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Sir:

Strontium-90 from nuclear bomb tests is now being deposited in the bones of every human being on earth. This radioactive element damages the bones and bone marrow in such a way as to cause bone cancer and leukemia, and perhaps also other diseases. It is not unlikely that some tens of thousands of Americans will die of bone cancer and leukemia caused by the bomb tests that have already been carried out. Dr. Charles L. Bingham, Director of the U. S. Atomic Energy Commission's Division of Biology and Medicine, has recently given as a possibility the range 10,500 to 21,000.

We may ask whether some of these deaths might not be prevented. Strontium-90 gets into our bodies by way of the food that we eat. One preventive measure would be to remove the strontium-90 from our food. This might be achieved, but it now seems that the processes will remain so complicated and expensive as not to permit their general use.

There is, however, a simple way of diminishing significantly the amount of strontium-90 built into our bones. This way consists of adding to our diet some calcium compound free of strontium-90.

Atoms of strontium-90 are built into bones in places normally occupied by atoms of calcium. There is competition between the strontium-90 atoms and the calcium atoms, and the amount of strontium-90 built into the bones is determined by the ratio of strontium-90 to calcium in the ingested food. If this ratio were to be decreased to one-half its value, the amount of strontium-90 built into the bones would also be decreased to one-half, and the number of cases of bone cancer and leukemia caused by strontium-90 would be cut in half.

It is possible to achieve this result by adding to the diet an amount of calcium free of strontium-90 equal to the amount of calcium in the food.

Calcium is the one element that is most likely to be deficient in the diet of Americans. The recommended amount of calcium to be taken daily is about 1 gram a day, with somewhat larger amounts (1.5 or 2.0 grams) for adolescents and during pregnancy and lactation. Tablets of dicalcium phosphate, calcium gluconate, and other compounds of calcium are available in drugstores, for the treatment or prevention of calcium deficiency. Six tablets of dicalcium phosphate per day, each tablet containing one-half gram, would provide 0.9 gram of calcium per day, approximately equal to the amount contained in the food. If the tablets contained no strontium-90, this preventive measure would result in a body burden of strontium-90 only half as great as if the measure were not taken, and would cut in half the chance of incurring leukemia or bone cancer caused by strontium-90.

It is, of course, important that the dicalcium phosphate be free from strontium-90. It is likely that the preparations now available in drugstores

are made from limestone that is not contaminated with strontium-90. However, we should make an effort to get the manufacturers of the products to state on the labels that the dicalcium phosphate or other calcium compound is free from strontium-90.

The drugstore price of dicalcium phosphate tablets is about one-half cent per one-half gram tablet; that is, about ten dollars per year for six tablets per day per person. The wholesale price of USP dicalcium phosphate is about eight cents per pound, which is twenty cents for a year's supply. Accordingly if the school authorities or government authorities were to prepare and distribute the tablets the cost might be very small.

Some available preparations of dicalcium phosphate contain vitamin D (viosterol). The vitamin D is valuable in the treatment or prevention of calcium deficiency, but is not required for the diminution of strontium-90 in the bones. Large amount of vitamin D, much larger than the amount in six tablets per day, produce toxic effects.

Another way to aid in the decrease in the amount of strontium-90 built into the bones would be to add calcium carbonate (free from strontium-90) to bread, as was done in England during the Second World War. This action was taken to combat the calcium deficiency of the diet.

Still another measure that might be taken simultaneously is the addition of a calcium compound (free of strontium-90) to the feed of milk cattle. Dicalcium phosphate, costing about \$8 per hundred pounds, is sometimes used as a cattle-feed additive for calcium deficiency. The amount of strontium-90 in milk might be cut in half in this way.

Our government, together with the governments of the USSR and Great Britain, is responsible for having polluted the world with strontium-90. I believe that our government should take whatever action is feasible to decrease the harm done by this radioactive poison. I believe that the Congress of the United States should at once consider legislation dealing with the addition to the diet of the American people and also to the feed of milk cattle of calcium compounds free of strontium-90, in order to decrease the amount of strontium-90 that will be built into the bones of the American people, especially children, and thus to decrease the number of cases of bone cancer and leukemia caused by the strontium-90.

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