

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

T is usually on the score of its additional vitamin B1 (thiamin) that nutritionists advocate the use of wholemeal bread. Dentists add the point that wholemeal cleanses the teeth while white flour tends to cling round them.

The vitamin B factors are inclined to be lacking in modern dietaries; from studies made in New Zealand, our country is no exception in this respect. The defects here are mainly in thiamin and riboflavin, which are consumed in amounts sufficient certainly to prevent outstanding deficiency diseases but insufficient to meet modern standards for buoyant health. Of these two vitamin B factors, the one that is abundantly present in wholegrain cereals is thiamin; whereas riboflavin should be contributed to our dietary chiefly through the milk intake. Thiamin is therefore the chief vitamin factor, as far as we know as yet, that we have to consider in regard to the nutritional aspect of bread.

Now, both New Zealand and Australian white flour contain considerably more thiamin than does ordinary English white flour or unfortified American white flour. On the average, the values for New Zealand and Australian, as compared with English flour, are as 180: 100 (micrograms per 100 grams), i.e. nearly twice as much. New Zealand wholemeal flour contains approximately three times as much thiamin as New Zealand white flour-on the average. (I am indebted to the Wheat Research Institute for their analyses on which to base these statements.) English "national flour" contains a little less than twice the amount of thiamin present in New Zealand average white flour.

## Richest Part of the Grain

The next point of interest is that the thiamin is unevenly distributed throughout the wheat grain. In British wheats, it has been found that 59% of the total thiamin is in the scutellum, the sheath that surrounds the embryo, while only 3% of the total is present in the pure embryo, or wheat germ, as it is usually called. The germ contributes only 1.5% of the weight of the wheat grain; the scutellum only 1.2%. It is easy to see, therefore, that the addition of a small weight of scutellum will result in a large increase in vitamin B1 content.

The next richest part of the wheat grain is the alcurone layer, which adheres very firmly to the branny outside

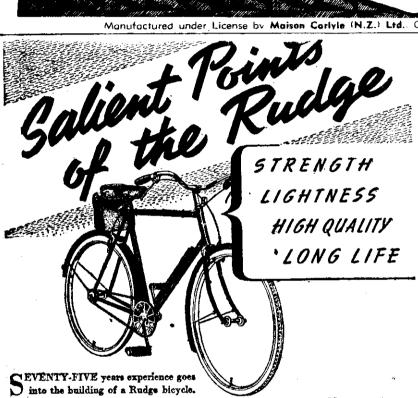
Much has been learnt about milling in the last year or two. In England they have endeavoured to get in their "national wheatmeal" as little of the fibrous part of the grain and yet as great a quantity of the flour and nutritional content as possible. Consequently their milling technique is nowadays concerned with adding particularly the flour from the scutellum.

Wheat germ when added to the extent that it composes 10% of the weight of the loaf contributes enough vitamin B1 to give the wheat germ loaf about half the B1 value of wholemeal bread.

Formerly all of these nutritionally rich parts of the wheat grain went into the pollard. Bran itself, if cleaned of its aleurone layer, is not a rich source of vitamin B1.



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