MINERALS

The minerals which we have in our system are very important links in our vital processes. The most important minerals are iron, calcium, iodine. Iron we must have in *our blood*to get oxygen from the air, and we must have minute traces of copper or the iron cannot be assimilated. Calcium and phosphorus must be present to make our bones and teeth, as well as to perform various other functions.

Minerals not only must be present in our food, but they

must occur in a form which must be assimilated by the body. If our diet is lacking iron, you cannot make up the deficiency eating iron ore, for such a material is not assimilable. You must have copper but you cannot get it by sprinkling fine grains of copper-bearing rock on your salad. The body is not only very exacting in thespecifications of what it must have, it also lays down strict rules1 regarding the form in which the material must be presented.

For the most part these materials are only the minor constituents of plants and animal life and, unfortunately for our good health, they occur most frequently in what we ordinarily do not like to eat. The outer layers and germ of the grains, the peelings of the tubers and fruits, the coarser, leafy, parts of vegetables. These are the materials that contain the minerals and often the vitamins. By stripping cereals of all their outer coats and refining sugar until it is whiter than the whitest snow, we have made a good start on the road to the ruination of human health, for fine milling removes 75 per cent of the minerals.

*Calcium*is a very important mineral in animal life. All of our calcium is completely replaced about every six years, and the only way to maintain the balance in the body is to take in a sufficient quantity in the food. If there is insufficient intake the body tries to make adjustment, but it is never completely successful. It goes on excreting calcium, taking it from bones and teeth. The calcium requirements for the growing young is fully twice as great as that of the average adult.

*Phosphorus*is to calcium as thunder is to lightning; the two together are required to make our bones and teeth. We must have our phosphorus and plenty of it, twice as much as calcium (about 1.4 grams per day) for we turn over our body's total supply in less than three years. The greater need comes from the fact that phosphorus is required by some of the body proteins, phospholipins and phosphatases. Fortunately most foods are more plentiful in phosphorus than in calcium, the notable exception being milk. Meat and egg yolk are high in phosphorus.

*Iron.*If we had no iron, we should have no blood. There is a striking similarity in the energy-promoting or absorbing mechanism in all branches of life. Higher animals all have blood containing iron bearing hemoglobin, to act asan oxygen carrier. The green chlorophyll of plants, which promote the reactions of photosynthesis which make all life possible, has a chemical composition quite similar to our own hemoglobin but magnesium has been substituted for iron in the molecule. Iron is found egg yolk,in liver, meat, spinach.

*Iodine.*Less than a thousandth of an ounce of iodine required for a human body. Iodine is the principal constituent of thyroxin which is the watch-dog of metabolism. Without thyroxin we should be as brainless and inactive as vegetables and far less beautiful, and it takes |iodine to make thyroxin. If the soil contains enough iodine there is an ample amount in the food. In places where the soil is deficient in iodine the food and water are also deficient,and the inhabitants have goiter. In such places the swollen neck, caused by the over-working and enlarged thyroid gland, is a matter of common occurrence.

*Post-text Exercises*

I. *Answer the following questions:*

1. What minerals are important for a human body? 2. What is calcium important for? 3. Which foods contain calcium? 4. Why is phosphorus necessary for the body? 5. What are the sources of phosphorus? 6. Is iron necessary for the formation of hemoglobin? 7. Which foods are valuable sources of iron and copper? 8. What mineral aids in the regulation of general health and the nervous system? 9. Name the foods which contain iodine.

II. *Give synonyms from the text to:*

Digestable, severe, often, generally, significant, fully, needed, rich, alike, main, sufficient.

III. *Give antonyms from the text to:*

Absent, different, major, fortunately, inner, destruction, sufficient (2), to be low in, difference, ample.

IV. *Match a word in A with a word(s) in B to form a word combination from the text:*

A                                             B

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| 1) important | a) links requirements |
| 2) vital | b) processes constituents |
| 3) to perform | c) composition |
| 4) make up | d) similarity |
| 5) lay down | e) amount |
| 6) minor | f) thyroid gland |
| 7) outer | g) functions |
| 8) to maintain | h) deficiency |
| 9) calcium | i) layers |
| 10) striking | j) links |
| 11) energy | k) processes |
| 12) chemical | l) the balance |
| 13) ample | m) promoting |
| 14) enlarged | n) rules |