



Perspective

The Farmer and the Chemist

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THE ACCOMPLISHMENTS OF NUTRITION SCIENCE during the first half of the 20th century are well known. The principal effort has consisted of biological identification of the essential dietary factors, their isolation, studies of their function, and finally their chemical synthesis. Some 22 amino acids, 10 of which are probably essential for growth, a dozen or so vitamins, two or three fatty acids, and more than a dozen inorganic elements may now be included in the essential food elements.

There is no reason to believe that the nutrition requirements of man are any more complicated than those of some of the common experimental animals, such as the chick and the monkey. Indeed, the more rapidly growing species usually have greater requirements for most vitamins and, if their requirements are no more complicated in the qualitative sense, the effects of limited diets are more pronounced.

The realization that the techniques for isolation and synthesis are so well advanced that nutrients required in only microgram quantities are now available in pure form leads us to a reevaluation of the future.

The fortification of bread and a few other products represents a realization by government that it has a responsibility for the nutritional health of the people. It is obvious that at present it is not full responsibility, and one is forced to ask at what stage government responsibility begins and ends. Enrichment of white bread is not simply making white bread equal to whole-wheat bread, since riboflavin is added in larger amounts than occur in whole-wheat bread. There is, of course, no reason to believe that nature endowed wheat with riboflavin in proportion to the needs of man. The addition of vitamin D to milk is another clear example of an addition being made according to human need. . . .

It seems clear that one of the results of nutrition research, considered in the broad sense, is to make any single food unessential in the diet. . . .

Suppose the government decided that by the enrichment of a few basic foods any person who consumed a

reasonable amount of common foods would not suffer from nutritional deficiency. Should we then emphasize nutrition education, or should people be encouraged to eat more or less what they wish with the knowledge that the foods they eat will supply adequate amounts of all the known nutrients? These are questions that deserve answers in the near future. . . .

It is necessary to point out that we do not believe that we or future generations will be eating concoctions of synthetic diets. All foods are consumed largely because they taste good and we like them. Everyone who can afford tasty foods will continue to eat them, and there is little reason to believe that synthetic beefsteak is just around the corner. However, there is doubt that they can continue to be promoted on a sound nutritional basis in competition with products nutritionally improved via the chemical industries. It seems only prudent that we recognize the problem that confronts us. Changes in agricultural production affect all of us, but changes are inherent in progress and they do occur. There is no obvious benefit in attempting to ignore the future.

The apparent competition between certain phases of agriculture and the chemical industry is only the competition inherent in a free economy, and there is little doubt that, in the long run, the consumer will benefit. Uneconomical production will be turned to more profitable areas. The food industry that attempts to grow, or even exist, on its past record will not be with us long. A constant search for nutritional improvement of its food products must be carried on, and much of the nutritional improvement of the future will come from nutrients purchased from the chemical factory. The chemical industry has made much headway in favorably supplementing the food products of agriculture. Much more will be forthcoming. The farmer and the chemist together can do a better job of solving the problems of global nutrition than either one alone.

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