

## OUR PRIZE COMPETITION.

WHAT ARE VITAMINES? WHY ARE THEY NECESSARY? WHAT CONDITIONS ARE LIKELY TO SUPERVENE WHEN VITAMINES ARE ABSENT OR DEFICIENT?

We have pleasure in awarding the prize this week to Miss M. M. G. Bielby, Cranford, Middlesex.

### PRIZE PAPER.

Vitamines, only discovered during the last decade, are accessory food factors which are present in fresh pabula. They exist in food-stuffs in addition to their contents of proteins, fats, carbohydrates, and salts. So far, three accessory factors or vitamines are acknowledged: (1) Fat-soluble A, or anti-rachitic (rickets preventing or growth promoting) vitamine; (2) water-soluble B, or anti-neuritic (growth promoting) vitamine; (3) water-soluble C, or anti-scorbutic (scurvy preventing) vitamine.

Vitamines are necessary, because medical research has proved that unless the diet includes them full vitality cannot exist, however rich and abundant the food may otherwise be. A knowledge of the relative value of all food-stuffs for children as regards their vitamines is of first importance, because it is on these that nutrition and growth largely depend, and it is held that the rate of growth bears a close relation to the supply of vitamines, provided the diet is adequate regarding its other constituents.

Lack, or insufficiency, of vitamines in the diet results in impaired nutrition and lowered vitality, even when hygienic conditions are good. In expectant mothers it causes malnutrition of the child. If vitamines are absent or deficient in the food of children they are liable to suffer from the "deficiency diseases," rickets and scurvy. Investigators believe that fat-soluble A and water-soluble B are indispensable for growth and nutrition of the animal organism, and that a child can never thrive if deprived of these.

It is considered probable that a great deal of infant mortality and ill-health is traceable to ignorance and neglect concerning the importance of these fresh elements of diet, particularly in the past, when many parents believed that wealth and love had secured the utmost aid for their ailing infants.

With bottle-fed babies it has been found essential to supply food containing fresh elements of diet after the first two months. Formerly it was doubted whether dried milk retained vitamines, all three of which are

found in raw cow's milk; but experience has shown definitely that full-cream dried milk, such as Glaxo, is rich in the accessory food factors. Cow's milk is not rich in the anti-scorbutic vitamines even when raw; when heated, dried, or preserved, this vitamine is still further reduced. Its deficiency in dried milk is relatively unimportant, for it is easily supplied by giving one or two teaspoonfuls of sweetened orange-juice to a baby of from two to five months. Or the same quantity of grape or tomato juice may be given instead, or even the juice of a raw swede, expressed by grating and straining through muslin. Full-cream dried milk, with this addition, provides a diet containing the essential vitamines.

Breast-fed babies are well supplied with vitamines. The *colostrum* is very rich in these, thus giving the newly-born child a natural and fortified start in the changed conditions of its existence.

Too great or long-continued heat destroys vitamines, therefore green-leaved vegetables should be steamed for the minimum period instead of being left to boil indefinitely.

Anti-rachitic fresh foods include spinach, lettuce, pure milk (whole and raw), butter, cream, yolk of egg, Glaxo, and cod-liver oil.

Anti-scorbutic fresh pabula is supplied in oranges, grapes, swedes, turnips, cabbages, tomatoes, and onions. When fresh fruit cannot be obtained, "Allenburys' " Fruitine is a good substitute. Vitmar and Virol also are rich in all the vitamines.

Vitamines derive their power from the heat of the sun, which enters into the composition of food substances while they are growing, and this energy is later set free in the body of the consumer of the food. It is a tempting conclusion that those unknown forces, only recently discovered, all of which can be found in the sun-bath, and which act as the most energetic tonic and rebuilding agent to an ailing body, are analogous in their action on the finer and little-known fluids in the human body to that of vitamines in vitalising the more solid particles.

### HONOURABLE MENTION.

The following competitors receive honourable mention:—Miss Henrietta Ballard, Miss E. A. Noblett, Miss R. E. S. Cox, Miss M. Jones, Miss P. Thomson, Miss Lindall.

### QUESTION FOR NEXT WEEK.

What are the principal causes and consequences of dental diseases? What preventive measures may be employed?

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