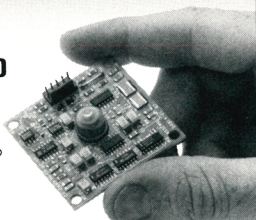


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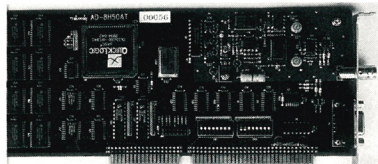
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occur at low doses and low dose rates. If true, this implies that the risk of cancer in occupational settings . . . is less than occurs when the same dose is accumulated rapidly, as in the case of an accident."

Schull properly points out that some believe ionizing radiation may operate as a cancer promoter rather than a cancer initiator. "If ionizing radiation is actually a promoter," he writes, "then it is conceivable that a threshold dose might exist, and current notions of what transpires at low or very low doses would have to be revised." He describes the way age at the time of irradiation affects cancer and concludes that even though one radiation-induced cancer would be too many, "there is obviously no epidemic of cancer death among the exposed [bomb survivors]. Most survivors who will die of cancer will do so as a result of exposure to other factors—smoking or alcohol consumption, for instance—and not from exposure to atomic radiation. No more than about 8% [of those who succumb] will have cancers directly attributable to exposure to ionizing radiation. Even among these unfortunate individuals, exposure to ionizing radiation was but one of the contributing factors in the multistage process that culminates in a cancer."

The Effects of Atomic Radiation ends with a provocative epilogue in which Schull examines the problems associated with the regulation of ionizing radiation at low doses and low dose rates. He acknowledges that studies in cell cultures and animals indicate that radiation administered at a low dose rate is less injurious than the same exposure at high dose rates. He cites some studies that have even identified beneficial effects at low rates and low exposure levels.

Schull appears to favor "prudence" with respect to cancer risk estimates, but he does point out that to assume prudence may create more public apprehension than is warranted and cause difficulties for regulatory agencies involved in the protection of workers and the public. Unreasonable prudence, he says, can also compromise the numerous beneficial uses.

One of the paramount themes in *Effects of Atomic Radiation* is a plea that the atomic-bomb-survivor studies be continued. About half of the survivors are still alive. Schull feels that there is a great deal more to be gleaned from this population. It is my great pleasure to recommend this book to all who are interested in radiation injury. I know of no other single volume that contains such a wonderful storehouse of information.

Atomic Bomb Injuries is a revision

of a work first published in 1953. It offers what many books on radiation injury do not: a visual picture of the unprecedented ability of atomic and nuclear weapons to inflict damage. The information is not stale; the descriptions of population and events are unique.

One is at somewhat of a loss to describe what type of book this is. It certainly is a medical book, in that it describes graphically some of the early injury to those at Hiroshima and Nagasaki. It is also about radiation injury, in that acute radiation injury is identified in both text and pictorial expressions. There are chapters on the injuries to internal organs and microphotographs (pathology slide photos) of radiation-induced lesions in atomic bomb injuries. It is not really a book on "late" radiation injury, such as cancer, although some early cases of leukemia that were identified are depicted. When the first edition of this book was published, cancers other than leukemia had not been identified in excessive numbers.

Perhaps more than anything else, this is a history book. Maps of Hiroshima and Nagasaki are shown. Photographs from reconnaissance planes capture the plumes of the bomb blasts at Nagasaki and Hiroshima. Most significantly, photographs of casualties and severely injured individuals are shown.

The information presented by Nobuo Kusano has a manner and character not common in the literature. It is reminiscent of a meticulously kept medical diary documenting the decades after the bombs were dropped. It is not a book for everyone, but the serious student of radiation injury will come away with a deeper appreciation of acute injury and the devastation of very high exposures to ionizing radiation on the human body.

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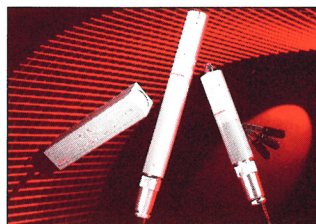
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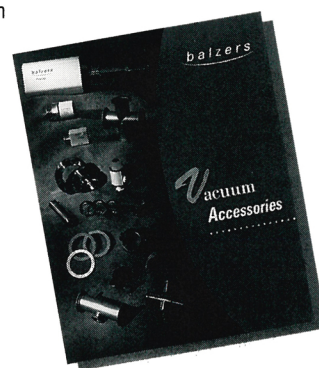
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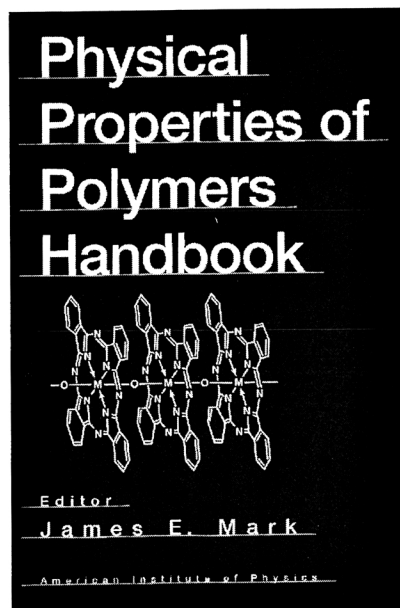
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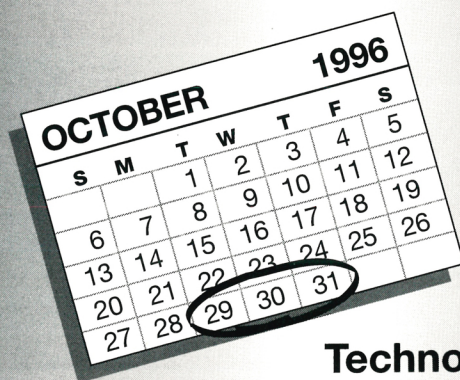
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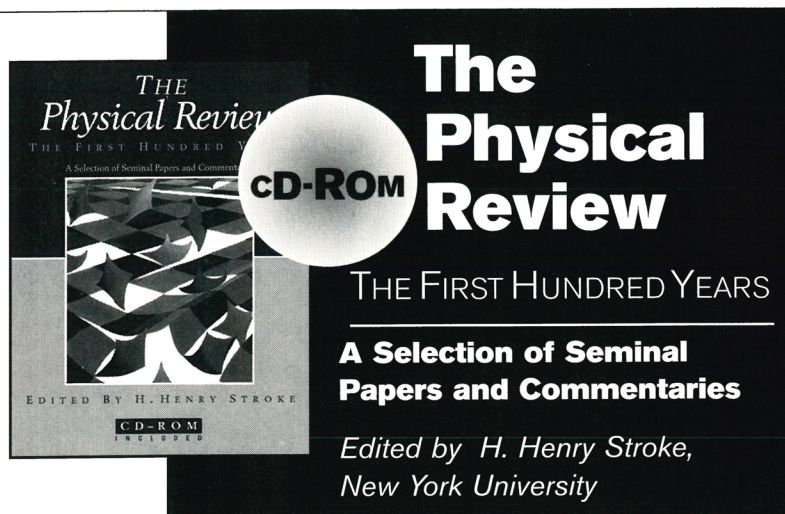
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