

Hoffman reported on 5 dead and 12 living individuals who had developed resistant infections of the jaw with buccal lesions and marked anemia.

Before these publications appeared, the U.S. Radium Corporation had engaged Dr. W.B. Castle and Drs. Cecil and Katherine Drinker of Harvard to look into the conditions at the plant, with special reference to zinc poisoning. Their publication was delayed at the request of the U.S. Radium Corporation, because of litigation. When it was finally released, the publication (Castle et al. 1925) suggested that the deleterious health effects noted among the workers were probably due to the radium in the paint.

At this time Martland's name, along with those of his coworkers, first appeared on publications, but Martland had been aware of problems at the Orange, New Jersey, plant for some time. The group's first major publication (Martland et al. 1925) was an impressive document reporting the detection of gamma rays from living dial painters and the exhalation of radon from their lungs. Three cases were detailed in this first publication. One subject had died of pernicious anemia with leukopenia and terminal infection, one was suffering from chronic leukopenia of the pernicious type and had bone necrosis, and the third was still healthy. All tested positive for internal radioactivity. The authors described the autoradiographic detection of radioactivity in bone samples by means of dental X-ray films. Martland et al. (1925), assuming from autopsy specimens that radium was fixed primarily in the reticuloendothelial system (an assumption later found to be not entirely correct), stated the following: "Introduced into the body they [radioactive elements] form fixed deposits in the main organs of the reticuloendothelial system, chiefly the spleen, bones, marrow and liver. Here they continuously emit radiations until they decay according to their individual life history."

In October of 1925, three months before the Martland et al. (1925) paper was published, Martland (1925) read the paper before the New York Pathological Society. The published discussion contains some relevant comments.

Dr. F.B. Flinn asked the following question (Martland 1925): "In checking our work with that of Dr. Martland, we do not find so much in the marrow. We found it chiefly in the calcareous portion, and not in the marrow. Why is it that these girls taking a small amount of radium through the alimentary tract have this condition, and that no cases of necrosis occur by intravenous injection?"

Martland's reply suggested that he was thinking about the jaw necrosis (Martland 1925): "We think that the bone necrosis in these cases has nothing to do with the actual deposition of radioactive element in the bone itself, but it