

Uranium

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1. Restriction of Survey Studies on Human Beings

REPOSITORY *PDF - Chicago Ops - Center*
for Human Radiobiology
COLLECTION *CHR/Plutonium DOCS*

BOX No. *2 of 2*

FOLDER *REPRINTS: Uranium - Radium*

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ical data in later sections that each
 ered. Uranium has been studied in
 various physical states. Animals
 yes, lungs, skin, peritoneal cavity,
 nous injection. The principal toxic
 d to the uranium.

ects. One of the first correlations
 is to establish some measurable
 effect that is an index of the degree
 nt on the desirability of establish-
 the blood stream as a measure of
 f the degree of injury. Once these
 ple analysis of a blood sample can
 gnosis of the poisoning. Unfortu-
 nent procedure is not applicable

ation about any poison is its state
 concentrate on what the poison
 studying what the body does to the
 the distribution of uranium in the
 es and rates of excretion, and the
 ve all been studied. These values
 o be made about the treatment of
 nds. Something of the metabolic
 covered, and a reasonably satis-
 am by the body has been worked

enzyme chemistry is growing so
 ion should arise: Does uranium
 ue of its ability to inactivate or
 ? From the tissues of poisoned
 facts of various sorts have been
 determine what circumstances,
 mium, destroy the normal activity
 e correlated with concentrations

If a human population suffers an
 cial, one of the desiderata is an
 detection of the earliest signs of
 ous diagnostic procedures may
 , the degrees of change can be
 In such a search the blood count
 efulness. Plant personnel have

by now become more or less accustomed to occasional routine blood
 counts. In many plants it is easy to obtain urine samples, when desired,
 from cooperative employees. Thus, methods of detecting early changes
 in the blood or in the urine not only serve as criteria for following the
 acute and chronic toxic effects in exposed animals but also have a
 special value as possible aids to the medical supervision of plant
 employees.

4.7 Restriction of Survey Studies on Human Beings. The impor-
 tance of good animal experimentation is emphasized by the fact that
 experimental groups of human subjects are unavailable under any
 circumstances. On several occasions when an especially promising
 and delicate method for detecting early signs of uranium poisoning
 was perfected in the laboratory, volunteers from among the laboratory
 workers would come forward asking that they be permitted to take
 small amounts of uranium and apply these tests to themselves. Such
 exposures were never allowed.

There is one group of human beings, the industrial personnel han-
 dling the uranium compounds, in which there was a necessary and
 unavoidable exposure. This exposure was always maintained at the
 least possible level, and frequent medical checkups protected the health
 of these workers. The medical findings were so consistently negative
 that most of the basic information on the health practices for em-
 ployees in uranium plants would not be known if experimental animals
 had not been used.

4.8 Prophylaxis. The practices of vaccination and immunization
 against certain erstwhile dangerous infections have been so successful
 that inevitably some reliable protection was sought against uranium
 poisoning. The questions were: Is such protection possible? If so,
 what is the mechanism by which the body achieves this degree of
 resistance? Are there any practical methods that would improve the
 safety of working conditions? Although to date these investigations
 have not been fruitful in the prophylaxis of uranium poisoning, the
 diligence of inquiry is plainly visible in the following pages.

4.9 Treatment of Uranium Poisoning. Accidents do happen, and it
 seemed inescapable that now and then some series of misfortunes
 would provide a sufficient exposure to produce some evidence of
 poisoning. Attempts were therefore made to find any agents that would
 alleviate or improve the condition of animals either acutely poisoned
 or undergoing a long-term chronic exposure. Studies of the mecha-
 nism of poisoning shed light on the methods by which treatment might
 be instituted. A number of agents were examined and evaluated as to
 the efficacy and danger of the antidote in comparison with the danger
 of the poisoning.