

Miscellaneous Minerals

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

THE health and activity of plants and animals is dependent on the presence of sufficient amounts of a number of minor elements. Certain of these are very interesting, especially to New Zealanders, for some of the effects of these deficiencies were first demonstrated in New Zealand. For example, the first record in world literature of the effect of deficiency of boron on pip fruits was made through the combined investigations of the Department of Scientific and Industrial Research and the Cawthron Institute. The disease of apples known as "internal cork" or "corky pit"—characterised by brown corky areas in the flesh, browning of the core area, and sometimes also by pitting of the outside of the apple—was fairly prevalent in certain of our apple-growing districts. Scientists performed an interesting experiment—they filled a Winchester jar full of a weak solution of a boron compound, then led the solution from the inverted bottle through a tube to the place where the sap goes up the tree. Next season the tree had recovered from the disease. It requires only about two ounces of boron per acre to keep the apples free from "internal cork."

Similarly, swedes and turnips are sometimes affected by "brown heart," due to boron deficiency, making them bitter and stringy. "Heart-rot" in sugar-beet is also due to the same thing, but there is no ground for thinking that human "heart-rot" or any other human affection either psychological or pathological is to be ascribed to boron deficiency!

Then there is the well-known deficiency of iodine associated with the occurrence of goitre throughout the world. The constant use of adequately-iodised salt has resulted in eliminating endemic goitre and cretinism from areas where they were formerly prevalent.

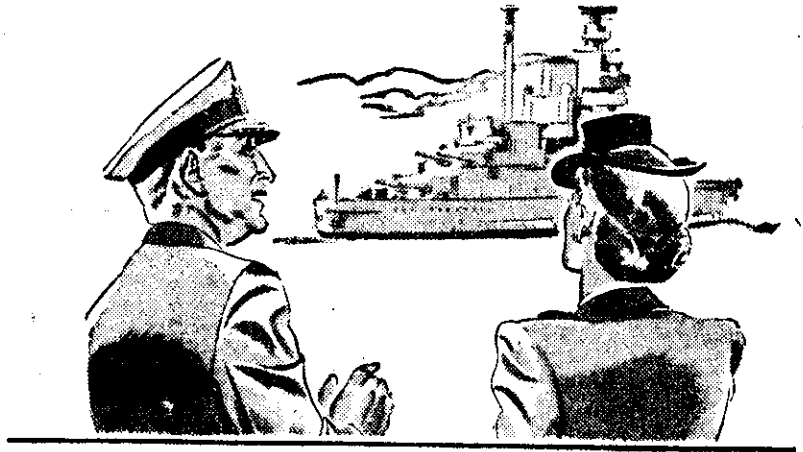
Cobalt deficiency is also very interesting to New Zealanders, because lack of cobalt has been found to be the cause of "bush-sickness" in stock. In some of the areas where this occurred we find an interesting illustration of how a soil can soon become depleted of a necessary element — farms which 20 years previously were able to produce numerous sheep for export became afflicted with "bush-sickness," with the result that the sheep began to die in large numbers — though the grass was plentiful and to outward appearances looked quite healthy. The discovery that the missing element was cobalt, restored these areas to productivity once more.

Magnesium deficiencies are in evidence in certain areas in New Zealand. As magnesium is necessary for making the green colouring matter of plants, it stands to reason that plants are more likely to suffer from lack of this element than animals.

Iron and copper are necessary for the formation of the red colouring matter in the blood. Meats, especially liver, and cereals provide man with his copper.

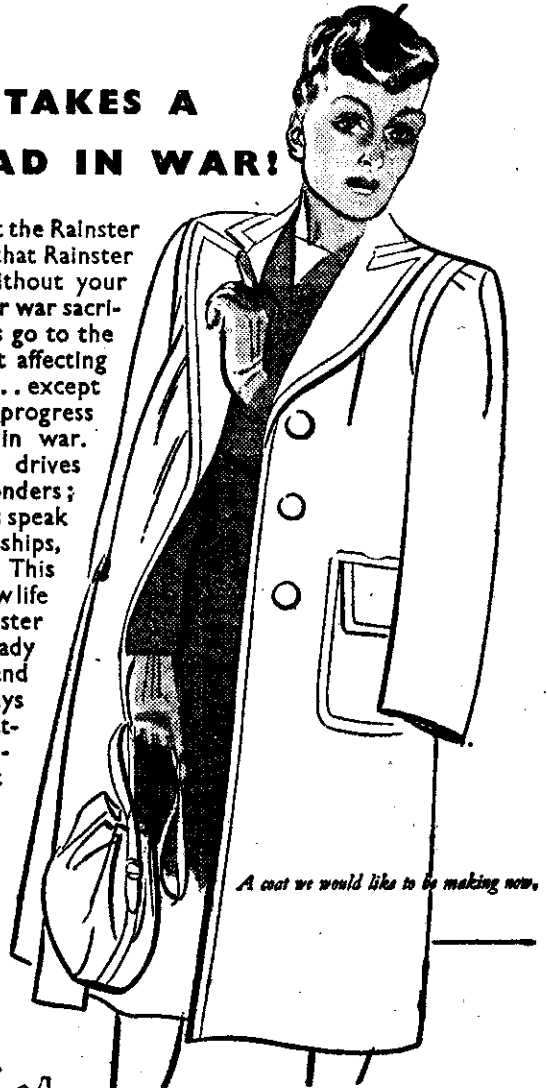
Sulphur is made up by plants into compounds that are extremely important for man and animals.

Thus man is very dependent either directly or indirectly on the presence of numerous elements in the soil. In our next article we shall deal with fluorine.



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