

## VITAMINES.

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Have you noticed that in a community certain people who attract very little attention by their presence may become dramatically conspicuous in their absence?—Take our household in India, for instance, the sweeper is the servant who least obtrudes himself upon our notice, he makes a point of doing his work while we are not looking. He might be described as an accessory to the house bearer. But—horror of horrors—the sweepers strike! Not one is available! And how badly we miss them.

Such accessories to our Food Service are our new-fashioned acquaintances the vitamins. As long as we have them in our food all goes well, and we do not realize that they are present. But one or other withdraws ever so quietly from the food you eat, and the alarm must be given, for serious illness at once sets in.

For example, in Rangoon a mysterious illness was spreading. It was called beri-beri. Its most noticeable symptom was a staggering gait, the result of neuritis. Doctors had many opinions as to its cause, but at last one proved by a simple experiment that he had found it. He said "Beri-beri is caused by lack of something in the rice. You are polishing that something away from the rice when you make it so white. If you want a cure find it in the discarded rice polishings. Feed your patients on a broth made of these polishings and their symptoms will go."

It was then said "There is a *vitamine* in rice polishings:" and further "A *vitamine* is an accessory food factor. We have not yet seen it, either with the naked eye or with the microscope, but *without it health cannot be maintained*."

Vitamins are now described as being of three known varieties.

A is found mainly in animal oils and fats such as codliver oil, butter and suet. Deprived of this, children grow rickety and get a form of eye disease (xerophthalmia).

B is found in yeast, in the husks of grains and in nuts. If entirely deprived of this, people get beri-beri or other nerve disease, and if it is given in insufficient quantities to growing children, they lose their appetite, and are subject to severe forms of indigestion.

C is found in the fresh juice of oranges, limes, tomatoes and other fruits. Also in bananas, in cabbage, and all green vegetables.

When people are deprived of this,—as they were in the old days on long sea voyages, scurvy (a disease of the blood) develops.

I dislike talking of diseases and much prefer talking of health, so I shall not threaten you further with rickets, beri-beri, scurvy, and the like. They are the extreme end-result of doing entirely without these vitamins. If you wish to be very specially well make sure that you have plenty of vitamins. While they are necessary for all, they are a very vital necessity for growing children. To illustrate the profound effect of B vitamin, I must tell you of the experiment on the baby rats. Six of these small creatures were taken of mixed litters and kept in cage (1). Six similarly chosen were kept in cage (2). Those in the first cage were given a diet consisting of white bread and butter,

a diet completely free from vitamine B. Those in the second cage were fed on a similar diet but added to it Marmite, which is a yeast extract, very rich in vitamine B. Those little rats grew like young bay trees, while their brothers in the first cage languished and did not grow at all. After ten days Marmite was given to those in cage (1) but (most interesting point) those little rats never in their lives made up on those who had been fed on Marmite from the beginning. Now Marmite is cheap and easily obtained in the Calcutta shops, so it is sensible to give it to children from the time that they are weaned.

Vitamine C is very easily destroyed by overcooking. In war time at the Western Front a certain regiment went down with an epidemic of scurvy. It was mysterious, as cabbage was being given as a ration daily. On inquiry, it was discovered that the cook started boiling the cabbage in the morning and boiled it thoroughly all day. When his enthusiasm was checked, and he was only allowed to cook it for half an hour, there were no further cases.

Little babies who are deprived of their mother's milk and given tinned or dried milk, or even boiled cow's milk, require to be given fresh fruit or they develop a similar disease.

Vitamine A can tell you a similar story. In a school in Scotland the children developed the form of eye disease which had been described in the famine districts of Central Europe. The diets had been ordered by a noted physician. But inquiry revealed the fact that all the food was being overcooked in copper boilers, and this vitamine had suffered.

I think I have now said enough to make you keen not to miss those valuable assets to health and growth. May I give a list of food-stuffs that you will find beneficial because of their vitamins?

A. Milk containing cream, butter (*not* margarine or nut butter), suet and the fat of all animals; oily fish—herring, salmon and probably hilsa in this country.

B. Brown bread, chapatis, bread made of atta or whole meal, unpolished rice, walnuts, Brazil-nuts, almonds, all other nuts and Marmite.

C. Fresh fruit of all sorts—apples, grapes, oranges, limes. Green vegetables such as spinach, cabbage, french beans, etc. Sailors used to say that God had marked all the plants that cured scurvy with the sign of the cross! The *crucifer*, a genus of plants with cross-shaped flowers, which includes turnips, swedes, lettuce and cabbage, is specially rich in this life-giving principle, and so is the genus of fruits "Citrus" which includes oranges and lemons.

The time of life in which vitamins are most urgently necessary are the years of active growth. Mothers must remember this both during the time on which their infants are their guests (as regards nourishment), and after they are launched into life on an independent diet.

One of the incalculable blessings of mother's milk is that it contains all the vitamins in right proportion always provided that the mother is eating fresh fruit and vegetables and food which contains vitamins herself.

During the first two years "A, B and C" may be conveniently administered as codliver oil, Marmite, and orange juice. Gradually the child eats ordinary food and shares the viands and the vitamins provided for the grown-ups.