LETTERS TO THE EDITORS

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Nutrition and the War

I WOULD like to thank Dr. Kon for his kind remarks about my book¹ in his review in NATURE², and for his critical comments, which, coming from a person of his standing in the nutritional world, are of considerable value to me. I would like, however, to comment on some of the statements which he has made.

On p. 82 of my book, immediately preceding the food tables, I state, "It will probably be noticed that peas, beans and lentils are good in almost every constituent, but it should be remembered that we eat relatively small quantities of them at a time so that in their case the appraisalment may be a little misleading. In the case of potatoes, which are listed as poor in calories, they may constitute a significant proportion of one's calorific intake if enough of them is eaten." In view of this statement, I feel that Dr. Kon is unjust in his comment that there is "a lack of appreciation that it is not so much the richness of a product in any given food factor as the amount consumed that matters in the end".

Dr. Kon points out that this lack of appreciation has led to the "strange selection of curry powder as the best source of iron". McCance and Widdowson³, to whom incidentally Dr. Kon refers me, state on p. 9 of their report, "Curry powder contained more than three times as much iron as any other food (75 mgm. per 100 gm.)". That curry powder is so rich in iron that the amount used in making a meat curry is sufficient to secure an important increase in the amount of iron eaten can be seen from the figures given below (McCance and Widdowson³, p. 103).

Beef stew	..	2.49	mgm. of Fe per 100 gm.
Curried meat	..	4.70	,, ,, ,, ,, ,, ,,

In the circumstances I do not agree with Dr. Kon that my selection of curry powder as the best source of iron is a strange one.

In mentioning my reference to the food value of ethyl alcohol, Dr. Kon refers to this "misinterpretation of Mitchell's work". I purposely made no attempt to interpret Mitchell's work and gave only a plain statement of fact. A comparison of the following two statements will make this clear:

From Mitchell's paper⁴, p. 333. "The energy of ethyl alcohol is to a large extent available for physiological purposes. Added to a complete diet such as milk it induces more rapid growth and greater retention of nitrogen as well as fat."

From my book, p. 136. "Dr. H. H. Mitchell . . . found that rats fed on a diet adequate in the known nutritional factors and to which a small daily allowance of alcohol had been added, grew faster and retained fat and nitrogen to a much greater extent than other animals which received the diet without the alcohol."

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¹ Bourne, G., "Nutrition and the War", second edition (Cambridge University Press, 1942).

² Kon, S. K., NATURE, 149, 453 (1942).

³ McCance, R., and Widdowson, E. M., Special Report, No. 235, Med. Res. Coun. (1940).

⁴ Mitchell, H. H., J. Nutrition, 10, 311 (1935).

(1) I STILL feel that, in a popular book on nutrition, great care should be exercised in giving the reader guidance on the best choice of practical sources of supply of different nutrients, and I still think that Dr. Bourne's tables do not give such guidance. The value of curry powder as a practical source of iron for the population of Great Britain is, in my opinion, nil.

(2) The food value of ethyl alcohol. Mitchell's experiment showed that when alcohol was added to a certain diet its energy was available for physiological purposes, but that it was only three quarters as available as that of a similar supplement of sugar, which caused greater retentions of nitrogen and energy. Dr. Bourne's description makes no mention of the comparison of alcohol and sugar and conveys the impression that alcohol exerts a specific beneficial effect on the deposition of fat and utilization of food nitrogen. It tells the truth but not the whole truth, and in this way it certainly misinterprets Mitchell's findings.

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Amino Acids and the Human Being

THE satisfaction which may quite legitimately be felt in the logical and painstaking work which enabled Rose to classify the amino acids into essential and non-essential groups rather dims the realization that his classification only refers to the needs of the growing rat. In his recent communication to NATURE, Mr. Bacharach¹ gives a welcome jolt to the complacent attitude, so easily adopted, of assuming that what is true of the growing rat is true not only of the adult rat, but also of other species of animals. The work of Wolf and Corley², and of Burroughs, Burroughs and Mitchell³, has shown, however, that the amino acids required to maintain nitrogen equilibrium in the adult rat are not entirely the same as those needed to make the young rat grow. These results illustrate the necessity of qualifying the term 'essential' when it is applied to amino acids.

Although about six years have elapsed since Rose made his classification of amino acids into essential and non-essential groups, our knowledge of the requirements of other species of animals is distressingly meagre. The sum total of our knowledge appears to be that the adult dog probably requires the same amino acids as the adult rat for the maintenance of nitrogen equilibrium, that in the regeneration of plasma protein in dogs with experimental hypoproteinaemia, cystine, leucine and glutamic acid are of primary importance, that the chick requires tryptophane, histidine, methionine, and (most surprisingly) glycine for growth and arginine for both growth and maintenance, and that lysine is required by cattle for both maintenance and milk production. What other amino acids are required by the chick and by cattle have not been elucidated.

Mr. Bacharach points out that it would be interesting to know what evidence there is indicating the indispensability or dispensability of individual amino acids for humans. At the end of last year Holt and his co-workers⁴ showed that human subjects on diets deficient in tryptophane or lysine develop negative nitrogen balances which can be restored to normal