

THE MACRODISTRIBUTION OF ^{226}Ra IN THE SKELETON OF A RADIUM DIAL PAINTER*

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The concentrations of ^{226}Ra were determined in 190 samples of bone and in four teeth from a woman (Case 01-183) who had worked for two years as a radium dial painter 52 years prior to her death. The terminal body content of ^{226}Ra was 200 nCi. The weighted mean concentration of activity in bone was 146 ± 11 pCi/g ash, with a range of 12 to 1000 pCi/g ash. The mean level in cortical bone was 116 ± 14 pCi/g ash, while that in porous bone (trabecular and eroded cortex) was 227 ± 25 pCi/g ash.

The concentrations of the ^{226}Ra in long bones were fairly constant along the shafts and increased greatly toward the ends. The concentration patterns were generally symmetrical with respect to right and left sides. The patterns in bone from the lower limbs (femur, tibia, and fibula) were similar to each other but differed from those in the upper limbs (humerus and radius). For rib the mean concentration of 107 pCi/g ash was consistent with a uniformly distributed 200-nCi skeletal content. The concentrations in the left ribs were similar to those in the right. The levels in the vertebrae (49 ± 12 pCi/g ash) were, in the main, lower than those in the ribs and varied widely with location.

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