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## CHANGE IN THE AMERICAN NATIONAL DIET, 1879-1959\*

The primary purpose of this paper is to describe, and in minor degree to analyze, the more conspicuous trend changes in the American national diet during the eight decades 1879-1959; and to consider what further changes appear to be probable in the decade 1960-70. A secondary purpose is to present in condensed and somewhat unusual form historical-statistical data on per capita "consumption" of important foods or foodstuffs individually and of less important ones in affiliated groups (Appendix Tables I-III). It is hoped that these tables will prove useful to students of national food utilization as compact though comprehensive reference materials. The meaning of the word "consumption" is examined in the first section below.

The basic statistics of national food consumption are official, as estimated by the United States Department of Agriculture annually beginning with 1909, in comprehensive publications of which the first appeared in 1949 (1), the second in 1953 (2), subsequently supplemented and revised (3; 4). Here we do not deal with annual data, but, in the interests of condensation and in order to focus attention upon long-term trends, with three-year averages spaced a decade apart.

In order further to describe and emphasize long-term trends, we have prepared estimates, designed to be comparable with the official data that date from 1909, for the earlier decennial census years 1879, 1889, and 1899. While the procedures in preparing these pre-1909 estimates are not described here, they are available in multigraphed form to interested students on request. In the charts which follow, we treat the estimates for 1879, 1889, and 1899 as if they represented three-year averages centering on the census years.

It will be observed of the three Appendix Tables that each refers to national consumption per capita of 40 foodstuffs, foods, or groups of these. Prior to 1940, the figures refer to the total population of the United States but after 1940 to the civilian population; and the youngest states, Alaska and Hawaii, are not covered by the statistics. Table I expresses the data in terms of pounds consumed per

\* This study has been facilitated by a grant of funds from General Mills, Inc., made in 1952 in support of a study (unpublished) of trends in the consumption of grain products. Full responsibility for methods and findings lies with the authors, who have had the advantage of critical readings of manuscript by their colleagues, Helen C. Farnsworth and V. D. Wickizer, and by Dr. Marcus A. Krupp of the Palo Alto Medical Research Foundation and Miss Phyllis Ullman, nutritionist, of the Palo Alto Medical Clinic.

capita per year; Table II, in terms of calories consumed per day. Table III, based on Table II, shows the percentage contribution of each of the 40 food groups to total calories consumed. Only the data in Table I (after 1909) on poundage of foods consumed per capita per year, and on *total* calories consumed per capita per day as in Table II, are derived directly from official publications. Official estimates of poundages consumed per capita per year, if fully presented, would involve more than 200 series, which in the interests of condensation we have by selection and combination reduced to 40. In Table II, the data on calories consumed per capita per day, aside from the grand total, represent our calculations.

It appears desirable at the outset to stress the probability that errors exist in the statistical picture of changes in per capita consumption here given in tables and charts. The number of food items actually consumed is so large that complete statistical coverage seems too much to expect, and indeed there is deliberate omission of alcoholic beverages. It is not possible to estimate with precision even the national production for example of potatoes or milk, to say nothing of the fractions "consumed." Again, conversion of poundages per capita to calories per capita is not an exact operation, and even decennial counts of the human population may have their margins of error. We have accordingly chosen here to focus attention on changes statistically so conspicuous as to seem likely to represent historical fact.

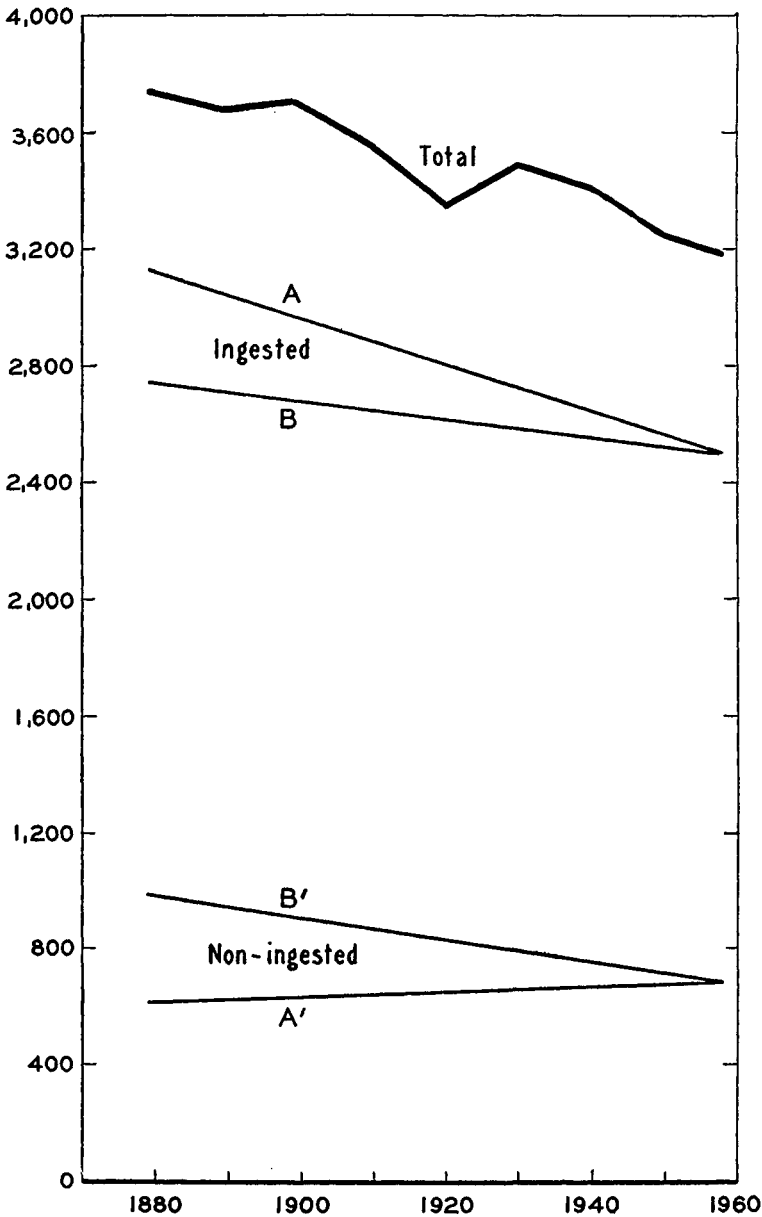
#### TOTAL FOOD CONSUMPTION (AND INGESTION)

A conspicuous feature of American food consumption over the past eight decades is a tendency for food-calorie consumption per person per day to decline rather persistently, as indicated by the upper line in Chart 1. From 1879 to around 1958, the decline approximated 550 calories or nearly 15 per cent; from around 1910, when the official statistics begin, to around 1958, the decline was about 365 calories or 10 per cent.

Measured in terms of pounds of food consumed per capita per year, the decline is smaller: about 9 per cent from 1879 (1,615 pounds) to 1958 (1,475 pounds), about 8 per cent from 1910 to 1958. The smaller decline in weight than in calorie content of all food consumed per capita reflects change in the composition of the national diet. Foods relatively high in calorie content per pound, weighing about 898 pounds per capita around 1879, had come to weigh only 673 pounds by 1958, while foods relatively low in calorie content per pound (such as milk, fruits, and vegetables) had risen in per capita consumption from some 717 to 802 pounds.

The extent of decline in calories consumed per capita per day, 550 over eight decades or 365 over five more recent decades, appears sufficiently large to be factual rather than a mere reflection of inaccuracy of accounting. On meager evidence we suppose that omissions, the bulk of them representing the alcoholic beverages, would not have exceeded 200 calories per capita per day or have fallen below 100 calories even in the three-year periods 1919-21 and 1929-31 affected by national prohibition, when there was nevertheless a good deal of officially unrecorded production and consumption of alcoholic drinks. If the variance was in fact only of such magnitude, the general trend of consumption of all food

CHART 1.—TOTAL FOOD CALORIES CONSUMED PER CAPITA PER DAY IN THE UNITED STATES, AND HYPOTHETICAL CALCULATIONS OF PORTIONS INGESTED AND NOT INGESTED, FROM 1879\*



\* Basic data from Appendix Table II; see text for calculations.

calories per capita per day, while moving at a higher level, would be little affected as to direction and magnitude of change.

What the trend of per capita consumption of food calories may have been

between 1800 (say) and 1879—whether downward, horizontal, or rising—seems indeterminate on the basis of existing statistics. If our estimates of levels of per capita calorie consumption around 1879, 1889, and 1899 are reasonably dependable and comparable with the official estimates after 1909, they suggest that definitive downturn may have begun around 1900, since it is not clearly in evidence earlier but appears from decade to decade thereafter with the exception of the decade 1920–30. The exceptional three-year period following 1899 is 1919–21, when per capita calorie consumption fell below the general trend apparent from 1899 to 1959. Possibly the high postwar food prices of 1919–20, coupled with high unemployment in 1921, prompted an unusual exercise of household economy in the nature of curtailing household waste; but we are unable to marshal specific evidence. It seems unlikely, however, that human ingestion of food would have been appreciably curtailed.

“Consumption” of food calories represents, in a way that cannot be exact, what food exists at “retail level,” or is made available for purchase for table use by the civilian population. It represents both food that is ingested and food that escapes ingestion largely by wastage and spoilage although it may be said to be “destined” for human ingestion. The question inevitably presents itself whether the decline in total estimated per capita food “consumption” reflects downward drift solely of ingestion, solely of noningestion, or of both.

The four lower lines on Chart 1 point to various possibilities. We may first assume that in recent years the level of per capita food ingestion has stood in the neighborhood of 2,500 calories daily. Some nutritional scientists might hold the opinion that such a figure is rather above than below the middle of the probable but unmeasured range. Many reasons could be advanced to support the probability that daily per capita calorie ingestion has declined, chief among them being continuing reduction in physical activity of the average adult person as mechanical power has supplanted human effort, on the farm, in industry, and in the home; and diminishing degree of exposure to cold weather accompanying reduction of outdoor winter work, improved indoor heating, and some shift of population to milder climates. Probably conscious effort to restrain food intake has had some effect, more in late than in early decades. It seems improbable that increase in average adult body size (height), while it has occurred and would tend to increase ingestion, could significantly have offset these influences working toward lower food intake per person.

If ingestion of calories per capita should have been as much as 25 per cent higher around 1879 than around 1958, the drift of per capita ingestion would have been as hypothetically shown by line A on the chart; and so large a downward change in ingestion would imply a small trend increase in noningestion, as hypothetically shown by line A'. On the other hand, if per capita calorie ingestion had been only 10 per cent higher in 1879 than around 1958, noningestion per capita would have been falling, not rising, and about as much as ingestion (line B and line B'). There appears to be no conclusive evidence regarding the amount by which per capita calorie ingestion has fallen. As to noningestion, conflicting major influences have presumably been operating: on the one hand, numerous improvements in preservation of food in and between retail establishments and homes (storage, transport, packaging, canning, refrigeration); on the

other hand, rising per capita income, such as might give wider scope to wastage of remnants and scraps.

There has certainly been increasing economic scope for wastage of food. The gross national product (GNP) per capita—an indication of per capita money income—is estimated to have risen from about \$210 in 1889-93 to about \$2,620 in 1957-59 (5, p. 139; 6, p. 8). Consider the cost at retail of a "basket" of important foods, comprising 172 pounds of wheat flour, 29 of corn meal, 102 of sugar, 138 of white potatoes, 17.8 of butter, 19.2 of bacon, 13.0 of lard, 44.4 of pork chops, 38.8 of round steak, 40.4 of eggs, and 272.7 of whole milk. Such a "basket" roughly represents per capita annual consumption around 1930; it would provide about 2,500 calories per day, more than two-thirds of total calorie consumption in any period; the commodities included are the only ones for which we find retail prices reported as early as 1890 and also as late as 1959. This basket would have cost about \$47 in 1890-91 and about \$198 in 1957-59. With the per capita GNP of 1889-93, about  $4\frac{1}{2}$  such baskets of food could have been purchased. With the per capita GNP of 1957-59, about 13 baskets could have been purchased.

Such a calculation, while inevitably inexact, indicates clearly enough that the population has been in a position both or either to expand continually its savings and its purchases of the many nonfood elements in the family budget, or to shift the composition of the family diet increasingly toward relatively expensive foods, or to become increasingly tolerant of food wastage. In the matter of waste or noningestion of food calories per capita, however, no firm conclusion about even the direction of long-term trend seems tenable at present, although decline in per capita ingestion seems highly probable though not measurable.

The amount of noningestion of the food calories that were available at retail level—between 600 and 1,000 calories per day on the assumptions lying behind Chart 1—seems almost incredibly large. Perhaps the basic assumption that actual ingestion has recently stood at only 2,500 calories per day is in error. Our knowledge of food consumption would be appreciably enhanced by a scientific statistical inquiry on that point, as well as upon the volume of noningestion and its components. Of any particular group of foods or any particular foodstuff, as with food in general, we cannot now be certain what fraction is ingested and what fraction is not. Observation may suggest that a high proportion of caloric noningestion occurs with the fatty portions of meat and the fractions of bready items which became stale, yet the truth even of this calls for verification. Waste from potatoes, vegetables, and fruits, while no doubt considerable in weight, could hardly be of high importance in calorie noningestion.

#### CHANGE AMONG COMMODITY GROUPS

The long list of food items of which the national consumption is officially estimated can be arranged into several sorts of groupings. If, for example, one wishes to know how the decline in total food-calorie consumption per capita was reflected respectively in animal and in vegetable products, the answer can be given that it was wholly in vegetable products. Per capita consumption of animal products from decade to decade has held within almost as narrow a range as 1,200-1,300 calories per day, whereas calories derived from vegetable products

have fallen from nearly 2,500 to somewhat below 1,900. In percentage terms, and in view of decline in the total, animal products have risen from 34 to 41 per cent of the whole, while vegetable products have fallen from 66 to 59 per cent.

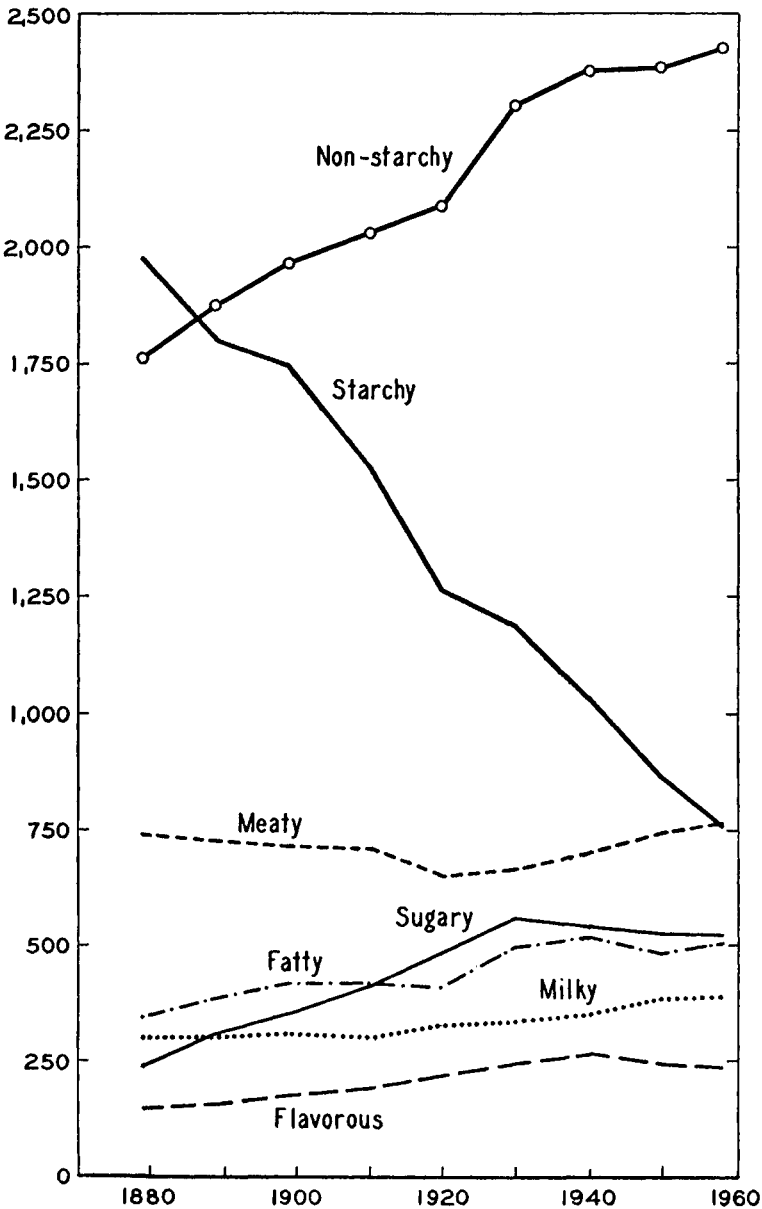
Again, the foods might be grouped with reference to their principal sources of origin in crops and in livestock herds. Such a classification would show broadly that calories per capita derived from the cattle herd have tended to rise a little while those from the pig herd have tended to fall slightly; a great decline appears in calories from the grain crops; a rise, notable until the 1930's but not thereafter in calories from sugar cane and beet; and a rise of moderate magnitude in calories per capita from all other sources, especially oilseeds and the national poultry flock.

A different grouping will serve present purposes. By and large, housewives and restaurateurs concerned with preparation of daily meals may be said to assemble them from principal groups of foodstuffs reasonably to be designated as starchy, fatty, meaty, sugary, milky, and flavorful. Examples of members of such groups are wheat flour and corn meal; butter, lard, and salad oil; beef, pork, chicken, and eggs; granulated sugar and honey; whole milk and cream; oranges, apples, tomatoes, onions, and cabbage. It seems probable that the American heavy meal of the day, whether taken at noon or near dusk, is and long has been typically constructed from a combination of items commonly drawn from all six of these principal groups. The evolution of the national diet can reasonably be regarded as shift of emphasis, brought about by the choices of consumers, among the food groups contributing to the principal daily meal.

Chart 2 shows that only one of the six groups of food, the starchy, has tended over eight decades to decline uninterruptedly in per capita consumption, whereas the other five groups taken together have provided an increasing number of calories per capita from decade to decade. Per capita calories from starchy foods have obviously declined much more than calories from all foods, as evidenced by the rise in calories from nonstarchy foods in the aggregate. The starchy staple ratio (percentage of total food calories derived from starchy foods) has fallen from about 53 per cent around 1879 to some 24 per cent around 1958. In 1879 per capita calories from starchy foods were 112 per cent of calories from all other food; by 1958 the starch-food calories were only 31 per cent of the nonstarchy. This decline in the consumption of starchy foods relative to the total, while consumption of the nonstarchy rises, is the most conspicuous feature of long-term change in the composition of the national diet.

The change appears explicable basically as a reflection of mass consumer choice implemented overwhelmingly by persisting increase in per capita real income. It hardly seems credible that consumers have been influenced over close to a century to exercise such choice chiefly through either advertising or nutritional counsel. Nor can evidence be mustered to show what might well be taken as an effective influence: an increase in the price of starchy foods relative to the price of nonstarchy foods. Meager evidence on the contrary suggests that as a group, though by no means individually, the nonstarchy foods have risen in price, from around 1890 to around 1958, somewhat more than the starchy foods. Thus 20,000 calories made up equally of wheat flour, corn meal, and potatoes, would have cost at retail in 1890 about 56 cents and around 1958 about \$2.25, a fourfold increase in price. But 20,000 calories made up equally of sugar, butter,

CHART 2.—CONSUMPTION PER CAPITA PER DAY OF CALORIES DERIVED FROM SIX MAJOR FOOD GROUPS, FROM 1879\*



\* Data from Appendix Table II. Nonstarchy, not shown there, is total calories minus calories from starchy foods.

bacon, lard, pork chops, round steak, eggs, chicken, and milk would have cost at retail \$2.29 around 1890 and \$10.86 around 1958, nearer a fivefold increase. On the whole, long-term price changes thus appear in themselves to have been such as might have prompted the starchy staples to rise in consumption, not to fall.



This is not to say, however, that changing relative prices have had no probable influence whatever on the commodity composition of the diet. What can be said is that one finds contradictory indications of price influence. Thus from 1890 to around 1930 per capita consumption of sugary foods was persistently rising while that of wheat flour (at least from 1899) was persistently falling; and these trends of consumption accord with change in relative retail price, for over those 40 years sugar prices fell in relation to wheat-flour prices, declining from 3.6 to 3.4 cents per 1,000 calories, while wheat-flour prices rose from 1.8 to 2.7 cents. Yet from 1930 to around 1958 sugar prices continued to fall in relation to wheat-flour prices, while sugar ceased to rise in per capita consumption and wheat flour continued to fall. Notable also is a persistent rise in per capita consumption of milky products, among which whole milk is dominant. This rise took place concurrently with the decline in flour consumption in spite of the fact that there was no change in the milk price relative to wheat; between 1890 and 1958 whole-milk prices rose from 10.2 to 37.8 cents per 1,000 calories, wheat-flour prices from 1.8 to 6.6 cents, with milk prices 5.7 times those of flour in both periods. Thus the trend changes in composition of the national diet seem explicable at best in small or moderate degree as response to changing price relationships. With the wider range of choice permitted by steadily increasing per capita income, people over the decades have chosen to diversify their purchases, retreating from the once-predominant starchy group of foods toward each of the nonstarchy groups—not, presumably, in utter disregard of price relationships, but surely without much clearly perceptible governance by them. If diversification of diet were to occur, it seems expectable that foods commonest in the early years—the starchy staples—should be the group to be selected for reduced intake.

Over the whole period, the five nonstarchy food groups have not, as Chart 2 shows, advanced with identical regularity and to identical extent. The sugary group has risen most between 1879 and 1958, more than doubling with an increase of 285 calories per capita. The fatty group, increasing by 163 calories, shows the increase of second magnitude. With increases of 96 and 88 calories respectively, the flavorful and milky groups follow, while meaty products show an increase of only 29 calories per capita.

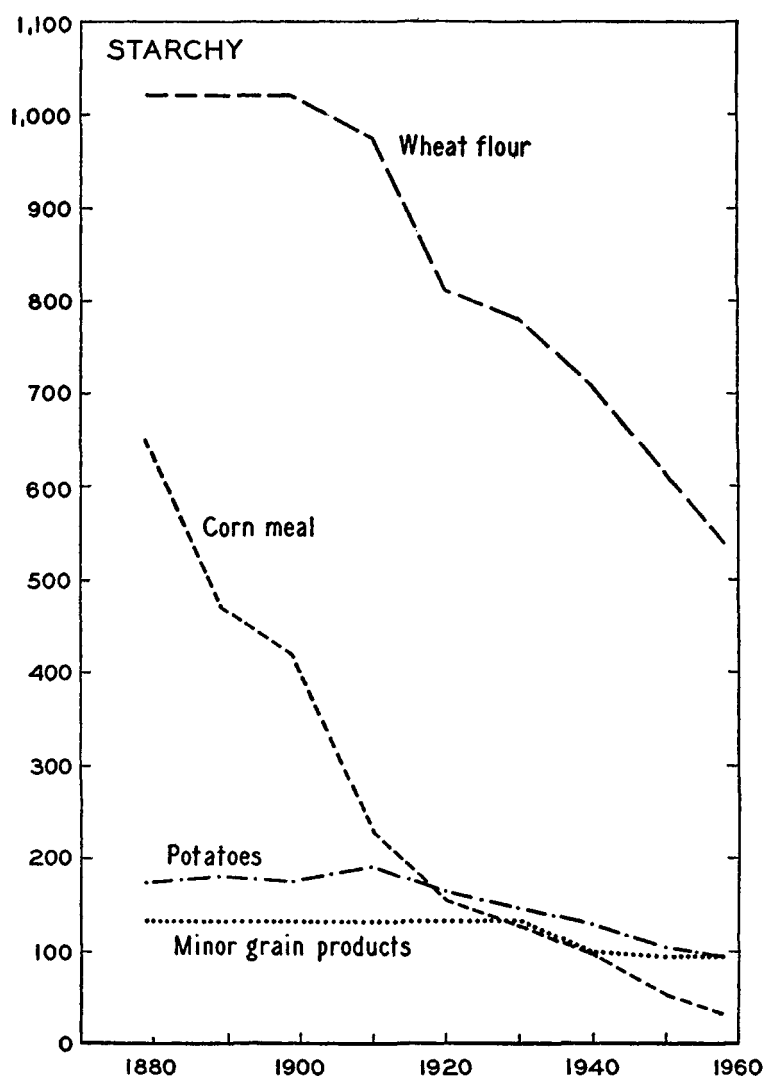
But if one looks at developments over only the past three decades, since 1930, the trends are quite different. In that period only the meaty and the milky groups increased definitively in per capita consumption of calories; others held about unchanged, though sugar has fallen somewhat. Thus, over the whole period and considering all six commodity groups, it is only the starchy and the milky that show persistent trends. Trends of the meaty and the sugary groups have reversed themselves. The trends of the fatty and the flavorful groups, on the whole upward until around 1930, appear nearly horizontal thereafter.

What has happened to any of the six groups of food may not be reflected, however, in each of the components of a group. To make the record of change more complete, we consider those components next.

#### COMPONENTS OF COMMODITY GROUPS

The group of starchy foodstuffs, which alone among the six major groups has persistently lost public favor, may conveniently be arranged into component parts shown in Chart 3 as wheat flour (including semolina), corn meal and flour,

CHART 3.—CONSUMPTION PER CAPITA PER DAY OF CALORIES DERIVED FROM FOUR COMPONENTS OF THE STARCHY FOODS, FROM 1879\*



\* Data from Appendix Table II. Potatoes are both white and sweet (Series 4 and 10).

potatoes (white and sweet), and minor grain products. The group of minor grain products comprises milled rice, wheat cereal, corn cereal, cornstarch, hominy and grits, rye flour, buckwheat flour, oat food products (mostly oatmeal), and barley products (meal, pearl barley, malt not for brewing).

Each of these four subgroups of the starchy foodstuffs has shared in the general decline. Loss of public esteem naturally had its strongest impact upon the subgroups standing highest in consumption in early years, the wheat flour and the corn meal. If the pre-1900 estimates are to be trusted, corn meal declined most, by over 600 calories per head per day from 1879 to 1958. Somewhere between 1900 and 1910 corn meal lost (to sugar) its position as the second most important single foodstuff in the national diet as a source of calories, and by

1958 had become a minor source, scarcely more important than peanuts. The public retreat from wheat flour, the leading single source of calories for eight decades, began later, around the turn of the century. As yet the decline in daily per capita consumption of wheat flour, around 480 calories between 1900 (or 1879) and 1958, has been smaller than that of corn meal though otherwise larger than with any other foodstuff. Decline in consumption of potatoes seems not to have begun until after 1910, and of minor grain products as a group perhaps not until after 1930.

Detailed evidence is lacking concerning what end-products of wheat flour have borne the brunt of the decline. But the common opinion appears valid that bread and biscuits, especially the home-baked, have lost much more ground than cakes, pastries, doughnuts, and other sweet goods made largely with wheat flour. Perhaps flour-thickened gravies have lost ground. Whole-wheat bread may have gained somewhat, though not to the extent desired (to judge by recommendations) by nutritionists. On the other hand, cooked alimentary pastes made from semolina—here merged statistically with wheat flour—have risen from about 4 pounds per capita generally around 1909 to around 6-7 pounds four decades later.

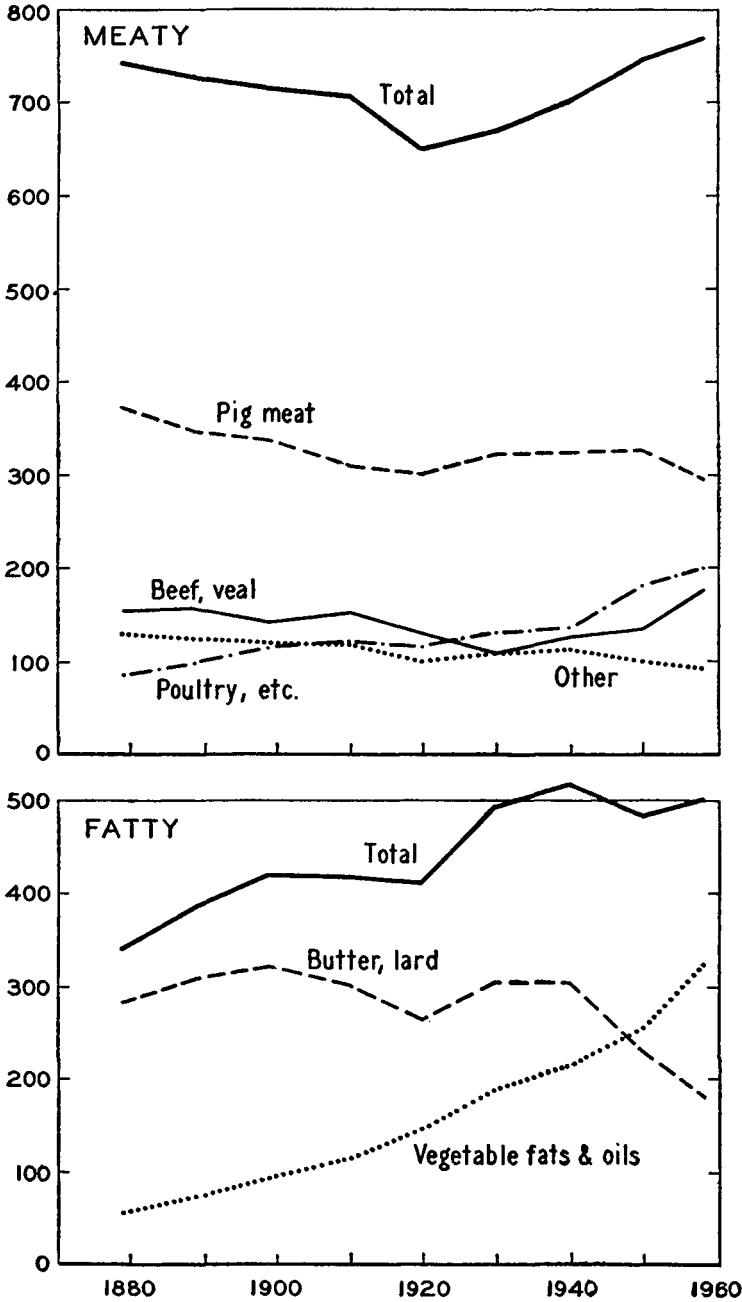
Of the nine items comprising the minor grain products, none has increased as much as semolina has done from 1909, when the official accounting begins, to around 1958. Cornstarch, corn cereal, oatmeal, and wheat cereal have increased a trifle in per capita consumption over the whole period. Milled rice, rye flour, hominy and grits, barley products (for food, not brewing), and buckwheat flour have definitely fallen, the last nearly to the point of disappearance, although only the rye and the buckwheat flour seem to have fallen in consumption consistently from decade to decade. Statistically at least, there were moderately conspicuous bulges in the use of rye flour and rice during World War I; and in barley products, corn cereal, and oatmeal during the era of prohibition ending in 1933—perhaps in some degree associated with home brewing.

While the decline in per capita consumption of all potatoes began in the decade following 1910, white potatoes lost favor first. The decline in sweet-potato consumption is not suggested statistically until after 1920. Conceivably food habits in the southeast, the national stronghold of sweet-potato consumption, were somewhat slower to change than elsewhere. In absolute amount, annual consumption per capita of white potatoes fell from around 181 pounds at the peak in 1909-11 to 98 pounds in 1957-59. Sweet-potato consumption declined less in weight, from 34 pounds in 1919-21 to 9 pounds in 1957-59, but more in terms of percentages. There are now probably few localities where the sweet potato remains the staple food that once it was.

In spite of its heavy decline in per capita use, wheat flour remains the preferred item in the group of starchy foodstuffs. It contributed 51.5 per cent of all starch-food calories in 1879, and decade by decade without interruption the percentage grew larger, to reach 70.8 per cent in 1957-59.

The group of meaty foodstuffs, which by 1958 had come slightly to exceed the group of starchy foodstuffs as a source of national food calories, is not dominated by any single component to the degree in which wheat flour has dominated among the starchy foodstuffs. Meat from pigs, however, has regularly contributed more calories than any other product, as shown in Chart 4—slightly more

CHART 4.—CONSUMPTION PER CAPITA PER DAY OF CALORIES DERIVED FROM FOUR COMPONENTS OF THE MEATY FOODS AND TWO COMPONENTS OF THE FATTY FOODS, FROM 1879\*



\* Data from Appendix Table II. Pigmear is lean pork plus bacon and saltside (Series 25 and 26).

than half of the group total around 1879, but considerably less than half by 1958; pigmeat in both its components, lean pork and bacon and saltside, has lost in relative importance among the meaty foodstuffs. This is even more consistently evident of the heterogeneous group of "other" meaty items, which includes offals, game, fish, lamb and mutton, and also dried beans and peas, which though vegetable products are commonly used as meat stretchers or substitutes. During the past three prosperous decades, for which the basic data are presumably the most reliable, public preference seems to have turned somewhat away from the pigmeat and the "other" products (as a group, though not with respect to offals and game), in favor of beef and veal and of a group made up of fowl, eggs, and cheeses. Per capita consumption of fowl and of cheese has doubled since 1930. Increased efficiency in the production of poultry accompanied by reduction in relative price may well have influenced the recent sharp upward trend of fowl consumption, more notable after 1940 than before. Poultry meat has risen in per capita consumption much more than eggs; the tendency has grown to slaughter the birds before egg-laying has begun. On the other hand, price changes are not helpful in explaining the larger rise in beef consumption per capita between 1930 and 1958 (from 39 to 65 pounds annually) as compared with lean pork (a decline from 44 to 41 pounds), for retail prices per pound of round steak rose by 60 cents (from 41.3 to 101.7 cents) while prices of pork chops rose by 53 cents (from 34.4 to 87.9 cents).

Pigmeat and beef contain substantial proportions of fat as well as of lean meat. While statistics are unavailable, observation suggests that the lean fraction has always been predominantly ingested. To those whose memory spans four or five decades, observation might well suggest that over the years there has been, on the contrary, a tendency for more and more of the fat fraction of meats cooked in homes and restaurants to escape ingestion and end up as scrap or in garbage.

In the last few decades there may well have been changes in public esteem of the various end-products of beef and pig carcasses. Observation suggests but does not clearly demonstrate, with respect to beef, that stews and roasts have fallen in favor as compared with such items as steaks, ground fresh beef, and frankfurters. Salt fat pork in various forms, and roasts of fresh pork as well, may have lost prestige as compared with cured pork such as ham and bacon. Luncheon meats of varying composition appear to have gained ground. In general, public favor seems to have turned toward items requiring relatively little of the housewife's time to prepare.

The group of fatty foodstuffs includes on the one hand the animal products, butter and lard, on the other hand shortenings, edible oils, and margarine that are chiefly of vegetable origin. The group total has tended erratically to rise in per capita consumption, though with a tendency to stabilize during the past 30 years (Chart 4). Decade by decade the vegetable fats have gained in public favor: around 1879 they contributed only about a sixth of all calories from fatty foodstuffs, but by around 1958 their fractional contribution had risen to more than three-fifths. The rise of vegetable fats in per capita consumption over the period of eight decades is equaled, among all subgroups of the six main commodity groups, only by the increase in consumption of cane and beet sugar.

Since around 1910 at least, the gain in the three components of vegetable-fat consumption to around 1958 has been greater in edible oils (9.3 pounds per

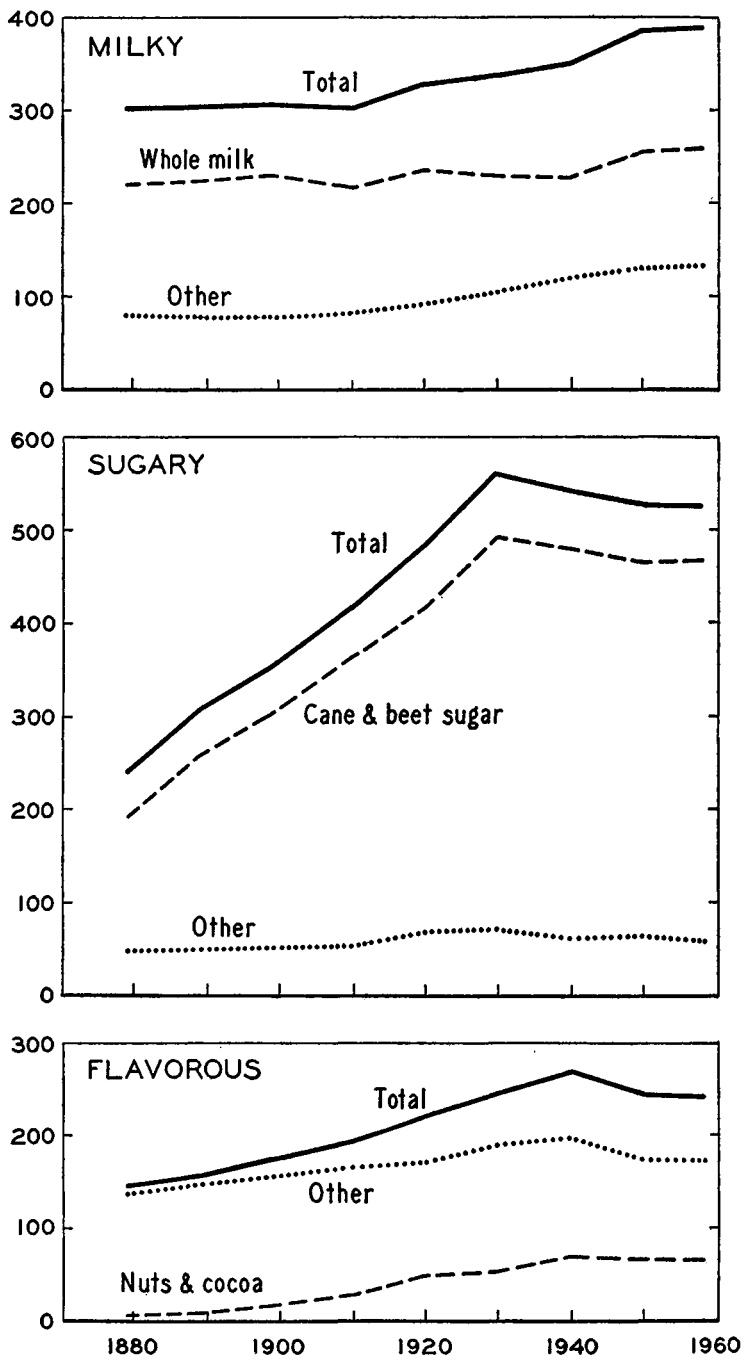
capita) than in margarine (7.6 pounds), in margarine than in shortening (3.4 pounds). The culinary drift toward salads has been notable. So also has been substitution of margarine for butter, a conspicuous change in composition of the national diet especially over the past two decades, associated with relaxation of legal restraints upon the coloring of margarine and improvement in quality, flavor, and vitamin content of margarine itself. From 2.5 pounds per capita around 1940, consumption of margarine had risen to 8.9 pounds by around 1958, while consumption of butter had fallen by an even larger amount, from 16.8 to 8.3 pounds. While butter prices per 1,000 calories have consistently much exceeded margarine prices, the disparity appears not to have been notably effective on consumption until the two products came to resemble one another closely. In the two decades following 1940, though not earlier, public favor turned against lard as well as butter, lard consumption per capita declining from 13.6 to 9.4 pounds between 1939-41 and 1957-59, with most of the decline occurring after 1950. A moderate rise of 1.4 pounds in consumption of vegetable shortenings (solid fats) compensated for only about a third of the decline in lard consumption.

Not all of the fat in national food purchases is encompassed in the group of fatty foodstuffs; as was noted above, the meaty foodstuffs contain large quantities of fat, especially the bacon and saltside from pigs. Official estimates for 1957-59 imply an average daily per capita consumption of 1,323 calories of fat from all foodstuffs, as against only 503 calories from the group of fatty foodstuffs as here defined. The total of fat calories purchased per capita has risen by 15-16 per cent from either 1909-11 or 1919-21 to 1957-59, and the proportion of fat calories to total food calories has increased, partly because of decline in total calories, from about 32 to about 42 per cent. The apparent high level of fat consumption per capita and its increase have given concern in many quarters, in view of the presumably increasing prevalence of diseases of the heart and the currently accepted causal relation between high consumption of saturated (generally, the solid) fats and incidence of some heart diseases. The statistics of fat consumption, however, cannot be confidently interpreted as evidence of fat ingestion. The relative levels of ingestion and noningestion are not known; hence upward trend of per capita fat ingestion, if factual, must be shown to be so by data other than that afforded by the statistics considered here. Still less is known about the trends of per capita ingestion respectively of the saturated and of the unsaturated fats.

Changes in per capita consumption of milky foods have not been spectacular. Except perhaps between 1900 and 1910, their consumption has risen steadily, though only moderately, from decade to decade since 1879 (Chart 5). The largest component, whole milk consumed as such and in ice cream, has risen less than the summation of other milky products, which as charted does not include butter or cheese but comprises a wide range of minor items: cream, liquid skim milk and buttermilk, condensed and evaporated milk, dried skim milk, and others. Opposed trends appear within the group of "other milky products": little change in consumption of cream; strong increases in consumption of evaporated and condensed milk totaled and in miscellaneous milk products including the dried skim milk; and decline in the low-calorie liquid skim milk and buttermilk despite probable expansion of urban use of liquid skim milk in recent years.

If one includes with "milky products" the butter and cheese here counted

CHART 5.—CONSUMPTION PER CAPITA PER DAY OF CALORIES DERIVED FROM TWO COMPONENTS OF THE MILKY FOODS, TWO COMPONENTS OF THE SUGARY FOODS, AND TWO COMPONENTS OF THE FLAVOROUS FOODS, FROM 1879\*



\* Data from Appendix Table II. Nuts and cocoa includes peanuts, as well as tree nuts and cocoa (Series 11 and 15).

respectively among the fatty and the meaty food groups, the total, measured in calories per capita, tends to run three times larger than the beef and veal also derived from the herds of cattle. But the relationship is variable, perhaps mainly in reflection of cycles in beef-cattle herds and slaughter not shared by dairy herds and milk output. The conspicuous change in items derived from total milk output in the decades from 1929-31 has been the relative decline of butter consumption; it has been compensated chiefly by increased consumption of cheese, whole milk, condensed and evaporated milk, and dried skim milk.

From 1879 to 1930-31, the group of sugary foods increased more rapidly in per capita consumption than any other major group, and the same may be said of the period 1879-1959 although consumption per head of sugary foodstuffs ceased to increase in the later 1920's. In the absence of detailed knowledge of shifting preferences for such end uses as baked goods, hot and cold beverages, candies, ice creams and sherbets, canned fruits, and others, it seems difficult if not impossible to explain why per capita use of the sugary foodstuffs increased so sharply and consistently for nearly five decades and then ceased to grow. Replacement of starchy foods by the sugary seems somewhat unlikely to have been stimulated sufficiently to prompt the great increase in consumption either by expanding incomes or by change in relative prices. Perhaps in the 1920's a saturation point was reached, as would eventually occur with any affiliated group of foodstuffs so long as human ingestion placed a ceiling upon consumption per capita of all food.

It is the cane and beet sugar which have changed so greatly in per capita consumption; the beet may have gained a little on the cane in the last 50 years. Observation suggests that refined sugar has gained on the darker types. In addition to cane and beet sugars, the sugary group includes corn sugar and a list of sirups comprising maple, cane, refiners, edible molasses, sorgo, and honey. As Chart 5 shows, per capita consumption of all these items together, in calories, was at the beginning of the period a far smaller fraction of the sugary-group total than was cane and beet sugar and the fraction grew smaller until the late 1920's. So far as there has been increase in per capita consumption of these minor sugar items either from 1879 or 1909-11 to 1957-58, it has appeared most notably in corn sugar and corn sirup. When sugar supplies were short in World War I, and sugar was rationed in World War II, there were conspicuous bulges in consumption of corn sirup. Honey and refiners sirups have held their place since 1909-10; decline has occurred in per capita consumption of cane, sorgo, and maple sirups, and in edible cane molasses.

The last of the six major food groups, here called *flavourous* (Chart 5), is notably heterogeneous in composition including a long list of fruits, a long list of vegetables, canned soups and canned baby foods that contain some animal products and starchy items, and peanuts, tree nuts, and cocoa. In terms of calorie content, the *flavourous* group of foodstuffs has consistently run lower than any other of the six major food groups (Chart 2, p. 101). So much can be said despite doubtful validity of estimates, illustrated by the fact that between a third and a half of the calories assigned to this group represents no more than a residual calculation—the difference between estimates of total per capita calorie consumption and the sum of (a) calories estimated to be contained in the five major food groups discussed above and (b) calories estimated to be contained



in a rather short list of flavorful items including fresh apples, peaches, melons, bananas, oranges, tomatoes, onions, and cabbage, and dried fruits, shelled peanuts, tree nuts, and cocoa. The calorie values per pound of practically all items except the last-named four are notably low. Hence by comparison with other major food groups, calories consumed per capita of the flavorful foods appear much less prominent than poundages consumed per capita. Of the total weight of food consumed per capita annually in 1949-51, more than a fourth—about 400 pounds—was the weight of fruits and vegetables (excluding potatoes). This fraction could be equaled only by the weight of milky products. But the calories in the flavorful group made up only 7 or 8 per cent of total calories consumed per capita. The large poundages are eaten not to assuage hunger but to satisfy palates.

Up to and around 1940—if the data are broadly dependable—per capita calorie consumption of the flavorful foods was increasing steadily from decade to decade, and the increase in 60 years was more than in the meaty or the milky food groups though less than in the sugary or fatty. The flavorful foods being notably expensive per thousand calories and technological improvements also notable with the rise of refrigeration, canning, and freezing, the persistent rise with concurrent rise of income seems credible. Increase seems to have been shared about equally between nuts and cocoa on the one hand, all other items on the other (Chart 5). The early estimates may serve, with respect to a few specific items, to identify a decline in per capita consumption of apples which has persisted since the turn of the century; a rise in the consumption of bananas to around 1910, followed by approximate stability or slight decline; a rise in the consumption of citrus fruits continuing through 1957-59; and a rise in consumption of dried fruits up to around 1920 but not thereafter.

Official data on poundages of the fruits and vegetables consumed per capita provide illustrations of shifts of emphasis in the use of various components of the group since around 1940. The data in the following tabulation (pounds per capita per year) refer, aside from the soups and baby foods, to "farm-weight equivalent," not to processed weights (3, pp. 16-26; 4, pp. 6-9):

Item	1939-41	1949-51	1957-59
All fruits .....	207	197	198
Citrus .....	70	80	83
Apples .....	34	30	28
Bananas .....	21	19	21
Other .....	82	68	66
All vegetables and melons.....	204	224	226
Tomatoes .....	42	51	56
Leafy, green, yellow.....	75	81	79
Melons .....	26	26	26
Other .....	61	66	65
Baby foods and soups (canned):			
Baby foods .....	1	3	5
Soups .....	7	10	14

These data, pointing to an increase in per capita consumption of the aggregate poundage of fruits, vegetables, and canned soups and baby foods, may appear to contradict the indication in Chart 5 of decline in consumption of calories contained in them. A partial explanation may lie in a tendency for the

fraction of items relatively low in calorie content per pound to rise while the fraction of items relatively high in calorie content per pound fell. Vegetables average lower in calorie content than fruits, and have come to make up an increased fraction of the fruit-and-vegetable total. Citrus fruits are considerably lower in calorie content per pound than apples and bananas, and it is the citrus fruits that have increased their share in total fruit consumption while the fraction of apples and bananas has declined.

Of the eight categories of fruits and vegetables covered by the tabulation, only apples and fruits other than apples, citrus, and bananas seem to have lost public favor. Bananas and melons have held their own; all other vegetables except tomatoes have shown only slight gains; tomatoes and citrus fruits have enjoyed the greatest gains in popularity. The increase in per capita consumption of canned soups and baby foods—more than twofold in less than two decades—has nearly equaled the increase in all other fruits and vegetables taken together.

The public search for convenience in household food preparation indicated by the trend toward canned soups and baby foods is evidenced also when the fruits and vegetables are classified according to their destinations for use fresh and in processed forms, as in the following tabulation (pounds per capita per year, farm-weight equivalent, 3, pp. 21, 26; 4, pp. 6, 9):

Item	1939-41	1949-51	1957-59
All fruits .....	207	197	198
Fresh .....	147	115	101
Dried .....	21	14	11
Canned (including juices).....	38	54	52
Frozen .....	1	14	34
All vegetables and melons.....	204	224	226
Fresh .....	141	140	128
Canned .....	61	76	83
Frozen .....	2	8	15

Fresh and dried items have lost favor. The canned (including canned juices) and the frozen forms have gained greatly, rising from some 25 per cent of the total in 1939-41 to 43 per cent in 1957-59. Over the latest eight years the canned items have gained much less in consumption than the more expensive frozen ones.

Although coffee, tea, and spices are not here included with flavorful foods because their calorie content is negligible, trends of per capita consumption are of interest. Coffee consumption rose decade by decade from 7.5 pounds per person per year in 1909-11 to a peak of 14.4 pounds in 1949-51. It had declined a little to 13.3 pounds by 1957-59, probably in reflection of the increased popularity of "instant" quickly soluble coffees that require less raw material and may militate against household waste. Whether or not fewer cups or quarts of coffee are currently consumed per capita is not of record. Tea, on the other hand, has fallen in annual per capita consumption, from 1.1 pounds in 1909-11 to .6 pound around 1957-59, most of the decline occurring before 1920. Consumption of spices per capita, estimated from 1918, has stood at .8 to .9 pound except for a bulge, perhaps related to stockpiling, in 1939-41.

The official data on consumption also provide estimates since 1909 of certain nutrients contained in the consumed (not, of course, the ingested) foods. We have noted the decline in total calories per capita. From 1909-11 to 1957-59, this

decline finds reflection chiefly in the carbohydrate component, reduced from 503 to 381 grams per head per day: protein declined only from 102 to 95 grams, while fat rose from 127 to 147 grams. The mineral elements, calcium and iron, both show increases. Of the vitamins, increases are estimated in Vitamin A value, thiamine, riboflavin, and niacin, slight declines in folic acid and ascorbic acid. Some of the increases reflect additives especially in bread after 1940. Since the data do not measure ingestion and take no account of vitamins and minerals ingested in the form of pills, capsules, and powders, they suggest little about change in national nutritional status. Few would challenge, however, the probability of reduced incidence of vitamin-deficiency diseases. Alleged excesses of calorie and of saturated-fat ingestion seem today to occupy the center of the stage.

#### PROJECTIONS

In each decade since 1879 change of some sort has occurred in the American national diet, and, because change seems so characteristic and persistent, it appears reasonable to believe that further change will occur in the 1960's. Little can be said with assurance about the nature and extent of changes that will have been registered on completion of the three-year period centering in 1970. However, on the assumptions of absence of far-reaching revisions in the official statistics, of maintenance of wars with words rather than arms between the major powers, of continuing substantial rise in per capita income in the United States, without a severe economic recession, the opinion seems tenable that several of the trends apparent between 1950-51 and 1957-59 may continue through 1969-71.

The following tabulation, in calories per capita per day of food "consumed," summarizes the official data of 1957-59 and our quantified opinion of what similar data may show for 1969-71:

Group	1957-59		1969-71	
	Calories	Per cent	Calories	Per cent
Total .....	3,187	100.0	3,075	100.0
Starchy .....	761	23.9	620	20.2
Nonstarchy .....	2,426	76.1	2,455	79.8
Meaty .....	769	24.1	815	26.5
Sugary .....	525	16.5	505	16.4
Fatty .....	503	15.8	490	15.9
Milky .....	389	12.2	405	13.2
Flavorous .....	240	7.5	240	7.8

The major influences underlying historical reduction of total food calories consumed per capita—less arduous physical labor and fewer hours per week of it, less exposure to cold weather, conscious control of body weight, and minimization of wastes in wholesaling and retailing—seem unlikely to have spent themselves, and may well continue to outweigh wastefulness of food in households. Hence the trend of total per capita consumption of food (calories) seems likely to continue downward, perhaps at about the same rate, around 10 calories per year, as during the years from 1929-31 to 1957-59, even though such decline will necessarily cease some time in the future. We take it that total food consumed per capita per day may decline to about 3,075 calories by 1969-71.

The impact of this long-continued decline has consistently fallen upon the starchy group of foodstuffs, and curtailment of consumption of these foods has exceeded curtailment of consumption of all foods. While this tendency also

must eventually cease, little reason appears to suppose that it may not persist at least through 1969-71, though reduction may well proceed at a somewhat slower rate than in the 28 years preceding 1957-59. As since around 1930, wheat flour, the largest component of the starchy group of foods, may decline more than potatoes, corn meal, or miscellaneous grain products. Perhaps decline in the group may bring the starchy staple ratio to only slightly over 20 per cent.

If the starchy group of foods should fall more in per capita consumption than do all foods, the nonstarchy foods would rise, perhaps not much absolutely although their fraction of the total may increase from slightly over 76 per cent around 1958 to nearly 80 per cent around 1970.

Of the five nonstarchy groups of foods, the sugary has shown weakness over nearly three decades, so that slight continuing decline may be more probable than stability or increase, not large enough, however, to alter appreciably the fraction of total food calories derived from the sugary foods. The countervailing recent influences on consumption of fatty foods, with butter and lard disfavored and vegetable oils and fats favored, make it difficult even to form an opinion of probable trend in the total. But there has been little evidence of growth in the total for about three decades, and in view of nutritional persuasions against excessive intake of fats in general and animal fats in particular, a slight decline may occur, perhaps in absolute amount consumed rather than in proportional contribution. The bases for judging probable trend in consumption of the flavorous group are tenuous. We take it merely that there may be practically no change by 1969-71 in the calorie value of quantities consumed; perhaps poundages consumed will rise and the watery items continue to increase their proportional importance; the drift toward canned and especially frozen items may well continue.

The major food groups most likely to increase notably in per capita consumption appear to be the milky and the meaty. Public preference for them has been apparent in recent decades and one can sense no probability of change with incomes rising. Under our stated assumptions and barring exceptional difficulties on the side of supply, no persuasive reason appears to negate the likelihood that per capita calorie consumption of each will fall in 1969-71 close to the lines of projected trends over the past three decades. If so, both groups will have constituted higher fractions of total food consumption than at any time in nearly a century, and the meaty foodstuffs will definitively have displaced the starchy foods as the leading source of national food calories available at retail level or purchased; whether or not of calories ingested remains conjectural.

#### CITATIONS

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CONSUMPTION OF FOOD IN THE UNITED STATES, ANNUALLY IN THREE-YEAR PERIODS CENTERING IN SPECIFIED YEARS, 1879-1959  
TABLE I.—POUNDS PER CAPITA PER YEAR\*

Item	Approximate trend values			Official estimates of 1960					
	1879	1889	1899	1910	1920	1930	1940	1950	1958
1. Wheat flour <sup>a</sup> .....	224.8	224.8	224.8	215.0	179.0	172.0	156.0	135.0	119.0
2. Sugar <sup>b</sup> .....	39.8	53.8	63.1	75.5	86.5	102.3	100.3	96.8	97.6
3. Corn meal and flour .....	146.0	106.0	94.0	51.2	35.0	28.5	21.4	11.8	7.7
4. White potatoes <sup>c</sup> .....	157.0	165.0	167.0	181.3	148.2	138.4	122.6	106.3	97.6
5. Minor grain products <sup>d</sup> .....	29.3	29.3	29.3	29.3	29.2	29.4	21.9	20.8	20.7
6. Shortening, edible oils <sup>e</sup> .....	5.0	6.5	8.0	9.5	11.0	15.2	17.6	18.0	22.2
7. Dry beans, peas (cleaned) <sup>f</sup> .....	13.0	13.0	13.0	13.0	9.8	12.2	12.7	11.0	9.3 <sup>g</sup>
8. Sirups <sup>g</sup> .....	13.3	13.3	13.3	13.3	18.2	13.0	13.3	12.6	11.9
9. Apples (fresh) .....	75.0	78.0	80.0	58.6	43.3	40.0	41.9	30.7	22.8
10. Sweet potatoes <sup>h</sup> .....	27.0	26.0	22.0	23.3	25.8	18.4	16.1	9.7	6.5
11. Peanuts (shelled) .....	.3	.5	1.4	2.4	3.4	3.9	4.7	4.4	4.5
12. Bananas .....	3.0	7.5	12.5	20.0	17.2	22.1	19.0	17.8	19.5
13. Dried fruits <sup>i</sup> .....	1.0	1.1	1.3	4.0	6.4	5.1	5.6	4.0	3.2
14. Margarine .....	.2	.5	1.0	1.3	2.9	2.5	2.5	6.2	8.9
15. Tree nuts (shelled), cocoa <sup>j</sup> .....	.6	.8	1.0	1.8	3.8	4.0	5.6	5.6	5.1
16. Tomatoes <sup>k</sup> .....	42.8	42.8	42.8	42.8	39.5	41.3	46.3	46.2	45.3
17. Peaches (fresh) .....	13.9	13.9	13.9	13.9	11.9	13.3	14.0	8.5	8.5
18. Onions <sup>l</sup> .....	12.0	11.7	11.3	11.0	11.0	10.2	10.1	9.7	9.3
19. Melons <sup>m</sup> .....	39.0	39.0	39.0	39.0	41.4	41.2	35.6	23.3	28.5
20. Oranges (fresh) .....	4.0	5.0	6.4	13.2	17.3	23.7	37.8	27.4	18.9
21. Corn sugar .....	.5	.7	.9	1.1	.7	5.8	3.3	4.2	3.6
22. Cabbage .....	22.0	21.0	20.0	18.7	17.9	16.6	14.5	12.0	9.5
23. Whole milk <sup>n</sup> .....	260.0	265.0	270.0	256.2	276.3	272.7	269.3	301.0	305.2
24. Butter .....	15.2	18.2	19.8	18.2	15.5	17.8	16.8	10.3	8.3
25. Lean pork <sup>o</sup> .....	50.0	48.0	46.7	43.0	41.6	44.4	44.8	45.2	41.3
26. Bacon and saltside <sup>p</sup> .....	23.0	20.5	20.1	18.5	18.0	19.2	19.3	19.5	17.8
27. Beef <sup>q</sup> .....	56.0	58.0	53.0	56.1	46.4	38.8	44.9	48.3	65.0
28. Lard .....	13.2	13.1	13.0	12.4	11.2	13.0	13.6	12.2	9.4
29. Eggs .....	25.0	29.0	36.0	37.5	36.5	40.4	38.1	48.4	44.5
30. Nonfat fluid milks <sup>p</sup> .....	107.0	100.0	93.0	87.5	75.6	66.4	65.0	57.0	55.0 <sup>p</sup>
31. Fowl (eviscerated) <sup>q</sup> .....	15.0	16.0	17.0	17.8	16.1	16.8	17.8	25.0	33.8

Item	Approximate trend values			Official estimates of 1960					
	1879	1889	1899	1910	1920	1930	1940	1950	1958
32. Cream <sup>r</sup> .....	10.7	10.7	10.7	10.7	12.8	13.4	13.8	13.5	12.5
33. Offals and game <sup>r</sup> .....	16.0	15.0	14.0	13.5	12.7	10.6	11.4	12.5	12.9
34. Fish <sup>t</sup> .....	13.0	12.7	12.5	12.5	12.6	11.6	12.1	12.3	11.7
35. Cheese <sup>u</sup> .....	3.0	4.0	4.2	4.6	4.7	5.8	7.8	10.9	13.1
36. Lamb and mutton .....	7.0	6.4	5.8	6.1	5.1	5.8	6.0	3.4	3.8
37. Veal .....	6.0	6.0	4.7	6.6	7.1	5.8	6.8	7.1	6.4
38. Condensed and evaporated milk <sup>v</sup> .....	.3	.7	2.5	5.9	9.4	13.5	18.5	19.4	14.9
39. Miscellaneous milk products <sup>w</sup> .....	.0	.0	.0	.7	1.8	4.3	7.0	12.2	16.4
40. Residual <sup>z</sup> .....	125	135	145	158	175	200	227	233	223
Total <sup>y</sup> .....	1,615	1,619	1,634	1,605	1,538	1,559	1,563	1,513	1,475
Subtotals:									
Vegetable foods <sup>z</sup> .....	995	995	1,011	997	935	959	950	855	803
Animal foods <sup>aa</sup> .....	620	624	623	608	604	600	613	658	672

\* Data for 1909 and following computed from U.S. Dept. Agr., Bur. Agr. Econ., *Consumption of Food in the United States, 1909-52* (Agr. Hdbk. 62, September 1953), as revised and continued by Agr. Mktg. Serv. in its *Supplement for 1956* . . . (September 1957), and *ibid.*, 1959 (August 1960). Data for earlier years are the authors' estimates, which are described in a supplement available on request.

<sup>a</sup> Includes semolina and whole-wheat flour.

<sup>b</sup> Refined cane and beet; includes quantities used in canning.

<sup>c</sup> Includes quantities from farm and nonfarm home gardens.

<sup>d</sup> Wheat cereal, rye flour, buckwheat flour, milled rice, corn cereal, cornstarch, hominy and grits, oat food products (mainly oatmeal), and barley products (meal, pearl barley, malt not for brewing).

<sup>e</sup> Of vegetable origin chiefly.

<sup>f</sup> Includes soya grits (1957 only in 1957-59), and beans and peas from home gardens.

<sup>g</sup> Includes cane, corn, sorgo, maple, and refiners sirups, edible cane molasses, and honey.

<sup>h</sup> Includes home-garden production and quantities canned.

<sup>i</sup> Mainly prunes and raisins.

<sup>j</sup> Chocolate-liquor equivalent of cocoa beans.

<sup>k</sup> Includes canned tomato products, commercial fresh, and home-grown production.

<sup>l</sup> Mature onions, and shallots; commercial; 1910 authors' estimate.

<sup>m</sup> Includes home-garden production.

<sup>n</sup> Quantity consumed as fluid milk and amount used in ice cream.

<sup>o</sup> Not including offals.

<sup>p</sup> Skim milk consumed as such, skim milk in chocolate drinks, cultured and natural buttermilk; 1957-59 approximate (in process of official revision).

<sup>q</sup> Chickens, turkeys, ducks, geese.

<sup>r</sup> Consumed as such and used in ice cream.

<sup>s</sup> Livers, kidneys, hearts, tongues, brains, tripe of slaughtered animals; game birds and mammals and domesticated rabbits.

<sup>t</sup> Fresh, frozen, canned, and cured, in terms of edible weight, plus game fish.

<sup>u</sup> Includes cottage cheese.

<sup>v</sup> Condensed whole milk sweetened and unsweetened; evaporated whole milk.

<sup>w</sup> Mainly dried, evaporated, and condensed skim milk, but also includes other manufactured milk products not included elsewhere.

<sup>x</sup> For 1910 and following computed as a difference between the total and the sum of the 39 listed items; rough approximations for earlier years. Consists of miscellaneous fruits and vegetables, and canned soups and baby foods.

<sup>y</sup> For 1910 and following official total (for Table I less coffee and tea which have no calorie value). For earlier years the sum of Series 1-39 plus the approximation for Series 40.

<sup>z</sup> Sum of Series 1-22, and 40.

<sup>aa</sup> Sum of Series 23-39.

CONSUMPTION OF FOOD IN THE UNITED STATES, ANNUALLY IN THREE-YEAR PERIODS CENTERING IN SPECIFIED YEARS, 1879-1959  
TABLE II.—CALORIES PER CAPITA PER DAY\*

Item	Calories per pound	Approximate trend values			Official estimates of 1960					
		1879	1889	1899	1910	1920	1930	1940	1950	1958
1. Wheat flour <sup>a</sup> .....	1,654	1,019	1,019	1,019	974	811	779	707	612	539
2. Sugar <sup>b</sup> .....	1,748	191	258	302	362	414	490	480	464	467
3. Corn meal and flour.....	1,630 <sup>ab</sup>	652	473	420	229	156	127	96	53	34
4. White potatoes <sup>c</sup> .....	318	137	144	145	158	129	121	107	93	85
5. Minor grain products <sup>d</sup> .....	1,650	132	132	132	132	132	133	99	94	94
6. Shortening, edible oils <sup>e</sup> .....	4,013	55	71	88	104	121	167	194	198	244
7. Dry beans, peas (cleaned) <sup>f</sup> .....	1,537	55	55	55	55	41	51	53	46	39 <sup>f</sup>
8. Sirups <sup>g</sup> .....	1,300	47	47	47	47	65	46	47	45	42
9. Apples (fresh) .....	232	48	50	51	37	28	25	27	20	14
10. Sweet potatoes <sup>h</sup> .....	480	36	34	29	31	34	24	21	13	9
11. Peanuts (shelled) .....	2,540	2	3	10	17	24	27	33	31	31
12. Bananas .....	269	2	6	9	15	13	16	14	13	14
13. Dried fruits <sup>i</sup> .....	1,150	3	3	4	13	20	16	18	13	10
14. Margarine .....	3,269	2	4	9	12	26	22	22	56	80
15. Tree nuts (shelled), cocoa <sup>j</sup> .....	2,800 <sup>oo</sup>	5	6	7	12	26	28	38	38	36
16. Tomatoes <sup>k</sup> .....	81	9	9	9	9	9	9	10	10	10
17. Peaches (fresh) .....	183	7	7	7	7	6	7	7	4	4
18. Onions <sup>l</sup> .....	193	6	6	6	6	6	5	5	5	5
19. Melons <sup>m</sup> .....	50	5	5	5	5	6	6	5	3	4
20. Oranges (fresh) .....	147	2	2	3	5	7	10	15	11	8
21. Corn sugar .....	1,583	2	3	4	5	3	25	14	18	16
22. Cabbage .....	80	5	5	4	4	4	4	3	3	2
23. Whole milk <sup>n</sup> .....	309	220	224	229	217	234	231	228	255	258
24. Butter .....	3,251	135	162	176	162	138	159	150	92	74
25. Lean pork <sup>o</sup> .....	1,346 <sup>ab</sup>	184	177	172	159	153	164	165	167	152
26. Bacon and saltside <sup>p</sup> .....	2,998 <sup>ab</sup>	189	168	165	152	148	158	159	160	146
27. Beef <sup>o</sup> .....	919 <sup>ab</sup>	141	146	133	141	117	98	113	122	164
28. Lard .....	4,095	148	147	146	139	126	146	153	137	105
29. Eggs .....	655	45	52	65	67	65	72	68	87	80
30. Nonfat fluid milks <sup>p</sup> .....	162	47	44	41	39	34	29	29	25	24
31. Fowl (eviscerated) <sup>q</sup> .....	713	29	31	33	35	31	33	35	49	66

Item	Calories per pound	Approximate trend values			Official estimates of 1960					
		1879	1889	1899	1910	1920	1930	1940	1950	1958
32. Cream <sup>r</sup> .....	1,116 <sup>ab</sup>	33	33	33	33	39	41	42	41	38
33. Offals and game <sup>r</sup> .....	678 <sup>ab</sup>	30	28	26	25	24	20	21	23	24
34. Fish <sup>t</sup> .....	650	23	23	22	22	22	21	22	22	21
35. Cheese <sup>u</sup> .....	1,500	12	16	17	19	19	24	32	45	54
36. Lamb and mutton .....	1,070 <sup>ab</sup>	21	19	17	18	15	17	18	10	11
37. Veal .....	681	11	11	9	12	13	11	13	13	12
38. Condensed and evaporated milk <sup>v</sup> .....	625	1	1	4	10	16	23	32	33	26
39. Miscellaneous milk products <sup>w</sup> .....	... <sup>ad</sup>	0	0	0	1	3	11	18	31	43
40. Residual <sup>r</sup> .....	...	50	55	60	63	72	91	94	92	102
Total <sup>y</sup> .....	...	3,741	3,679	3,713	3,553	3,350	3,487	3,407	3,247	3,187
Subtotals:										
Vegetable foods <sup>z</sup> .....	...	2,472	2,397	2,425	2,302	2,153	2,229	2,109	1,935	1,889
Animal foods <sup>aa</sup> .....	...	1,269	1,282	1,288	1,251	1,197	1,258	1,298	1,312	1,298
Starchy foods <sup>ab</sup> .....	...	1,976	1,802	1,745	1,524	1,262	1,184	1,030	865	761
Meaty foods <sup>af</sup> .....	...	740	726	714	705	648	669	699	744	769
Fatty foods <sup>ag</sup> .....	...	340	384	419	417	411	494	519	483	503
Milky foods <sup>ah</sup> .....	...	301	302	307	300	326	335	349	385	389
Sugary foods <sup>ai</sup> .....	...	240	308	353	414	482	561	541	527	525
Flavorous foods <sup>aj</sup> .....	...	144	157	175	193	221	244	269	243	240

\* Calories per pound from, or approximated from, Bernice K. Watt and Annabel L. Merrill, *et al.*, *Composition of Foods—Raw, Processed, Prepared* (U.S. Dept. Agr., Agr. Hdbk. 8, June 1950), except as noted <sup>ab</sup>. Calories per capita computed from Table I, except residual (Series 40). Series numbered in order of magnitude around 1910, for vegetable foods and animal foods separately.

<sup>a-aa</sup> See Table I.

<sup>ab</sup> Supplied by the United States Department of Agriculture.

<sup>ag</sup> For tree nuts; chocolate-liquor equivalent of cocoa beans converted separately at 2,275.

<sup>ad</sup> Rates for individual products used for conversion to calories.

<sup>ae</sup> Sum of Series 1, 3, 4, 5, 10.

<sup>af</sup> Sum of Series 7, 25-27, 29, 31, 33-37.

<sup>ag</sup> Sum of Series 6, 14, 24, 28.

<sup>ah</sup> Sum of Series 23, 30, 32, 38-39.

<sup>ai</sup> Sum of Series 2, 8, 21.

<sup>aj</sup> Sum of Series 9, 11-13, 15-20, 22, 40.



CONSUMPTION OF FOOD IN THE UNITED STATES, ANNUALLY IN THREE-YEAR PERIODS CENTERING IN SPECIFIED YEARS, 1879-1959  
TABLE III.—PER CENT OF TOTAL CALORIES PER CAPITA PER DAY\*

Item	Approximate trend values			Official estimates of 1960					
	1879	1889	1899	1910	1920	1930	1940	1950	1958
1. Wheat flour <sup>a</sup> .....	27.2	27.7	27.4	27.4	24.2	22.3	20.8	18.8	16.9
2. Sugar <sup>b</sup> .....	5.1	7.0	8.1	10.2	12.4	14.1	14.1	14.3	14.1
3. Corn meal and flour .....	17.4	12.9	11.3	6.4	4.7	3.6	2.8	1.6	1.1
4. White potatoes <sup>c</sup> .....	3.7	3.9	3.9	4.4	3.9	3.5	3.1	2.9	2.7
5. Minor grain products <sup>d</sup> .....	3.5	3.6	3.6	3.7	3.9	3.8	2.9	2.9	2.9
6. Shortening, edible oils <sup>e</sup> .....	1.5	1.9	2.4	2.9	3.6	4.8	5.7	6.1	7.7
7. Dry beans, peas (cleaned) <sup>f</sup> .....	1.5	1.5	1.5	1.5	1.2	1.5	1.6	1.4	1.2
8. Sirups <sup>g</sup> .....	1.3	1.3	1.3	1.3	1.9	1.3	1.4	1.4	1.3
9. Apples (fresh) .....	1.3	1.4	1.4	1.0	.8	.7	.8	.6	.4
10. Sweet potatoes <sup>h</sup> .....	1.0	.9	.8	.9	1.0	.7	.6	.4	.3
11. Peanuts (shelled) .....	.0 <sup>ak</sup>	.1	.3	.5	.7	.8	1.0	1.0	1.0
12. Bananas .....	.0 <sup>ak</sup>	.2	.2	.4	.4	.5	.4	.4	.4
13. Dried fruits <sup>i</sup> .....	.1	.1	.1	.4	.6	.5	.5	.4	.3
14. Margarine .....	.0 <sup>ak</sup>	.1	.2	.3	.8	.6	.6	1.7	2.5
15. Tree nuts (shelled), cocoa <sup>j</sup> .....	.1	.2	.2	.3	.8	.8	1.1	1.2	1.1
16. Tomatoes <sup>k</sup> .....	.2	.2	.2	.3	.3	.3	.3	.3	.3
17. Peaches (fresh) .....	.2	.2	.2	.2	.2	.2	.2	.1	.1
18. Onions <sup>l</sup> .....	.2	.2	.2	.2	.2	.1	.1	.2	.2
19. Melons <sup>m</sup> .....	.1	.1	.1	.1	.2	.2	.1	.1	.1
20. Oranges (fresh) .....	.0 <sup>ak</sup>	.0 <sup>ak</sup>	.1	.1	.2	.3	.4	.3	.3
21. Corn sugar .....	.0 <sup>ak</sup>	.1	.1	.1	.1	.7	.4	.6	.5
22. Cabbage .....	.1	.1	.1	.1	.1	.1	.1	.1	.1
23. Whole milk <sup>n</sup> .....	5.9	6.1	6.2	6.1	7.0	6.6	6.7	7.9	8.1
24. Butter .....	3.6	4.4	4.7	4.6	4.1	4.6	4.4	2.8	2.3
25. Lean pork <sup>o</sup> .....	4.9	4.8	4.6	4.5	4.6	4.7	4.8	5.1	4.8
26. Bacon and saltside <sup>o</sup> .....	5.1	4.6	4.4	4.3	4.4	4.5	4.7	4.9	4.6
27. Beef <sup>q</sup> .....	3.8	4.0	3.6	4.0	3.5	2.8	3.3	3.8	5.1
28. Lard .....	4.0	4.0	3.9	3.9	3.8	4.2	4.5	4.2	3.3
29. Eggs .....	1.2	1.4	1.8	1.9	1.9	2.1	2.0	2.7	2.5
30. Nonfat fluid milks <sup>p</sup> .....	1.3	1.2	1.1	1.1	1.0	.8	.9	.8	.8
31. Fowl (eviscerated) <sup>q</sup> .....	.8	.8	.9	1.0	.9	.9	1.0	1.5	2.1

Item	Approximate trend values			Official estimates of 1960					
	1879	1889	1899	1910	1920	1930	1940	1950	1958
32. Cream <sup>r</sup> .....	.9	.9	.9	.9	1.2	1.2	1.2	1.3	1.2
33. Offals and game <sup>r</sup> .....	.8	.8	.7	.7	.7	.6	.6	.7	.8
34. Fish <sup>t</sup> .....	.6	.6	.6	.6	.7	.6	.6	.7	.7
35. Cheese <sup>u</sup> .....	.3	.4	.5	.5	.6	.7	.9	1.4	1.7
36. Lamb and mutton .....	.6	.5	.5	.5	.4	.5	.5	.3	.3
37. Veal .....	.3	.3	.2	.3	.4	.3	.4	.4	.4
38. Condensed and evaporated milk <sup>v</sup> .....	.0	.0	.1	.3	.5	.7	.9	1.0	.8
39. Miscellaneous milk products <sup>w</sup> .....	.0	.0	.0	.0	.1	.3	.5	1.0	1.3
40. Residual <sup>z</sup> .....	1.3	1.5	1.6	1.8	2.1	2.6	2.8	2.8	3.2
Total <sup>y</sup> .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Subtotals:									
Vegetable foods <sup>a</sup> .....	66.1	65.2	65.3	64.8	64.3	63.9	61.9	59.6	59.3
Animal foods <sup>aa</sup> .....	33.9	34.8	34.7	35.2	35.7	36.1	38.1	40.4	40.7
Starchy foods <sup>ab</sup> .....	52.8	49.0	47.0	42.9	37.7	34.0	30.2	26.6	23.9
Meaty foods <sup>ac</sup> .....	19.8	19.7	19.2	19.9	19.3	19.2	20.5	22.9	24.1
Fatty foods <sup>ad</sup> .....	9.1	10.4	11.3	11.7	12.3	14.1	15.2	14.9	15.8
Milky foods <sup>ae</sup> .....	8.0	8.2	8.3	8.4	9.7	9.6	10.3	11.9	12.2
Sugary foods <sup>af</sup> .....	6.4	8.4	9.5	11.7	14.4	16.1	15.9	16.2	16.5
Flavorous foods <sup>aj</sup> .....	3.9	4.3	4.7	5.4	6.6	7.0	7.9	7.5	7.5

\* Computed from Table II. Due to rounding, the totals and subtotals above, computed from the corresponding totals in Table II, are not necessarily the sum of the individual items.

<sup>a-aa</sup> See Table I.

<sup>ab-aj</sup> See Table II.

<sup>ak</sup> Unrounded .05.

