would be expected.

Tony Mazzocchi, the Washington representative of the Oil, Chemical and Atomic Workers International Union, said that the study required "a completely new and extremely cautious attitude toward radiation safety in nuclear facilities."



Dr. Donald R. Griffin proposes that all the capacity to plan and make choices for example, have been taught to co

New Book Suggests

By BAYARD WEBSTER

When a lioness stalks an impala preparatory to gilling it, is she planning ahead, like a woman shopping for groceries for tomorrow's dinner, or is she merely responding to hunger pangs?

When birds call or sing, are they using language to communicate in some detail with their own kind, or are they merely instinctively vocalizing in response to external events?

When a chimpanzee puts together previously learned sign-language symbols in new contexts to "talk" with its human cousins, is it undergoing a relatively sophisticated mental experience, or is it only exercising a set of limited responses that it was born with?

The possibility that the first example in each case may be the right one—meaning, in effect, that animals may have the capacity to plan, to make choices and to be aware of themselves and their environment—has been raised by a biologist at Rockefeller University.

The biologist, Dr. Donald R. Griffin, proposes such a provocative hypothesis in his book, "The Question of Animal

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