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August 25, 1961

Dr. C. H. Fair

Dr. E. E. Stickley

AEC Letter - July 1961

MEDICAL RESEARCH REACTOR

A neutron capture therapy procedure was carried out early this month. In conjunction with this experiment and to evaluate certain previous treatments, an extensive series of calibrations has been undertaken. The principal purpose of this work is to establish the influence of factors such as field size, local shielding, positioning of subject and the operating history of the reactor itself on the radiation dose delivered. Earlier calibrations are being reviewed completely. From these comparisons a standardized protocol will be devised to insure uniformly predictable dosimetry.

Other continuing experiments include the neutron irradiation of carcinoma tissue cultures and a repeat of the canine osteogenic sarcoma treatment. A complete procedure in the neutron capture treatment of tumor implants in mice was carried out by the medical students participating in the summer research preceptorship program. Also under way at the moment is an extension of the study on neutron effects on optic response in the rabbit to measure directly the contribution of reactor gamma radiation during the longhour exposures. Another investigation of great interest is the further trial of lithium-loaded gel-film chemical dosimeters.

A new series of experiments has been started, applying the method of instantaneous or neutron capture radiomicrography. This study is to establish, from the plant physiologist's point of view, the location and mode of utilization of boron and boron compounds in tubes of germinated pollen, a system which is of special interest with regard to boron metabolism.

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