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## Appendix B

The Statistics of Food Consumption

## Appendix B

## The Statistics of Food Consumption

This appendix consists of six tables which contain basic data underlying Chapter 4. Table B-1 shows the consumption of all important foodstuffs in original units. Table B-2 gives the factors we have used to convert these foodstuffs into proteins, fats and carbohydrates. Similar factors for the vitamin and mineral content of foods will be found in Table B-3. Table B-4 shows for various foods the deductions we made to take account of inedible refuse. In Table B-5 Pearl's estimates for total calorie consumption are compared with our own. Table B-6 gives the population estimates upon which we based our per capita data.
The consumption estimates in Table B-1 are mostly obtained by correcting output for imports, exports, changes in stocks and nonfood use; see Bureau of Agricultural Economics release "Consumption of Agricultural Products" (1941). In a few cases, as indicated in footnotes, we have made adjustments to these figures, or computed data of our own. The conversion factors in Table B-2 are single-valued, and for calories are based on ratios of 4 calories per gram of protein and carbohydrate, and 9 calories per gram of fat (see p. 153). The factors in this table make partial allowance for the exclusion of inedible portions of foodstuffs shown in Table B-l. The factors for minerals in Table B-3 are also single-valued, but for vitamins we felt it necessary to indicate a range rather than a single figure. For this reason the consumption estimates for vitamins in Table 25 (p. 174) also take the form of a range of values. The percentages by which the crude food consumption data in Table B- 3 were subsequently reduced to allow for inedible refuse are shown in Table B-4. These percentages make no allowance for losses of edible food in processing or transportation, in the kitchen or on the table. Except where otherwise stated, all data in this Appendix refer to calendar years.

Table B-1
AGGREGATE CONSUMPTION OF INDIVIDUAL FOODS, AVERAGE 1897-1901, AND ANNUALLY 1909-1939

| Year | (1) | (2) |  | (3) | (4) | (5) | (6) <br> Sugar, <br> Cane and |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Wheat | Corn |  | Oatmeal | Rice, Milled | Rye |  |
|  |  | (a) | (b) |  |  |  |  |
|  |  | $\underset{\text { Milling }}{\substack{\text { Dry }}}$ | Wet Milling |  |  |  | Bect, Refined |
|  | mil. bu. | mil. bu. | mil. bu. | mil. lb. | mil. lb. |  | th. s. t. |
| 1897-1901 | 407.8 | 249 | 8 | 370 | 307 |  | 2,170 |
| 1909 | 450.7 | 187 | 13 | 442 | 609 |  | 3,423 |
| 1910 | 467.4 | 185 | 17 | 449 | 683 |  | 3,564 |
| 1911 | 463.2 | 183 | 17 | 456 | 610 |  | 3,779 |
| 1912 | 480.0 | 179 | 17 | 480 | 667 |  | 3,696 |
| 1913 | 478.9 | 177 | 17 | 490 | 768 |  | 4,173 |
| 1914 | 489.6 | 175 | 12 | 499 | 555 |  | 3,949 |
| 1915 | 467.7 | 172 | 21 | 507 | 634 |  | 3,963 |
| 1916 | 498.5 | 168 | 36 | 533 | 908 |  | 3,863 |
| 1917 | 490.6 | 164 | 38 | 540 | 1,024 |  | 3,972 |
| 1918 | 402.9 | 159.9 | 53.9 | 546 | 596 |  | 4,071 |
| 1919 | 485.4 | 90.8 | 53.4 | 549 | 358 |  | 4,581 |
| 1920 | 465.0 | 91.5 | 54.7 | 576 | 555 |  | 4,767 |
| 1921 | 447.3 | 108.7 | 37.7 | 587 | 489 |  | 5,224 |
| 1922 | 478.4 | 103.5 | 53.6 | 595 | 584 |  | 5,548 |
| 1923 | 466.9 | 103.3 | 52.3 | 626 | 594 |  | 5,232 |
| 1924 | 474.3 | 95.3 | 59.4 | 617 | 628 |  | 5,916 |
| 1925 | 489.9 | 91.2 | 53.8 | 647 | 615 |  | 6.003 |
| 1926 | 499.7 | 89.5 | 65.4 | 656 | 670 |  | 6,291 |
| 1927 | 497.0 | 91.1 | 64.8 | 686 | 739 |  | 5,768 |
| 1928 | 511.5 | 95.4 | 69.6 | 694 | 699 |  | 6,516 |
| 1929 | 506.7 | 99.2 | 68.9 | 724 | 646 |  | 6,182 |
| 1930 | 502.7 | 93.1 | 63.2 | 709 | 714 |  | 6,039 |
| 1931 | 491.7 | 88.2 | 52.5 | 737 | 670 |  | 6,306 |
| 1932 | 475.2 | 86.9 | 49.3 | 765 | 762 |  | 6,012 |
| 1933 | 464.0 | 83.9 | 56.7 | 642 | 566 |  | 5,870 |
| 1934 | 468.7 | 81.1 | 55.7 | 588 | 734 |  | 6,304 |
| 1935 | 465.5 | 78.3 | 43.7 | 517 | 688 |  | 6,269 |
| 1936 | 486.3 | 78.8 | 59.9 | 517 | 770 |  | 6,203 |
| 1937 | 476.4 | 77.1 | 52.8 | 499 | 800 |  | 5,658 |
| 1938 | 484.2 | 78.4 | 56.6 | 517 | 754 |  | 5,967 |
| 1939 | 485.7 | 81.8 | 59.7 | 517 | 787 |  | 6,671 |


| (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Potatoes | Sweetpotatoes | Beans, Dry Edible | Vegetables, Other | Cocoa | Fats and Oils, Edible (excl. lard) | Apples ${ }^{\text {- }}$ |
| mil. bu. | mil. bu. | th. bags | mil. lb. | mil. lb. | mil. lb. | mil. lb. |
| 199.3 | 37.5 | 2,831 | 20,833 | 40.0 | 480 | 6,667 |
| 326.0 | 48.4 | 7,721 | 23,675 | 117.7 | 934 | 5,802 |
| 287.7 | 49.5 | 6,376 | 23,589 | 110.9 | 1,109 | 5,610 |
| 266.3 | 45.3 | 6,400 | 23,018 | 130.0 | 1,231 | 6,302 |
| 334.3 | 46.5 | 6,912 | 24,938 | 146.7 | 1,281 | 7,250 |
| 282.2 | 45.9 | 6,457 | 25,012 | 149.0 | 1,374 | 6,374 |
| 299.1 | 44.4 | 6,893 | 25,091 | 164.0 | 1,795 | 6,427 |
| 282.1 | 51.9 | 6,280 | 26,207 | 187.7 | 1,403 | 7,256 |
| 225.0 | 50.5 | 5,758 | 25,716 | 232.3 | 1,746 | 6,666 |
| 330.7 | 59.7 | 8,535 | 26,346 | 377.2 | 1,906 | 6,106 |
| 295.9 | 56.3 | 8,629 | 27,238 | 345.8 | 2,110 | 5,790 |
| 255.0 | 64.2 | 7,314 | 27,230 | 365.4 | 1,927 | 5,427 |
| 302.7 | 63.2 | 6,634 | 30,051 | 309.5 | 1,425 | 5,987 |
| 270.4 | 60.5 | 5,376 | 27,518 | 291.8 | 1,431 | 5,275 |
| 330.0 | 64.3 | 6,313 | 30,802 | 331.5 | 1,445 | 5,229 |
| 307.0 | 52.4 | 8,333 | 28,702 | 393.8 | 1,453 | 6,550 |
| 318.1 | 36.8 | 8,307 | 31,053 | 377.9 | 1,557 | 6,023 |
| 258.2 | 41.1 | 9,469 | 31,675 | 362.7 | 1,997 | 5,675 |
| 277.2 | 51.9 | 9,739 | 32,081 | 420.5 | 2,068 | 6,429 |
| 316.7 | 58.2 | 9,310 | 32,220 | 397.0 | 2,062 | 5,711 |
| 341.2 | 48.5 | 10,092 | 31,169 | 348.5 | 2,081 | 5,106 |
| 287.9 | 53.3 | 11,029 | 33,121 | 478.7 | 2,262 | 5,429 |
| 292.6 | 44.6 | 12,895 | 33,837 | 370.8 | 2,235 | 5,097 |
| 319.2 | 54.8 | 12,412 | 33,300 | 419.5 | 2,021 | 5,893 |
| 311.3 | 70.9 | 10,689 | 33,513 | 403.3 | 1,796 | 5,666 |
| 289.0 | 61.7 | 10,865 | 31,661 | 435.4 | 1,912 | 4,751 |
| 325.8 | 63.6 | 10,870 | 33,521 | 439.6 | 2,182 | 4,625 |
| 318.1 | 68.2 | 11,928 | 36,156 | 608.6 | 2,390 | 5,247 |
| 280.6 | 52.6 | 11,388 | 35,779 | 646.6 | 2,480 | 5,104 |
| 332.5 | 61.6 | 12,810 | 38,483 | 513.6 | 2,740 | 5,606 |
| 311.2 | 62.9 | 13,926 | 40,823 | 459.3 | 2,687 | 5,706 |
| 306.1 | 59.6 | 12,740 | 39,693 | 619.7 | 2,552 | 5,350 |

Table B-1-CONSUMPTION OF FOODS (concluded)

| Year | (14) <br> Citrus <br> Fruit <br> mil. lb. | (15) <br> Fruit, <br> Other <br> mil. lb. | (16) Beef mil. lb. | (17) Veal mil. lb. | (18) <br> Pork (incl. <br> lard) <br> mil. lb. | (19) <br> Lamb and <br> Mutton mil. lb. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1897-1901 | 524 | 5,400 | 5,133 | 402 | 6,410 | 509 |
| 1909 | 1,658 | 7,268 | 6,713 | 660 | 7,175 | 606 |
| 1910 | 1,730 | 7,296 | 6,508 | 667 | 6,898 | 595 |
| 1911 | 1,816 | 7,689 | 6,426 | 666 | 7,601 | 690 |
| 1912 | 1,714 | 8,318 | 6,153 | 662 | 7,440 | 730 |
| 1913 | 1,881 | 7,795 | 6,157 | 608 | 7,554 | 701 |
| 1914 | 2,341 | 8,848 | 6,143 | 572 | 7,525 | 708 |
| 1915 | 2,308 | 9,333 | 5,669 | 591 | 7,867 | 612 |
| 1916 | 2,326 | 7,904 | 6,004 | 656 | 8,245 | 595 |
| 1917 | 1,985 | 8,715 | 6,687 | 745 | 7,170 | 463 |
| 1918 | 1,837 | 8,333 | 7,167 | 761 | 7,658 | 499 |
| 1919 | 2,468 | 9,309 | 6,462 | 824 | 7,869 | 598 |
| 1920 | 2,977 | 9,813 | 6,294 | 852 | 8,069 | 579 |
| 1921 | 3,095 | 8,840 | 6,025 | 825 | 8,240 | 661 |
| 1922 | 3,103 | 10,545 | 6,502 | 858 | 8,722 | 564 |
| 1923 | 3,663 | 10,490 | 6,671 | 919 | 9,927 | 593 |
| 1924 | 3,879 | 10,996 | 6,785 | 977 | 10,089 | 596 |
| 1925 | 3,547 | 11,213 | 6,888 | 993 | 9,166 | 605 |
| 1926 | 3,697 | 12,889 | 7,074 | 958 | 8,972 | 637 |
| 1927 | 3,859 | 11,860 | 6,485 | 875 | 9,576 | 631 |
| 1928 | 4,242 | 13,286 | 5,872 | 782 | 10,144 | 664 |
| 1929 | 4,417 | 12,575 | 6,048 | 767 | 10,055 | 685 |
| 1930 | 4,662 | 11,891 | 6,021 | 794 | 9,803 | 824 |
| 1931 | 5,151 | 12,968 | 6,026 | 823 | 10,156 | 886 |
| 1932 | 5,081 | 10,735 | 5,830 | 822 | 10,613 | 883 |
| 1933 | 5,009 | 10,387 | 6,469 | 891 | 10,540 | 849 |
| 1934 | 5,071 | 11,427 | 7,066 | 1,065 | 9,755 | 796 |
| 1935 | 5,362 | 12,782 | 6,827 | 1,023 | 7,424 | 884 |
| 1936 | 5,683 | 12,969 | 7,551 | 1,098 | 8,584 | 858 |
| 1937 | 5,966 | 14,949 | 7,143 | 1,096 | 8,566 | 869 |
| 1938 | 7,325 | 13,801 | 7,092 | 985 | 9,019 | 899 |
| 1939 | 8,185 | 15,412 | 7,149 | 961 | 10,073 | 872 |


| (20) <br> Chickens | $\begin{aligned} & (21) \\ & \text { Eggs } \end{aligned}$ | (22) |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Milk and Milk Products |  |  |  |
|  |  | (a) | (b) | (c) | (d) |
|  |  | Milk, | Milk, | Butter | Cheese |
|  |  | Whole | Evap. and |  |  |
|  |  | mil. lb. | Condensed mil. lb. | mil. lb. | mil. lb. |
| 1,284 | 19,945 | 19,312 | 208 | 1,501 | 284 |
| 1,775 | 26,496 | 23,969 | 496 | 1,618 | 354 |
| 1,905 | 28,329 | -22,440 | 536 | 1,702 | 405 |
| 1,956 | 30,900 | 21,932 | 600 | 1,754 | 387 |
| 1,897 | 29,637 | 26,239 | 674 | 1,584 | 382 |
| 1,886 | 29,483 | 26,427 | 774 | 1,606 | 427 |
| 1,909 | 29,268 | 26,293 | 884 | 1,686 | 437 |
| 1,929 | 31,456 | 25,253 | 959 | 1,731 | 432 |
| 1,879 | 30,506 | 25,473 | 982 | 1,766 | 410 |
| 1,834 | 29,095 | 28,649 | 980 | 1,633 | 437 |
| 1,865 | 29,707 | 33,295 | 1,077 | 1,443 | 402 |
| 1,988 | 31,850 | 28,056 | 985 | 1,608 | 442 |
| 1,945 | 31,886 | 33,154 | 917 | 1,577 | 444 |
| 1,934 | 32,520 | 31,932 | 1,068 | 1,757 | 450 |
| 2,079 | 34,773 | 32,283 | 1,197 | 1,884 | 472 |
| 2,174 | 36,554 | 31,556 | 1,282 | 1,995 | 489 |
| 2,197 | 37,001 | 34,831 | 1,349 | 2,053 | 522 |
| 2,287 | 36,842 | 37,052 | 1,353 | 2,029 | 537 |
| 2,328 | 39,749 | 40,487 | 1,388 | 2,044 | 549 |
| 2,489 | 40,715 | 41,688 | 1,385 | 2,065 | 530 |
| 2,423 | 40,753 | 43,035 | 1,472 | 2,063 | 535 |
| 2,429 | 40,721 | 43,802 | 1,656 | 2,117 | 562 |
| 2,643 | 40,787 | 45,535 | 1,673 | 2,134 | 568 |
| 2,425 | 41,271 | 46,776 | 1,665 | 2,247 | 555 |
| 2,461 | 39,095 | 46,228 | 1,745 | 2,282 | 546 |
| 2,561 | 37,253 | 44,920 | 1,737 | 2,254 | 565 |
| 2,364 | 36,469 | 43,490 | 1,895 | 2,312 | 613 |
| 2,310 | 35,571 | 44,191 | 2,056 | 2,207 | 669 |
| 2,482 | 36,968 | 46,067 | 2,036 | 2,135 | 688 |
| 2,409 | 39,679 | 47,738 | 2,155 | 2,156 | 712 |
| 2,299 | 40,294 | 48,290 | 2,241 | 2,194 | 759 |
| 2,544 | 40,978 | 49,655 | 2,334 | 2,323 | 749 |

For notes to Table B-1 see following pages.

## General Note to Table B-1

Unless otherwise specified, the data presented for the years 1909-39 in Table B-1 are from a Bureau of Agricultural Economics release, "Consumption of Agricultural Products" (1941), hereafter referred to as BAE consumption study, series, or data. Estimates for the period 1897-1901 are our own, based on whatever evidence is available concerning consumption, production, foreign trade, and stocks. Whereas the BAE data refer to calendar years, our own estinates sometimes refer to crop years. Though this may introduce slight incomparabilities from year to year, the effect over any length of time will be negligible, the more so since for only 5 out of a total of 26 series do we use other than calendar-year data. As to coverage, the main item not included is seafood. Production data for fish are poor and extremely scanty, while consumption data are not available at all. Also omitted are such miscellaneous items as tree nuts, peanuts (other than those used for oil), barley (used both as pearl barley and as malt for purposes other than fermented beverages) and buckwheat. Though the quantitative result of these omissions cannot be gauged exactly, it is unlikely that the general trends are in any way affected.
The following notes, numbered in the same manner as the columns to which they refer, give definition, source, and basis of adjustment, if any, of the series. The net output data mentioned will be found in Table A-1 above.

## (1) Wheat:

Only wheat used in flour production is included. For 1897-1901, "Statistics of American Wheat Milling and Flour Disposition Since 1879," Wheat Studies, Vol. IV (Food Research Institute, Stanford University, Dec. 1927), Appendix Table I, p. 101.

## (2) Corn:

According to a communication received from Miss Elna Anderson of the Bureau of Agricultural Economics the corn consumption estimates of that Bureau include products derived in the wet-milling process which are not consumed as food, as well as corn consumed in the manufacture of fermented malt liquors. Furthermore, the composition of dry-milled corn products differs from that of wet-milled products in that the former possesses both protein and fat in addition to the carbohydrate which is the sole constituent of wet-milled products. It was therefore necessary to separate total corn consumption, as reported by the BAE, into dry-milled and wet-milled corn and to exclude from the latter such fractions as are utilized in nonfood industries. This can be accomplished with relatively little difficulty for recent years, but requires various assumptions as we approach the more remote years.

The procedure we finally adopted is as follows:
(r) BAE data converted from pounds into bushels: $56 \mathrm{lbs}=1 \mathrm{bu}$.
(iI) For crop years (beginning October) 1926-27 to 1939-40 corn going into dry milling is given in Feed Statistics, Supplement to the 1941 issues of The Feed Situation (U. S. Bureau of Agricultural Economics, 1941), p. 15.
(iII) Corn going into wet-milled products is given in ibid., p. 26, for crop years 1917-18 to 1939-40.
(iv) Comparison of (II) + (iII) with (I) in such a way as to consider the crop year 1926-27 equivalent to the calendar-year 1927, etc., shows the two series to be very similar until 1933, in which year the calendar-year data exceed the sum of (II) and (III) by 6 to 7 million bushels. According to ibid., Table 21, this amount is accounted for by corn used in the production of fermented malt liquors. The two series, (i) and (II) + (iII) respectively, may therefore be considered as equivalent. Consequently corn going into dry milling is estimated as the difference between total corn consumed ( I ) and corn used in wet milling, the crop year being considered to refer to the second calendar year, i.e., 1917-18 = 1918. For 1918 and 1919 we deduct 7 million bushels from the total as going into beer production.
(v) Our estimates for 1909 to 1917 are based on per capita consumption of cornmeal products as estimated for 1909 in Holbrook Working, "The Decline in Per Capita Consumption of Flour in the United States," Wheat Studies, Vol. II (July 1926), p. 279, plus an allowance for the production of hominy and grits, derived from the 1909 Census of Manufactures. The figure thus obtained, and converted to aggregate consumption in terms of bushels of corn, was then linked to the comparable estimate for 1918, derived as described above, by straight-line interpolation. These estimates we deduct from BAE totals ( 1 ), the latter being reduced by 7 million bushels each year to adjust for the amount used in beer manufacture. We thus obtain estimates of corn entering the wet-milling process.
(vi) From utilization data of wet-milled products for recent years, such as those given in a mimeographed release of the U. S. Bureau of Agricultural Chemistry and Engineering, May 1940, and in a paper presented at the Program on Grain Marketing, University of Illinois, Jan. 9, 1940, by F. J. Hosking, of the Corn Industries Research Foundation, entitled "Merchandising Corn Products at Home and Abroad," we have estimated that the following fractions are used for food:

|  | Percent |
| :--- | :---: |
| Starch | 33 |
| Sirup | 96 |
| Sugar | 100 |
| Oil | 90 |

No allowance for corn oil need be made at this point, since it is included in (12) Fats and Oils. For the other three products, it was assumed that 1 bushel ( 56 lb .) of corn will yield (alternatively) 34.5 lb . of starch, 38.1 lb . of corn sirup, or 36.4 lb . of corn sugar ( 80 percent reducible sugars). This information is given in Starches, Dextrines and Related Products, Report 138, Second Series (U. S. Tariff Commission, 1940?), p. 37. According to the abovementioned release of the Bureau of Agricultural Engineering and Chemistry, average sales for $1928-37$ were as follows: starch, 722 mil. lb.; sirup, 1,010 mil. $\mathrm{lb} . ;$ sugar, $697 \mathrm{mil} . \mathrm{lb}$. Combining all these data, we concluded that about 21 percent of all corn utilized in the wet-milling industry is used for nonfood purposes. Accordingly, we reduced our estimates for wet-milled corn (v) by 21 percent each year. The rough nature of the above estimates is obvious.

Footnotes to Table B-1, continued.
(vii) The estimate of dry-milled corn for 1897-1901 represents production of cornmeal and hominy as given in the 1899 Census of Manufactures; that of wet-milled corn is based on the trend shown by the data of the succeeding decade.

## (3) Oatmeal:

Estimates for crop years from 1909-10 to 1932-33 are based on per capita consumption as given by N. L. Gold, Agricultural Land Requirements and Available Resources, Part III of the Supplementary Report of the Land Planning Committee of the National Resources Board (Washington, 1935), p. 5. Oats were converted into oatmeal by a factor of 1 bu . oats $=18 \mathrm{lb}$. meal. For 1933-39, calendar-year data are available in a release on "The National Food Situation" (U. S. Bureau of Agricultural Economics, Dec. 1941), Table 7. The two series were joined without adjustment, and it was also assumed that all oats for human consumption are used as oatmeal; this assumption probably does not involve a major error. Per capita consumption in 1897-1901 was estimated to have been equal to that of 1909-10 to 1911-12.
(4) Rice:

Estimates for crop years 1909-10 to 1917-18 from Gold, op. cit.; see note (3). Beginning in 1918-19, official estimates are available (Agricultural Statistics, 1940, Table 122). Consumption in 1939-40 was assumed to have been the same as that of the preceding year. The 1897-1901 estimate refers to 1899 only and is taken from Apparent Per Capita Consumption of Principal Foodstuffs in the United States, Domestic Commerce Series No. 38 (U. S. Department of Commerce, 1930), p. 10.
(5) Rye:

Annual consumption data are not available except for Census years (ibid., p. 12). These figures indicate that aggregate consumption has not changed appreciably over the period under investigation; see also "Rye in its Relations to Wheat," Wheat Studies, Vol. IV (March 1928), pp. 196-98. We therefore estimated consumption for the entire period at 307 million lb. per annum.
(6) Sugar:

Refined sugar available for human consumption. For 1897-1921: Agr. Stat., 1940, Table 197; 1 ton raw sugar was assumed to equal .9369 tons refined sugar. For 1922-97: Agr. Stat., 1939, Table 181; for 1938: Agr. Stat., 1940, Table 197; for 1939: Agr. Stat., 1941, Table 206. Raw sugar for the last two years was converted into refined sugar on the basis of the two per capita consumption figures given in adjoining columns of the same tables.

## (7) Potatoes:

Since BAE consumption data are not adjusted for seed use of potatoes, we used our estimates of net output for crop years, adjusted for exports and imports. Potatoes used in starch manufacture cannot be excluded, but in the light of Census data on starch manufacture they appear to account for less than 1 percent of total output.
(8) Sweetpotatoes:

BAE data run consistently higher than our net output estimates, suggesting that they represent gross output. Consequently, we substituted our net
output estimates, on a crop-year basis. No adjustments for stock changes or foreign trade were made.
(9) Beans, dry edible:

Estimate for $1897-1901$ is based on our net output data for crop years, unadjusted for stock changes or foreign trade.
(10) Vegetables, other:

BAE consumption data for all vegetables minus output of potatoes, sweetpotatoes, and dry edible beans. Since canned vegetables are given in terms of their fresh equivalent, this presentation overstates the total poundage to some extent. However, calorie values of canned vegetables seem to run slightly higher than those of fresh vegetables (see Canned Food Reference Manual, American Can Company, New York, 1939) so that the net overstatement, in terms of nutrients, is likely to be small. An alternative method would have been to use per capita consumption data as supplied annually in Agricultural Statistics. However; the coverage of those data is far less satisfactory, and no data are available prior to 1919. The figure for 1897-1901 represents an arbitrary estimate.
(11) Cocoa:

The 1897-1901 figure represents the best estimate that may be derived from import figures for the years in question.
(12) Fats and Oils, edible, excluding lard:

The 1897-1901 figure represents an estimate based upon average cottonseed oil disappearance during the years 1897-1901, as given in Fats, Oils and Oleaginous Raw Materials, Statistical Bulletin 59 (U. S. Department of Agriculture, 1937), Table 38. The basis for this procedure lies in the similarity of the data for oil and fat consumption and cottonseed oil disappearance during the years 1909-13.
(13) Apples, fresh:

For 1897-1901 we used our net output estimates, reduced by 1 billion pounds each year to adjust for fruit going into drying, canning and export.
(14) Fruit, citrus:

For 1897-1901 we used our output estimates, adjusting roughly for imports and exports.
(15) Fruit, other:

BAE consumption data for all fruit, reduced by apples and citrus fruit. This includes the fresh-fruit equivalent of canned and dried fruit, and fruit juices. The effect may be to overstate somewhat the absolute amounts. The estimate for 1897-1901 was based on such fruit production and import figures as were available, roughly adjusted to the 1909 coverage. The resulting figure is not significant in itself, but probably introduces only a minor error into aggregate food consumption.
(16)-(19) Beef, Veal, Pork (incl. lard), Mutton and Lamb:

Data are for dressed weight, from Livestock, Meats, and Wool Market Statistics and Related Data, 1940 (U. S. Agricultural Marketing Service, 1941), p. 100. The figure for 1897-1901 is a 3-year average of 1899-1901 only.

Footnotes to Table B-1, concluded.
(20) Chickens (dressed weight):

For 1897-1901 we used our net output estimates adjusted to the level of the BAE consumption series by the average relationship existing between the two series in 1909-14.
(21) Eggs:

Revised BAE consumption data were used from 1909 on; see The Poultry and Egg Situation (U. S. Bureau of Agricultural Economics, April 1942), p. 13. For 1897-1901 we used our own net output data, allowing a 10 percent increase for off-farm production.
(22) Milk and Milk Products:

Since the composition of milk varies according to utilization, we are here presenting more detailed data than we do in the case of production. Though a still finer breakdown is possible, little increased accuracy would result, because of the relatively small amounts of the several manufactured dairy products.
(a) Milk, whole:

Our estimates for output of fluid milk, Table A-4 above, reduced by milk-equivalents of cheese production ( 1 lb . cheese $=10 \mathrm{lb}$. milk) and evaporated milk production ( 1 lb . evaporated milk $=2.2 \mathrm{lb}$. milk). For source of evaporated milk and cheese data see (b) and (d).
(b) Milk, evaporated:

For 1909-1938: E. E. Vial, Production and Consumption of Manufactured Dairy Products, Technical Bulletin 722 (U. S. Department of Agriculture, 1940).

For 1939: Based on Dairy Situation, BAE, Feb. 21, 1940.
For 1897-1901: Based on data for 1899, 1900, 1901 and estimated data for 1897-98.
(c) Butter:

Sources same as (b).
(d) Cheese:

Sources same as (b).

Table B-2
COMPOSITION OF FOODS

| Food | Unit | Protein | Fat | Carbohydrate |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | to convert into short tons multiply by |  |  | Source |
| Wheat | Mil. bu. | 2,377 | 208 | 15,659 | Atwater ${ }^{\text {a }}$ |
| Corn, dry | " " | 1,518 | 314 | 12,441 | b |
| Corn, wet | " " |  |  | 15,910 | - |
| Oatmeal | " lb. | 80.5 | 36 | 338 | Atwater |
| Rice, milled |  | 40 | 1.5 | 395 | " |
| Rye | " " | 34 | 4.5 | 394 | " |
| Sugar, refined | Th. s.t. |  |  | 1,000 | Pearl |
| Potatoes | Mil. bu. | 510 | 30 | 4,800 | U.S.D.A., Circ. 146 |
| Sweetpotatoes | " " | 412 | 165 | 6,628 | " "، " " |
| Beans, dry edible | Th. bags | 1.4 | . 15 | 2.85 | " " " " " " |
| Vegetables, other | Mil. Ib. | 5.75 | 1.2 | 24.45 | d |
| Cocoa | " " | 108 | 145 | 189 | Atwater |
| Fats and oils | " " |  | 490 |  | Pearl |
| Apples |  | 1.5 | 2.0 | 65.0 | U.S.D.A., Circ. 50 |
| Citrus fruit | " " | . 3 | . 05 | 3.8 | - |
| Fruit, other | " " | 4 | 2 | 66 | 1 |
| Beef | " " | 76 | 77 | .. | Pearl |
| Veal | " " | 78 | 31 | . | " |
| Pork | " " | 41 | 274 | . | " |
| Mutton and lamb | " " | 65 | 120 | .. | " |
| Chickens |  | 67 | 46 | . | " |
| Eggs | Millions | 8.17 | 5.83 |  | " |
| Milk, whole | Mil. 1b. | 16.5 | 20 | 25 | Atwater |
| Milk, evap. |  | 48 | 46 | 56 | " |
| Butter |  | 5 | 425 | .. | " |
| Cheese | " | 148 | 192 | . | " |

## General Note to Table B-2

All factors refer to the food as purchased and thus make partial allowance for inedible portions, but not for waste. To convert to calories, use these factors: 1 short ton $=2,000 \mathrm{lb} . ; 1 \mathrm{lb} .=453.6$ grams; each gram of protein or carbohydrate yields 4 calories; each gram of fat yields 9 calories.
Sources: Raymond Pearl, The Nation's Food (W. B. Saunders, Philadelphia, 1920); W. O. Atwater and A. P. Bryant, The Chemical Composition of American Food Materials, Experiment Station Bulletin 28 (U. S. Department of Agriculture, 1896; reprinted 1906); Charlotte Chatfield and L. I. McLaughlin, Proximate Composition of Fresh Fruits, Circular 50 (U. S. Depart-
ment of Agriculture, 1928); Charlotte Chatfield and Georgian Adams, Proximate Composition of Fresh Vegetables, Circular 146 (U. S. Department of Agriculture, 1931).
${ }^{\text {a }}$ We rejected Pearl's factors and went back to Atwater's original tables because it appears from Pearl's data that he converted bushels of wheat into barrels of flour on the basis of $4.5 \mathrm{bu} .=1 \mathrm{bbl}$. This conversion factor is appropriate for 1918 and 1919, but too low for all other years. The factors we used are taken from the table of official conversion factors given in Agricultural Statistics, 1940, p. 8, footnote 30.
${ }^{\mathrm{b}}$ These factors are derived from Atwater's composition of "cornmeal, granular," on the assumption that 1 bu . of corn $=33 \mathrm{lb}$. of cornmeal.
${ }^{c}$ The factor is a weighted average of the carbohydrate content of starch, sugar and sirup, as given by Pearl for the first two items; sirup was assumed to be equivalent to sugar. The weighted content is 86 percent. Similarly, a weighted average conversion factor was computed to convert pounds of starch, sugar and sirup into bushels of corn. This factor is 37 lb . Consequently, 1 million bushels of corn will yield 15,910 short tons of carbohydrate. Corn oil is included under fats and oils.
${ }^{d}$ The factors are weighted averages; the individual factors, taken from Circular 146, have been weighted by their estimated relative consumption in 1929.

- The factors are weighted averages; the individual factors, taken from Circular 50, have been weighted by their estimated relative consumption, averaged over the period 1909-37. Differences in weight per box as between California and Florida were taken into account.
${ }^{1}$ The factors are weighted averages; the individual factors, taken from Circular 50, have been weighted by their estimated average relative consumption during the entire period.

Table B-3
AVERAGE PER CAPITA CONSUMPTION, 1935-39, AND VITAMIN AND MINERAL CONTENT OF INDIVIDUAL FOODS

| Food | Average <br> Annual Consumption, | Vitamin $A$ | Vitamin $B_{1}$ <br> (thiamin) | Vitamin $B_{\mathbf{2}}$ (riboflavin) | Calcium | Phosphorus | Iron |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\frac{1935-39}{(100 \text { grams })}$ | (international units per 100 grams) |  | $\begin{aligned} & \text { (micrograms } \\ & \text { per } 100 \text { grams) } \end{aligned}$ | (percent) |  |  |
| Cereals |  |  |  |  |  |  |  |
| Flour, wheat, white | $\mathrm{e}^{\mathrm{a}} 700.3$ |  | 433 | 40 | . 015 | . 101 | . 0013 |
| Flour, wheat, whole | $\mathrm{le}^{\text {a }} 14.3$ |  | 110-167. | 100-200 | . 035 | . 300 | . 0040 |
| Flour, rye | 11.4 |  | 55-73 | 60 | . 018 | . 278 | . 0013 |
| Cornmeal ${ }^{\text {b }}$ | 45.9 |  | 17-100 | 80 | . 016 | . 152 | . 0009 |
| Oatmeal | 18.2 |  | 60-257 | 100-200 | . 081 | . 365 | . 0052 |
| Rice | 27.5 |  | 10-13 |  | . 009 | . 092 | . 0007 |
| Dairy products ${ }^{\circ}$ |  |  |  |  |  |  |  |
| Milk, whole | 1,655.6 | 160- 252 | 13-22 | 195-240 | . 118 | . 093 | . 0002 |
| Milk, evaporated ${ }^{\text {d }}$ | 67.2 | 300-775 | 17-27 | 330 | . 236 | . 186 | . 0004 |
| Butter | 77.1 | 1,000-8,500 |  |  | . 016 | . 016 | . 0002 |
| Cheese | 24.5 | 1,200-4,000 | 13-17 | 450-600 | . 873 | . 610 | . 0010 |
| Eggs ${ }^{\text {h }}$ | $170.1^{\text {® }}$ | 1,000-4,500 | 25-60 | 280-420 | . 058 | . 224 | . 0031 |
| Meat, leant |  |  |  |  |  |  |  |
| Beef | 143.1 | 10-105 | 25-100 | 180-260 | . 013 | . 204 | . 0030 |
| Veal | 20.7 | 10-105 | 25-100 | 180-260 | . 012 | . 221 | . 0024 |
| Mutton and lamb | 13.8 |  | 67-100 | 280 | . 015 | . 208 | . 0030 |
| Pork | 92.0 |  | 25-300 | 200 | . 010 | . 215 | . 0020 |
| Chicken | 84.4 |  | 30-150 | 100-200 | . 016 | . 218 | . 0019 |
| Turkey | 11.9 |  |  |  | . 023 | . 320 | . 0038 |

Table B-3-(continued)

| Food | Average Annual Consumption, | Vitamin A | Vitamin $B_{1}$ <br> (thiamin) | Vitamin $B_{2}$ (riboflavin) | Calcium | Phosphorus | Iron |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\frac{1935-39}{(100 \mathrm{grams})}$ | (international units per 100 grams) |  | (micrograms per 100 grams) |  | (percent) |  |
| Meat, organs ${ }^{\text {c }}$ |  |  |  |  |  |  |  |
| Liver | 9.1 | 5,000-10,000 | 100-140 | 1,800-2,600 | . 008 | . 373 | . 0121 |
| Kidney | 3.3 | 500-1,000 | 133-167 | 1,700-2,200 | . 016 | . 287 | . 0065 |
| ${ }_{0}$ Fruit, fresh ${ }^{\text {b }}$ |  |  |  |  |  |  |  |
| O Apples | 185.5 | 40- 100 | 5-40 |  | . 007 | . 011 | . 0003 |
| Apricots | 1.4 | 3,000-8,000 | 8-15 | 105 | . 015 | . 024 | . 0005 |
| Bananas | 92.5 | 160-400 | 15-60 | 45-80 | . 008 | . 028 | . 0006 |
| Cherries | 6.4 | 35-1,150 | 17 |  | . 017 | . 022 | . 0005 |
| Cranberries | 2.3 | 10- 28 |  |  | . 014 | . 011 | . 0006 |
| Figs | . 9 | 60-90 | 12-33 | 82 | . 050 | . 035 | . 0007 |
| Grapes | 95.3 | 15- 90 | 10-20 |  | . 017 | . 021 | . 0006 |
| Grapefruit | 50.8 | 21 | 10-33 | 20-100 | . 017 | . 018 | . 0003 |
| Lemons | 21.3 |  | 10-30 |  | . 021 | . 012 | . 0003 |
| Oranges | 147.4 | 50- 400 | 10-48 | 28-90 | . 025 | . 019 | . 0003 |
| Peaches | 50.8 | 250-2,800 | 7-23 | 45 | . 009 | . 018 | . 0003 |
| Pears | 26.8 | 8- 125 | 10-32 | 20-150 | . 013 | . 016 | . 0003 |
| Pineapple | 4.5 | 40- 200 | 25-42 | 50-80 | . 016 | . 011 | . 0003 |
| Plums and prunes | 4.5 | 200 | 16-67 |  | . 017 | . 020 | . 0005 |
| Strawberries | 14.1 | 60- 90 | 5 |  | . 022 | . 022 | . 0009 |

Table B-3-(continued)

| Food | Average Annual Consumption, | Vitamin $A$ | Vitamin $B_{1}$ (thiamin) | Vitamin $\mathbf{B}_{\mathbf{2}}$ (riboflavin) | Calcium | Phosphorus | Iron |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\frac{1935-39}{(100 \text { grams })}$ | (international units per 100 grams) |  | $\begin{gathered} \text { (micrograms } \\ \text { per } 100 \text { grams) } \end{gathered}$ | (percent) |  |  |
| Fruit, dried ${ }^{\text {b }}$ |  |  |  |  |  |  |  |
| Apricots | 1.0 | 6,000-15,000 | 20-40 | 240-300 | . 071 | . 113 | . 0076 |
| Currants | . 2 |  |  |  | . 075 | . 138 | . 0027 |
| Dates | 2.0 | 60-300 | 10-33 |  | . 072 | . 060 | . 0021 |
| Figs | 2.0 | 50-100 | 25-100 | 85-125 | . 223 | . 104 | . 0031 |
| Peaches | 1.4 | 1,500-6,300 | 10-15 | 150-250 | . 025 | . 050 | . 0009 |
| Prunes | 9.6 | 400-3,500 | 58-90 | 50-650 | . 062 | . 093 | . 0035 |
| \% Raisins | 10.5 | 10- 100 | 0-67 | 125 | . 055 | . 110 | . 0030 |
| ${ }^{\text {F Fruit, canned }}{ }^{\text {i }}$ |  |  |  |  |  |  |  |
| Applesauce | 5.1 | 40-100 | 5-40 |  |  |  |  |
| Apricots | 4.2 | 3,000-8,000 | 8-15 | 105 | . 015 | . 024 | . 0005 |
| Cherries | 3.5 | 35-1,150 | 15 |  |  |  |  |
| Grapefruit | 10.8 | 21 | 10-30 | 20-100 | . 017 | . 018 | . 0003 |
| Peaches | 15.6 | 250-2,800 | 7-23 | 45 | . 009 | . 018 | . 0003 |
| Pears | 5.5 | 8- 125 | 10 |  |  |  |  |
| Pineapple | 18.1 | 20-60 | 21 | 20-30 | . 016 | . 011 | . 0003 |
| Plums | 2.7 | 200 | 16-67 |  |  |  |  |
| Vegetables, fresh ${ }^{\text {b }}$ |  |  |  |  |  |  |  |
| Asparagus | 9.1 | $300-980$ | 45-135 |  | . 021 | . 052 | . 0012 |
| Beans, dry edible | 44.0 | 400 | 52-160 | 250 | . 031 | . 112 | . 0023 |
| Beans, snap | 31.8 | 600-1,800 | 18-32 | 65-150 | . 065 | . 044 | . 0011 |
| Beets | 12.2 |  | 5-70 | 70-120 | . 026 | . 039 | . 0009 |
| Cabbage | 117.9 | $30-90$ | 20-80 | 65-135 | . 045 | . 028 | . 0004 |

Table B-3-(concluded)

| Food | Average Annual Consumption, | Vitamin A | Vitamin $B_{1}$ <br> (thiamin) | Vitamin $B_{2}$ <br> (riboflavin) | Calcium | Phosphorus | Iron |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1935-39 | (international units per 100 grams) |  | (micrograms | (percent) |  |  |
|  | (100 grams) |  |  | per 100 grams) |  |  |  |
| Vegetables, fresh (cont.) ${ }^{\text {b }}$ |  |  |  |  |  |  |  |
| Carrots | 39.5 | 1,800-7,700 | 20-60 | 75-125 | . 042 | . 040 | . 0007 |
| Cauliflower | 12.7 | 35-70 | 43-110 | 150-220 | . 025 | . 065 | . 0009 |
| Celery | 44.0 | $5-50$ | 7-17 | 30-55 | . 072 | . 046 | . 0007 |
| Corn, sweet | 39.9 |  | 40-50 |  | . 009 | . 120 | . 0005 |
| Lettuce | 63.1 | $70-700$ | 10-90 | 100-240 | . 054 | . 031 | . 0011 |
| Onions | 75.3 | 40 | 8-40 | 28-62 | . 032 | . 044 | . 0005 |
| Peas | 7.7 | 500-3,000 | 25-165 | 200-250 | . 022 | . 122 | . 0019 |
| Potatoes | 581.1 | 30- 50 | 10-55 | 40-80 | . 013 | . 053 | . 0011 |
| Spinach | 15.0 | 13,000-35,000 | 20-70 | 250-400 |  | . 048 | . 0034 |
| Sweetpotatoes | 104.8 | 1,000-7,000 | 10-45 | 80-100 | . 033 | . 052 | . 0008 |
| Tomatoes | 79.4 | 550-2,100 | 10-40 | 37-63 | . 011 | . 027 | . 0006 |
| Vegetables, canned ${ }^{1}$ |  |  |  |  |  |  |  |
| Asparagus | 2.3 | 300- 980 | 50-60 |  |  |  |  |
| Beans, snap | 9.1 | 600-1,800 | 11 | 65-150 | . 065 | . 044 | . 0011 |
| Beets | 2.9 |  | 8-32 | 70-120 | . 026 | . 039 | . 0009 |
| Corn, sweet | 19.3 |  | 33 |  |  |  |  |
| Peas | 22.2 | 80-200 | 67-100 | 200-250 | . 022 | . 122 | . 0019 |
| Spinach | 4.1 | 4,000-10,000 | 6 |  |  |  |  |
| Tomatoes | 25.9 | 4,000 | ${ }^{33}$ 38 | 37-63 | . 011 | . 027 | . 0006 |
| Tomato juice | 16.1 | 825 | 23-38 | 37-63 | . 011 | . 027 | . 0006 |
| Pumpkin | 2.1 | 84 |  |  |  |  |  |
| Cocoa | 20.0 |  |  |  | . 112 | . 709 | . 0027 |

Source: For all items, except where otherwise noted, the source is that given for the identical item in the notes to Table B-1. Consumption for all fruit and vegetables is taken from Agricultural Statistics, 1941, Tables 378-82.
The following publications served as sources from which the range of vita$\min$ contents was established:
E. V. McCollum, Elsa Orent-Keiles, and H. G. Day, The Newer Knowledge of Nutrition (5th ed.; Macmillan, 1939).
H. C. Sherman, Chemistry of Food and Nutrition (6th ed.; Macmillan, 1941).
M. A. B. Fixsen and M. H. Roscoe, "Tables of the Vitamin Content of Human and Animal Foods," Nutrition Abstracts and Reviews, Vol. 7 (Aberdeen University Press, April 1938), pp. 823-67.

For calcium, phosphorus and iron the source was Sherman, op. cit., pp. 562-65.

Coverage: Though coverage is not complete, the omissions-caused by lack of data-do not seriously impair the significance of our findings, since none of the omitted items is consumed in quantities that could be termed large relative to the items covered. Fish is probably the most important omission. However, since its contribution is largely confined to vitamin A, consumption of which appears most satisfactory in any case, and vitamin D , consumption of which we have not attempted to estimate, the omission, even if it were quantitatively important, leaves our conclusions unaffected. Another food--peanuts-contributes to $\mathrm{B}_{1}$ and $\mathrm{B}_{2}$ consumption, it is true, but although peanuts rank high in content per unit of weight, aggregate consumption does not appear to result in daily per capita consumption of more than 9 units of $\mathrm{B}_{1}$ and between 10 and 20 micrograms of $\mathrm{B}_{2}$.

Contributions from tree nuts and a number of green vegetables are smaller than those mentioned above, even though contents per unit of weight are high.

Blanks do not necessarily denote absence of vitamin content, but may also signify that the value has not thus far been established experimentally. Since it is often impossible from the published material to say which situation prevails, we have made no attempt to indicate reasons for omitting entries.
${ }^{4}$ No data are available on relative consumption of white and whole wheat flour. Total wheat flour consumption was therefore roughly apportioned between the two on the basis of flour production as reported in the Census of Manufactures, 1935, 1937 and 1939.
${ }^{5}$ Based on data for dry-process products as given in Feed Statistics, Supplement to the 1941 issues of The Feed Situation (U. S. Bureau of Agricultural Economics), p. 15.
${ }^{\text {c }}$ Data are for 4 -year average $1935-38$, as given in The Dairy Situation, BAE, Feb. 21, 1940. Data for 1939 have since become available (Agr. Stat., 1941, Table 588). Their inclusion would raise butter consumption by 0.7 percent; cheese by 3.7 percent; evaporated milk by 1.9 percent.
${ }^{d}$ Case goods, unskimmed.
${ }^{-}$One egg $=2$ oz., or 56.7 grams.
${ }^{\prime}$ The only type of meat for which the authors were able to locate sufficient
data to enable them to determine approximately the percentage of lean meat was beef. This was set at 57 percent, on the basis of data in W. H. Tomhave, Meats and Meat Products (Lippincott, 1925) and L. D. Hall and A. D. Emmett, Relative Economy, Composition and Nutritive Value of the Various Cuts of Beef, Bulletin 158 (Illinois Agricultural Experiment Station, 1912). The same percentage was used for veal, while for mutton and lamb 40 percent and for hogs 30 percent were assumed to be lean meat. These percentages were applied to meat consumption for 1935-39. No deductions were made for fat or waste material in the case of chicken and turkey, and this undoubtedly results in an overstatement.
${ }^{\varepsilon}$ Both liver and kidney consumption were determined separately for each of the four types of animal, and then aggregated. The estimates were based on scattered data pertaining to average weight of the organ and average dressed weight of the whole carcass, yielding percentages of dressed weight represented by each organ. These percentages are:

|  | Beef | Veal | Mutton |  |
| :--- | :---: | :---: | :---: | :---: |
|  | and Lamb | Pork |  |  |
| Liver | 1.0 | 2.0 | 4.0 | 1.5 |
| Kidney | .5 | 1.0 | .5 | .5 |

The sources are:
(1) P. I. Aldrich, The Packers' Encyclopedia (The National Provisioner, Chicago, 1922).
(2) Arnold C. Schueren, Meat Retailing (Vaughan, Chicago, 1927).
(3) A written communication from Miss Elna Anderson of the Bureau of Agricultural Economics based in turn on data provided by the Division of Livestock, Meats, and Wool of the Agricultural Marketing Service.
There is no doubt that some portion of this meat is not designed for human consumption, since considerable portions of it go into animal feed. The degree of overstatement is unknown. The vitamin values are based on Sherman only.
${ }^{\text {b }}$ Consumption data include inedible refuse. Correction for this is made, in accordance with Table B-4, in the final values.
${ }^{1}$ For those of the canned goods for which no specific data are available, vitamin and mineral content was assumed to equal that of the fresh fruit or vegetable. No refuse factors were applied to the quantities listed under average annual consumption.
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Table B-4
PERCENTAGE OF INEDIBLE REFUSE IN SPECIFIED FOODS

| Food | Percent |
| :---: | :---: |
| Vegetables |  |
| Beans, lima | 55 |
| Beans, snap | 7 |
| Beets | 20 |
| Cabbage | 15 |
| Carrots | 20 |
| Celery | 20 |
| Lettuce | 15 |
| Onions | 10 |
| Peas | 45 |
| Potatoes | 20 |
| Sweetpotatoes | 20 |
| Fruits |  |
| Apples | 25 |
| Apricots | 6 |
| Bananas | 35 |
| Cherries | 5 |
| Grapefruit | $30^{9}$ |
| Grapes | 25 |
| Lemons | 30 |
| Oranges | 27 |
| Peaches | 18 |
| Pears | 10 |
| Plums | 5 |
| Prunes | 6 |
| Strawberries | 5 |
| Dates | 10 |
| Prunes, dried | 15 |
| Raisins | 10 |
| Other |  |
| Eggs | 11 |

[^0]Table B-5
COMPARISON OF PEARL'S ESTIMATES WITH THOSE OF THE NATIONAL BUREAU FOR ANNUAL CALORIE CONSUMPTION IN THE UNITED STATES, 1911-16 ${ }^{\circ}$
Billion calories

| Groups | Pearl | NBER |
| :--- | :---: | :---: |
| Grains | 45,057 | 45,192 |
| Meats | 28,104 | 25,048 |
| Dairy products | 19,834 | 15,299 |
| Sugars | 17,197 | 14,166 |
| Oils and nuts $^{\mathrm{d}}$ | $6,812^{\mathrm{b}}$ | $6,268^{\circ}$ |
| Fruit and vegetables | 9,773 | 13,869 |
| Poultry and eggs | 2,620 | 3,311 |
| Fish | 535 | $\ldots$ |
| $\quad$ тотаL | 129,931 | 123,153 |

[^1]
## General Note to Table B-5

As mentioned in the text of Chapter 4, two previous investigations were made in this field, one by Raymond Pearl (1920, referred to above) and one by Holbrook Working ${ }^{1}$ who extended Pearl's estimates (in less detailed form) through 1924-25. Though we have relied heavily upon Pearl's work as far as conversion factors are concerned, the consumption data at our disposal represent great improvements over those available twenty years ago. A first glance at Table B-5 suggests that the use of a different set of consumption figures, and slightly lower calorie values, has had little effect on the results. This, however, is true only with regard to the total, and is attributable to the fact that large differences in the estimates for individual items tend to cancel one a nother in the aggregate.

A group-by-group comparison for the average of the six years 1911-12 to 1916-172 reveals that our estimates exceed Pearl's for fruits and vegetables, and eggs and poultry, whereas for meats, sugar, oils and dairy products, Pearl's estimates exceed ours. For cereals the two estimates are practically identical. In the grand total the excess of Pearl's estimate over our own amounts to about $51 / 2$ percent.
Working's continuation of, and improvement upon, Pearl's work is notable for the fact that although written at a time when current statistics suggested that the tendencies at work up to 1921 had apparently approached and even passed a turning point, it nonetheless forecast a further decrease in per capita food consumption, a forecast fully borne out during recent years. Another tentative suggestion made by Working, namely that sugar consumption would expand further at the cost of flour, has not been realized.
1 "The Decline in Per Capita Consumption of Flour in the United States," Wheat Studies, Vol. II (July 1926).
${ }^{2}$ Since Pearl's data refer to a greater degree to crop years than do ours, we prefer to use a 6 -year average that will render the two sets more comparable by partially obliterating the differences due to this fact.

Table B-6
POPULATION ESTIMATES, 1897-1941 ${ }^{\text {a }}$

|  | Midyear Estimates |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| Year | $A$ | $B$ | $C$ | $D$ | Index |  |
|  |  |  |  |  | $(1929: 100)$ |  |


| (thousands) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1897 | 72,189 | . | .. | . | 59.2 |
| 1898 | 73,494 | . | . |  | 60.2 |
| 1899 | 74,799 | - | $\cdots$ | . | 61.3 |
| 1900 | 76,129 | 76,110 | . | $\ldots$ | 62.4 |
| 1901 | .. | 77,273 | $\cdots$ | $\cdots$ | 63.4 |
| 1902 | . | 78,601 | - | $\cdots$ | 64.5 |
| 1903 | $\cdots$ | 80,143 | $\cdots$ |  | 65.7 |
| 1904 | $\cdots$ | 81,493 | $\cdots$ | $\ldots$ | 66.8 |
| 1905 | . | 83,150 | . | . | 68.2 |
| 1906 | . | 85,041 | . | $\cdots$ | 69.7 |
| 1907 | . | 87,198 | . |  | 71.5 |
| 1908 | $\cdots$ | 88,587 | . |  | 72.6 |
| 1909 | . | 90,508 | $\ldots$ | . | 74.2 |
| 1910 | .. | 92,422 | 92,331 | . | 75.8 |
| 1911 | $\cdots$ | . | 93,812 | . | 77.0 |
| 1912 | . | $\cdots$ | 95,290 | $\cdots$ | 78.2 |
| 1913 | . | . | 97,198 |  | 79.8 |
| 1914 | . | $\cdots$ | 99,102 | $\cdots$ | 81.3 |
| 1915 | $\cdots$ | . | 100,579 | $\cdots$ | 82.6 |
| 1916 | . | $\cdots$ | 102,021 | $\cdots$ | 83.7 |
| 1917 | . | . | 103,467 |  | 84.9 |
| 1918 | $\cdots$ | $\cdots$ | 104,595 | $\ldots$ | 85.9 |
| 1919 | . | $\cdots$ | 105,159 | . | 86.3 |
| 1920 | .. | .. | 106,641 | . | 87.5 |
| 1921 | . | . | 108,716 | $\cdots$ | 89.2 |
| 1922 | $\cdots$ | $\cdots$ | 110,229 | . | 90.5 |
| 1923 | . | $\cdots$ | 112,109 | . | 92.0 |
| 1924 | . | $\cdots$ | 114,250 | $\cdots$ | 93.8 |
| 1925 | . | . | 115,953 | . | 95.2 |
| 1926 |  |  | 117,507 | $\cdots$ | 96.5 |
| 1927 |  | . | 119,125 | . | 97.8 |
| 1928 |  | . | 120,557 | $\cdots$ | 99.0 |
| 1929 | . | . | 121,832 | . | 100.0 |

Table B-6 (concluded)

| Year | Midyear Estimates |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | D | $\begin{gathered} \text { Index } \\ (1929: 100) \end{gathered}$ |
| (Thousands) |  |  |  |  |  |
| 1930 | . | . | 123,091 | 123,077 | 101.0 |
| 1931 | . | . | .. | 124,039 | 101.8 |
| 1932 | . | $\cdots$ | . | 124,840 | 102.5 |
| 1933 | . | . | $\cdots$ | 125,578 | 103.1 |
| 1934 | $\cdots$ | . | . | 126,373 | 103.7 |
| 1935 | . | .. | . | 127,249 | 104.5 |
| 1936 | .. | . | . | 128,052 | 105.1 |
| 1937 | . | $\cdots$ | $\cdots$ | 128,823 | 105.8 |
| 1938 |  | . | . | 129,823 | 106.6 |
| 1939 | . | . | $\cdots$ | 130,878 | 107.4 |
| 1940 | $\cdots$ |  | .. | 131,956 | 108.3 |
| 1941 | $\cdots$ | . | . | 133,039 | 109.2 |

(A): Statistical Abstract of the United States.
(B): National Bureau, unpublished.
(C): BAE, "Consumption of Agricultural Products," March 1941.
(D): Bureau of the Census releases, March 15, 1941, and June 11, 1942.
${ }^{\text {a }}$ The figures in this table represent the best population estimates we were able to assemble, and were used in computing per capita consumption data for various foods. Figures apply to the continental United States.


[^0]:    Source: Atwater and Bryant, op. cit.

    - Estimated.

[^1]:    ${ }^{\text {a }}$ Raymond Pearl, op. cit., p. 229; average for fiscal years July of year shown to June of year following. NBER data, average for calendar years shown.
    ${ }^{\mathrm{b}}$ Includes oleomargarine.
    ${ }^{\circ}$ Excludes peanuts.
    ${ }^{d}$ Includes cocoa.
    ${ }^{\circ}$ Coverage differs considerably.

