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A Summary of the Medical Status of the Marshallese as of March 1958.

Four Years After Exposure to Fallout Radiation.

The four-year annual medical survey of the people of Rongelap Atoll, Marshall Islands, who were exposed to radioactive fallout in March, 1954 was completed in March, 1958. An 18 man medical team was transported to Rongelap by Navy LST for the examinations.

Complete history and physical examinations, including growth and development studies in the children, hematological examinations, ova and parasite survey, and whole body gamma spectroscopy for body burden of isotopes were carried out. The data has not yet been thoroughly analyzed, and only a few brief preliminary statements can be made at this time in regard to the latest examinations.

The people were found to be generally in good health and their nutrition satisfactory. A few residual changes were still present in the skin of some people at the former sites of more severe beta burns. But these changes were non-symptomatic and characterized only by mild atrophy, scarring, and pigment aberrations. No evidence of any pre-malignant or malignant changes have been seen. Since regrowth of hair, no further evidences of epilation have been noted. Except for the skin changes there have been no outward evidence of any radiation effects. There have been no symptoms or diseases that could be related to radiation effects. The incidence of diseases was found to be about the same in the irradiated as in the unirradiated Marshallese people used for comparison.

There have been three deaths in the irradiated group. In no case could the cause of death be associated with radiation effects. This incidence of death appears to be about the same as in unexposed Marshallese people.

Comparative studies of growth and development in irradiated and unirradiated children revealed a suggestive trend of slight lag in growth of the children who were irradiated at ages between one and six or seven years. However, the numbers of children involved are too small to make satisfactory statistical analysis. The most recent data have not been analyzed yet.

Hematological studies showed that the cellular levels of the blood have returned to the levels of unirradiated populations with the possible exceptions of the lymphocytes and platelets which appear to be still very slightly below the unirradiated levels. This slight lag in complete recovery appears to be mainly of academic interest since there has been no indication of any ill effect associated with this finding.

Lack of vital statistics on the Marshallese people make it difficult to evaluate some findings satisfactorily. However, fertility does not appear to have been <sup>~</sup>affected since about the same number of children have been born of irradiated as of unirradiated parents. Pregnancies have been normal with about the same number of miscarriages or stillbirths occurring in both groups. Infants born following in utero irradiation or born of irradiated parents appeared normal.

No long-term effects of irradiation have been seen. No malignancies or leukemia have been seen; no increase in degenerative diseases; no premature aging or shortening of life span; no radiation induced cataracts of the eyes; and no genetic effects have been noted.

The body burden of radioisotopes has dwindled rapidly, and as of March, 1957 consisted mainly of  $Cs^{137}$ ,  $Ce^{144}$  -  $Pr^{144}$  and  $Sr^{90}$  in amounts far below the accepted tolerance levels. The present body burden appears to be slightly increased above last year due to slight environmental con-

