

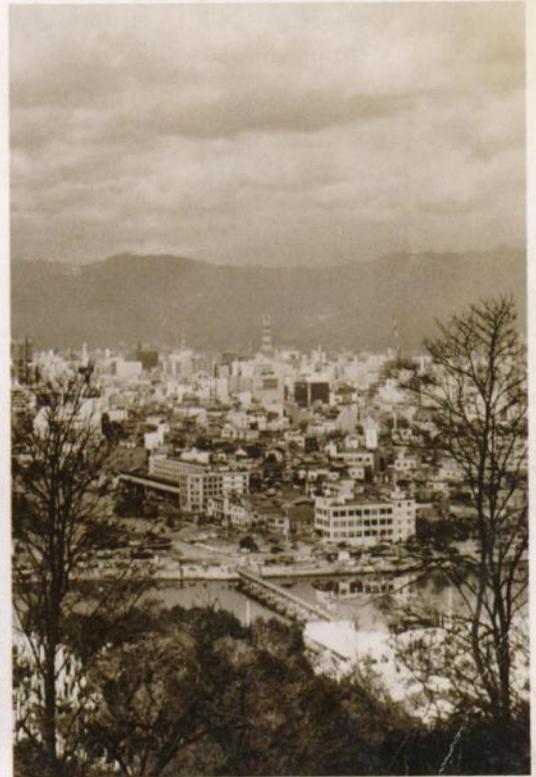
Cancer Research

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COVER LEGEND

"As the miller makes no grain, ABCC [the Atomic Bomb Casualty Commission] creates no truth but does collect, protect and present it for the best use mankind can make of it." Thus, did Dr. George B. Darling recently describe the mission of the research organization he has directed for the past 15 years in concert with Dr. Hiroshi Maki and Dr. Isamu Nagai, Associate Directors in Hiroshima and Nagasaki, respectively. The ABCC is a collaborative endeavor of the U. S. National Academy of Sciences and the Japanese National Institute of Health (JNIH). The Commission has been collecting data and publishing reports on the health of atomic bomb survivors since 1948.

As the ABCC has matured, research productivity has increased, particularly with regard to radiogenic cancer. In consequence, it is known that radiation induces several forms of leukemia in man but not the chronic lymphocytic form of the neoplasm. An increase in leukemia rates has been observed at doses as low as 20 to 49 rads. Children under 10 years of age at the time of the bomb were more susceptible to leukemogenesis than were older persons. Those under 10 years when exposed have also exhibited a substantially higher frequency than usual of other cancers when they reached the ages of 16 to 31 years, a possible portent of a still greater excess as the group enters the age for cancer. Persons over 10 years of age when exposed are now exhibiting an excess mortality from *all* cancers. Morbidity studies have shown an overabundance of thyroid cancer.

In Britain and the United States, *in utero* exposures to diagnostic irradiation have been reported to increase the relative risk of death from cancer before 10 years of age by about 50%. No such effect was found among children exposed *in utero* to the atomic bomb.

Cytogenetic studies may well be germane to the development of leukemia and other cancer. Among atomic bomb survivors, complex chromosomal abnormalities are still found in peripheral lymphocytes more than 25 years after radiation exposure. The percentage of aberrations was higher when exposure occurred after 30 years of age than before, and clones were observed only in the older group. Long-persisting chromosomal abnormalities also were found among persons exposed *in utero*, even during the first trimester, but not among the F₁ generation.

The United States and the Japanese Directors of the ABCC have skillfully managed the complex affairs of the Commission, blended as they are of problems of science, public relations, personal relations, and international understanding. They have found the formula that permitted changes necessary to reflect new techniques and, more important, new ideas, while preserving the direction of the program as a whole.

This month's cover of *CANCER RESEARCH* shows the Hiroshima clinics of ABCC (*bottom left*) and the hypocenter in the city now rebuilt (*bottom right*). At the top, from *left to right* are Dr. Isamu Nagai, who served since the war in the Tokyo office of the JNIH before becoming an Associate Director at the Nagasaki ABCC in 1957; Dr. Hiroshi Maki, who has been the JNIH Associate Director at the Hiroshima ABCC since its beginning in 1948; and Dr. George B. Darling, on leave from the Yale University School of Medicine. The inscription on the Japanese painting behind Dr. Darling reads, "Different, but in harmony."