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Operation Castle - Medical Report 4.1A

Medical Examination of the Mongolap People 6 Months After Exposure to Fallout Radiation During Operation Castle

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ABSTRACT

Follow-up medical examinations were made of the Marshallese inhabitants of Rongelap Atoll 6 months after they had been exposed to atomic bomb fallout radiation during the Operation Castle test series in March 1954. During the early acute period following exposure these people had shown systemic effects and marked hematological changes resulting from penetrating gamma radiation; extensive superficial skin lesions and epilation associated principally with beta and soft gamma radiation from fallout material deposited on uncovered skin areas; and minimal internal contamination with fission products, resulting principally from ingestion of fallout material. At the time of the 6-month resurvey, the individuals in general appeared healthy and normally active, and no deaths had occurred in the interim period. Three babies had been born since exposure, none of which displayed detectable abnormalities. One miscarriage at three months occurred during the interim period. No specimen was available for study. The skin lesions previously prominent had healed essentially completely, and only occasional hyperpigmentation of depigmented scars were seen in a few individuals who had severe early skin damage. Regrowth of hair had commenced during the third month following exposure and was essentially complete at the 6-month examination. Residual of the fingernail discoloration previously noted was found in 5 individuals. No additional findings on physical examination could be ascribed to radiation exposure, and most had gained weight during the interim period. A

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measles epidemics was in progress during the examinations. The severity of the disease in the Rongelap people was no greater than in a control unexposed population, and the incidence was no higher. Chest X-rays of all individuals revealed no abnormalities ascribable to the fallout radiation. Analysis of hematological data obtained failed to demonstrate a significant effect of measles on the peripheral blood count. Neutrophils, lymphocyte and platelet counts were not significantly different from counts taken on the 74th post-exposure day, and none of these values had returned to control levels. Studies of bone marrow specimens obtained on 20 adult individuals revealed no significant abnormalities. Minimal amounts of residual radioactivity were detectable in the urine of approximately one-third of the exposed individuals.

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FOREWORD

This report is an addendum to one of the reports presenting the results of the 34 projects participating in the Military Effects Program of Operation Castle. For readers interested in other pertinent test information, reference is made to ITR-934, Summary of Weapons Effects Tests, Military Effects Program.

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