

**LOW-LEVEL RADIATION HEALTH EFFECTS: BIOLOGICAL SCIENCE AND
MEDICAL APPLICATIONS RESEARCH ON USING LOW DOSE RADIATION
(LDR)**

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The Panel on Health Effects of Low-Dose Radiation, Monday morning session, was co-chaired by Don Wood and Ted Rockwell. After a brief welcoming introduction by Rockwell, Don Wood led off with a summary of the history of the effort to reconcile radiation protection policy with the best scientific data. He noted some of the key steps in that history, and described the support that the WM symposia have provided through the recent years.

Jim Muckerheide then gave his paper describing how the beneficial effects of low-dose ionizing radiation have been recognized right from the beginning--starting from just a few months after Roentgen announced the discovery of x-rays. With scientific papers going back more than 100 years, Muckerheide showed that the earliest medical researchers understood that the radiation doses used were not high enough to kill bacteria and that the body's defenses must be coming into play.

Chuck Sondhaus then presented the data from epidemiology and molecular biology, including work by Dr. Myron Pollycove, who was unable to be present to present this information as he had planned. The beneficial effect rests on two important facts that are stubbornly overlooked by LNT advocates: first, that number of cells initially damaged by radiation is trivial compared with the hundreds of millions of times greater number damaged by routine metabolism. Second, the stimulation of the body's defenses by radiation acts to decrease the residual effects, not only of the radiation-damaged cells, but also of the much greater number of those damaged by metabolism. He explained that the much-discussed effect of double-breaks, which occur more frequently in radiation damage than in metabolic damage, is much too small to change the outcome.

Several informative handouts attracted interest. A lively discussion from the floor demonstrated a much greater understanding of these phenomena than was apparent in previous meetings. A number of participants expressed optimism for the future, based upon this increasing recognition of the nature of the problem and of its importance to the future of nuclear technologies. In particular, the significance to treatment of disease was apparent.