Paper

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Discussion of Professor Hardwick's Paper

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Abstract The Use of F18 in Quantitative Biological Studies

It is practically self-evident that the inactive fluorine content of different tissues, particularly the hard tissues, will change the ratio F18; F19 of the given dose to a varying and unknown extent. However, at the same time this is also an advantage since the F18 distribution in the different tissues and fluids will give a measure of the distribution of the single administered dose, which is often of great value to know. The total fluoride content of any biological tissue or fluid may at the same time be determined chemically with good precision and relative convenience.

The most important point raised by Professor Hardwick was the question of iso-ionic versus hetero-ionic exchange of fluorine in the animal body. In other words: how much of an F18-labelled dose will replace previously occurring fluoride ions and how much will replace other ions, particularly hydroxyl ions?

S. Some of the evidence available to-day points towards a rather limited iso-ionic exchange in the bones. The apparent contradiction between the results of different authors may be due to differences in the experimental conditions. Further investigations may settle these problems and I feel sure that their solution can be greatly aided by the use of F18

which enables an exact

convenient analysis of the distribution of minute fluoride quantities and a determination of the fluoride fraction that is derived from a single dose

out of the fluoride pool of a certain organ

tissue or fluid.