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Nutrition In The Emergency

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General

A WORD OF WELCOME

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NUTRITION IN THE EMERGENCY

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In time of war the first threat to the food supply is loss in quality. It may at first be an almost imperceptible change resulting in a hidden inflation if prices are fixed. Although the same price is paid less is obtained for the money because goods of poorer quality will be sold under old names. The high quality materials are the scarce ones and in times of shortages these are spread more thinly. Frank proposals to do this with American foods have already been made. Examples which may be cited are reduction of the fat content of butter and ice cream; increase of water content of cheeses; reduction of skim milk and shortening content of baker's bread. Any one of these changes can be made with such technical skill that there will be hardly any loss in palatability, and of course the consumer has no way of detecting the lower nutritive value.

During the past thirty years there has been a healthy increase in the use of the protective foods in the American diet. Citrus fruits, evaporated milk, cheese, ice cream, fruits and vegetables have displaced cereals and potatoes. The results have been so good that the average American consumes most of the dietary essentials in amounts recommended by nutritionists. In the top line, Table 1, are given the amounts of several food constituents which may be considered entirely adequate; in fact some authorities feel that, except for calories, all the levels are higher than necessary. It is clear that even in 1943 there were adequate foods for the maintenance of a very high quality diet providing proper distribution could be attained.

This is in striking contrast to the food intake of 103 representative families in an industrial suburb of Madrid in 1941. In this group the averages are low in almost every food constituent. There was a great inequality among the families. Some received less than 1,000 calories per day with a slow starvation taking place. Here is a good example of what war can do to a people. Even 1,600 calories will maintain adults only at a greatly reduced vitality. Numerous

cases of low blood proteins and anemia were observed. In general the children were from one to three years behind Americans of the same age with respect to weight, height and skeletal maturity.

In spite of its great technological and sociological advances America has not yet achieved an adequate distribution of foods among people of different income groups. During the past decade there have been available in this country the large quantities of essential nutrients illustrated by the year 1941 in Table 1. If everyone received his share there could not conceivably be frank malnutrition, but surveys show very large numbers of cases of rickets, pellagra, ariboflavinosis and other deficiency diseases. The cause of this is illustrated by Table 2 in which it is shown that the high income group of the Pacific Coast purchased from the grocery stores 2 to 3.6 times as much of important nutrients as did the low income group in the South. Obviously it is readily possible for the most poorly fed of the low income group to receive less than fifty per cent of the recommended allowances of important dietary ingredients. It has been said that there has never been enough food in the world to feed everyone well. There has been enough in America but without adequate distribution the averages have been meaningless.

One of the chief functions of rationing has been to bring about a more equal distribution of those scarce foods that would have otherwise gone to the high income group alone through competitive buying. There was a distinct drop in 1943 of the civilian supplies of meat, dairy products, fruits, vegetables and other protective foods. This was largely offset by a rise in consumption of cereals. Limitations on shipping space have made it necessary for the nutrition advisers of the government agencies to classify foods into (1) essential, or expedient or approved; (2) intermediate; and (3) dispensable (non-essential). Only those foods in class (1) are given full priorities for farm labor and shipping space.

Much effort has been given to finding adequate substitutes for the scarce high quality foods. Especially effective would be the substitution of vegetable products for meats, poultry and dairy products. The maximum conversion of feed into equivalent energy units of animal products is given in Table 3. Obviously the feeding of grains to farm animals results in great sacrifice of total feed value for the production of highly digestible, fine flavored foods rich in quality proteins, fats and some of the rarer vitamins. The search for high quality proteins among the legumes, peanuts and other plant products has led to the introduction of several new food products.

Finally, extensive studies have been made of losses of essential nutrients due to commercial processing and cooking. These have been published and given much publicity in an effort to reduce them to a minimum. The more important are listed in Table 4. In England and Canada much improvement in bread has been made by the adoption of a high extraction flour which retains much

TABLE 1
Average dietary intake of various groups, daily per person.

	Calories	Protein gm	Fat gm	Ca mg	Fe mg	Vitamin (A) I. U.	Thiamin (B) mg	Riboflavin mg	Niacin mg	Ascorbic acid mg
Recommended ¹	2800	70	136	800	12	5000	1.7	2.5	17	75
Army Station ² July 1941 ²	4146	132	186	966	25	11964	2.7	2.44	30.6	140
o Average American 1941 ¹	3480	89	144	860	15	6600	1.9	1.9	17	110
Average American estimated for 1943 ¹ ...	3048	84.2	129	810	13.3	5147	1.73	1.82	15.7	94
Average of 103 families in Madrid, 1941 ³	1602	66 (Animal) 22	42	301	11.4	3852	0.82	0.54	—	47.4

¹ The Annals, 1943. p. 111.

² J. Nutrition 25, 23 (1943).

³ J. Nutrition 24, 557 (1942).

TABLE 2.*

Ratio of intake by high income group on the Pacific Coast to low income group in the South.

Calories	2.2
Protein	2.7
Calcium	3.2
Iron	2.0
Vitamin A	2.3
Vitamin B	2.3
Riboflavin	3.6

TABLE 3.**

Kind of Animal	Use of Product	Percentage conversion of feed into calories of animal product.
Hog	meat	29.6
Dairy cow	whole milk	28.6
Chicken	eggs	11.3
Beef yearling	meat	11.0
Lamb	meat	8.0
Chicken	meat	7.8

of the minerals and vitamins of the wheat berry without the bad effects of too much undigestible fiber.

In conclusion it may be said that American farm production has met the demands of war without impairment of health due to shortages of essentials. Through rationing, giving of priorities to selected essential foodstuffs, the expansion of high protein crops, and the cutting of losses due to processing and cooking, a superior dietary for the lower income group in England has resulted from the war. This should serve as a lesson for the permanent improvement of the dietary of those people who have been malnourished in the midst of plenty. A diet need not be poor because it is inexpensive.

* Calculated from data on page 309 of U. S. D. A. Yearbook, 1939.

** Data taken from page 52 of Wartime Farm and Food Policy, Pamphlet No. 5 by O. H. Brownlee, Ames, Iowa, 1944.

TABLE 4.***

Food Value Losses Due to Processing and Cooking.

Refining sugar.	A pure carbohydrate from which all other food materials have been removed. Average consumption 112 pounds per year or 18.6 per cent of our calories.
Milling white flour.	A high carbohydrate food low in protein, fat, minerals and vitamins. Average consumption about 200 pounds or 35 per cent of our calories. The milling process has removed between 70 and 90 per cent of the vitamins and minerals.
Drying, canning, storing.	Each of these processes causes a loss of the unstable vitamins. In canned peas the vitamin C drops to half in one year of storage at room temperature. Sulfured dried apricots have lost all their thiamin. By standing one day on the grocers shelf fresh vegetables deteriorate greatly.
Blanching and cooking.	Losses of vitamins in the cooking of meats range from 10 to 75 per cent. In the cooking of many other foods losses of 50 per cent may be expected unless great care is taken. The following rules for meats are given: <ol style="list-style-type: none"> 1. Use low temperatures for all meat cookery. 2. Never overcook, but cook only to degree of doneness desired. 3. Use a meat thermometer to remove guesswork.

Suggestions by Bureau of Home Economics:

1. Don't stir air into foods while cooking.
2. Don't put them through a sieve while still hot.
3. Don't use soda in cooking green vegetables.
4. In boiling foods raise the temperature to the boiling point as rapidly as possible.
5. Use as little water as possible.
6. Don't use long cooking processes such as stewing when shorter methods are feasible.
7. Don't throw away the water in which vegetables have been cooked. Use it in making gravies, sauces and soups.
8. Prepare chopped fruit and vegetable salads just before serving.
9. Start cooking frozen foods while they are still frozen.
10. Serve raw frozen foods immediately after thawing.

More and more of us are getting our meals in restaurants and other public eating places where large-scale cookery is used. Studies of restaurants and institutional cooking indicate that losses are frequently very high.

*** Data taken from: The Annals 1943, pages 144-146; 69. Food & Nutrition News, April 1943. U.S.D.A. Circular No. 638, May 1942.