

FLUORINE AND TEETH

(Written for "The Listener" by DR. MURIEL BELL, Nutritionist to the Department of Health)

IT has been known for a long time that the mineral fluorine is present in teeth and bones in very small amounts, so small, that for a long time the idea formulated by Sir James Crichton-Browne over 50 years ago, was ignored. He thought it "well worth consideration to introduce into the diets, especially of child-bearing women and children, a supply of fluorine which might do something to fortify the teeth of the next generation." Perhaps it is just as well that his suggestion was not immediately put into effect, for there are dangers attendant on the misuse of this mineral.

What attracted attention during the last decade or more was the effect of having too much fluorine in a water supply: in certain areas in U.S.A. and elsewhere the presence of more than one or two parts of fluorine per million parts of water in the reservoirs serving certain areas was attended by an ugly mottling of the enamel; the teeth became pitted and discoloured, and in severe cases dental decay occurred in these teeth. This was due to the toxic effect of too much fluorine — for too much of this element poisons the enzyme concerned with laying down enamel in the growing teeth. A toxic concentration of this mineral adversely affects not only the teeth, but also the bones, leading to a condition of brittle bones accompanied by pain and stiffness of the spine due to a welding together of the bones. These toxic amounts are present in certain areas in Africa, India and the U.S.A. Occasionally they occur in the air and grass, thus affecting animals that feed in the locality.

An interesting state of affairs was known to occur in Iceland following the eruption of a certain volcano—the animals died or else suffered from a disease of their limbs for some time after the eruption had occurred, but the farmers found that no harmful consequences supervened if the animals were fed on fodder that had been grown before the eruption took place. The toxic effects of these eruptions continued for some years, and were tracked down to the material from the volcano—dust that contained a large amount of fluorine. Sometimes, as in parts of Africa, dust storms cause a deposit of fine fluorine-bearing phosphate in the water supply, leading to toxic effects on the population.

Thus it comes about that scientists have had to be concerned with seeing that there is not too much fluorine in the water supply in certain areas, and they have devised suitable means for getting rid of excess amounts. They have also had to supervise the preparation of phosphate fertilisers for the same reason—for it is necessary to see that not too much fluorine is present in the phosphate put on the ground in which animals are grazing.

However, certain observations were meantime being made on the teeth of animals and on the teeth of human beings when the dietary fluorine was in reasonable amounts. The suggestions made by these findings will be dealt with in the next article.

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