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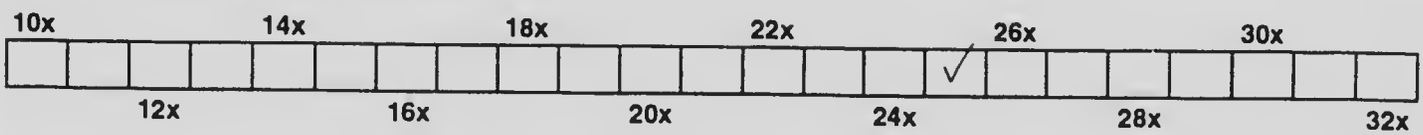

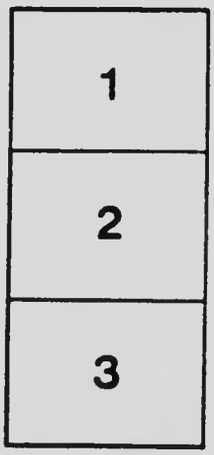

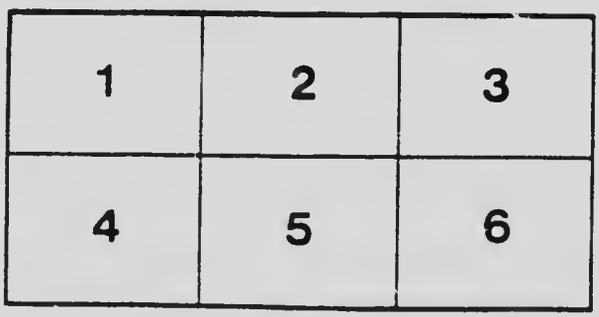

A YEAR'S CHANGES IN OUR FOOD HABITS

By

P. H. BRYCE, M. A., M. D.

Chief Medical Officer of the
Department of Immigration and Colonization
Ottawa, Canada

Read before the Food and Drug Section of the American Public Health Association, Chicago, December, 1918

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1919
(108)

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A YEAR'S CHANGES IN FOOD HABITS.

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REALIZING the enormous area included in the United States and Canada, involving distinct climatic conditions both from North to South and from East to West, it is manifestly difficult to estimate just what changes have taken place within a year or two in the food habits of our people in the several areas whose natural products vary so greatly.

Professor Taylor in his address before congress pointed out that quite notable differences existed in the food habits of the people of Southern Germany as compared with those in Prussia and the North Eastern Provinces, their diet being much more of a vegetable and fruit and less of a meat character. If this be true it need hardly be said that the people of the Southern States, where the banana and orange are native, would eat much less animal foods than those of the Northern States and Canada where hitherto the quantity of such has been from 8 to 10 ounces a day as the average for the whole population.

In any discussion of a year's changes in food habits we naturally think, however, chiefly of the changes which have resulted from the economies demanded by war needs, and it is to this phase of the subject that I shall especially direct your attention. During the past forty years the people of the Northern States, to a much greater extent than the conservative population of Great Britain, have changed their food habits from the time-honored meat and bread diet, to a very much more rational dietary involving the increased use of not only home-grown vegetables but also of the fruits of the South and West, which have been advertised with the business persistence of large corporations engaged in the shipping and forwarding business.

In an admirable booklet on the "Changes in the Food Supply and Their Relation to Nutrition," by Prof. M. B. Mendel of Yale, particular attention is given to this point, statistics therein showing that the value of the products of the orchards in the United States in 1840 was about $8,000,000 while the census of 1910 gives the value at $140,867,000. Similarly the small fruits contributed $3,000,000, grapes $22,000,000, citrus fruits $23,000,000 and sub-tropical fruits $2,000,000. It will thus be seen that while the population increased some five times since 1840, the use of fruits has increased over twenty times during the same period. While such a change in the use of fruits is incidental to the coming of the steamship and railway, associated with the enormous increase in urban population, it has nevertheless been accompanied by certain changes in the fashion of foods of a less desirable character. Thus the use of all wheat flour by the old milling process has been replaced by a flour made by the modern roller process from which for greater profits in by-products much of the protein and mineral salts have been removed. Not only in this way has the use of starches greatly increased, as well as of sugar, but the food of the growing children of our population has also lost much necessary protein, while the use of fats and oils formerly universal in the bacon of former times has notably been decreased. However, this disuse of the coarser fats and oils has in some degree

been made up by an increase in the use of butter, as the form of fat not only most palatable to the American but likewise the most digestible.

To the use of fresh vegetables must be added the enormously increased use of canned fruits and vegetables, the quantities of which are not included in the statistics already referred to. These amounted in the United States in 1908 to $120,000,000 in value. Another very notable change in the fashions or fancies in foods during the last twenty years is seen in the use of manufactured articles in which the ordinary grains are variously used in breakfast food packages. Apart, however, from the greatly increased cost of many of these foods, the development of a taste for these foods, perhaps more digestible through their partial change to sugar, has tended to the further use of hydrocarbons, lacking in the protein contents essential to a true food. As the chief analyst of inland revenue for Canada says: "The popularity of these foods is due to four factors: (1) Attractive and widespread advertising. (2) A growing tendency to save time in the preparation of the meal. (3) The guarantee of cleanliness furnished by the manner of packing. (4) The attractive flavor possessed by most of these foods." Another change in food fashions is seen in the use of milk products in the shape of flavored ice-creams as a condiment, thus removing the protein contents from a food formerly used in the shape of cheese.

Except in seaport towns it is probable that the use of fish has on the whole until recently decreased, not only owing to the lessened supply and increased cost, but also because fish unless absolutely fresh is usually held in disfavor. Indeed the popularity of fish judged from the amount of it canned, seems to have increased less during the last census period so far as increased quantity is concerned than any other canned product.

This brief review illustrates the changes which have taken place in the food habits of the American and Canadian people during the last half century. The direction of these changes has doubtless been toward supplying articles which, while more attractive to the palate, have likewise been more readily digestible for the large number of people, whose habits of living have lessened the need for the stronger protein foods as oatmeal, all wheat, rye and barley. On the other hand grave injuries have resulted to the nutrition of classes whose physiological needs have suffered through the lack of proteins, whether due to their high cost or to the indulgence of gustatory fancies. There is little doubt, however, but that the introduction of Southern fresh vegetables and fruits during the long winter of the North has proved on the whole greatly beneficial to that large class of workers to whom variety in their food has always proved difficult owing to expense.

We are now in a position to view the food situation as it actually exists in America after two years of unceasing submarine warfare, which has affected the normal distribution of foods owing to the needs of the Allies in the four essentials of wheat, bacon, sugar and fats, all of which have been steadily decreasing year by year during the last four years. That the situation of the allied people as well as of their armies has not really been serious as yet is in a large measure due to the experience and energy of Food Controller Hoover, whose administration of the Belgium Relief Food Fund probably fitted him to undertake the responsibilities laid upon him by the government as none other could. He was impressed with the great need which existed for the conservation of every

pound of food, which could in any way supply energy to the soldiers and keep those engaged in war work, such as munitions, at the maximum degree of efficiency under existing conditions, while maintaining the civil population of the Allies at the highest possible stage of comfort necessary to efficiency. The submarine warfare has added enormously to the difficulty of the situation. Even as late as August, 1918, after all the destruction of ocean tonnage since February, 1916, the losses due to submarines amounted to 327,675 gross tons of which 176,401, a slight decrease, was British tonnage. On the other hand to have some idea of the total tonnage arriving at British ports, it may be stated that there were 8,881,639 tons of shipping entering and clearing from the United Kingdom during the same month.

It is obvious then that the problem as shown by these various figures, rendered it necessary that every possible effort should be made to have transferred from this continent those foods especially high in their energy-producing value, most compact in bulk in comparison with their food values, least perishable and most constant in quality and least variable and cheapest in price. Such, as has already been pointed out, are the four items wheat, bacon, fats, and sugar. A further situation had to be met in that Canada during four years and the United States during the last year and a half had seen a large proportion of the man power of both nations being removed from production; so that we find that in spite of every effort there has been a steady reduction in the number of cattle and hogs and a decreased number of milch cows. Thus the Advisory Committee of Congress in May, 1918, reported 29 per cent less live stock in the United States, 20 per cent less hogs in Iowa and 3 per cent fewer milch cows.

It is obvious then that the first step to be taken was to ensure the largest possible saving in wheat to supply not only our own increasing armies in France and Italy, but also the other Allies dependent on us for food. As the Food Board has reported there were but 20,000,000 bushels surplus of the 1917 crop for export under ordinary conditions, yet 120,000,000 bushels of wheat were exported; which meant that the people of the United States had consumed 100,000,000 less bushels. This is all the more notable since the nutritive value of the poor crop of 1917 was less by 7 per cent than the average. Canada exported during the same period of wheat 85,000,000 bushels more than the average for the preceding three years.

It is further important to realize that the world's supply of food animals had fallen since the beginning of the war by 115,000,000. We have also recently been made to realize how dependent we are on this continent when we learn that the submarines off our coasts sank in a few months 50,000,000 pounds of sugar.

Manifestly then there were three things for us to do in this crisis, viz.:

1. Produce more of these several food supplies.

2. Conserve them in every way possible especially by consuming less.

3. Replace them by other kinds of foods.

With regard to the first our Food Controllers tell us that in 1918 the United States planted 10 per cent more winter wheat while Canada planted 6,000,000 acres more grain, equivalent to an increase of 120,000,000 bushels. England enormously increased her acreage up to the point of supplying 70 per cent of her own needs, having an increased acreage of 1,000,000 acres and 10,000,000 acres in crop; but the crops of France and Italy were notably less than the average.

Thus the sugar production of France in 1917 fell from 750,000 tons to 210,000. But a remarkable outcome of war needs is seen in the armies in the fields becoming their own food providers. Mesopotamia in 1918 has grown more grain than before in centuries of her history, having 7,000,000 acres in crops; while irrigation by pumping water from the Tigris has raised 25,000 tons of wheat and 100,000 tons of barley. Egypt has been once more a granary in time of dearth and has given 424,000 tons of barley in 1918 and will harvest an enormous crop of sugar.

Such are the chief illustrations of how the Allies' food supply has been assured for this year; but perhaps the most interesting phase of our subject is that in our second postulate of saving more by consuming less of these essential foodstuffs. We all know that none amongst us has suffered from a dearth of available food, although the poor may have been injured through high prices. It is of course true that some corn, rye and barley have been introduced into our bread, some glucose into our sugar supply, and some fish into our animal food supply; but essentially we have not seriously shifted the movable weight on the food balance so far as our necessary calories are concerned except perhaps to lessen their excess. C. L. Langworthy, chemist to the Department of Agriculture, Washington is quoted as saying that we ordinarily eat three times as much meat as we need and that saving is possible is seen in the fact that Canada's excess meat export last year with fewer animals grown was enough to feed 500,000 soldiers at the front.

Now with these facts before us we naturally enquire what changes have taken place in our use of foods. All will at once turn to what he is personally cognizant of, viz.: the war garden. Professor Taylor in illustrating the means by which hard-pressed Germany has been able to carry on, tells us that her population through each urban dweller having been given a plot of suburban land to cultivate, has supplied at least 30 per cent of the food necessary for their sustenance. How much this has meant will be understood when we remember that before the war 70 per cent of the whole population in Germany was urban. Now in less degree, indeed, because the necessity has not been so pressing, all have turned to war gardening in America. It is difficult to obtain accurate statistics because so many people have simply enlarged their previous summer gardening and these have been of course the most efficient. However, the Food Board of Canada reports an estimated total of 15,000 acres under cultivation in 1918 based on five times the acreage in 1917.

In the Northern States and Canada undoubtedly the greatest increase has been in the potato crop. Germany indeed has long appreciated the value of this source of food. Professor Prescott's analysis gives the following results:

Potatoes.	Per cent.
Water	78.3
Protein	2.2
Fat	0.1
Hydrocarbon	18.0
Ash	1.0

Calories per lb., 385

Bananas.	Per cent.
Water	75.3
Protein	1.3
Fat	0.6
Hydrocarbon	22.0
Ash	0.8

Calories per lb., 460

Fortunately it is food so simply grown that many of the wage-earning class have been able to provide enough to supply

their own household requirements, while cooked in the usual way it serves as the most important item in replacing our bread supply. There is, however, no food whose useful possibilities have been more restricted in America, than the potato. With 80 per cent of water and sold generally at a low price, the cost of transportation of the raw product limits its use largely to its home district. By dehydration or drying and its conversion into chips or potato flour it could become here as well as in Germany one of the most important sources to replace wheaten flour as a food for our people. How important these alternative food supplies are may be judged from the fact that the saving of a single pound of bread in America per person weekly will increase the wheat export by 100,000,000 bushels annually.

Incidentally it may be stated that the use of the sweet potato and the banana in the South is in the same category and, as Professor Prescott states, the banana at 5 cents per pound is next to dried beans and bread the cheapest food when measured in calories or fuel value. But the war garden has played a further use in its supplying food during the summer from the earliest onions, lettuce, beets, peas, and beans, to the later corn, tomatoes, carrots, parsnips, and celery, all of which in succession have supplied material for canning and drying up to the needs of the many householders. In addition to home products, it is probable too that the output of the canning companies in these and other vegetables and fruits has been notably increased and will be made ancillary, as canned goods, to the overseas supplies for the army.

In addition to the war gardens Canada has seen during the year a very notable increase in the home consumption of fish. With an abundance of meats from homegrown animals the Canadian people, chiefly located inland, have preferred through convenience to eat animal rather than fish food. The increase in the number of fishermen and the capital invested in fishing showed no marked increase in the decade 1900–1910. Possessed on both coasts of probably the most valuable fisheries in the world, both on account of the climate and the indented character of the coasts, Canada until only recently, owing to other more attractive or less strenuous occupations, has allowed this great source of food and wealth to remain undeveloped in proportion to its possibilities. Enormous supplies of a variety of edible fish as halibut, sole, skate, and flat fish exist in Canadian waters; while in the Great Lakes and the thousand inland lakes of the Laurentians immense quantities of the best fresh water fish are available. To indicate how rapidly this source of food supply has been utilized, it may be stated that since the Food Board took up the matter seriously, the number of licensed wholesale fish establishments in Canada increased from 900 to 1,550, including 900 headquarters; while 55 per cent of the total western fish catch was consumed at home as compared with 15 per cent the previous year. A single trawler caught 120,000 pounds of flat fish and cod in eight days off the North British Columbia Coast which were frozen when landed, when not sold for immediate consumption; while cod and halibut from the west coast sold in Montreal at 12½ cents per pound and mackerel from the Atlantic was sold at similar prices. Indeed in May, 1918, the fish consumption of Canada was one pound per week per capita, and 8,500,000 pounds were sold in the first five months of 1918 as compared with 5,000,000 pounds last year.

In no item perhaps have the people of this continent been more disturbed than in the restriction of the sugar supply.

Sugar since the early days of sorghum and sugar cane in the South and maple sugar in the North has been used much as salt or any other condiment. In spite of occasional medical warnings as to its injurious effects if used in excess, from babyhood to old age, our people have cultivated a sweet tooth. The old time candy stick and candy crystals may have been replaced by more expensive chocolates and other confections; but sugar is used everywhere from the pickaninny who chews sugar cane to the Northerner, who from using maple sugar has looked upon sugar as an elementary food. There is little doubt, however, that its restriction to some extent through being replaced by oatmeal, barley, meat, peas and beans, with more use of milk would prove a distinct benefit to the growing children of our continent, whose sweet tooth has been allowed to control indulgent mothers rather than the knowledge that the proteins and fats are much more essential to the development of the growing animal.

A word need be said regarding the use of milk and milk products. The value of milk as a complete food for children and for general use in a mixed diet is everywhere accepted, and it is now only a question of obtaining it in sufficient quantity and quality at any reasonable price. We are all familar with the struggle that has gone on between the producers and milk-dealers on this continent during the past two years. It is stated that 30 per cent of the milch cows in New York state instead of the usual 17 per cent were slaughtered in 1917. The demand for meat was so great and prices so high, cattle food so costly and labor so scarce and expensive, that the farmer seemed perfectly determined to either get much more for the milk or go out of the business. The evidence from the Chicago official investigation seemed to prove that a similar situation has everywhere existed. Statistics are difficult to obtain; but it is probable that in no one particular have the infants and children of the poorer people been affected more seriously than in a lessened milk supply; while as for eggs, their use would seem to have been restricted largely to the wealthy and to those provident householders, who have kept a dozen hens and fed them on garden and household refuse. If milk foods, such as cheese, have been increased for export as war food at the expense of the children's food, it could only be excused on the ground of some pressing necessity, but we have good evidence to know that the milk problem was serious before the war and will only be solved when it is managed as a municipal utility as to quantity and quality and distributed on some basis as efficiently as is public gas, electricity, coal and water. If the evolution of society is to make three-fourths of the people non-producers of food and urban residents, then public safety and efficiency demand that food, the first item in the life of the people, be regulated as carefully by government, whether general or municipal, as the quantity and quality of the water and other liquid supplies.