March 1959 and March 1960, 5 and 6 years after their accidental exposure to the fallout from the weapon exploded at Bikini March 1, 1954. During the 1959 survey 76 exposed persons, including their children, and 166 unexposed Rongelap people, who served as a comparison population, were examined. In addition, groups of children at Utirik, Majuro, and Kwajalein Atolls were examined as controls for the growth and development studies on the exposed Rongelap children. The 1960 survey was brief, only the exposed people being examined.

As a result of their exposure in 1954, many of the Rongelap people had experienced early symptoms related to the gastrointestinal tract and beta burns of the skin along with spotty epilation. Later they showed depression of their peripheral blood elements commensurate with the calculated doses of gamma radiation (175r to 64 people and 69r to 18 people). In addition, radiochemical analyses of urine samples indicated that they had acquired fractional body burdens of certain radionuclides. Despite these evidences of exposure, acute radiation sickness did not develop in the people and there were no deaths then (or subsequently) that could be assigned to their radiation exposure. No specific therapy was given. Recovery of the peripheral blood elements, particularly the lymphocytes and platelets, proceeded gradually over the ensuing years. The beta burns, which appeared about two weeks after exposure, were, for the most part, superficial in nature and healed in several weeks; only a few lesions persisted and these were not disabling in any way. The hair regrew normally, beginning about three months after exposure. The internally absorbed radionuclides caused no known acute effects and were rapidly excreted so that barely detectable activity was found a year or two later, excepting the Sr^{90} and Cs^{137} isotopes present in the general population and Zn^{65}.

The 5- and 6-year post-exposure surveys were aimed primarily at evaluating the general medical status of the people in comparison with the unexposed control population, particularly as to slowly developing radiation effects.

Medical histories of the people during 1958 to 1960 were essentially uneventful; no special disease occurred and there were no significant differences in mortality rates. Four deaths have occurred in the exposed people since exposure giving a mortality rate of 8.1 per 1000 population, compared with 8.3 per 1000 for the control population and 6.8 for the Marshall Islands as a whole. The birth rate in the exposed group over the past six years indicates no noticeable change in fertility. The 24 births represent a rate of 48 per 1000 population, compared with 62 per 1000 for the control population and 37.3 for the Marshall Islands (1957).

Physical examinations showed both the exposed and unexposed people to be generally in a state of good health. No conditions were seen that could be directly related to radiation effects. The incidence of various minor disorders in both adults and children was about the same in the exposed and unexposed groups.

In connection with growth and development studies in the six-year chronological age group, three boys and one girl out of five boys and two girls in the exposed group exhibited significantly retarded skeletal maturation as judged by x-ray examination, but the over-all group sizes are too small to warrant interpretation.

A cardiovascular survey of the adults showed no outstanding differences between the exposed and unexposed groups.

An arthritis survey showed no real differences between the exposed and the unexposed people; the incidence is about the same as that seen in American populations.

An opthalmological survey demonstrated no differences between the exposed and unexposed groups except possibly a slightly greater incidence of corneal hypertrophy and scars in the exposed group.

A dental survey showed no significant differences in either caries rate or incidence of peridontal disease between exposed and unexposed groups. Radiation exposure appears not to have affected dentition in the exposed children.

The late effects of radiation are difficult to assess as they are those associated with normal ageing (skin looseness, elasticity, and senile changes; greying of the hair and balding; loss of accomodation, reduced visual acuity, and arcus senilis; reduced hearing; cardiovascular changes including blood pressure and degrees of peripheral and retinal arteriosclerosis; retrogression of neuromuscular function and hand strength were measured or estimated on a 0 to 4 + scale). Comparison of these measurements in exposed and unexposed individuals of the same age groups revealed no clear differences.

One case of cancer developed in the exposed group five years after exposure, but this is too soon, it is believed, to be related to radiation exposure. Leukemia surveys including physical findings, studies of white cell counts and types, alkaline phosphatase staining, and basophil counts showed no evidence of leukemia or leukemic tendency.

Genetic effects have not been specifically studied because of the small number of people involved. However, no apparent radiation-induced genetic changes have been detected on routine physical examination in the first-generation children of exposed parents.

[illegible], continued careful examination of these populations is in order; all effects should be documented and therapeutic procedures instituted wherever possible, should such effects develop. In addition, the relation of the environmental contamination on Rongelap to the body burdens of radionuclides of the people living there, imperfect though it is, warrants close study.

The United Nations Scientific Committee on the Effects of Atomic Radiations now reviews these yearly surveys.