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HOW  
BRITAIN  
WAS FED  
IN  
WAR TIME

FOOD CONTROL

1939-1945

H.M. STATIONERY OFFICE : PRICE 1s. 0d. NET



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FOOD CONTROL  
1939-1945

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PUBLISHED FOR THE MINISTRY OF FOOD  
BY HIS MAJESTY'S STATIONERY OFFICE  
LONDON

1946





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# HOW BRITAIN WAS FED IN WAR TIME

FOOD CONTROL, 1939-1945

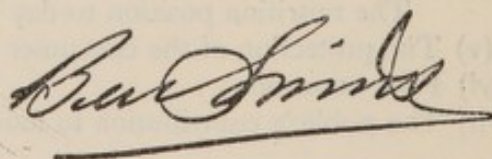
## FOREWORD

DURING the war the Government had to withhold much information that the public would normally be entitled to have. The publication of "Statistics relating to the War Effort of the United Kingdom" in November, 1944, gave the first general picture of how this country mobilised her resources for war. I am now glad to be able to amplify that report in so far as it concerns food control and I need make very few preliminary remarks.

The following account deals chiefly with the use of food after its production; that is, with the sphere of activity of the Ministry of Food. The achievements of the home agricultural industry are another story.

The account is written throughout in the past tense, since it deals with food control during the war. But the end of the war has so far brought no possibility of any appreciable relaxation of control. On the contrary, the development of world shortages of cereals, meat, sugar, fats and dairy produce has compelled this country to reduce its civilian consumption of some foods below the levels reached in the last year of the war. The food situation described in the following pages prevails substantially to-day and its continuance imposes an increasing strain on the patience and goodwill of the public and the food trade. This report acknowledges the fact that without their co-operation, food control would not have been so effective as it has been.

I should like to associate myself personally with this acknowledgment and especially to give my thanks to the housewife. Of all the people who have contributed to the success of food control, the housewife has done her share with as little fuss and as much efficiency as anyone.



23rd May, 1946



# I

## THE WARTIME FOOD SHORTAGE

1. SINCE 1940 Britain has suffered a shortage of nearly all the more appetising and popular staple foods. Meat, fish, butter, eggs and sugar have been scarce. The once abundant supplies of imported fruits have dwindled and many varieties have disappeared. People have been compelled to satisfy their physical needs by filling up with larger quantities of the bulky and less attractive vegetable and cereal foodstuffs still obtainable.
2. Some indication of the shortage of favourite foods, and of the enforced transfer to a duller diet which the war imposed on the British public, may be gathered from the following table, which compares the amount of each main group of foods eaten in 1944 with the amount eaten before the war.

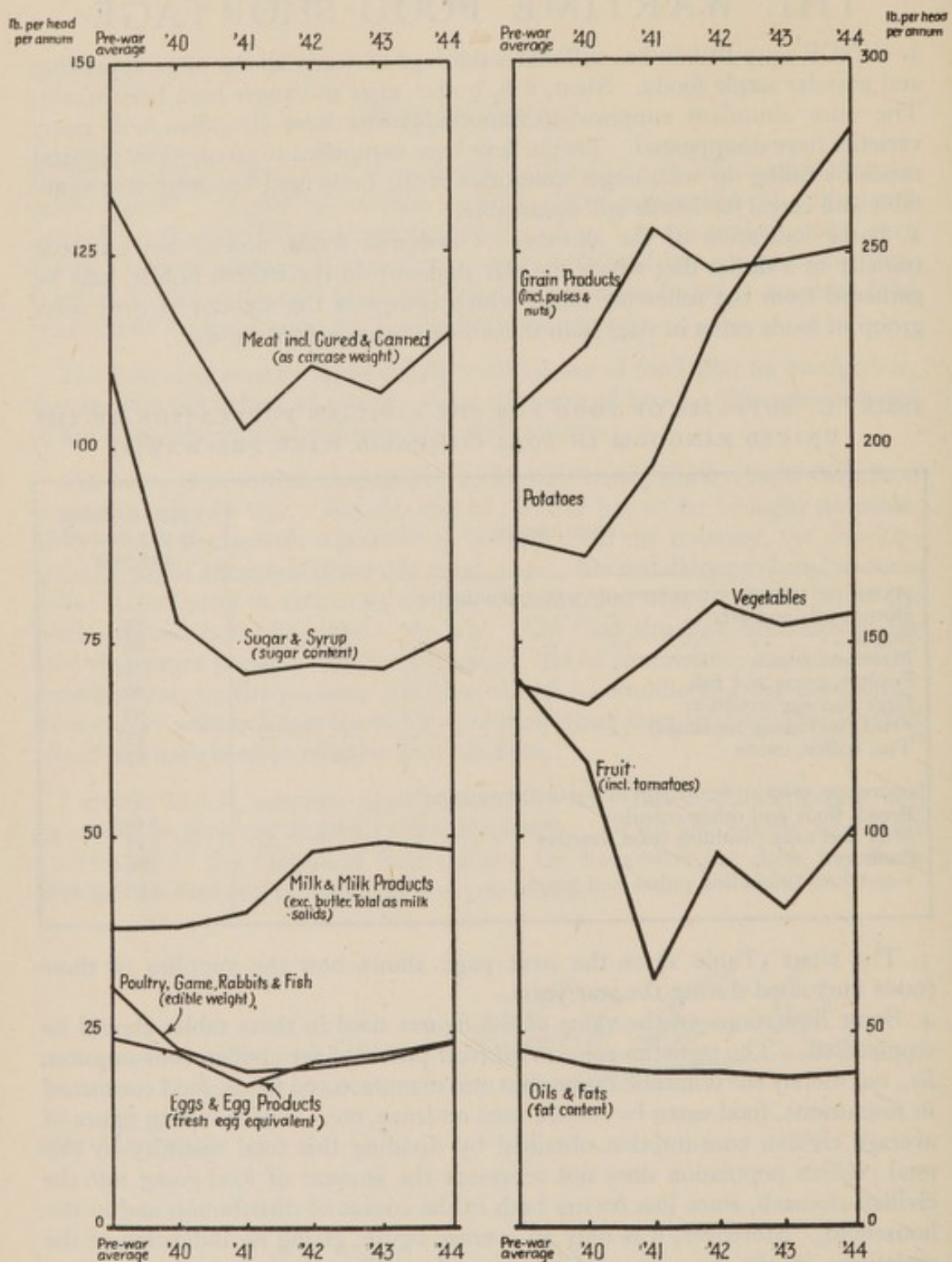
TABLE I. SUPPLIES OF FOOD FOR THE CIVILIAN POPULATION OF THE UNITED KINGDOM IN 1944 COMPARED WITH PRE-WAR (a)

FOOD GROUP	1944 supplies as per cent of pre-war
FOODS OF WHICH CONSUMPTION HAS DECREASED :	
Butter, oils and fats .. .. .	85
Sugar .. .. .	69
Meat and bacon .. .. .	86
Poultry, game and fish .. .. .	76
Eggs and egg products .. .. .	97
Fruit (including tomatoes) .. .. .	73
Tea, coffee, cocoa .. .. .	87
FOODS OF WHICH CONSUMPTION HAS INCREASED :	
Bread, flour and other cereals .. .. .	119
Milk and milk products (excl. butter) .. .. .	127
Potatoes .. .. .	160
Vegetables (including pulses and nuts) .. .. .	113

3. The chart (Table 2) on the next page shows how the supplies of these foods fluctuated during the war years.
4. Some limitations on the value of the figures used in these tables should be emphasised. The statistics refer to *all* food provided for civilian consumption, *i.e.*, not merely the domestic ration, but also manufactured foods, food consumed in restaurants, food eaten by service men on leave, etc. The resulting figure of average civilian consumption obtained by dividing this total quantity by the total civilian population does not represent the amount of food going into the civilian stomach, since loss occurs both in the course of distribution and in the household. Moreover, it is only an average figure, giving no indication of the variations in the amount of food eaten by different classes of consumer. Children and mothers receiving special allowances, factory workers with access to industrial canteens, etc. are all included in the general average.

(a) The statistical basis on which this and other tables have been compiled is described in Appendix F.

TABLE 2. SUPPLIES MOVING INTO CIVILIAN CONSUMPTION IN THE U.K.



5. The fact that milk and milk products (including cheese, but not butter) figure among foods of which the consumption has increased also requires explanation. This group of foods can be sub-divided as follows :—



MILK AND MILK PRODUCTS (excluding Butter)	ANNUAL CONSUMPTION PER HEAD	
	Pre-war	1944
Milk, liquid (pints) .. .. .	169.3	237.3
Milk, dried (pints equivalent *) .. .. .	12.8	25.2
Milk, condensed and evaporated (pints equivalent *) .. .. .	26.9	9.1
Cheese (lb.) .. .. .	8.8	10.3

\* *i.e.*, the equivalent volume of full-cream or skim milk.

Although determined and successful efforts have been made to keep up the milk supply, the ordinary adult's share of it has been much reduced. Certain priority classes—mothers, children and invalids—which include about 30% of the registered consumers are drinking nearly half of all the liquid milk sold. Similarly, much of the cheese is reserved for underground miners, farm labourers and other classes of worker whose occupations debar them from using canteens or restaurants while at work. A remarkable increase in the consumption of dried egg, a product little used in this country before the war, accounts for the fact that the consumption of eggs and egg products for domestic and manufacturing purposes rose in 1944 to approximately its pre-war level. The following analysis of the "eggs and egg products" group makes the position clear :

EGGS AND EGG PRODUCTS	ANNUAL CONSUMPTION PER HEAD	
	Pre-war	1944 (a)
Eggs in shell—		
Non-priority consumer (number) .. .. .	} 153	31 156
Priority consumer (number) .. .. .		
Egg products—		
Liquid egg (lb.) .. .. .	1.9	0.5
Dried egg (lb.) .. .. .	0.05	2.8

(a) Excluding consumption of eggs by domestic poultry keepers and uncontrolled distribution.

6. Further evidence of the extent to which the British wartime diet has gone short of the more popular and appetising foods is provided by a comparison with the wartime diets of the United States and of Canada. Although food rationing and shortages in those countries have created problems for their housewives, their diets have remained considerably more attractive than that of the United Kingdom, as is shown by the following table :—



TABLE 3. U.K. CIVILIAN FOOD SUPPLIES PER HEAD IN 1944 EXPRESSED AS PERCENTAGES OF THE SUPPLIES PER HEAD IN U.S.A. AND CANADA

FOOD GROUP	PER CENT. OF SUPPLIES IN	
	U.S.A.	CANADA
Bread, flour and other cereals .. .. .	121	127
Butter, oils and fats .. .. .	92	95
Sugar .. .. .	74	79
Meat and bacon .. .. .	71	77
Poultry, game and fish .. .. .	91	81
Eggs and egg products .. .. .	60	65
Milk and milk products (excl. butter) .. .. .	74	69
Potatoes .. .. .	203	131
Vegetables (including pulses and nuts) .. .. .	66	136
Fruit (including tomatoes) .. .. .	34	51
Tea, coffee, cocoa .. .. .	64	117

7. It will be seen that only in the "bulky" foods—bread and potatoes—is the level of consumption in the United Kingdom higher than that of the U.S.A. Canada occupies an intermediate position. In considering this table it should be borne in mind that, as a result of stringent control, food distribution over the population of the United Kingdom is much more uniform than in North America, where considerable sections enjoy a diet distinctly ampler than these figures indicate, and other large sections are less adequately fed.

8. The adequacy of a diet cannot be gauged merely from its bulk, nor even from the calories, proteins and other essential constituents that it represents. Palatability is also necessary if the diet is to stimulate appetite and digestion and ensure psychological satisfaction. In the wartime menu of the United Kingdom there has been a lack of variety and many traditional habits and preferences have had to be abandoned. Bulk has remained available, but the diet has become duller and drier. Powdered egg is not as palatable as a fresh egg for all purposes. Biscuits, chocolates, sweets and other manufactured foods have been not only less in quantity but also poorer in quality and variety. Supplies of many of the less essential articles of food, which in peacetime did so much to enliven the menu—canned and fresh fruit, table jellies, cream, ice cream, salad cream, olive oil, fancy cheeses—have dwindled or disappeared.

9. The chief reason why the wartime shortage of food was so acute was the dependence of the United Kingdom on imports for more than half of its food supplies: up to 1939 over half the meat, nearly all the fats, four-fifths of the sugar, and some nine-tenths of the cereals and flour were imported. Large quantities of animal feedingstuffs were also imported with which to maintain the domestic output of meat and bacon, poultry and eggs, milk and dairy produce. The following table shows the yearly decline in the tonnage of food and feed imports—which include food for troops in the United Kingdom as well as for civilians—until in the last three years it was only one half of the pre-war tonnage:—



TABLE 4. UNITED KINGDOM IMPORTS OF FOOD AND ANIMAL FEEDING-STUFFS (EXCLUDING UNREFINED WHALE-OIL AND IDENTIFIABLE IMPORTS FROM EIRE)

		THOUSAND TONS
Average—1934-1938	.. ..	22,026
1940	.. ..	18,834
1941	.. ..	14,654
1942	.. ..	10,606
1943	.. ..	11,525
1944	.. ..	11,032

(A more detailed analysis is given in Appendix A).

10. From the outset the Government adopted the policy of using what ships were available to import food for human beings rather than feed for animals until, from 1942 onward, animal feedingstuffs, imports of which amounted to 5 or 6 million tons a year before the war, were practically eliminated from the import programme. This was obviously the best way to use the available shipping space since several tons of animal feedingstuffs are required to produce one ton of meat or eggs.

11. To make good the deficit caused by the loss of imports, the maximum quantity of food had to be produced from our own soil. The home agricultural industry was required, in the first place, to adapt farming practice to the loss of imported animal feed, and in particular to provide feed for cows in order to keep up and even increase the supply of milk for liquid consumption. The pig and poultry population was heavily reduced, the number of pigs falling by more than half, and of poultry by a quarter. Secondly, domestic agriculture was called on to increase the output of foodstuffs for direct human consumption and particularly of wheat, potatoes, sugar-beet and vegetables. By 1944 there was, by comparison with the pre-war production, a 90% increase in the production of wheat, an 87% increase in potatoes and a 45% increase in vegetables. The production of sugar-beet increased by 19%, the increase being limited by the capacity of the factories processing the beet. The following table shows how agriculture increased its production of the principal crops during the war:—

TABLE 5. ESTIMATED PRODUCTION OF PRINCIPAL CROPS IN THE UNITED KINGDOM

		THOUSAND TONS					
		WHEAT	BARLEY	OATS	POTATOES	SUGAR-BEET	VEGETABLES
1936-38 average	..	1,651	765	1,940	4,873	2,740	2,370
1939	.. ..	1,645	892	2,003	5,234	3,529	2,402
1940	.. ..	1,641	1,104	2,892	6,405	3,176	2,617
1941	.. ..	2,018	1,144	3,247	8,004	3,226	2,883
1942	.. ..	2,567	1,446	3,553	9,393	3,923	3,690
1943	.. ..	3,447	1,645	3,064	9,822	3,760	3,143
1944	.. ..	3,138	1,752	2,953	9,096	3,267	3,422
1945*		2,176	2,108	3,245	9,791	3,875	3,202

Provisional \*

12. The foregoing paragraphs set out briefly the bald facts of Britain's wartime shortage of food. How the food problem was dealt with and how the hardships it entailed were mitigated are described in the following pages. (a)

---

(a) The plans made by the Government before 1939 are outlined in the Report of the Food (Defence Plans) Department, published by H.M. Stationery Office in 1938.



## II

# THE PLANNING OF FOOD SUPPLIES

### (i) *What the United Kingdom ate before the War*

13. IN the years before 1939 the United Kingdom depended upon imports for considerably more than half her supplies of food. Details for the main groups of food are given in Table 6.

TABLE 6. PRE-WAR FOOD CONSUMPTION IN THE UNITED KINGDOM SHOWING THE PERCENTAGES HOME-PRODUCED AND IMPORTED

COMMODITY GROUP	ANNUAL AVERAGE 1934-38		
	TOTAL '000 TONS	PERCENTAGE HOME-PRODUCED (a)	PERCENTAGE IMPORTED
Flour from wheat and other cereal products .. .. .	4,428	12	88
Fats (butter, lard, margarine) ..	905	7	93
Sugar .. .. .	2,184	18	82
Meat (including bacon) .. .. .	2,707	45	55
Fish (including canned) (edible weight) .. .. .	523	85	15
Eggs and egg products .. .. .	500	60	40
Milk (liquid) .. .. .	4,579	100	—
Condensed milk .. .. .	260	70	30
Dried milk .. .. .	35	61	39
Cheese .. .. .	185	24	76
Potatoes .. .. .	3,700	94	6
Other vegetables .. .. .	2,715	92	8
Fruit (including tomatoes) ..	2,406	26	74

(a) Partly dependent on imported feedingstuffs.

14. Every day ten or fifteen food ships reached our ports, bringing some 22 million tons of food and animal feedingstuffs in the course of a year. The sources from which these supplies were drawn varied from year to year according to changes of price and production in the exporting countries. On average, about  $4\frac{1}{2}$  million tons came from Argentina, nearly 3 from Canada,  $2\frac{3}{4}$  from Australia and New Zealand,  $1\frac{1}{4}$  from India and Burma, 1 from the U.S.A., and about 4 from countries which during 1941-43 were enemy or enemy-occupied. Table 7 shows the pre-war sources of the main food imports.

15. Imported food provided more than two-thirds of the calories and more than half of the total protein supply. These proportions refer to total supplies. The figures for the various food groups differ considerably and are shown later in chart form in Tables 14 and 15.

### (ii) *The Effect of War on Food Supplies*

16. In the first few months of the war the enemy interfered little with our supplies. Imports continued to arrive in our harbours even from Denmark and the Baltic States, countries on the enemy's doorstep. Relatively few ships were sunk, and for the first six months of the war imports of food were maintained



at the pre-war level. But in April the Germans invaded Denmark and Norway. In May, they over-ran Holland, Belgium and Luxembourg. On June 25th France capitulated. Thus, in three months were lost the sources of supplies amounting to  $1\frac{3}{4}$  million tons annually. Included in these supplies were the following percentages of total imports :—

Bacon and ham .. .. .	55%
Butter .. .. .	30%
Condensed milk and milk powder .. .. .	77%
Eggs in shell .. .. .	52%

There was some temporary compensation in the diversion to British ports of about a million tons of food on its way to other European countries.

TABLE 7. MAIN SOURCES OF IMPORTS OF PRINCIPAL GROUPS OF FOOD AND FEEDINGSTUFFS, ANNUAL AVERAGE, 1934-38

COMMODITY GROUP	IMPORTS '000 TONS	MAIN SOURCES, I.E., THOSE SUPPLYING 10% OR MORE OF GROUP TOTAL
Wheat and flour .. .. .	5,451	Canada, 39% ; Australia, 24% ; Argentina, 15%.
Rice, other grains and pulses (including soya beans and products)	1,527	Canada, 18% ; British India, Burma and Kwantung, 13% ; Iran and Iraq, 11% ; Soviet Union, 11%.
Animal feedingstuffs (including maize and maize meal)	5,114	Argentina, 57% ; British India and Burma, 11%.
Meat (including canned meat and bacon and ham)	1,486	Argentine, 32% ; Australia and New Zealand, 32% ; Denmark, 13%.
Oilseeds and nuts, oils and fats	1,783	Egypt and Sudan, 24% ; British India, Burma and Ceylon, 20% ; British West Africa, 18%.
Sugar .. .. .	2,168	Cuba and S. Domingo, 37% ; Australia, 15% ; Mauritius, 11%.
Dairy produce .. .. .	889	Continental Europe (inc. Soviet Union), 45% ; Australia and N. Zealand, 39%.
Fruit and vegetables (including tinned and preserved)	2,604	Europe (including Channel Islands and Soviet Union) and Canary Islands, 37% ; U.S.A., 12%.

17. In June, 1940, Italy entered the war and the Mediterranean was closed to the transit of much food which now had to take the longer route round the Cape. It became doubtful whether dried fruit and other commodities from the Eastern Mediterranean would any longer be obtainable. The U-boat campaign was growing more intense, ships and ports were being attacked from air bases across the Channel, the convoy system meant slower journeys, and ships were being diverted to the Middle East and to the carriage of cargoes other than food. Refrigerated ships, for example, were transferred to naval duties because of their speed. This made the importation of meat particularly difficult, and the meat ration had to be halved in a few weeks at the beginning of 1941. Most of the trawler fleet had already been requisitioned and in consequence the supply of fish was drastically reduced.

18. Meanwhile, alternative sources were sought for bacon and dairy produce no longer obtainable from Europe. Canada sent more bacon and cheese and New Zealand more butter, although not enough to replace the losses. For eggs and canned milk no ready alternative source was available.



19. Shipping losses were severe throughout 1941. In the spring of that year the diet of the people dropped to the lowest average of the whole war. In addition to the reduction of the meat ration, there were shortages of cheese, milk, fish and many minor foods such as jam and onions. Imports of fresh and canned fruit had already been cut to vanishing point in December, 1940.

20. The home agricultural industry was made to produce progressively more (see Table 5). But the ploughing up of grassland, the expansion of human food crops and the heavy reduction in the imports of feedingstuffs for animals necessarily resulted in a decline in the numbers of livestock. Farmers were warned in the early months of the war to plan reductions in the numbers of pigs and poultry owing to their competition with human beings for cereals, but not of dairy cattle because the nutritional importance of milk made it essential to prevent any fall in its production. First priority was therefore given to the feeding of dairy cows,\* followed by fattening cattle and sheep, with pigs and poultry last.

21. The rationing of animal feedingstuffs was introduced in February, 1941. For pigs and poultry the basis of the issue of rationed feedingstuffs was one-third of the stock on farms in June, 1939. Further reductions followed and at one time rations were allowed for only one-eighth of pre-war numbers, with an additional reduction calculated on the acreage of the farm and based on the assumption that the farmer could himself grow sufficient food for  $1\frac{1}{2}$  hens per acre and for one pig per 8 acres. But the numbers of pigs and poultry never fell correspondingly, thanks to the use of home-grown feed and waste products of the farm and the organised collection of food scraps and swill from the towns and Service camps.

TABLE 8. NUMBERS OF LIVESTOCK IN THE UNITED KINGDOM  
MILLIONS

MID-YEAR	CATTLE			SHEEP AND LAMBS	PIGS	POULTRY
	COWS IN MILK AND CALF	OTHER CATTLE	TOTAL CATTLE			
1939 ..	3.3	5.6	8.9	26.9	4.4	74.4
1940 ..	3.3	5.8	9.1	26.3	4.1	71.2
1941 ..	3.4	5.5	8.9	22.3	2.6	62.1
1942 ..	3.4	5.7	9.1	21.5	2.1	57.8
1943 ..	3.6	5.7	9.3	20.4	1.8	50.7
1944 ..	3.6	5.9	9.5	20.1	1.9	55.1
1945* ..	3.5	6.1	9.6	20.1	2.2	62.1

\* Provisional.

22. All the changes in the agricultural industry were aimed at maximising food production and minimising dependence on imported feedingstuffs. The extent to which these objectives were achieved may be gauged in part from Table 9, which shows year by year the percentage contribution of home agriculture to our total food supplies in terms of calories, proteins and fats. But these figures must not be taken as measures of the increase in home agricultural production: they should be read in the light of two considerations. First, the total supplies moving into consumption were less in the war years, and especially in 1941, than before the war. Secondly, the percentage figures in Table 9 are based on final



products for human consumption and ignore the facts that in producing these the home agricultural industry used about 5,000,000 tons of imported feeding-stuffs annually before the war, and that in the war years the use of imported feeds dwindled to insignificant quantities. Home agriculture's contribution to wartime food supplies was therefore considerably greater than the following figures might suggest, as not only were there increases in the production of foods for human consumption, but these increases were achieved when the supplies of imported feedingstuffs were a mere fraction of pre-war supplies.

TABLE 9. PERCENTAGE OF TOTAL SUPPLIES OF FOOD MOVING INTO HUMAN CONSUMPTION FROM HOME PRODUCTION (a)

	ANNUAL AVERAGE 1934-38	1940	1941	1942	1943	1944
Calories ..	30	32	31	36	41	40
Protein—						
Animal ..	62	59	60	53	52	51
Vegetable	24	27	28	40	50	52
Total ..	44	43	42	46	51	52
Fat ..	31	31	29	26	28	26

(a) Excluding barley for brewing.

23. In the dark days of early 1941, when British dollar resources were nearly exhausted, the passage of the Lend/Lease Act in the United States enabled this country to obtain from the Americans supplies of valuable foods that could not be had elsewhere. This made possible a sorely needed improvement in the national diet. After the inevitable initial delays, supplies of such foods as cheese, lard and canned goods began to arrive in the summer of 1941. By the late autumn stocks of canned meat and fish had been accumulated, sufficient to begin a restricted rationed distribution.

TABLE 10. LEND/LEASE ARRIVALS OF FOOD IN THE UNITED KINGDOM  
THOUSAND TONS

	1941	1942	1943*	1944
1st quarter .. .. .	—	405	287	276
2nd „ .. .. .	27	281	475	406
3rd „ .. .. .	382	403	531	286
4th „ .. .. .	664	338	412	312
Total .. .. .	1,073	1,427	1,705	1,280
Total as percentage of total arrivals	7.3	13.7	14.6	11.7

\* Year of 53 weeks.

24. When, in December, 1941, Japan attacked Pearl Harbour, the food problems of the United Kingdom multiplied. The southward sweep of Japanese conquest eliminated for the time being the normal sources of all its sago and tapioca, nearly all the pepper, 50% of the copra and 30% of the coco-nut oil. With the fall of Indo-China, Thailand and Burma, 80% of its pre-war supplies of rice were lost. The occupation of the Netherlands East Indies cut off sources of



sugar, tea and vegetable oils and the fall of the Philippines cost the United Nations valuable supplies of sugar. The presence of Japanese vessels in the Indian Ocean also threatened seriously the passage of food supplies from Australia, New Zealand and India.

25. War in the Pacific brought the additional problem of a growing demand for food for the armed forces engaged there. Australian and New Zealand food previously destined for the United Kingdom was needed on the spot for United States and Imperial troops. This new demand particularly affected meat and dairy produce. To compensate, larger Lend/Lease supplies were directed from the United States across the Atlantic, with notable economies in shipping (*a*).

26. With the loss of imports of fresh fruit and the gradual change to a more starchy diet, nutritional problems in the United Kingdom became more pressing and a steady demand was made upon the services of the Scientific Adviser who had been appointed to the Ministry of Food in February, 1940. As the war progressed, the emphasis in home agriculture shifted from "dual purpose" crops available for feeding man or beast to crops for direct human consumption—particularly wheat, potatoes and sugar beet. The results of the expected and unavoidable decrease of the numbers of livestock and of their slower fattening began to show; the quantity of home-produced meat fell from 1,023 thousand tons in 1940 to 813 thousand tons in 1941 and 728 thousand tons in 1942. To offset this reduction of protein supplies, substantial quantities of canned meat and fish, bacon, cheese, dried egg, condensed and dried milk were imported from the United States (*b*) and Canada. The contribution of Lend/Lease supplies in terms of animal protein was considerably more important than it was in terms of calories:—

TABLE II. LEND/LEASE SUPPLIES AS PERCENTAGE OF THE TOTAL MOVING INTO CONSUMPTION

	CALORIES	ANIMAL PROTEIN	FATS
1941	3.6	4.8	5.7
1942	8.5	14.3	15.7
1943	10.0	15.5	18.8
1944	10.6	18.2	20.5

(*a*) "Furthermore, as long as Australia and New Zealand continue to supply the larger part of the food requirements of the United States in the South Pacific, those countries will not be able to send food in peace-time volume to Britain. Thus limited quantities of food from this country will be needed by the British to make their most effective contribution in the war against Japan." . . .

"Food has been one of the most important items provided by Australia and New Zealand. By January 1st, 1945, we had received from these two countries 2,635,000,000 lbs. of food for U.S. forces in the Pacific."

(President Truman's 19th Lend/Lease Report to Congress, May 22nd, 1945.)

(*b*) "Our Lend/Lease food shipments to Britain in 1944 amounted to about three per cent. of our total food supply, but it represented to the British about 10 per cent. of their requirements. This 10 per cent. represents the difference between a minimum efficiency diet and one which would mean a lowering of efficiency on the part of the armed forces and civilian war workers. The British diet is distinctly inferior to our own, both in quantity and variety. The average level of civilian food consumption in the United States in 1944 was 3,367 calories a day; in Britain it was 2,923 calories."

(President Truman's 19th Lend/Lease Report to Congress, May 22nd, 1945.)



27. The mounting shipping losses led to a search for methods of packing the maximum quantity of nutrients into the minimum of space. Technical co-operation between scientists and food manufacturers on both sides of the Atlantic resulted in the large-scale production of spray-dried egg powder in Canada and the United States, and an increase in production of separated milk powder in those countries and in New Zealand. These products were not only concentrated (dried egg, for example, occupies only one-quarter of the space of eggs in shell); they had the added advantage that they did not need refrigerated shipping space. Other space-saving expedients were the removal of bones from meat before shipping and the "telescoping" of carcasses by folding and compressing, which reduced stowage space by about 45% and 25% respectively. The weight and bulk of packing cases were pared down to the minimum. Ingenious methods dispensed with refrigeration in some cases; for instance, bacon was shipped with an insulating cargo of previously-refrigerated lard.

28. In the manufacture of food similar attention was directed to details to reduce the pressure on shipping. Steps were taken to ensure that manufacturers should "spread" all scarce ingredients. Standards were prescribed for such made-up foods as sausages, meat pastes and canned soups. Allocations of raw materials were related not only to pre-war usage but also to the nutritional value of the final product. This did not necessarily mean that the resultant food products were less attractive to the consumer, since the Ministry's advisers were aware of the monotony of a diet in which bread and potatoes were increasingly dominant, and insisted on the maintenance of a supply of pickles, sauces and sweet and savoury "spreads."

29. During 1942 the U-boat war reached its peak. Moreover, every ship that could be spared was needed for the vast military operations then being planned. It became vital to reduce further the amount of shipping used for food. In March, 1942, the extraction rate of flour, already increased from 70% or less to 75% of the wheat grain, was further raised to 85% (see also paras. 151 and 152). The increase was a nutritional gain, for the new flour supplied certain of the minerals and vitamins lacking in the national diet; against this there was a loss in quantity and quality of feeding stuffs for animals. In the autumn it was decided to eke out the wheat supply by mixing in the millers' grist a proportion of barley, as well as small quantities of rye and oats. This policy was revised after a few months, for it was found that the compulsory sale of barley by farmers merely resulted in reduced sales of oats. In further efforts to reduce imports of wheat the Ministry embarked on a publicity campaign to stimulate the consumption of potatoes instead of bread and at the same time directed intensive propaganda to the prevention of waste of food, especially bread.

30. In the course of 1942 inter-allied machinery was established for the combined planning of all supplies, materials and shipping. Part of this machinery became the Combined Food Board, the nucleus of which already existed in the Anglo-American Food Committee. The original members of the Board were the United States and the United Kingdom; Canada was added later. The London Food Council, consisting of representatives of the countries of the British Commonwealth and working in parallel with the Board, became responsible for planning the food exports and imports of the British Commonwealth, except Canada, and of certain regions in the Eastern Hemisphere such as the Middle East. The purpose of the combined food planning arrangements,



at the centre of which was the Combined Food Board, was "to co-ordinate and obtain a planned and expeditious utilisation of the food resources of the United Nations." The Combined Food Board, the London Food Council and their committees covering the principal foodstuffs, agricultural equipment, seeds and fertilisers assumed (in addition to the primary duty of agreeing international allocation of foodstuffs in short supply) the responsibility for such related tasks as the stimulation of production of required foods, the launching of joint buying schemes for meat and meat products, oils and fats and other commodities, and assisting in planning the economic use of ocean-going ships for the movement of foodstuffs.

31. By 1944 the changed pattern of our food consumption, production and imports was as shown in Table 12; this is a counterpart of the pre-war Table 6 on page 7.

TABLE 12. FOOD CONSUMPTION IN THE UNITED KINGDOM IN 1944 SHOWING THE PERCENTAGE HOME-PRODUCED AND IMPORTED

COMMODITY GROUP	ANNUAL AVERAGE, 1944		
	TOTAL '000 TONS	PERCENTAGE HOME-PRODUCED (a)	PERCENTAGE IMPORTED
Flour from wheat and other cereal products .. .. .	5,492	44	56
Fats (butter, lard and margarine)	819	2	98
Sugar .. .. .	1,641	27	73
Meat (including bacon) .. .. .	2,577	35	65
Fish (including canned) (edible weight) .. .. .	436	55	45
Eggs and egg products .. .. .	279	63	37
Milk (liquid) .. .. .	6,121	100	—
Condensed milk .. .. .	195	53	47
Dried milk .. .. .	70	21	79
Cheese .. .. .	230	7	93
Potatoes .. .. .	6,450	100	—
Other vegetables .. .. .	3,229	99	1
Fruit (including tomatoes) ..	1,324	61	39

(a) Partly dependent on imported feedingstuffs.

32. Not only had the proportions of imports and home production changed, but also the sources from which food and feedingstuffs were imported in 1944. If Table 13 below is compared with Table 7 on page 8 it will be seen that by 1944 imports of wheat and flour had fallen to two-thirds, but Canada's contribution to them had increased by 50%. Imports of rice and similar products had fallen to one-tenth of pre-war, and of animal feedingstuffs to one-twentieth. Imports of meat had gone up by one-fifth, with Argentina still the chief single source of supply; the United States and Canada had supplanted Australia, New Zealand and Denmark as the next most important suppliers. Imports of oils and fats had increased; Egypt had dropped out as the chief supplier and had been replaced by British West Africa, but British India retained her position and substantial quantities were coming from Argentina and French Africa. Supplies



of sugar were down to one-half, with Cuba and San Domingo as the chief source. Imports of dairy produce had dropped by a quarter and the United States were making good most of the European losses. Imports of fruit and vegetables were only one-fourth of the pre-war figure.

TABLE 13. MAIN SOURCES OF IMPORTS OF PRINCIPAL GROUPS OF FOOD AND FEEDINGSTUFFS, 1944

COMMODITY GROUP	IMPORTS '000 TONS	MAIN SOURCES, I.E., THOSE SUPPLYING 10% OR MORE OF GROUP TOTAL.
Wheat and flour .. .. .	3,624	Canada, 83% ; Argentina, 12%.
Rice, other grains and pulses (including soya beans and products) .. .. .	144	U.S.A., 58%.
Animal feedingsuffs (includ- ing maize and maize meal)	216	Argentina, 73% ; U.S.A., 10%.
Meat (including canned meat and bacon and ham).	1,768	Argentina, 33% ; U.S.A., 24% ; Canada, 21% ; Australia and New Zealand, 16%.
Oilseeds and nuts, oils and fats .. .. .	1,968	Brit. W. Africa, 36% ; Brit. India, Burma and Ceylon, 19% ; Argentina, 16% ; French W. and Equatorial Africa, 10%.
Sugar .. .. .	1,156	Cuba and San Domingo, 77%.
Dairy produce .. .. .	664	U.S.A., 52% ; Australia and New Zealand, 35%.
Fruit and vegetables (including tinned and preserved)	646	U.S.A., 26% ; Europe (including Channel Is. and Soviet Union) and Canary Is., 25% ; Union of S. Africa, 12%.

33. The combined consequences of the changes in imports and the development of home agricultural production are shown in terms of calorie and protein supplies in Tables 14 and 15. The most significant changes in the sources of calories are the increased importance of flour, bread and other cereal foods and the much greater proportion of these produced at home ; the smaller calorie contribution from oils and fats, sugar, meat and fish ; and the great increase in the number of calories derived from potatoes. The chief changes in the supply of protein are the much larger contribution from flour and cereals and the much greater proportion produced at home.

(iii) *Food Stocks and Losses*

34. Ships bringing food to Britain after September, 1939, had to run the risk of torpedoes, mines, bombs and gunfire. Normal marine risks were increased by the need to sail in convoy and without lights. On arrival in this country food was liable to destruction in air attacks. In estimating supplies needed, a substantial allowance had to be made to cover these possibilities.

35. On a tonnage basis, the worst losses of food through sinking were suffered between July, 1940 and June, 1941. As a proportion of total supplies shipped to this country, losses rose to a peak of over 9% in the last quarter of 1942 and the first quarter of 1943.



TABLE 14. NUTRIENTS AVAILABLE PER HEAD OF TOTAL POPULATION PER DAY IN U.K. SHOWING THE PROPORTIONS HOME PRODUCED AND IMPORTED

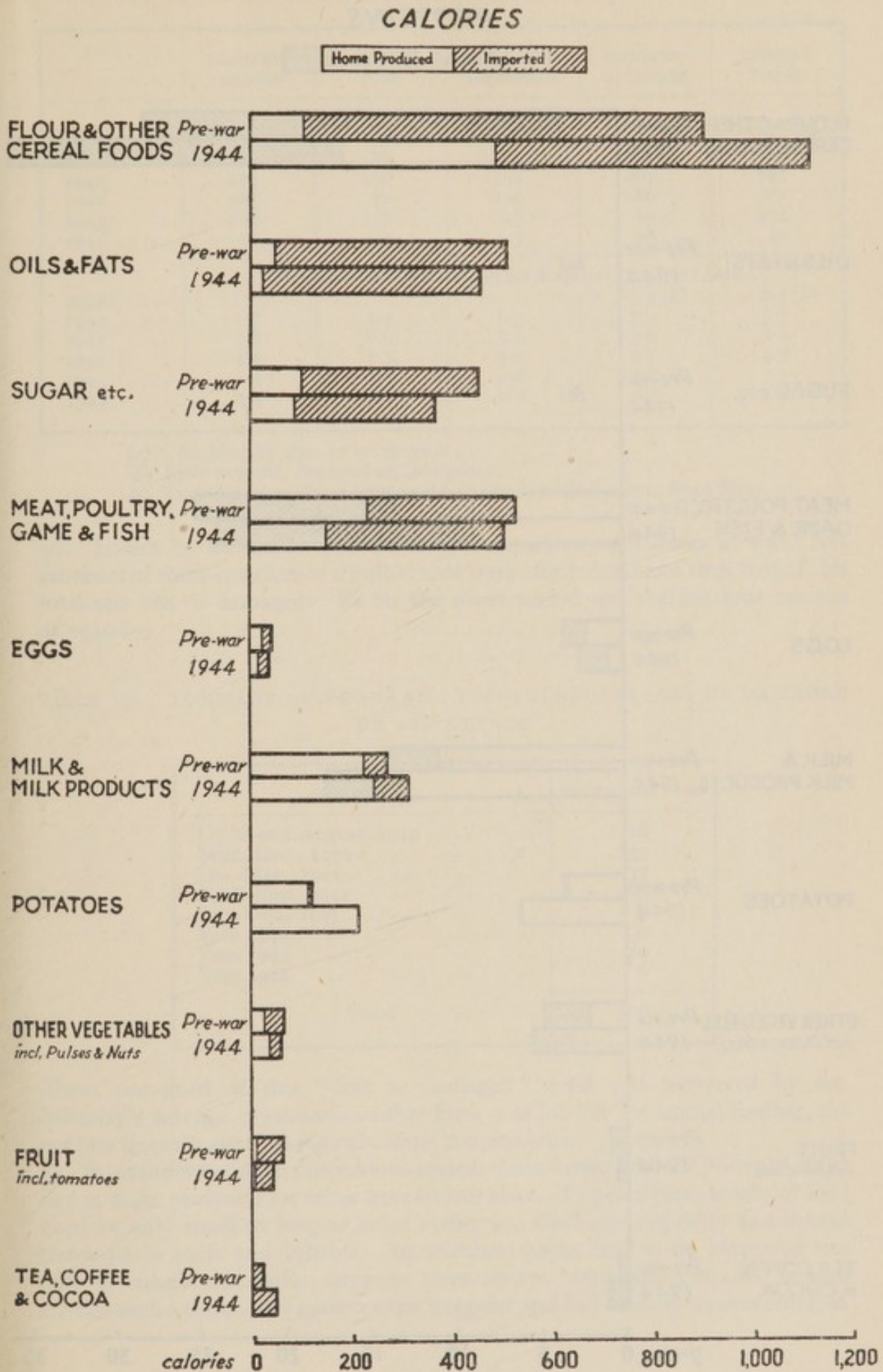


TABLE 15. NUTRIENTS AVAILABLE PER HEAD OF TOTAL POPULATION PER DAY IN U.K. SHOWING THE PROPORTIONS HOME PRODUCED AND IMPORTED

PROTEINS

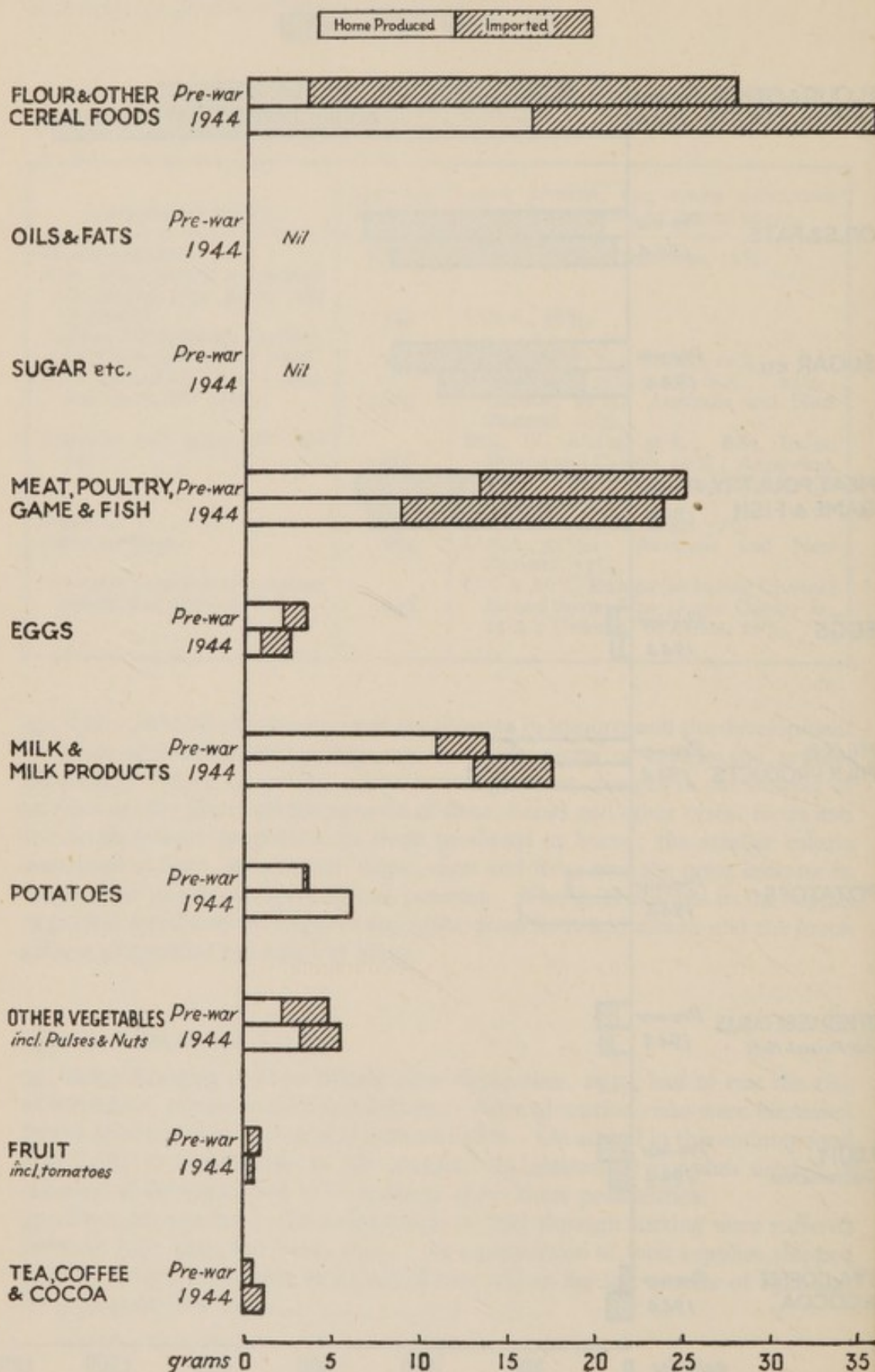




TABLE 16. LOSSES AT SEA OF FOOD AND FEEDINGSTUFFS DESTINED FOR THE UNITED KINGDOM (a)

	JANUARY/ MARCH	APRIL/ JUNE	JULY/ SEPTEMBER	OCTOBER/ DECEMBER	ANNUAL TOTAL
	Thousand tons (net weight)				
1939 ..	—	—	—	142 (b)	142 (b)
1940 ..	94	86	292	256	728
1941 ..	254	288	138	107	787
1942 ..	127	72	136	186	521
1943 ..	209	117	26	19	371
1944 ..	11	4	7	18	40
	Expressed as Percentages of Imports (c) plus Losses.				
1939 ..				2.5 (b)	2.5 (b)
1940 ..	1.7	1.5	6.5	7.4	3.7
1941 ..	7.6	6.9	3.2	3.0	5.1
1942 ..	4.1	2.1	5.2	9.1	4.7
1943 ..	9.3	3.4	0.8	0.6	3.1
1944 ..	0.4	0.1	0.2	0.7	0.4

(a) Classified by date of occurrence.

(b) Four months, September/December.

(c) Excluding unrefined whale oil and identifiable imports from Eire.

36. Losses by air attack were small by comparison with losses at sea. Not far short of three-quarters of a million tons were affected but less than half of this total was lost or damaged. By far the worst period was the last four months of 1940 :—

TABLE 17. TONNAGE OF FOODS AND FEEDINGSTUFFS LOST OR DAMAGED BY AIR ATTACK

PERIOD	THOUSAND TONS
Up to end August, 1940 .. ..	16
Sept.-Dec., 1940 .. ..	159
Jan.-Mar., 1941 .. ..	37
April-June, 1941 .. ..	63
July-Dec., 1941 .. ..	9
Year 1942 .. ..	9
Year 1943 .. ..	10
Year 1944 .. ..	6
Total .. ..	309

About one-third of this "lost or damaged" total was recovered by the Ministry's salvage organisation either for use as food or for animal feeding, the net loss from air attack being only some 200,000 tons.

37. In addition to taking precautions against these dangers, the Ministry of Food had to make provision for other less obvious risks. In peace time, stocks of food need be only small so long as ships arrive and discharge regularly and inland transport is swift and reliable. In wartime, stocks had to be increased not only to ensure that ration coupons were always honoured, but also because arrivals under the convoy system were irregular and had often to be concentrated



on West coast ports ; there were delays in discharging cargo ; port clearance facilities and internal transport were liable to be disrupted by air raids ; warehouses and processing plant were destroyed ; rail and road transport were under constant heavy strain. The dispersal of stores to reduce the risk of loss from air attack and the building up of reserves against invasion added still further to the stocks required. For example, each of the 104 self-contained zones into which the country was divided had to have its own stock of flour which was drawn upon and replenished regularly to avoid deterioration. Finally, throughout the greater part of the war there was the danger of some large-scale interruption of the strategic flow of supplies to these islands, either through enemy action or because of a major diversion of ships to military operations. In consequence, strategic reserves of essential foodstuffs had to be maintained.

38. At the outbreak of war, food stocks in general stood at normal peace time levels. Certain precautionary purchases of wheat, sugar and whale oil had been made by the Government in 1938-39 under the Essential Commodities (Reserves) Act, 1938. When war broke out all stocks had to be built up to higher levels. In the first few months this need was aggravated by an inevitable but unforeseen dislocation of shipping which necessitated some using up of such food reserves as there were. Nevertheless, from the end of 1939 to the end of 1941 stocks under Ministry control were increased despite the reduced shipping space available. In 1942 losses of imports compelled the Ministry to eat into stocks by 700,000 tons. By the end of 1942 stocks were down to the minimum working levels necessary under the conditions then existing ; indeed, it was becoming difficult to keep up the distribution of some foods. In 1943, as a result of increased agricultural production at home, coupled with a somewhat better shipping position, it became possible to import about 2 million tons more food than was consumed and by the end of that year Ministry-controlled stocks reached a record figure of more than 6½ million tons. Some of the 2 million tons could have been used to improve the diet of the British people, but the Government decided against this. It was realised that every ship that could be

TABLE 18. DELIVERIES TO EUROPE OUT OF UNITED KINGDOM STOCKS TO END SEPTEMBER, 1945 (including direct shipments out of United Kingdom import programme)

	THOUSAND TONS
Wheat .. .. .	212
Flour .. .. .	116
Pulses .. .. .	32
Other cereals .. .. .	4
Biscuits .. .. .	136
Oils and fats .. .. .	57
Sugar and syrup .. .. .	77
Canned and dehydrated meats .. .. .	71
Fish and canned fish.. .. .	31
Cheese, evaporated milk, dried milk and dried egg.	36
Other foodstuffs .. .. .	63
Seed potatoes .. .. .	70
Soap .. .. .	57
<b>Total .. .. .</b>	<b>962</b>



spared would be needed for the forthcoming military operations and that for a time at least the country might have to forgo imports altogether if it was not to hamper the plans of the Service Chiefs. This policy was abundantly justified and the sacrifice the people made was undoubtedly a substantial contribution to victory. The Government also foresaw that after the liberation of Europe the world would suffer from a pressing shortage of food and here, too, the policy of caution was proved to be right.

39. Long before the landing in Normandy an agreement was made to supply Supreme Headquarters, Allied Expeditionary Force, with food from United Kingdom stocks for the use of the civilian population in liberated countries in the period before direct shipment from overseas was practicable. By end-September, 1945, about one million tons of food was made available to the United Nations Relief and Rehabilitation Administration and to SHAEF and the Governments of those Continental Allies who were making their own arrangements (see Table 18).

40. Owing to the large number of ships needed for military operations, imports into the United Kingdom began to fall below consumption requirements towards the end of 1944. This fall continued after the cessation of hostilities because of the need to ship supplies into liberated Europe. By the end of June 1945, total stocks of food and feedingstuffs under the control of the Ministry of Food had fallen to less than  $5\frac{1}{2}$  million tons. At the end of 1945 the stock figure was under 5 million tons. The quarterly stock figures throughout the war and up to the end of 1945 were as follows :—

TABLE 19. STOCKS OF FOOD AND FEEDINGSTUFFS IN THE UNITED KINGDOM UNDER CONTROL OF THE MINISTRY OF FOOD (a)  
THOUSAND TONS

	END MARCH	END JUNE	END SEPTEMBER	END DECEMBER
1940 .. ..	2,815	3,738	4,077	3,875
1941 .. ..	3,469	4,244	4,890	5,298
1942 .. ..	5,183	5,479	5,012	4,595
1943 .. ..	4,424	5,347	5,927	6,668
1944 .. ..	6,221	6,302	6,497	6,221
1945 .. ..	5,365	5,439	5,267	4,821 (b)

(a) Including stocks held against relief commitments.

(b) Provisional. Between 50 and 60 per cent of the total consisted of wheat, flour, coarse grains and animal feedingstuffs.

In December, 1945, Ministry-controlled stocks were higher than the stock holdings of the same commodities estimated to have been held before the war, but the uncertainty of imported supplies, the very limited supplies of other foods normally available in peace time, and the continuance of rationing, made this essential. The obligation to make food available to honour all ration documents during their period of validity in every part of the country necessitated the holding of larger reserve stocks than were necessary under pre-war conditions. Additional supplies were then readily available overseas and could be obtained in a matter of days, or even hours, and there were more abundant alternatives to foods which might be temporarily scarce.



### III

## ECONOMY OF NATIONAL RESOURCES

#### (i) *The Shortage of Materials, Manpower and Factory Space*

41. THE events of 1940 showed that the war would be long, and that it would place the utmost strain on national resources of all kinds. The food trades had to play their part in economising to the utmost in manpower, factory space, transport and packing materials.

42. Below is a broad picture of the progressive fall in the numbers employed in the food manufacturing industries. This table does not include persons employed in food distribution, but it may be noted that the numbers employed in the distributive trades as a whole fell from 2,887,000 in mid-1939 to 1,928,000 in mid-1944.

TABLE 20. EMPLOYMENT IN THE FOOD INDUSTRIES

(Approximate numbers of persons, insured under the Unemployment Insurance Acts, in employment in the United Kingdom, in July of each year).

THOUSANDS

INDUSTRY GROUP	1939	1940	1941	1942	1943	1944
Manufacture of bread, biscuits, cakes, etc.	186	174	163	154	137	133
Grain milling .. .. .	33	31	32	32	31	31
Manufacture of cocoa, chocolate and sugar confectionery.	82	71	58	45	34	33
Other food manufacturing industries.	136	134	138	137	125	120
Total .. .. .	437	410	391	368	327	317

43. Shortage of petrol, military demands on rail and road transport and the general shortage of labour made it vital to eliminate all non-essential food transport. The loss of the major rubber-producing areas to the Japanese early in 1942 added another compelling factor—shortage of tyres.

44. Packing materials became scarcer. Our main sources for timber and paper lay in Scandinavia or across the Atlantic. The tin-mines of Malaya were lost and tin-plate joined the list of scarce materials, a scarcity aggravated by the ever-growing demands of the armed forces for canned food.

45. Even further pressure on the food industries was exerted by demands for their factory space. The growing munitions industry needed more buildings in which plant could be installed. These demands came at a time when the threat of invasion and the fact of air attack meant that more food had to be kept in reserve and that such reserves must be widely dispersed. Warehouses were improvised all over the country from whatever buildings were available : in some places food stood in the open under tarpaulins.

46. To cope with these problems of staff, transport, materials and space, many of the food manufacturing industries were "concentrated," the variety of manufactured foods was reduced, food transport was rationalised and restricted and the use of packing materials was drastically cut.



### *(ii) Concentration of Production*

47. By the middle of 1941 many of the more highly mechanised food factories had turned over many employees and some of their premises to the production of munitions. It then became necessary to take more organised measures to free factory space and release labour, particularly in those regions where they were most needed for munitions. The food industries were therefore included within the general policy of "concentration" which the Board of Trade was already applying to other industries. In the compound lard industry, for example, 30 out of 40 factories were closed, and in the edible fat melting industry 140 out of 200. The number of slaughterhouses had been reduced from about 16,000 to less than 750 at a much earlier date, as a part of the meat supply scheme.

48. The method was to concentrate an agreed volume of production into a smaller number of factories, and so far as possible into factories economical of manpower. In some instances, the decision to close a particular factory was the result of the urgent need for factory space or manpower, or both, in that particular area. In other cases, where a general rather than a local release of manpower was the object, output per employee was used as a yardstick. Firms with an output per employee above the selected figure had their staffs protected from direction elsewhere by the Ministry of Labour; those with lower figures were liable to have their employees transferred to munition work.

49. Manufacturers in general found it necessary to devote themselves to the production of the simpler lines. In the biscuit industry, for example, the number of varieties produced by any one manufacturer was reduced from as many as 350 before the war to only 20. Manufacturers had also other problems. When one took over another's production, there was, for instance, the question of "brand names." In the soft drinks industry the manufacturers' wartime association adopted the drastic course of eliminating all brand names "for the duration" and selling standardised products under such designations as "Orange Squash S.W.153," the code letters and number being the sole indication of the manufacturer's identity. A similar policy was adopted in the margarine industry.

50. Most concentration schemes had fixed production targets, either for a section of the food industry as a whole, or for individual factories. In this, as in the whole operation of concentration, the wartime associations of manufacturers played an important part.

### *(iii) Economies in Food Transport*

51. The necessarily heavy demands of the movement of food on the transport resources of the country were minimised by ensuring the prompt discharge of ships, by controlling movements from port to inland warehouses, thus avoiding delay in clearance of vehicles or craft, by advance planning of all large scale bulk movements (*e.g.*, seed potatoes and raw sugar) and by rationalising the day-to-day transport and distribution of food products. Savings under the last heading were effected in two ways: first, by zoning all movements from factory or first-hand distributor to wholesaler, and from manufacturer or wholesaler to retailer, thus preventing long hauls and cross movements; secondly, by cutting out many forms of retail delivery and restricting the frequency of others.

52. Retail deliveries of bread were restricted to three a week, and of milk to one



daily. Some dairymen made only four deliveries of milk a week throughout the winter. The delivery of other foods from the shop to the home was much reduced, except for large quantities and in scattered districts. Such delivery as remained was often done by pooled services which handled the parcels of a number of local traders.

53. Economy in the transport of food from production or import points to wholesalers' stores was effected by "zoning" schemes. Zones in which supply was greater than consumption could no longer draw upon surrounding areas. Zones deficient in supplies could not "export" but had to consume their own supplies and draw additional supplies from the nearest practicable surplus zone.

54. The geographical distribution of production points is not the same for all foodstuffs, so that separate zoning schemes had to be devised for different commodities. In some schemes the Ministry arranged distribution; in others zoning was enforced by Statutory Order; in a third type, a trade association was responsible for zoning, subject to a general direction from the Ministry.

55. For example, for bulk flour the country was divided into five areas, subdivided into zones, and movement between different zones and different areas was allowed only by permit. For self-raising flour there were ten zones and inter-zone movement was permitted only to specified deficiency zones. For biscuits, each manufacturer had a prescribed area in which to distribute. For chocolate and sweets there were four practically self-sufficient zones.

56. The general group of commodities classed as "groceries and provisions" was distributed under a scheme which divided the country into nine sectors. In general, no first-hand distributor, wholesaler or multiple might send any of the specified goods from one sector to another and no retailer might buy outside his own sector. There were necessarily some exceptions near the boundaries of the sectors. A limit was imposed on the number of wholesalers from whom a retailer might purchase, which reduced the number of small orders and saved much clerical work.

57. Zoning schemes necessitated a drastic departure from accustomed trading practices. Long-standing connections between manufacturers and wholesalers had to be given up. Wholesalers frequently had to hand over to their pre-war competitors lists of customers to whom they were no longer allowed to deliver. Such transfers often involved the loss—even if only temporarily—of valuable goodwill and it is proof of the desire of the traders to assist the war effort that they were made with so little friction. The housewife also accepted philosophically the disappearance of some of her most cherished branded foods and their replacement by others which she was not necessarily convinced were "just as good."

58. Additional storage points had to be provided to facilitate distribution in particular zones or areas. This further dispersed valuable stocks and kept them away from the ports and other obvious targets for air attacks. Buildings of many kinds were pressed into service as warehouses and a few new storage units were erected at strategic points.

#### *(iv) Rationalisation of Milk Collection and Distribution*

59. To economise in transport and labour, the Ministry of Food rationalised the collection of milk from the farm and its transport to the first-hand buyers, with a resultant saving of 75,000 vehicle-miles daily and  $2\frac{1}{4}$  million gallons of petrol per year.



60. The rationalisation of retail distribution was undertaken concurrently. In peace time milk was distributed by a few large companies, including the Co-operative Societies, and an immense number of small retailers and producer-retailers. This often resulted in one street being served by six or more roundsmen. In 1941 consumers had to register with their dairymen and in July 1942 these registrations were "frozen". Then, in urban areas of 10,000 or more inhabitants, associations of dairymen were formed: the delivery in each area was divided between the dairymen so that each served a compact block of streets. Customers' registrations were transferred compulsorily by the Ministry from one dairyman to another to fit this pattern. If a customer had been served by a co-operative society, she could not be transferred to a private trader; and *vice versa*. This limitation on the number of roundsmen serving any one street secured substantial economies:

TABLE 21. ECONOMIES RESULTING FROM RATIONALISATION OF RETAIL DISTRIBUTION OF MILK

	GREAT BRITAIN (EXCLUDING LONDON) ESTIMATED REDUCTIONS		LONDON AREA ESTIMATED REDUCTIONS	
	No.	%	No.	%
MANPOWER (full time)				
Men over 18 .. .. .	3,500	17	1,400	17
Men under 18 .. .. .	1,400	16	400	34
Women .. .. .	1,250	10	900	24
TRANSPORT				
Hand prams .. .. .	1,850	16	600	21
Horse vehicles .. .. .	1,000	9	900	24
Petrol .. .. .	2,400	16	200	39
Electric .. .. .	(a)	(a)	65	12
Cycles .. .. .	(a)	(a)	300	42
PETROL (gallons per week) ..	36,700	31	2,400	41

(a) Not available.

(v) *Packaging Problems*

61. Normally, food packaging accounts for about 15% of all the paper used in the country and for 35% of all "board" such as cardboard. When the shortage of paper became acute, supplies having fallen to only a quarter of pre-war, every use of paper in the food trades had to be justified in detail to the Ministry of Food. All the attractive multiple wrappings of peace time had to go. Paper and board were employed only in the bare amount necessary to get the goods to the public in a proper condition. Much experimental work was done to determine just how few thousandths of an inch of board would carry food safely from the shops to the kitchen. The problem was complicated by the poorer quality of the paper available, for a considerable proportion of salvaged material was incorporated in it. Economies were sought also in the large cartons used for wholesale distribution. The margarine "outer," for example, was redesigned from a flattish shape to something approaching a cube, saving 26% in the amount of board needed to enclose the same weight of margarine. Between 25% and 30% of all fibre cases were collected for re-use.

62. Elaborate arrangements were made for the collection and re-use of timber packing cases, which in pre-war days normally ended their journey as firewood. Cases bringing canned meat from America, for example, were adapted for the distribution of jam in the United Kingdom. A total timber saving of about 30% or 40% was achieved in the food trades.

63. For a time the tin shortage provided problems for the canning industry, whose containers are normally made of tinfoil. Research soon provided a lacquered blackplate good enough for many civilian purposes, and the use of tin was reduced by one-half.

64. The production of glass containers was on the whole maintained at a fairly high level. There was a more general use of such containers, *e.g.*, for holding products formerly packed in tins. This increased demand, coupled with the high output of preserves, made it necessary to watch supplies of glass jars carefully, and in some cases to institute recovery schemes. Less frequent deliveries of milk placed additional strain on supplies of milk bottles, and the necessity for the prompt return of bottles was the subject of many appeals to the public.

65. Wherever possible rubber seals were eliminated from food packages. Natural rubber rings in preserving jars and for screw-top beer bottles were replaced by synthetic rubber. The shortage of jute for sacks, of cotton for wrapping cloths, and of aluminium foil for such uses as milk bottle caps all added to the packaging problems.



## IV

# THE MACHINERY OF FOOD CONTROL

66. THE experience of the war of 1914-18 made it clear that shipping shortages would result in restricted supplies and that the general increase of earnings would expand purchasing power. Steps would have to be taken to control the distribution of essential foods and regulate their prices if there were not to be both widespread variations in the share of food obtained by different classes of the people and a grave danger of starting inflation. It was recognised from the outset that control of food to the consumer would necessitate control all down the chain of distribution. The planning of imports and the control of shipping would make free importing by private traders impossible. The use of scarce materials by food processors would have to be controlled. Distributors would have to be allotted sufficient supplies to enable them to honour the rations. The State had to become the owner or the virtual owner of nearly every kind of food both imported and home produced.

### (i) *Controlling Imports*

67. Orders made at the outbreak of war at once brought under Government supervision the importation of the chief foods, and also the stocks abroad which were under the control of British nationals. Stocks in this country were requisitioned. The importation of less important foods remained for a time in private hands, though in some cases subject to licensing by the Board of Trade on the recommendation of the Ministry of Food.

68. This patchwork arrangement had a defect. It allowed valuable shipping space to be used by importers to bring in supplies of goods chosen, not for their nutritional value, but because they were free from control. It was not until the end of March, 1940, that control over imports and over shipping became reasonably complete. Thereafter all food was imported either on direct Ministry account or under licence. Thus the best use could be made of available shipping.

69. The Ministry of Food became the sole importer of all the chief foodstuffs—cereals, oilseeds, oils and fats, meat, bacon, dairy products, sugar, rice, starch, dried fruits, tea, coffee and cocoa. Buying agencies were established all over the world to procure these supplies. The Ministry made many bulk contracts for foodstuffs with organisations of overseas producers or with Governments. In some countries special permanent missions were established to negotiate with the Governments. The head of the British Food Mission to North America represented the Ministry of Food on the Combined Food Board, whose business it was to plan the allocation of world supplies of scarce foods.

70. Once the food arrived in British ports, handling up to the stage of first-hand distribution was generally entrusted to established importers who had carried on the trade in peace time. In many cases special wartime companies were formed from the pre-war brokers or importers and these companies acted as the Ministry's agents. By such machinery the pre-war trader's specialised skill and knowledge were mobilised effectively under Ministry direction. Oilseeds, for example, were handled by an association of pre-war brokers; rice by associations of pre-war brokers and millers; cereals, meat and bacon by



associations of pre-war importers; dried fruits by an association of pre-war brokers and importers.

71. Sugar, cocoa and tea were handled differently. The Ministry of Food purchased sugar for Canada and New Zealand as well as for the United Kingdom. Purchases were made by bulk contract for a stated quantity. In the case of sugar from Empire countries, the whole exportable surplus was taken. Brokers in Great Britain, paid by and acting on behalf of the overseas producers, dealt with all technicalities of handling the cargo.

72. The Ministry of Food was made responsible by the Combined Food Board for procuring supplies of tea for all Allied and neutral nations, and the Ministry bought the total exportable surpluses in all producing countries. Inside the United Kingdom, the Tea Brokers' Association of London acting as the Ministry's selling agent allocated tea to the primary wholesalers. The Minister became the sole importer and distributor of cocoa, acting generally without agents.

#### (ii) *Acquiring Control of Home-produced Food*

73. Not only all imported but also all home-produced food had to be brought under some degree of Government control. The stimulation of food production was the job of the Agricultural Departments; the task of getting the food away from the farm and into distribution was the job of the Ministry of Food. The Ministry became the sole buyer of fat stock and milk. Various devices ensured that so far as possible food passed into the required channels and not to more profitable black market purchasers.

74. The control of most home-produced supplies other than fish and green vegetables began with the prohibition of sales except to the Ministry or, in some instances, to approved first-hand buyers licensed by the Ministry. In the case of eggs, compulsion was reinforced by a subsidy scheme under which the Ministry paid the producer, for delivering to a controlled buyer, a price higher than he could legally obtain by selling retail to the public.

75. It was more difficult to establish control of home-grown foods than of imports. Imported food arrived at a limited number of ports, and control was readily imposed. Home-grown food came from tens of thousands of farms and had somehow to be directed through some restricted channel before control could be exercised. If no such control point existed, then one had to be created. For example, in the cereal and cereal products trade, the merchants and millers were comparatively few in number and in this way provided a ready-made means of control. But in the more loosely organised livestock and egg trades control points had to be created by directing the products through a limited number of livestock collecting centres, slaughterhouses, bacon factories or egg packing stations. Examples of some of the more important control schemes for home produce are given below.

76. The Government undertook to buy all fat stock at fixed prices. All cattle, calves, sheep, lambs and pigs for slaughter had to be sold through specified collecting centres to which the farmer was tied. Cattle and sheep were graded at these centres, and bought by the Ministry at fixed prices. They were then slaughtered on the Ministry's behalf in selected slaughterhouses. Pigs had either to be delivered to those collecting centres or sent straight to a bacon factory on the direction of the Ministry. No livestock might be slaughtered



without the Ministry's permission except in one of the Government slaughter-houses or bacon factories. There were special arrangements for slaughter by self-suppliers for domestic consumption.

77. All milk produced in England and Wales was bought at fixed prices by the Milk Marketing Board, except that sold by producer-retailers, or retained on the farm for calf-rearing, for consumption in the farm household, or by farm workers, or for making into butter. The Board then sold it to the Ministry, which determined how much should be used for the manufacture of dairy products (butter, cheese, condensed and dried milk) and how much should be reserved for liquid consumption. The milk was then re-sold by the Ministry to distributors and manufacturers. Transport from the farm was rationalised and the Ministry controlled the destination of the milk when moved from the depots. (In Scotland most of the milk was supplied direct to distributors through the Milk Marketing Boards.)

78. Most of the potato trade was allowed to flow through peacetime channels. All traders were licensed. Producers were guaranteed a fixed price and the Ministry was prepared to buy any potatoes offered to it at this price. To minimise wastage by spoiling and shrinkage the Ministry, by its control of transport and prices, stimulated the early use of the poor-keeping varieties and the storage of the long-keeping varieties. It also made heavy purchases as a reserve for consumption at the end of the season, and bought deteriorating stocks for processing or sale as stock feed.

79. Fish caught by British vessels was not normally taken into Ministry ownership at any stage, although there was control to see that supplies were spread evenly over the country and that economical use was made of transport. Allocation Committees at the ports of landing divided white fish among the primary buyers and a zoning and distribution scheme governed the destinations to which these buyers might send fish. Each buyer had a list of customers whom he was expected to supply on an equitable basis. The Ministry paid all carriage charges, reimbursing itself by a levy on primary buyers, and thus destroyed any incentive to sell all the fish to traders in areas nearest to the ports of landing to the exclusion of towns farther inland.

### *(iii) Provision of Technical Knowledge*

80. One of the problems to be faced in establishing comprehensive control of the food trade was how to secure specialised knowledge and skill. This need was met by appointing acknowledged experts from the particular trades to executive and advisory positions in the Ministry and by setting up a number of Advisory Committees in the trades controlled. In most cases the Trade Directors were assisted at Headquarters and in Area Offices by staffs drawn to a considerable extent from the trades.

81. Commercial operation was frequently delegated to special Wartime Associations or Companies formed from firms or persons previously engaged in the particular trade. Often the management included a Ministry representative with an over-riding vote. More than fifty of these companies and associations were formed. They were remunerated either by commission on a tonnage basis or by an agreed lump sum. This type of organisation gave the Ministry the advantage of dealing with a single association in each branch of the food trade, instead of with a multiplicity of firms of different sizes and



interests. In addition, the staff, premises, organisation, accumulated experience and goodwill of the component firms were made available to the Ministry with the minimum of dislocation.

(iv) *Control of Food Processing and Utilisation*

82. Most foodstuffs have to be processed before they are ready for consumption. Wheat must be milled, bacon must be cured, sugar must be refined, oilseeds must be crushed and the resulting oil must pass through various refining and manufacturing processes to convert it into margarine, cooking fat, etc. It was clearly essential in wartime that the Government should control these processes and their usage of raw material, because scarce materials had to be allocated to the most important uses, there had to be economies in the use of transport and labour, and nutritional standards had to be safeguarded.

83. Table 22 shows pre-war and wartime production in various branches of food processing and manufacture. It will be seen that the production of flour was consistently above the pre-war level, reaching a peak in 1941 when supplies of other more attractive foods were lowest; supplies of wheat offal fell away as the flour extraction was raised. The manufacture of cereal breakfast foods, oatmeal and oatflakes increased considerably to offset the loss of imported breakfast foods, and to some extent also to replace the eggs and bacon of the traditional

TABLE 22. OUTPUT OF PROCESSED AND MANUFACTURED FOODS  
THOUSAND TONS

	PRE-WAR AVERAGE	1940	1941	1942	1943 (a)	1944
Wheat milling :						
Flour .. .. .	3,876	4,391	4,600	4,394	4,527	4,470
Wheat offals .. ..	1,700	1,676	1,535	905	866	825
Oatmeal and oatflakes ..	90	70	123	178	253	221
Cereal breakfast foods ..	20 (b)	33	45	47	45	47
Biscuits .. .. .	300 (b)	330	361	358	278	273
Oilseed crushing :						
Vegetable oils .. ..	462	622	578	599	529	538
Oilcake .. .. .	1,080	969	766	810	671	715
Margarine .. .. .	186	357	418	405	391	397
Compound cooking fats	93	157	144	61	53	31
Bacon .. .. .	154	193	159	99	96	109
Butter .. .. .	22	16	8	10	9	10
Cheese .. .. .	46	32	30	20	22	18
Condensed milk .. ..	195	178	72	95	97	111
Dried milk .. .. .	22	15	9	14	23	23
Refined sugar .. ..	2,250	1,389	1,499	1,286	1,307	1,286
Jam and marmalade ..	210	226	245	299	324	303
Canned fruit .. ..	26 (b)	(c)	16	42	25	6
Canned vegetables (including canned beans)	148 (b)	(c)	209	195	177	192
Cocoa, chocolate and sugar confectionery ..	499	(c)	(c)	319	276	289

(a) Year of 53 weeks.  
(b) Relates to one year only.  
(c) Not available.



**British breakfast.** In the oilseed crushing industry the most significant change was the decreasing quantity of oilcake available for cattle feeding, because imports were concentrated on types of oilseed giving the greatest percentage of oil, and therefore the smallest residue of oil cake. The output of margarine was more than doubled, to replace butter, but the production of cooking fats, after a rise in the early war years, fell to less than one-third of pre-war. In the milk products group, only the production of dried milk—mainly for use in infant and invalid foods—was maintained at the pre-war level. The production of jam and marmalade was steadily increased to make palatable the increasing quantities of bread in the diet.

84. In some food industries processors of food were allowed to continue work on their own account, purchasing raw materials and retaining ownership of the product. Control was effected by Statutory Order or by licences to individual firms which stated conditions of manufacture and sale; or by agreement with trade associations or wartime companies which themselves issued directions to their members. Membership of such associations was generally compulsory. The degree of control varied widely and sometimes left considerable scope for individual initiative. In other cases, such as flour milling, the control was as close as if the mills were operated directly by the Ministry.

85. Under a second and more direct method of control the Ministry retained ownership both of the raw material and of the finished product, employing the processing firms as agents working to its direction at a fixed rate of remuneration. The oil processing industry was an example of this method. Oilseed crushing, solvent extraction, pre-refining, hydrogenation and refining were all done by firms acting as agents of the Ministry. Margarine and cooking fat were produced by Marcom, an association of manufacturers employed to manufacture and sell on behalf of the Ministry.

86. In a similar way, all home-produced fatstock was slaughtered in selected slaughterhouses operated by Ministry-appointed managers. The packaging of imported dried milk, dried egg and cod liver oil was also done by firms acting on behalf of the Ministry.

87. Alternatively, the raw materials were sold to the processing firms and the finished product was bought back from them by the Ministry at a price which gave the producer a fixed margin. This system operated for bacon curing and for milk products.

88. The third and rarest form of control was the direct management of plant by the Ministry itself, as in the case of the vegetable dehydration factories; or by a specially formed company. Re-Commissioned Mills, Ltd. was a company of this type, formed to re-open flour mills previously out of commission, so as to provide a reserve of milling capacity, and to operate the silos and drying plants handling home-grown wheat.

89. The allocation of scarce raw materials was important. Control was applied not only to see that these materials were directed to the right uses but also to ensure that they were used economically and effectively.

90. Table 23 shows the pre-war and wartime allocation of two important raw materials—sugar and oils and fats—in food manufacture. Sugar usage was cut drastically in practically all foods other than the “sweet spreads”—jam, marmalade and syrup. The use of oils and fats was cut in every food trade. This did not always imply a proportionate cut in output; in the manufacture of cakes and biscuits, for example, the fat and sugar content of the product was



substantially decreased. (Further details, covering the use of various other materials, are given in Appendix B.)

TABLE 23. ALLOCATION OF SUGAR AND OILS AND FATS FOR FOOD MANUFACTURE

THOUSAND TONS

	BASE OR DATUM YEAR	1942	1943	1944
<b>SUGAR</b>				
Chocolate and sugar confectionery	296	154	154	158
Cakes and biscuits .. ..	245	157	143	141
Jam and marmalade .. ..	162	236	255	245
Brewing and distilling .. ..	77	54	51	58
Condensed milk.. .. .	51	19	23	25
Soft drinks .. .. .	50	12	17	12
Syrup and treacle .. .. .	56	60	67	83
Ice cream .. .. .	17	2	—	—
Other products .. .. .	94	77	45	52
<b>Total .. .. .</b>	<b>1,048</b>	<b>771</b>	<b>755</b>	<b>774</b>
<b>OIL AND FATS</b>				
Cakes and biscuits .. ..	225	174	151	152
Fish and chips, potato crisps ..	73	56	57	54
Chocolate and sugar confectionery .. .. .	18	10	2	—
Other products .. .. .	36	35	31	33
<b>Total .. .. .</b>	<b>352</b>	<b>275</b>	<b>241</b>	<b>239</b>

91. The feeding of millable wheat, barley and rye to livestock was prohibited ; for a time the use of grain for whisky distilling was stopped ; grain for brewing was allocated on a scale to maintain pre-war production in terms of standard barrels, but the beer as sold was greater in volume and weaker. The Ministry raised the extraction rate of flour—the proportion of the wheat berry turned into flour—from the pre-war 70% to 75% in the spring of 1941 and to 85% in March, 1942. This was done to reduce the quantity of wheat needed to produce a given amount of flour, thus saving shipping space, but at the same time reducing the supply of animal feed. In October, 1944, as the shipping situation improved, the extraction rate was lowered first to 82½% and then in December, 1944, to 80%, but with improvements in milling technique which retained most of the nutritional advantages of the 85% flour.

92. Oils and fats are required not only for the manufacture of food but also for the production of various industrial products, such as soap, paint, glycerine, varnishes and linoleum. Usage for these purposes amounted before the war to about 50% of the supply of vegetable oils. All claims for these uses had to be addressed to the Ministry of Food, because loss of butter supplies and the consequent call on margarine greatly increased the demand on raw materials. Soap was rationed ; supplies of fats for cake and biscuit making and fish-frying were reduced ; still more drastic restrictions were imposed on the manufacture of synthetic cream, potato crisps and chocolate and sugar confectionery. Substitution of one type of oil for another also led to economies. The relatively



plentiful linseed oil was used in a hardened form in soap-making to replace technical palm oil. Formerly technical palm oil was regarded as non-edible, but a new method of distillation enabled it to be substituted for scarce whale oil in margarine. Lard, obtained from the United States, replaced compound cooking fat in most trade usages. The sum of these economies enabled the output of margarine to be doubled, with an increase of only about one-fifth in total usage of vegetable oils.

93. The control of starch was unusual in that, although industrial consumption during the war exceeded the use as food, the Ministry of Food was made responsible for acquisition, sale and use for all purposes. There were over thirty different industrial controls, covering such diverse manufactures as textiles, explosives, electric batteries, paper, and cores for foundry work. The Ministry became the sole importer of starch of all kinds, while home production was controlled by licence. Bulk allocations to industry were made on a datum basis, while allocations to individual firms were made through the Ministry's Allocations Control and through the Ministry of Supply and the relevant trade organisations.

94. The use of milk was strictly controlled. In peace time a large part of the total supply of milk was used for manufacturing purposes, including not only such staple foods as butter, cheese and condensed milk but also various manufactured semi-luxury products such as cream, ice cream and milk chocolate. In 1936-39, out of an average total annual sale of 1,227 million gallons through the Milk Marketing Boards, 405 million gallons—33%—went to manufacture (a). In war time it became the policy of the Government to increase the direct consumption of milk, particularly by children and mothers, so that there was far less for processing and manufacturing, and then only in the summer when supplies were more plentiful. In 1944, out of a total sale of 1,378 million gallons, only 173 million gallons—12.5%—went for manufacture. The changing pattern of milk disposal is shown in the following table :—

TABLE 24. LIQUID MILK SALES THROUGH THE MILK MARKETING SCHEMES OF THE UNITED KINGDOM

CALENDAR YEAR	LIQUID CONSUMPTION	MANUFACTURE	TOTAL
	(million gallons)		
Average 1936-39 .. ..	822	405	1,227
1940 .. ..	937	290	1,227
1941 .. ..	1,064	159	1,223
1942 .. ..	1,114	155	1,269
1943 .. ..	1,169	175	1,344
1944 .. ..	1,205	173	1,378

With this limitation on manufacturing milk there had to be close control on the uses to which such milk was put. Its use for certain purposes, including the manufacture of cream, ice cream and chocolate, had to be stopped. The

(a) The figures of milk utilisation in this paragraph all refer to milk sold through the Milk Marketing Schemes in the United Kingdom. It is probable that before the war some 70 or 80 million gallons were sold annually outside these Schemes. During the war the quantity sold or used outside the Marketing Schemes fell substantially.



manufacture of butter was greatly reduced and such supplies of milk as were available for manufacturing had to be used chiefly for the production of cheese and condensed and dried milk.

95. During the first two years of war, when the agricultural industry was mainly concerned with the conversion of grass into arable, there was no marked rise in the quantity of milk sold by farmers and the increase in liquid consumption was met by a reduction of the manufacturing programme. But in 1943 and 1944 milk marketings rose, though not sufficiently to keep pace with the growing demand for liquid milk, after allowing for some increase of manufacture. This did not mean that the total quantity of milk produced was greater than before the war. Pre-war production depended to a substantial extent on imports of concentrated feeding stuffs, which almost disappeared, and despite the great efforts which farmers made to compensate for this loss by growing their own feed for the dairy herd, the total volume of milk produced had not by 1944 quite regained the pre-war level, although it did increase during 1942-44. The increase in milk sales off farms is explained by the fact that before the war nearly one-third of the milk produced was consumed on the farm and that this proportion was reduced to about 20 per cent. Much of this milk formerly fed to stock or made into butter on the farm found its way into the common pool through the controlled channels of distribution or manufacture.

96. An ever present factor in the control of food manufacture was the need to ensure against breakdown owing to air-raids. This provided, for example, a strong argument in favour of the pooling of margarine so that supplies of the same product could be drawn from any margarine factory in the country. In the baking industry an emergency bread organisation was set up so that if bakeries in one part of a town were damaged so as to be unable to produce their normal output, baking was stepped up in neighbouring districts so that supplies of bread could be rushed into the bombed area within a matter of hours. This organisation worked very smoothly during successive blitzes and bread was at times transported as far afield as from London to Portsmouth.

#### *(v) Control of Distribution*

97. Rationing and the fixing of maximum food prices involved drastic control of the distributive machinery of the peace time free market. The machine had to be modified to facilitate directed distribution; and in view of the increasing shortage of man power, petrol and rubber, this machine had to operate with the maximum of economy.

98. First-hand distribution of the chief imported foodstuffs was carried out in most cases by wartime companies of pre-war traders acting on behalf of the Ministry, such as the Meat Importers National Defence Association Ltd. (MINDAL), the Bacon Importers National Defence Association Ltd. (BINDAL), and the Butter and Cheese Association Ltd. (BACAL). The National Egg Distributors Association Ltd. did similar work for both imported and home-produced eggs, and Marcom Ltd. distributed margarine and compound cooking fat. Some wartime companies, such as the Condensed Milk Pool and the Milk Powder Pool, operated on a different basis, buying direct from the Ministry the total supply of the commodity to be distributed in the United Kingdom and selling it in accordance with the Ministry's instructions.



99. Generally the Ministry did not retain ownership of any food beyond the first stage of distribution to wholesalers. Meat was an exception, in that it remained the Ministry's property down to the retailer. All meat wholesalers were organised into nine regional Wholesale Meat Supply Associations (W.M.S.A.) which between them covered the whole country. The W.M.S.A.'s received imported meat from MINDAL and home-produced meat from the Ministry-controlled slaughterhouses. They were then responsible for its allocation at prescribed prices to the Retailers' Buying Committees, each of which represented a group of retail butchers.

100. The wholesale distributing of food was done, as in peace time, partly by specialist firms dealing in a single commodity, such as meat or flour, and partly by firms handling a wide range of provisions and groceries. These wholesalers all had to be licensed under the Food (Restrictions on Dealings) Order. The basis on which they distributed to retailers varied for different classes of food. For the chief rationed foods—meat, bacon, cheese, fats, sugar, preserves—consumers had to register with a retailer. On the basis of the total number of customers registered with him, the retailer received a buying permit which entitled him to buy a specific quantity of food, according to the size of the current ration. The retailer in turn was registered with a wholesaler (sometimes with more than one), who received supplies from the first-hand distributor on the basis of the retailers registered with him. Thus every ton of rationed food that moved into distribution did so in accordance with a pre-arranged plan and fitted into its place in the orderly pattern of the rationing scheme.

101. The number of retail food businesses (excluding caterers) licensed by the Ministry of Food at the beginning of 1945 was 598,900. Of these, 22,700 belonged to multiples, *i.e.*, firms with ten or more retail branches in the United Kingdom; 16,300 belonged to co-operatives; the remaining 559,900 were independent retailers. Throughout the war there was no deliberate reduction in the number of retailers. Such reduction as occurred was due to the operation of the call-up; the Ministry intervened only where consumer need made it desirable to reserve a particular man or woman. The proportion of the total trade handled by the different types of retailer varied according to the food concerned. Table 25 shows the distribution for sugar. It will be seen that the co-operatives, with only 6.5% of the retail outlets, handled 26.3% of the trade while the multiples, with 9.3% of the outlets, handled 20.9%. The remaining 52.8% of the trade was handled by independents.

TABLE 25. DISTRIBUTION OF RETAIL OUTLETS AND CONSUMER REGISTRATIONS FOR SUGAR BY ORGANISATIONAL TYPE (OCTOBER, 1944)

	RETAIL OUTLETS		REGISTRATIONS		AVERAGE NO. OF REGISTRATIONS PER RETAIL OUTLET
	NO.	%	'000's	%	NO.
Multiples .. ..	15,440	9.3	8,888	20.9	576
Co-operatives .. ..	10,820	6.5	11,171	26.3	1,030
Independent retailers	139,840	84.2	22,349	52.8	160
Total .. ..	166,100	100.0	42,408	100.0	255



102. With foods for which registration was not required—tea, “ points ” foods, etc.—the original basis of distribution was roughly the volume of pre-war trade. The Ministry allocated food to first-hand distributors, and the latter allocated to wholesalers, in proportion to their pre-war purchases ; the wholesaler was expected to allocate to his retailer customers in the same way. But the wartime movement of people owing to evacuation, factory development, etc., produced large changes in the population in some areas (see Table 26). Wholesalers were therefore given up-to-date population statistics, based on ration book returns, so that they might adjust their distribution where necessary.

TABLE 26. THE REGIONAL DISTRIBUTION OF THE CIVILIAN POPULATION AT CERTAIN DATES DURING THE WAR

CIVIL DEFENCE REGION	CIVILIAN RESIDENT POPULATION AS A PERCENTAGE OF MID-1939			
	JUNE, 1941	MARCH, 1944	SEPTEMBER, 1944	JUNE, 1945
Northern, North-Eastern and North-Western.	102	100	102	100
North Midland, Midland, Eastern ..	107	107	110	107
London .. .. .	76	85	74	85
South-Eastern .. .. .	99	96	96	100
Southern, South-Western and Wales ..	117	109	114	109
Scotland .. .. .	102	101	101	101

The dates chosen are suggested by the history of evacuation from London and the south-east—the biggest single move. Broadly, June, 1941, represents the end of the net outward move from London and the south-east, as a result of the severe raids of 1940-41. From then the net movement tended to be inward up to mid-1944 when the flying bomb attacks engendered a second net outward wave which came to an end about September, 1944.

(vi) *Price Control*

103. The experience of 1914-21 showed how important it would be, in another war, to control prices at the earliest possible moment. In 1939 this lesson was not forgotten and price control orders for the chief foods were ready for signature at the outbreak of hostilities. Even before the declaration of war on September 3rd, 1939, certain steps were taken to prevent excessive increases of price. On September 1st the Provision Exchanges were asked by the Food (Defence Plans) Department to hold prices of important foods—bacon and ham, butter, margarine, cooking fats, eggs, cheese and canned foods—at the then existing levels until further notice. This provided a valuable stabilising influence before price control began.

104. On September 3rd, or in the days immediately following, Orders were made controlling the prices of meat, oils and fats, oil seeds, margarine, cooking fats, flour, fat cattle, sheep, pigs, imported animal feedingstuffs, sugar, tea, canned salmon, potatoes, dried fruit, butter and eggs.



105. Some of these Orders fixed specific maximum prices, *e.g.*, for flour, sugar, canned salmon, pigs for slaughter. Most, however, were "standstill" Orders prohibiting prices higher than the levels for corresponding qualities during a set earlier period, generally the week ending August 25th, 1939. These "standstill" Orders were gradually replaced by specific price Orders when the necessary detailed investigations of prices had been made.

106. By the end of 1939 price control covered a wide range of foodstuffs. The rise in freight charges had already increased the landed cost of some imported foods to an extent which, if passed on to the consumer, would have caused a sharp rise in the Cost of Living Index. To avoid prejudicing wage agreements, which in many cases depended on the Cost of Living Index, it was decided in December, 1939, to hold retail food prices steady at the expense of the Exchequer.

107. The main objects of price control were (a) to help assure to all classes a fair share of food supplies, a purpose which would be defeated if prices rose out of the reach of the poorer sections of the community; (b) to prevent inflation following a rise in general purchasing power accompanied by a reduction in the amount of goods available. A substantial increase to the public in the cost of food, which forms a large part of the personal budget, would clearly have led to increased wage demands and thus to inflation. Another object was to prevent profiteering, for the spectacle of one section of the community making excessive profits out of wartime conditions was bound to occasion dissatisfaction and social unrest.

108. It was necessary to fix prices not only at the point of sale to the public but at all stages of distribution. In setting profit margins the Ministry decided that at any stage in the distribution of food the trader should be allowed a fair return—but no more—for the service he rendered. This principle was easier to state than to apply. Profit margins were first fixed by determining the gross profits earned in peace time by representative firms in the branch of trade concerned. Then adjustments were made for known wartime changes in costs. But "representative" firms were not easy to find in such a diverse business as food distribution. Further, a reliable estimate of the cost of handling a particular item was extremely difficult to make when a firm handled several hundred different commodities, any of which it might decide, as sales policy, to sell at a "cut price." Costs arising from the war bore unequally upon different traders. Movements of population reduced some traders' turnover drastically and presented others with new customers on a scale that was embarrassing in a time of shortage of labour.

109. While complete fairness in fixing margins as between one type of trader and another was impossible, there was one over-riding consideration, that the food must in all circumstances be distributed. The fixing of a margin which would put any substantial proportion of traders out of business was not a practicable policy in wartime. In general, therefore, the Ministry of Food had to err on the side of generosity in order to ensure the continuance of distribution. A check on over-generosity was maintained by periodic costing investigations, which showed whether a reduction of margins was possible in any particular section of trade. "Windfall" profits were in any event subject to Excess Profits Tax.

110. Experience in the early months of the war, when relatively few foods were rationed, showed clearly how impracticable it was to control prices of scarce foods without at the same time controlling distribution. When a food is scarce



in a free market, it goes to those prepared to pay the price. If the price is kept down, the effect is only to increase the number of would-be purchasers of the same limited supply; thus the retailer sells out the moment his stock arrives, or alternatively he puts the stock under the counter and rations by favour. In either event, the public complains that price control has driven the goods out of the shops.

111. Another defect of price control of scarce foods without control of distribution was that it restricted their geographical distribution. No trader was anxious to incur transport charges if he could sell all the goods supplied to him in his own district. This was particularly noticeable with such commodities as home-grown fruit, poultry and rabbits. One remedy adopted in the later stages of the war was to fix different maximum prices for different areas, so that the trader who sent goods out of the producing area could recoup his expenses by charging a higher price. Another method was for the Ministry to pay all transport charges, as in the case of fish. But for all important scarce foods rationing—either “straight” or “on points”—or some other form of controlled distribution was found to be a necessary accompaniment of price control.

112. The subsidising of certain food prices in December, 1939, was extended by the Government's announcement in April, 1941, that the Cost of Living Index for all foods would be stabilised at 25–30% above 1939 levels.

113. As world supplies became scarcer and home agricultural prices increased owing to rising costs of production, both the number of foods needing subsidies, and the amount of these subsidies, rose:—

TABLE 27. NET ANNUAL COST OF FOOD SUBSIDIES BORNE BY THE  
MINISTRY OF FOOD, 1939–45

£ MILLION

	1939/40	1940/41	1941/42	1942/43	1943/44	1944/45 (estimated)
Flour, bread, oatmeal ..	10.2	31.8	38.1	34.0	52.2	47.8
Meat .. .. .	5.5	18.5	19.6	20.5	16.2	19.8
Bacon .. .. .	0.7	6.5	—	2.1	1.7	1.6
Potatoes .. .. .	—	0.2	14.4	23.5	16.3	12.0
Eggs and egg products	—	—0.5	7.2	14.0	13.9	14.8
Sugar .. .. .	—4.2	—	3.4	16.3	10.2	15.9
Milk .. .. .	2.6	3.6	3.2	10.8	11.5	17.4
Milk Schemes .. .. .	—	7.8	14.4	17.6	20.6	19.9
Milk products .. .. .	—0.6	—2.1	—0.3	4.8	9.1	9.1
Net cost of subsidies on other commodities.	—1.0	—2.7	—4.3	—1.0	0.1	10.1
Total .. .. .	13.2	63.1	95.7	142.6	151.8	168.4
Administrative and public- ity costs and an allowance for expendi- ture incurred by other Departments on behalf of the Ministry of Food, included in the above total .. .. .	2.6	8.0	10.0	12.4	14.1	13.4

During the war, the Ministry of War Transport bore the excess cost of carrying imports to the United Kingdom arising out of the stabilisation of freight rates



at a level insufficient to cover the full cost of war risk insurance. Owing to the complications arising from the movement of ships from one service to another and other causes, it is not possible to state these amounts precisely; the loss on food imports is estimated at £5 million in 1943-4. In addition, in 1943-4 and 1944-5 other Departments bore the cost of subsidies on lime for farmers and of the acreage payments on wheat, rye and potatoes to the extent of about £30 million annually. The acreage payments were not, however, true subsidies since they were taken into account in fixing the prices of these foodstuffs.

114. The effect of these subsidies on the retail prices of the principal foods, as stated in the House of Commons on June 1st, 1945, was as follows:—

TABLE 28. EFFECT OF SUBSIDIES ON RETAIL PRICES

	CURRENT RETAIL PRICE (AS USED IN COST OF LIVING INDEX)	PRICE IF NOT SUBSIDISED
	<i>s. d.</i>	<i>s. d.</i>
Bread .. .. .	9 per 4 lb.	1 1 per 4 lb.
Flour .. .. .	1 3 per 6 lb.	1 9½ per 6 lb.
Oatmeal .. .. .	3½ per lb.	5 per lb.
Meat (home killed) .. .. .	1 0½ per lb.	1 4½ per lb.
Bacon .. .. .	1 10½ per lb.	1 11 per lb.
Potatoes .. .. .	7 per 7 lb.	10½ per 7 lb.
Eggs (large) .. .. .	2 0 per doz.	3 6½ per doz.
„ (small) .. .. .	1 9 per doz.	3 3½ per doz.
Sugar (domestic) .. .. .	4 per lb.	6 per lb.
Milk .. .. .	9 per quart	10 per quart
Cheese .. .. .	1 1 per lb.	1 4 per lb.
Tea .. .. .	2 10 per lb.	3 0 per lb.

115. Price control continued to develop steadily until about the end of 1942. At the beginning of 1941 some 40 different types of food were controlled by specific price Orders. But prices of many less important foods were still free. These were the subject of considerable public comment, as a result of which there came into force in January, 1941, a “standstill” Order covering a long list of these foods—meat extracts, desiccated soups, table jellies, cereal breakfast foods, flavouring essences, etc. This action was fairly successful in stabilising their prices until the necessary specific price Orders could be settled. By the end of 1941 the number of types of food specifically price-controlled had risen to about 80—including even “National Pigeon Mixture,” the feeding stuff mixture provided for pigeons placed by their owners at the Government’s disposal for carrying messages in case of any breakdown of normal means of communication.

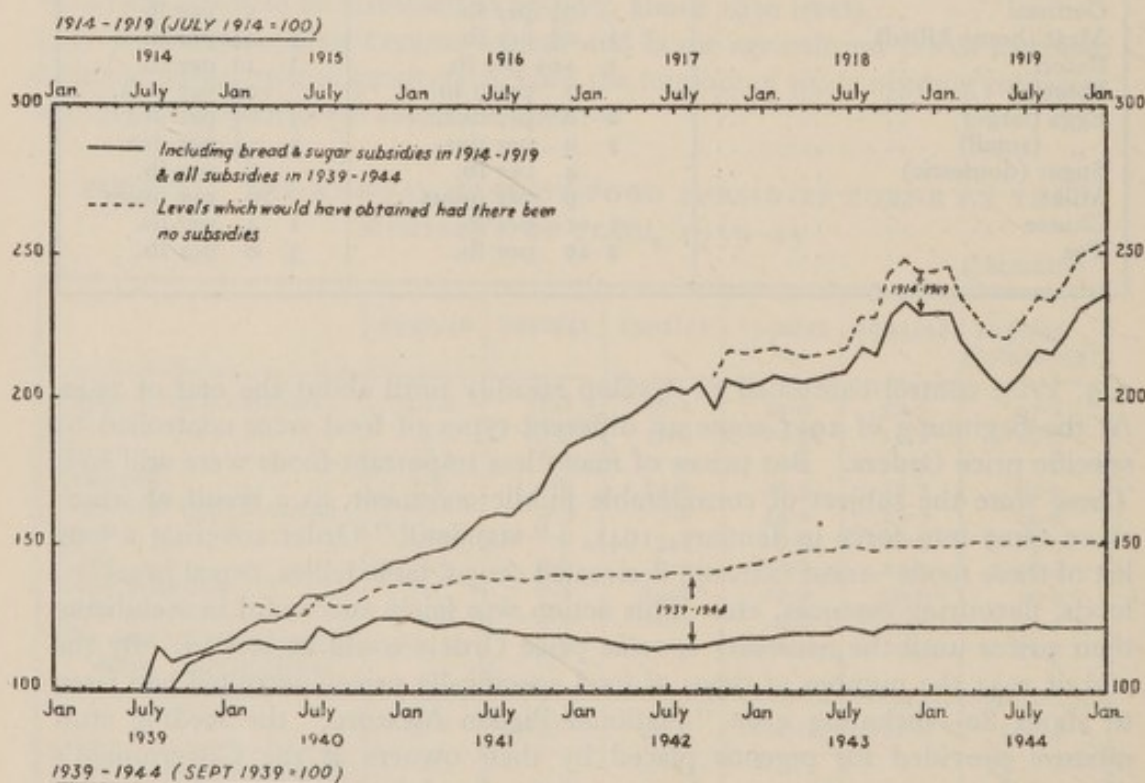
116. From 1943 onward there was no great change in the extent of price control, apart from the inclusion of green vegetables. This last step provided some of the most difficult problems in the definition of the foods controlled, for while such a food as sugar is easily defined, the value of a cabbage varies with the amount of earth, water or inedible outside leaves included with it. Although ingenious definitions of trimming were evolved, it cannot be claimed that the price Orders for vegetables were fully satisfactory.



117. The proportion of household expenditure on food covered by price control rose steadily from 48% in 1940 to 60% in 1941, and 86% in 1942. Since 1943 it has remained stable at about 95%. The chart below shows the effect of price control as reflected in the retail food price index compiled by the Ministry of Labour, the position in the War of 1914-18 being given for comparison. The stability achieved by price control was in marked contrast to the continuous and substantial rise experienced a quarter of a century earlier. At the end of 1944 the index was little more than 20% higher than in September, 1939, as compared with a rise of about 130% between 1914 and 1919. Even if there had been no subsidies, the rise between 1939 and 1944 would have been only about 50%, or one-third as much as in the previous war.

TABLE 29. PERCENTAGE CHANGES IN RETAIL COST OF FOOD IN THE TWO WARS

*For Items included in the Ministry of Labour Cost of Living Index related to July, 1914, and September, 1939, respectively*



(vii) *The Local Administrative Machine*

118. So far as it concerned the general public and the shopkeeper, the greater part of the daily business of food control was done by local Food Offices, of which there were some 1,250 at the end of 1944. On average, each local Food Office Area catered for some 30-40,000 people. The smallest served fewer than 1,000 people and the largest about one million.



TABLE 30. SIZE OF LOCAL FOOD OFFICE AREAS (DECEMBER, 1944)

AREAS CLASSIFIED BY POPULATION	NO. OF FOOD OFFICES	PERCENTAGE OF POPULATION SERVED
Under 5,000	135	1
5—10,000	165	3
10—25,000	445	17
25—100,000	414	43
Over 100,000	79	36

119. It became clear at a very early stage in the pre-war preparation of wartime control plans that the Ministry of Food would need a very extensive local organisation. It was decided to adopt the Local Government Area as the unit of organisation. The choice of that unit was very largely forced since it arose from the need to build up rapidly a nation-wide organisation of which any part might have to operate independently from the outbreak of war if air attack cut communications with Headquarters.

120. Before the war Local Authorities were asked to select Food Executive Officers and key personnel from their staff. They were also charged with the duty of appointing Local Food Control Committees consisting of consumer and trade members. Each Committee consisted of five trade members (always including a grocer, a butcher and a Co-operative Society representative), one trade employee member and ten to twelve consumer members. This composition was designed to enable the committees to look after the interests of consumers, with the expert advice of food traders and employees. The more direct interests of these two latter classes were secured by representations from their national organisations to Ministry Headquarters. The functions of the Committees were in general advisory, although they also investigated suspected offences against the Ministry's Orders and had power to prosecute.

121. The Food Executive Officer, who was often the clerk to the Local Authority or one of his deputies, was in charge of local food administration. Appointed by the Divisional Food Officer (see para. 124 below) on behalf of the Minister, he was secretary of the Food Control Committee and was in charge of the Food Office and its staff.

122. The work of the Food Office fell into two main parts, affecting the public and the retail trader respectively. As it touched the public, the Food Office was concerned chiefly with the administration of rationing. It issued ration books, dealt with changes of address, answered enquiries on rationing and other food matters. It operated the Welfare Schemes for milk, orange juice and cod liver oil, etc. Clothing ration books were issued by the Food Office on behalf of the Board of Trade; identity cards on behalf of the Registrar General. It licensed retail traders and caterers, and issued permits to enable them to purchase supplies. In addition, the Food Office acted as a general inquiry bureau on food and was the local focus for food propaganda.

123. For administrative convenience the local Food Control areas were grouped into nineteen Divisions generally following the boundaries of the Civil Defence Regions. In each Division the Minister of Food was represented by a Divisional Food Officer, responsible for the co-ordination of local administration. He served, too, as the link between the Local Food Offices and Headquarters.



124. The Divisional Food Officer was responsible for the smooth and uniform operation of food control in his Division and for the maintenance of adequate supplies. His staff of "Food Office Visitors" inspected all Food Offices periodically. He maintained close contact with the Area Commodity Officers, who were independent of the Divisional organisation and acted as representatives of the Commodity Controls at Headquarters. There was an Area Commodity Officer for each of the following : bacon, flour, bread and yeast, fresh fruit and vegetables, provisions and groceries, margarine, oils and fats, milk, potatoes, eggs, sugar, tea.

125. The Divisional Food Officer had Deputies and Assistants each responsible for the supervision of a particular block of work, such as rationing, catering, enforcement, wartime meals. To some extent this organisation provided a replica of the Headquarters organisation. In emergency, if communication with Headquarters had been severed by air raids or invasion, the Divisional Food Officer would have operated independently as a local "Minister of Food," subject to the over-riding authority of the Regional Commissioner.

126. To co-ordinate military and civilian food demands in the event of invasion, liaison with the Army Commands was maintained during the greater part of the war by five Chief Divisional Food Officers covering North-East England, London and South-East England, Southern and South-West England, Wales and North-West England, and Scotland respectively. Emergency feeding arrangements and liaison with the local military authorities were regarded as part of the duties of the Divisional Food Officer.

127. Voluntary Food Organisers were appointed in small towns or villages likely to be cut off from their Food Offices in the event of invasion. These were local residents empowered by the Ministry of Food to take charge of available food supplies, including certain emergency reserves, and control their distribution if the village were isolated. The Voluntary Food Organisers were disbanded in October, 1944.

#### *(viii) Enforcement of Food Regulations*

128. At the end of 1944 there were 415 Ministry of Food Statutory Orders in force. When such a large body of temporary legislation is brought into operation over a comparatively short period, it is inevitable that, besides those who offend against the Orders unwittingly, there are some who deliberately seek to contravene them for profit. It was the purpose of "enforcement" to reduce such contraventions to a minimum and to secure the punishment of the deliberate offender.

129. Although the investigation of offences against the law is normally the task of the police, the wide new field of offences resulting from the Ministry's Orders made it necessary to appoint a special enforcement staff. At the end of 1944 there were 550 Local Enforcement Inspectors working under Food Control Committees and 340 Divisional Inspectors working under Divisional Food Officers. The arrangements for Local Inspectors varied with different Local Authorities. Many of them were Sanitary Inspectors, or Inspectors of Weights and Measures or of Food and Drugs, who worked part-time for the Food Control Committee. They limited their attention to offences by the public and the retailer. The Divisional Inspectors dealt with cases involving whole-



salers and persons other than the public or retailers. They also acted on behalf of Food Control Committees in smaller areas where no Local Enforcement staff was appointed.

130. There was also a Headquarters Enforcement staff which exercised general supervision over the Divisional and Local staffs, provided guidance on technical matters and points of law, and handled certain types of cases presenting technical complications, for example, those involving animal feeding-stuffs and cereals.

131. As a result of the investigation of a complaint by the Enforcement staff the Food Control Committee might decide on one of three courses; it might (a) prosecute, (b) give a warning to the offender, (c) take no action. On average, Food Control Committees followed these courses in 46%, 42% and 12% of the cases respectively.

132. Although there were a fair number of "offences involving illegal transactions in food obtained otherwise than through the authorised channels"—to adopt the Ministry's definition of black market offences—there was never in the United Kingdom an organised black market of the dimensions reported from some other countries. A certain amount of food, either stolen or otherwise illegally obtained, found its way into black market transactions, but this was never so large as to affect the national supplies materially or to interfere with the housewife's daily purchase of staple foods.

133. While much of the credit for this state of affairs can properly be given to the efficiency of the Enforcement Staff and of the Enforcement Intelligence Bureau which was set up to cope with black market problems, other important factors were the system of depriving offenders of their licence to trade; and also the principle, early adopted by the Ministry, of taking the public into its confidence and explaining the difficulties confronting the nation and the steps being taken to meet such difficulties. Traders of all types and the public responded wholeheartedly to this policy.



## V FOOD AND THE CONSUMER

### (i) *The General Objectives of Ministry policy*

134. THE Report of the Food (Defence Plans) Department published in 1938 stated that one of the aims was "to ensure that supplies of essential foodstuffs at controlled prices are available to meet the requirements of all types of consumers and in all parts of the country, if, and when, an emergency arises." While this remained the broad aim of the Ministry which grew from that Department, there were inevitably changes of direction and emphasis arising from the course of the war. The control of prices and distribution extended well beyond what could be regarded as "essential foodstuffs." The Ministry's responsibility toward special types of consumer—children, expectant mothers, invalids and others—probably went beyond the limits foreseen. Nutritional considerations also played a larger part than was thought likely when the original plans were drawn up. Generally, it may be said that the Ministry's object has been to ensure equal shares of the more important scarce foods to all consumers, while leaving unrationed certain "buffer" foods such as bread and potatoes and providing communal eating facilities to enable workers to supplement their rations with meals away from home. In addition, special provision was made for the "vulnerable" groups, such as mothers, children and invalids.

### (ii) *Rationing*

#### (a) *The various systems*

135. Rationing began in January, 1940. By the end of 1943 most foods were distributed by one or other of the different rationing systems:—

1. *Straight rationing.* Meat, bacon, cheese, fats, sugar, preserves, tea.
2. *Points rationing.* Canned meats, canned fish, canned peas and beans, canned fruit, dried fruit, rice, sago, tapioca, dried pulses, condensed milk, cereal breakfast foods, biscuits, oat flakes and rolled oats, syrup and treacle.
3. *Personal points rationing.* Chocolate and sugar confectionery.
4. *Controlled distribution schemes.* Liquid milk and milk powder, shell eggs, and dried eggs, oranges.

Details of the development of rationing are given in Appendix D.

#### (b) *The proportion of foods covered by rationing*

136. The only important foods not rationed were bread, flour, oatmeal, potatoes, other fresh vegetables, fruit (other than oranges) and fish. The division of the housewife's expenditure between rationed and unrationed foods was as follows:—

TABLE 31. EXPENDITURE ON RATIONED AND UNRATIONED FOODS

	STRAIGHT RATIONING %	POINTS RATIONING %	CONTROLLED DISTRIBUTION %	UNRATIONED FOOD %
1940	25	—	—	75
1941	29	—	5	66
1942	31	9	14	46
1943	33	12	15	40
1944	31	11	15	43



137. The fall in the proportion spent on straight rationed foods in 1944 was not due to any relaxation of rationing or fall in prices, but to an increase of total expenditure on food. Most of this increase was spent on unrationed foods.

(iii) *Catering, Communal Feeding and Emergency Feeding*

138. In the original plans for rationing it was assumed that coupons would be surrendered in catering establishments for meals containing meat or bacon, but, by a last-minute decision when bacon was rationed, it was decided, for the time being, not to demand coupons for meals (see Appendix D, para. 4). This temporary arrangement resulted ultimately in the acceptance of the principle that occasional meals eaten in catering establishments should be additional to the domestic ration, the reason being that most of such meals were eaten by persons whose employment did not permit them to return home for a meal.

139. It followed that the supply of rationed foods to the catering industry had to be strictly controlled. For establishments providing board and lodging for longer or shorter periods, such as residential hotels, boarding houses, hospitals, boarding schools, prisons, etc., food was allocated on the basis of the number of ration books held by the residents. For restaurants, inns, canteens, tea shops, etc., providing occasional meals, food was allocated on the basis of the number of "meals" and "hot beverages" served. The scale of allocation was devised to put the caterer on about the same basis as the housewife in regard to the quantity of rationed food available for each meal. It was assumed, for example, that the domestic fat ration had to be spread over 28 meals a week, and, therefore, the caterer received  $\frac{1}{28}$ th of the domestic ration for each meal served. Meat, on the other hand, was assumed to be eaten only at two "main meals" each day; thus, with a meat ration of 1s. 2d. worth, the caterer received  $\frac{1}{14}$ th of this amount or 1d. worth for each "main meal" served.

140. The caterer was, however, given a free hand in the use of his allocation of food; if he received 100 pennyworth of meat for 100 "main meals," he was at liberty to serve 50 main meals containing no meat, while the other 50 main meals each included 2d. worth of meat. Also, there was no limit to the total amount of food obtainable by the caterer: the more meals he served, the larger his allocation.

141. The acceptance of the "off the ration" meal as a part of food control was followed by its use as a means of supplementing the ordinary domestic rations for particular groups of the community in the following ways:—

(a) *Industrial Canteens.* Under an Order made in November, 1940, the Ministry of Labour and National Service could require the establishment of a canteen at any factory employing more than 250 persons on munitions or other work on behalf of the Crown. The limitation to factories on Government work was abolished in 1943. Orders were also made to cover docks, building sites and collieries; canteens at collieries came under the Ministry of Fuel and Power. For all industrial canteens there were special industrial scales of allowances which gave more meat, fats, sugar, etc., per meal than in the restaurants available to the general public. The number of industrial canteens grew from about 1,500 before the war to 18,486 in December, 1944. On that date there were, in addition, 4,718 restaurants which received rationed foods on the industrial scales because they served chiefly industrial workers.



(b) *School Meals.* Local Education Authorities in England and Wales were given power in 1906 to provide school meals free or at reduced charges to necessitous children, and to others at the cost of the ingredients. Shortly before the war some 250,000 meals were served daily, chiefly to necessitous children. By October, 1941, this number had risen to 406,000. In that month, plans were announced for a wide extension of the scheme in Scotland as well as in England and Wales, both to meet difficulties that arose from the increasing call-up of women, and also to ensure an adequate diet, particularly in animal protein, for school children. Specially generous scales of allowances, including 2d. worth of meat per main meal, were granted. By October, 1942, 1,000,000 meals daily were being provided in Great Britain and by February, 1945, 1,850,000. The target was 3¼ million meals, providing for 75% of the school population. Development was facilitated by the provision, from May, 1943, onwards, of equipment free of charge and of 100% grants for capital expenditure.

(c) *British Restaurants.* In 1940 the Ministry of Food encouraged Local Authorities to establish communal centres as a way of providing cheap and nourishing meals for people who, owing to the war, were obliged to eat away from home and for whom other facilities were not available. Financial assistance was provided on a repayment basis to cover capital expenditure. The first British Restaurant—as these centres came to be called—was opened in London during the heavy air raids of September, 1940. Others soon showed their value in catering for persons whose families had been broken up by evacuation or by the employment of women in industry. In London and some areas outside, British Restaurants provided meals when bombing made private catering impossible. As time went on this type of emergency service lessened, but the main function of British Restaurants in supplementing the hard-pressed catering trade remained. Although they received no privileges in supplies of food, their use of cafeteria service enabled them to serve simple meals at low prices.

TABLE 32. GROWTH OF BRITISH RESTAURANTS

			NO. OF RESTAURANTS	DAILY TOTAL OF MAIN MEALS SERVED (THOUSANDS)
1941	June	..	777	167
	Dec.	..	1,207	325
1942	Dec.	..	1,959	568
1943	Dec.	..	2,119	619
1944	Dec.	..	1,931	540

(d) *Emergency Feeding.* Special conditions arose after severe air raids and several different types of feeding facilities had to be developed. It was vital to cater both for those whose homes had survived but who were suffering from temporary shock, and for those who had lost their normal cooking facilities. A summary of these arrangements is given in Appendix E.



(e) *The Rural Pie Scheme.* For agricultural workers, for whom a factory canteen or a British Restaurant was not available, meat pies, snacks, sandwiches, etc., were distributed in country areas. This food was prepared by local bakers, British Restaurants, etc., and distributed by voluntary organisations. The scheme was started in the spring of 1942 and by October, 1944, it served some 5,000 villages, with a weekly distribution of  $1\frac{1}{4}$  million pies and other snacks. (See also Appendix D, para. 10, for the special cheese ration for agricultural workers.)

142. As might be expected, the fact that meals could be obtained "off the ration" in restaurants led to a considerable increase both in the number of catering establishments and in the number of meals served, but the shortage of labour and of premises and equipment kept the increase within limits. The following table shows the number of catering establishments of all types at various dates during the war and the number of meals served in them. (More detailed statistics appear in Appendix C.)

TABLE 33. CATERING ESTABLISHMENTS: NUMBERS AND MEALS SERVED

	MAY, 1941	JAN., 1942	JULY, 1943	DEC., 1944
No. of catering establishments (thousands)	111.0	114.1	137.5	147.2
No. of meals served weekly .. (millions)	79.0	144.0	170.5	170.5

143. Table 34 shows the proportion of total civilian food supplies eaten by *non-residents* in catering establishments. This proportion is sub-divided between "special" and "other" establishments. The former include factory canteens, school canteens, voluntary canteens for H.M. and Allied Forces, Fire Service, Police and Civil Defence canteens, etc.; the latter, restaurants, hotels (in respect of meals served to non-residents only), cafes, tea shops, etc.

TABLE 34. FOOD CONSUMPTION BY NON-RESIDENTS IN CATERING ESTABLISHMENTS AS PERCENTAGE OF TOTAL CIVILIAN CONSUMPTION (DECEMBER, 1944)

	SUGAR	MEAT	BACON	FATS	TEA	PRESERVES	CHEESE
"Special" catering establishments ..	5.3	6.2	2.5	5.4	6.5	6.5	4.3
"Others" .. ..	2.7	2.7	1.3	3.3	3.6	3.7	2.6
Total .. ..	8.0	8.9	3.8	8.7	10.1	10.2	6.9

This means that only about 3% of the nation's rationed food was eaten in ordinary catering establishments. The citizen without access to one of the "special" catering establishments supplemented his domestic rations, on average, by about one day's meals a month.



(iv) *Nutrition*

*The Pre-war Position*

144. In the years immediately before the war the nutritional state of the population aroused increasing attention. Research work between the wars had improved knowledge of man's nutritional requirements to the stage where these could be stated with some precision in terms of "nutrients," *i.e.*, calories, protein, vitamins and minerals. Sir John Orr's first national dietary survey (a) suggested that, on the basis of food actually purchased, nearly half the population was not getting sufficient of the required nutrients. The diet was generally deficient in calcium, vitamin A, vitamin B<sub>1</sub> and vitamin C. A considerable proportion of the population was also short of animal protein and iron. Correlation of diet with income indicated that this malnutrition was due chiefly to poverty, though in part to poor selection and purchase of food. That the malnutrition was of more than academic interest was confirmed by a review of the state of health of people in the different groups.

145. It therefore became recognised that much preventable ill-health was due to malnutrition, and interest in remedies grew. Before the war the Health Departments were providing milk, cod liver oil and iron and vitamin products, at low cost or free, for clear cases of malnutrition in expectant mothers and infants. Much research was in progress on methods for the early recognition of incipient malnutrition, for it was becoming certain that many minor conditions of ill-health had their origin in dietary defects.

146. For school children there were two official measures. The "Milk-in-Schools" scheme, started in 1934, was by 1939 providing one-third of a pint of milk daily for 50% of the elementary school children. This was given at low cost, or free. Necessitous children, or those clearly in need of extra nourishment, were provided with mid-day meals at school; but only 5% of the elementary school children benefited from this.

*Nutritional Planning*

147. In the pre-war plans for food control nutritional considerations played no great part. It was assumed that supplies of most foods would continue on an adequate if reduced scale, and that the choice of diet could be left to the individual, subject to such rationing as shortages might make necessary. People could supply their varying needs of energy-producing food by eating as much as they needed of bread and potatoes which it was intended should never be rationed, an intention which was adhered to, despite many difficulties. But in the early part of the war food import programmes were continually weighed against the imports of other war materials. There was a prospect of a possible reduction of food imports well below the figures originally planned, so that detailed nutritional analysis and justification of the total programme of food consumption became essential. The first comprehensive report on this subject by the Scientific Adviser to the Ministry was prepared a few weeks before the collapse of France. Thereafter, the progressive worsening of the food position forced close attention to the nutritional aspects of future plans, both for home production and for import. The result was generally a compromise; the psychological importance of traditional foods to which the public was accustomed was given considerable weight in the planning of supplies.

148. One of the first practical steps taken for nutritional reasons was the *addition*

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(a) "Food, Health and Income," by Sir John Orr.



of vitamins A and D to all margarine sold to the public. Such addition had already been made before the war to certain commercial brands; its extension early in 1940 to all had the effect of making the margarine nutritionally equivalent to the butter which it was increasingly to replace.

149. The *National Milk Scheme* (see Appendix D, para. 29) and the expanded *Milk in Schools Scheme* (see Appendix D, para. 28) were directed to raising the intake of animal protein, calcium and riboflavin in the "vulnerable" groups—expectant mothers, infants and school children. The eating of cheese was encouraged as a good source of protein and calcium. Later the operation of the *Milk Supply Scheme* (see Appendix D, para. 20) and the provision of *National Milk Cocoa* (see Appendix D, para. 33) served a similar purpose for the adolescents.

150. The growing of more *carrots and green vegetables* was encouraged from an early stage of the war in order to provide more vitamin A and more vitamin C to compensate for the shortage of fruit.

151. The addition of synthetic vitamin B<sub>1</sub> (aneurin) to white flour on a national scale was started in June, 1941, in order to remedy the known deficiency of this vitamin in the diet. A substantial proportion of the flour was being fortified in this way when in March, 1942, the milling of 85% flour was made compulsory in order to economise in the use of shipping. This *higher extraction flour* contained sufficient natural vitamin B<sub>1</sub> to make the addition of the synthetic product unnecessary. A specified addition of pure calcium carbonate (chalk) was made obligatory, since the 85% flour contained an increased proportion of phytic acid which rendered unavailable some of the calcium in the diet; the quantity added was such that it also increased the total calcium intake.

152. In 1944 the extraction rate was lowered to 82½% and then to 80%. Improved milling technique had made it possible to retain the greater part of the vitamin B<sub>1</sub> in the 80% flour, while lowering the bran content and providing a whiter loaf. The 80% flour contained at least 1.0 mg. of vitamin B<sub>1</sub> per lb., compared with 1.3 mg. in the 85% flour and 0.4 mg. in pre-war white flour. The use of these higher extraction flours improved the national diet, not only by increasing the intake of vitamin B<sub>1</sub>, but also by providing in the bread more of other nutrients, particularly iron and nicotinic acid.

153. The *Vitamin Welfare Scheme* (see Appendix D, para. 30) was purely nutritional in its purpose; namely, to ensure adequate supplies of vitamins A, C and D during pregnancy and early childhood.

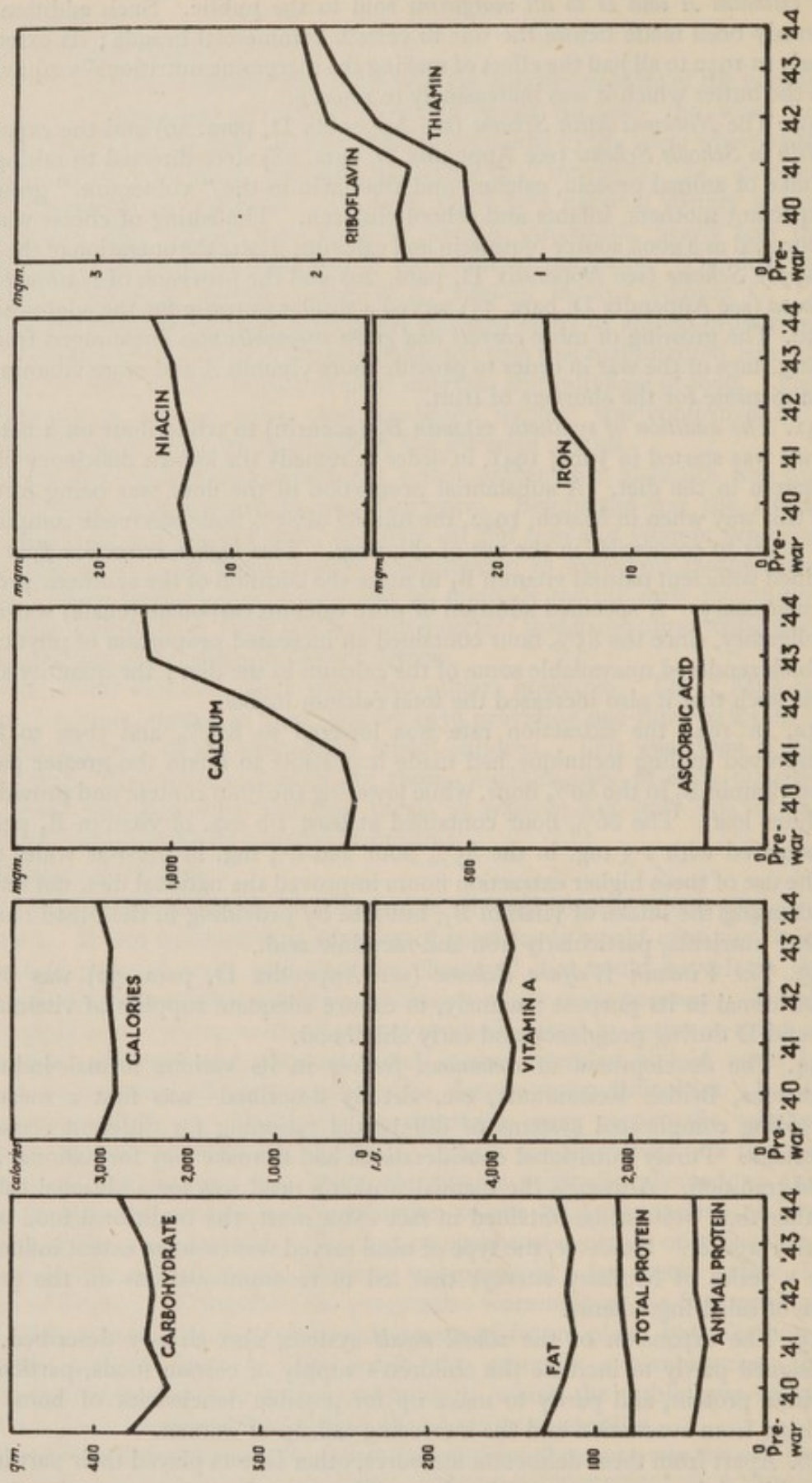
154. The development of *communal feeding* in its various forms—industrial canteens, British Restaurants, etc. already described—was first a means of avoiding complicated systems of differential rationing for different classes of workers. Purely nutritional considerations had to make way for national habit and tradition. Although the manual worker's need was for additional calories rather than protein, he obtained in fact extra meat, the traditional food of the heavy worker. However, the type of meal served was to some extent influenced by a series of Ministry surveys that led to recommendations on the greater use of salad ingredients.

155. The expansion of the *school meals* system, also already described, was designed partly to increase the children's supply of certain foods, particularly animal protein, and partly to make up for possible deficiencies of home diet arising from evacuation and the increasing call-up of women.

156. Apart from these deliberate measures, other factors played their part in the nutritional improvement of the diet. The most important was the general



TABLE 35. NUTRIENTS AVAILABLE FOR CIVILIAN CONSUMPTION PER HEAD PER DAY IN THE UNITED KINGDOM





increase in employment and in the level of earnings which enabled people to spend more money on food, the price of which was kept within the reach of all classes. In contrast to pre-war conditions, very few people were unable to afford an adequate diet during the war.

*The Nutrition Position To-day*

157. A broad overall picture of the nutritional value of the food available can be obtained from the Report on Food Consumption Levels. Table 35 opposite, based on that report, shows in chart form how the average amount of each nutrient available per head per day varied.

158. The total calorie value of the diet fell from the pre-war level of 3,008 per head per day to little more than 2,800 in 1940 and 1941, but was restored to its pre-war level in 1944. Fats have moved similarly but are still less than pre-war. Owing to increased consumption of potatoes and the use of high extraction flour, total protein is above pre-war, but the proportion of animal protein is considerably less. The two important minerals, calcium and iron, have increased substantially during the war, and so also have vitamin B<sub>1</sub> (thiamin) and riboflavin. There have also been increases in vitamin C (ascorbic acid) and nicotinic acid (niacin), but a reduction in vitamin A.

159. These figures all suffer from the weakness of being averages. They do not take account of the differing physiological needs of various age and sex groups. A more direct investigation was attempted in the Ministry's Wartime Food Surveys, similar in type to those made by Sir John Orr. Details of food purchases during a week were collected from 600-700 working-class households every month, and from these the nutrients available to the household were calculated. The results showed that on the whole the diet was up to requirements, except in vitamin A. Similar surveys of middle-class households showed that there was little difference between their diet and that of the working-class household, reflecting the general levelling out of food distribution during the war.

160. The Ministry of Health and various research organisations made continuous clinical and other surveys of selected groups of the population with a view to assessing their nutritional levels in respect of particular nutrients.

161. The conclusion drawn from these various investigations was that the general health of the civilian was good throughout the period of the war. The fitness of babies and school children was particularly striking. It is still too early to assess finally the effects of the wartime diet, but the statistics of infant and maternal mortality in Table 36 are encouraging.

TABLE 36. MATERNAL AND INFANT MORTALITY RATES IN ENGLAND AND WALES

	INFANT MORTALITY (PER 1000)	MATERNAL MORTALITY (a) (PER 1000)
1939 .. ..	50	2.55
1940 .. ..	56	2.18
1941 .. ..	58	2.23
1942 .. ..	49	2.01
1943 .. ..	49	1.84
1944 ... ..	46	1.53

(a) Excluding deaths from abortion.



(v) *The Protection of the Consumer*

162. In 1938 a new Food and Drugs Act was passed which gave wider powers to the Ministry of Health to control the composition and labelling of foods. Owing to the outbreak of war action under these powers was suspended.

163. When in 1941 milk and eggs began to become scarce, so-called "milk substitutes" and "egg substitutes" appeared on the market. Some of these, though they had little nutritional value, possessed certain of the physical properties of the scarce food (*e.g.*, the raising power of eggs in baking). Others were worthless. To protect the public from such products a Food Substitutes (Control) Order was made. This prohibited the sale of any product as a substitute for a food, except under licence from the Ministry. In this way control of the composition, price and description of all substitute foods was enforced.

164. In 1944 a Defence Regulation was made giving the Ministry of Food power to control the labelling and advertising of foods and, when desirable, to set up standards for foods. Detailed regulations were made prescribing the information to be given on the label and the claims that might be made about the vitamin or mineral content in advertising. Standards were laid down for a number of products such as baking powder, mustard and lard. All these measures helped the housewife in making an intelligent choice from the foods available.

(vi) *Food Education*

165. The general policy of the Ministry of Food was to explain to the consumer, as fully as security permitted, what was happening to the food supplies and why. As a part of this policy, the Ministry from early in 1940 continuously advised the public on wartime cookery and food values. In this it had the co-operation of the Ministries of Health and Education and of many voluntary organisations. A small staff of dietitians and cookery specialists provided expert advice, which was passed on to the public by means of advertisements, broadcasts, and films. In addition, there were practical demonstrations arranged by some 50 Food Advice Centres in the larger towns. Information bulletins were issued regularly to schools, public utility companies, women's organisations, etc. The general effect was to help the housewife to cope with wartime problems more confidently than would otherwise have been the case.

(vii) *The Public's Contribution to Food Control*

166. There is a tendency to look upon food control as chiefly the concern of the controlling Department, but the importance of the part played by all sections of the public can scarcely be exaggerated. Members of the food trade in all its branches did much of the detailed work of operating the machine. They had to handle all the coupons and counterfoils, to fill up the seemingly endless but necessary forms, to explain to the customers one regulation after another. All this they accomplished with a minimum of staff, often new to the job.

167. The housewife had an equally trying task. Shopping could not be taken light-heartedly. There were ration books to be remembered, points values and validity to be watched, occasional supplies of oranges and other rarities to be tracked down. Much time was spent in queues, even for the ordinary rations, since the retailer had not sufficient staff to serve his customers promptly. The



shopper had to bring her wrapping paper to the shop and then carry the goods home. Lastly, when the food was finally home, there was the burden of producing meals from supplies which, if adequate nutritionally, were certainly neither generous nor varied. For a long time, all this had to be done with added complications : with the blackout, air raids, lack of fuel, and with the different members of the family demanding different meals at all hours of the day and night to fit in with their duties in factory, Home Guard and Civil Defence.

Year	1940	1941	1942	1943	1944	1945
Jan	100	100	100	100	100	100
Feb	100	100	100	100	100	100
Mar	100	100	100	100	100	100
Apr	100	100	100	100	100	100
May	100	100	100	100	100	100
Jun	100	100	100	100	100	100
Jul	100	100	100	100	100	100
Aug	100	100	100	100	100	100
Sep	100	100	100	100	100	100
Oct	100	100	100	100	100	100
Nov	100	100	100	100	100	100
Dec	100	100	100	100	100	100
Total	1200	1200	1200	1200	1200	1200



## APPENDIX A

## IMPORTS OF FOOD AND ANIMAL FEEDINGSTUFFS INTO THE UNITED KINGDOM

(Excluding Imports from Eire and Unrefined Whale Oil)

THOUSAND TONS

COMMODITY	1934-38 ANNUAL AVERAGE	1940	1941	1942	1943	1944
Wheat .. .. .	5,031	5,754	5,391	3,489	3,257	2,832
Wheatmeal and flour ..	420	577	708	375	718	792
Rice, other grains and pulses (a) .. .. .	1,527	1,095	520	174	286	144
Maize and maize meal ..	3,395	2,192	702	135	66	118
Oilcake .. .. .	595	417	205	55	—	68
Other animal feedingstuffs	1,124	641	120	19	12	30
Meat .. .. .	1,060	1,057	934	939	971	1,156
Bacon and ham .. .. .	363	241	269	362	387	407
Canned meat .. .. .	63	116	230	282	300	205
Oilseeds and nuts .. ..	1,399	1,609	1,503	1,352	1,595	1,461
Oils and fats .. .. .	384	365	439	543	531	507
Sugar .. .. .	2,168	1,526	1,658	773	1,458	1,156
Dairy produce :						
Butter .. .. .	459	252	212	134	152	153
Cheese .. .. .	142	155	203	315	210	252
Processed milk .. .. .	99	80	159	266	214	169
Eggs in shell .. .. .	142	80	43	8	5	10
Other dairy produce ..	47	39	48	66	74	80
Dried fruit .. .. .	175	125	200	188	167	239
Fresh fruit (including edible nuts) .. .. .	1,502	836	115	129	56	220
Canned and preserved fruit, pulp and juice .. .. .	253	203	82	97	86	138
Vegetables (including preserved) .. .. .	674	320	65	43	17	49
Tea, coffee, cocoa .. ..	346	370	370	350	422	380
Other foods .. .. .	658	784	478	512	541	466
	22,026	18,834	14,654	10,606	11,525	11,032

(a) Including soya beans and soya products.



APPENDIX B

MANUFACTURED FOODS: ANALYSIS OF ALLOCATIONS OF INGREDIENT  
ACCORDING TO END-PRODUCT, PRE-WAR AND 1942-44

THOUSAND TONS

	USAGE IN BASE YEAR	1942	1943	1944
<b>SUGAR (AS REFINED)</b>				
Cakes .. .. .	} 245.3	156.6	{ 108.8	107.9
Biscuits .. .. .			{ 34.0	32.6
Flour mixtures (cakes and puddings) ..	3.0	0.7	—	—
Cereal breakfast foods .. .. .	2.1	0.1	—	—
Canned fruit and vegetables .. .. .	9.3	9.9	9.5	6.4
Canned milk .. .. .	50.6	18.6	23.2	25.0
Jam and marmalade .. .. .	152.7	230.5	} 255.1	{ 244.9
Fruit curd .. .. .	4.8	2.7		
Mince-meat and ready-made puddings ..	4.9	2.3	—	—
Syrup and treacle .. .. .	55.7	60.0	67.2	83.4
Chocolate and sugar confectionery .. ..	295.7	153.7	154.1	158.0
Beer, spirits, etc. .. .. .	76.6	53.8	51.4	58.3
Cider .. .. .	5.7	3.4	2.6	3.6
British wines .. .. .	5.6	—	1.9	2.2
Soft drinks (including powder) .. .. .	50.2	12.1	16.6	12.1
Bakers' prepared materials .. .. .	16.8	6.9	4.4	4.9
Pickles and sauces .. .. .	3.4	2.3	2.7	2.7
Table jellies .. .. .	17.2	4.0	—	—
Candied peel, etc. .. .. .	8.2	1.0	—	—
Ice cream (including powder) .. .. .	17.3	2.2	—	0.2
Coffee essence .. .. .	4.1	3.9	3.2	3.4
Other manufactured foods (including un- specified priority permits and Food Office allocations) .. .. .	18.8	45.9	20.3	28.1
<b>Total .. .. .</b>	<b>1,048.0</b>	<b>770.6</b>	<b>755.0</b>	<b>773.7</b>
<b>LIQUID GLUCOSE</b>				
Cakes and biscuits .. .. .	4.3	1.7	1.4	1.5
Jam, marmalade and fruit curd .. .. .	3.3	1.7	1.6	1.1
Chocolate and sugar confectionery .. ..	96.7	40.0	36.3	38.8
Brewing .. .. .	11.3	6.6	6.5	6.7
Bakers' prepared materials .. .. .	4.8	2.0	1.0	1.3
Other manufactured foods (including un- specified priority permits) .. .. .	7.1	5.8	8.6	7.5
<b>Total .. .. .</b>	<b>127.5</b>	<b>57.8</b>	<b>55.4</b>	<b>56.9</b>
<b>BUTTER</b>				
Cakes and biscuits .. .. .	11.4	3.1	2.8	5.3
Other manufactured foods .. .. .	6.4	1.5	1.0	1.4
<b>Total .. .. .</b>	<b>17.8</b>	<b>4.6</b>	<b>3.8</b>	<b>6.7</b>
<b>MARGARINE</b>				
Cakes .. .. .	} 64.0	} 39.8	32.0	26.5
Biscuits .. .. .			{ 6.0	2.7
Other manufactured foods (including un- specified priority permits) .. .. .	2.9	3.7	1.4	2.7
<b>Total .. .. .</b>	<b>66.9</b>	<b>49.5</b>	<b>36.1</b>	<b>31.3</b>



## APPENDIX B—cont.

THOUSAND TONS

	USAGE IN BASE YEAR	1942	1943	1944	
<b>OILS AND FATS</b>					
Cakes .. .. .	} 149.7	88.2	88.2	87.0	
Biscuits .. .. .		36.4	24.9	31.4	
Chocolate and sugar confectionery .. .. .		18.3	9.9	2.4	0.3
Meat and fish pastes .. .. .		4.0	4.8	4.9	4.1
Fried fish and chips .. .. .		68.9	52.1	53.6	51.3
Potato crisps .. .. .		4.5	3.7	3.2	2.7
Bakers' prepared materials .. .. .		4.9	3.9	2.5	2.2
Shredded suet .. .. .		11.4	11.6	11.2	10.8
Other manufactured foods (including unspecified priority permits) .. .. .	5.2	10.6	10.1	10.9	
<b>Total</b> .. .. .	<b>266.9</b>	<b>221.2</b>	<b>201.0</b>	<b>200.7</b>	
<b>CANNED MILK</b>					
Cakes and biscuits .. .. .	2.0	—	—	—	
Chocolate and sugar confectionery .. .. .	70.7	1.7	6.1	6.2	
Other manufactured foods .. .. .	4.1	0.3	—	—	
<b>Total</b> .. .. .	<b>76.8</b>	<b>2.0</b>	<b>6.1</b>	<b>6.2</b>	
<b>DRIED MILK</b>					
Cakes and biscuits .. .. .	8.8	4.9	4.6	3.6	
Chocolate and sugar confectionery .. .. .	6.3	7.1	7.9	6.0	
Infant and invalid foods (including baby foods)	7.5	8.2	11.1	9.7	
Ice cream (including powder) .. .. .	2.7	0.4	—	0.3	
Other manufactured foods .. .. .	5.2	—	0.1	1.9	
<b>Total</b> .. .. .	<b>30.5</b>	<b>20.6</b>	<b>23.7</b>	<b>21.5</b>	
<b>DRIED FRUIT</b>					
Cakes .. .. .	} 66.4	38.0	30.0	29.7	
Biscuits .. .. .		0.8	0.5	0.5	
Mincemeat .. .. .		4.5	2.4	2.1	2.0
Chocolate and sugar confectionery .. .. .		4.2	2.4	1.9	2.0
Pickles and sauces .. .. .		2.7	1.6	1.4	1.5
Ready-made puddings (including Christmas puddings) .. .. .		(a)	1.0	2.4	2.6
Other manufactured foods .. .. .		2.6	0.6	0.5	0.5
<b>Total</b> .. .. .		<b>80.4</b>	<b>46.8</b>	<b>38.8</b>	<b>38.8</b>
<b>EDIBLE NUTS</b>					
Cakes and biscuits .. .. .	21.5	0.5	—	—	
Chocolate and sugar confectionery .. .. .	18.5	5.0	2.9	4.7	
Vegetarian foods (manufactured) .. .. .	4.1	2.0	2.1	1.6	
<b>Total</b> .. .. .	<b>44.1</b>	<b>7.5</b>	<b>5.0</b>	<b>6.3</b>	
<b>RAW COCOA</b>					
Cakes and biscuits .. .. .	3.2	1.9	1.4	1.1	
Chocolate confectionery and cocoa .. .. .	97.8	107.7	116.2	128.2	
<b>Total</b> .. .. .	<b>101.0</b>	<b>109.6</b>	<b>117.6</b>	<b>129.3</b>	
<b>STARCH</b>					
Cakes and biscuits .. .. .	5.2	2.7	—	—	
Cornflour, custard and blancmange powder ..	27.0	23.8	21.2	21.6	
Meat and fish paste .. .. .	1.0	0.5	—	—	
Chocolate and sugar confectionery .. .. .	5.2	2.5	1.8	1.8	
Bakers' prepared materials .. .. .	2.0	—	—	—	
Canned soup, soup powder and gravy salts	4.6	2.3	1.1	1.1	
Other manufactured foods (excluding glucose)	3.1	2.8	3.6	3.8	
<b>Total</b> .. .. .	<b>48.1</b>	<b>34.6</b>	<b>27.7</b>	<b>28.3</b>	

(a) Included in mincemeat.



## APPENDIX C

### CATERING ESTABLISHMENTS: NUMBERS IN OPERATION AND MEALS SERVED Establishments drawing Rationed Foods on the Basis of Meals served (a)

CLASS OF CATERING ESTABLISHMENT	MAY, 1941		JANUARY, 1942		JULY, 1943		DECEMBER, 1944	
	NO. OF ESTABLISHMENTS (THOUSANDS)	NO. OF MEALS SERVED WEEKLY (MILLIONS)	NO. OF ESTABLISHMENTS (THOUSANDS)	NO. OF MEALS SERVED WEEKLY (MILLIONS)	NO. OF ESTABLISHMENTS (THOUSANDS)	NO. OF MEALS SERVED WEEKLY (MILLIONS)	NO. OF ESTABLISHMENTS (THOUSANDS)	NO. OF MEALS SERVED WEEKLY (MILLIONS)
(i) Voluntary Canteens serving members of H.M. and Allied Forces.	3.5	4.9	4.9	16.2	5.9	19.2	5.1	17.6
(ii) Canteens serving Fire, Police, Civil Defence, etc.	6.9	2.1	6.6	4.4	7.6	4.9	5.5	3.4
(iii) Schools, Canteens, Feeding Centres and War-time Nurseries (b).	4.2	3.7	5.2	3.4	9.0	6.6	15.1	9.8
(iv) Youth Service Centres, Clubs for pre-service training units.	—	—	0.5	0.1	3.1	0.5	7.9	1.1
(v) Industrial Canteens and Catering Establishments.	14.7 (d)	16.6 (d)	13.3	45.6	19.8	52.7	23.2	55.0
(vi) Staff Dining Rooms, Luncheon and all other Clubs.	—	—	10.4	7.8	11.9	7.9	11.6	7.2
(vii) British Restaurants, other community meal centres, and air-raid shelter canteens.	1.3	1.2	1.3	2.5	2.2	4.5	2.3	4.7
(viii) Hotels and Residential Catering Establishments.	29.7	14.9	26.1	14.5	25.5	18.7 (f)	25.5	15.8
(ix) Restaurants, tea shops, cafes, etc. . .	35.9	30.2	33.1	40.0	32.5	43.1	32.3	43.4
(x) All other catering establishments (c) . .	14.8	5.4	12.7	9.5	20.0	12.4	18.7	12.5
Total—Catering establishments . .	111.0 (e)	79.0	114.1 (e)	144.0	137.5	170.5	147.2	170.5

(a) Excluding some 34,000 licensed caterers (other than licences issued for Home Guard and only to be used if mustered), drawing no rationed food on the basis of meals served. (19,000 fish fryers, 5,000 N.A.A.F.I. canteens, 6,000 public houses, and 4,000 of various types.)

(b) The number of school meals is understated since some schools received meals from cooking-depots, which in some instances were British Restaurants or other catering establishments serving not only school meals.

(c) Including milk bars, snack bars, coffee stalls, butchers and cooked ham or meat shops serving meals, etc.

(d) Estimated.

(e) Excluding the category of Residential Establishments (boarding and apartment houses, purely residential hotels, nurses' hostels, etc.) which category was abolished from July 26th, 1942. Those which showed that it was impracticable to purchase rationed foods by using the ration books of residents were subsequently licensed as catering establishments (or institutions). The number of residential establishments was about 16,000 at the end of 1940, of which some 6,000-7,000 were purchasing rationed foods on authorisations from Food Offices, but probably few of these were transferred to the catering establishment category.

(f) Seasonal rise which particularly affects establishments in this category.



*(i) The Development of Rationing**(a) The First Issue of Ration Books*

1. Ration books were printed in 1938 and stored at convenient points throughout the country. The basis for their issue was provided by the process of National Registration which took place on September 29th, 1939. This gave a register of the whole population, with details which included age. From the returns collected by the Registration Officers, staffs in the Food Offices filled in names and addresses on the ration books which were then posted to the public. Three types of ration books were issued—the General Ration Book (R.B.1) for men, women and children over 6; the Child's Ration Book (R.B.2) for children under 6; and the Traveller's Ration Book for those who, like commercial travellers and lorry drivers, had no permanent home. There was also a special seaman's book. (Later, R.B.2 was limited to 5 years and a new book, R.B.4, was introduced for the 5-18 years group.)

2. At the beginning of November, 1939, consumers were told that butter and bacon would be rationed and that they must register with retailers for these foods by November 23rd. They were also instructed to register for sugar, in order to assist distribution, although its rationing was not at that time considered necessary.

3. This was followed by an Order requiring caterers, institutions and residential establishments to register with Local Food Offices if they wanted supplies of butter, bacon and ham after November 27th. On November 28th it was announced that the rationing of bacon and ham and of butter at 4 oz. per head per week each would begin on January 8th, 1940, that supplies to caterers, etc., would be on a specified scale, and that coupons would have to be surrendered for cooked bacon or ham in such establishments.

4. On December 28th it was announced that sugar would be rationed at 12 oz. per head per week from January 8th and that consumers were to register for meat by that date. Shortly after, on January 3rd, 1940, the arrangements for surrender of bacon and ham coupons in catering establishments were cancelled.

5. Rationing for butter, sugar, bacon and ham started on January 8th, 1940, and on the whole proceeded smoothly. By January 29th the bacon position allowed an increase in the ration to 8 oz.—actually more than the average pre-war consumption.

6. Meat rationing, despite the registration early in January, did not start until March 11th, when it was on a value basis of 1s. 10d. per week for everyone over 6 years of age, and 11d. for those below. Caterers were cut to 60% of their normal usage.

*(b) The Extension of "Straight" Rationing.*

7. After the introduction in the spring of 1940 of the first four "straight" rationing schemes, *i.e.*, schemes in which the consumer was entitled to a definite weekly amount of a food—there was little change for some three months. The sugar ration came down to 8 oz. in May, and bacon to 4 oz. in June, while butter rose temporarily to 8 oz. at the end of March, only to revert to its original figure in June.

8. In July, 1940, tea was rationed at 2 oz. per head per week. In the same month margarine was rationed jointly with butter, at first at 6 oz. in any proportion, then with a 4 oz. limit for butter, reduced later to 2 oz. Cooking fats were rationed at the same time at 2 oz. per week, with margarine as an alternative.

9. With its shortages of many foods the year 1941 saw the completion of "straight" rationing. In March, preserves (*i.e.*, jam, marmalade, syrup and treacle) were rationed on a "minimum share" principle at 8 oz. per month. Thus everyone was guaranteed the minimum share, while the grocer was left to distribute any additional supplies fairly among his customers. In practice this further sharing offered the same opportunities for favouritism as had existed when preserves were unrationed, and in July the scheme was converted into a normal "straight" rationing scheme at 8 oz. per four weeks, it having been quickly realised that the month was an unsatisfactory unit. This change brought order into the preserves scheme, and by the second 4-week period the ration was raised to 1 lb. Later, mincemeat, fruit curd and imported honey were included in the ration.



10. In the meantime, in May, 1941, cheese had been rationed at 1 oz., raised to 2 oz. in June and to 3 oz. in August. A special cheese ration was introduced at the same time for agricultural workers who were unable, like factory employees, to get meals in a canteen. Starting at 8 oz., it was raised to 12 oz. in December, 1941. It has remained at that figure except during the second half of 1942, when it became temporarily 16 oz. The class eligible for this ration was gradually enlarged as underground miners, road workers, quarry men and others were included.

11. This completed the rationing of most of the foods of which supplies were adequate to support a "straight" rationing scheme. Thereafter there were minor changes of quantities and definition of the rations. The meat ration, which in September, 1940, had risen to 2s. 2d., fell rapidly again to 1s. 10d. in December, to 1s. 6d. and then to 1s. 2d. in January, 1941, reaching its lowest point at 1s. at the end of March. In July, 1941, it was restored to 1s. 2d. and thereafter remained stationary. In July, 1942, the tea ration was withdrawn from holders of the Child's Ration Book, and in December, 1944, the ration was raised to 3 oz. for persons over 70. Cheese, the most variable of the rations, was raised to 8 oz. in July, 1942, and then fell again by stages from January, 1943, to 2 oz. in April, 1944.

12. A new principle was introduced in April, 1942, when the preserves ration was made convertible into sugar, pound for pound, for 12 weeks, to help people who wanted to make jam. (This was distinct from the occasional issue of extra sugar for preserving in the summer months.) A similar arrangement operated from April, 1943, though at varying rates of exchange. From November, 1943, to April, 1945, the converse exchange—preserves in place of sugar—was also permitted. The preserves ration was increased on several occasions to 2 lb. per 4 weeks when supplies of jam or marmalade were above normal. (Tables 1 and 2 overleaf show in chart form the course of straight rationing, 1940-45.)

### (c) "Points" Rationing

13. Much public criticism was heard of the unequal distribution of unrationed foods. It was realised that imports of canned meat, etc., under Lend/Lease would increase public unrest unless something were done. Owing to the small supply per head of these foods it was impracticable to introduce straight rationing schemes entitling each person to a specific weight.

Moreover, the demand varied widely from one individual to another. Not the least of the difficulties was the enormous addition to the work of the Food Offices and the trade which would result from trying to ration all these foods separately. After much consideration a "points" scheme was adopted. Under it each consumer received a number of "points" to spend as he or she chose on any of a number of foods, each food being given a "points" value varying according to the expected demand in relation to the supply. Thus consumers were allowed freedom of choice within the limits of the points available to them, and a series of individual rationing schemes was avoided. Customers were also free to buy "points"-rationed foods where they pleased; there was no registration with retailers.

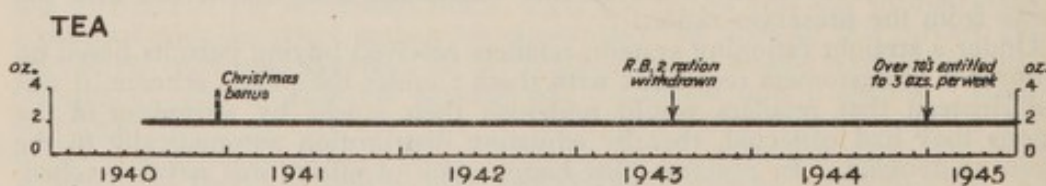
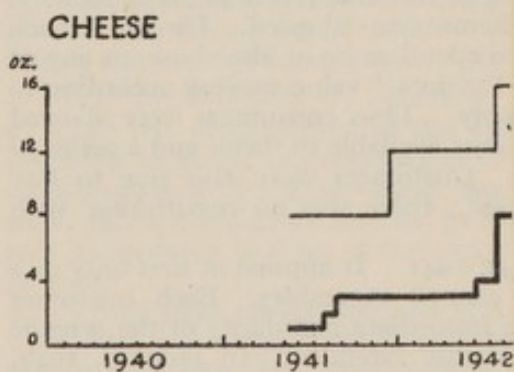
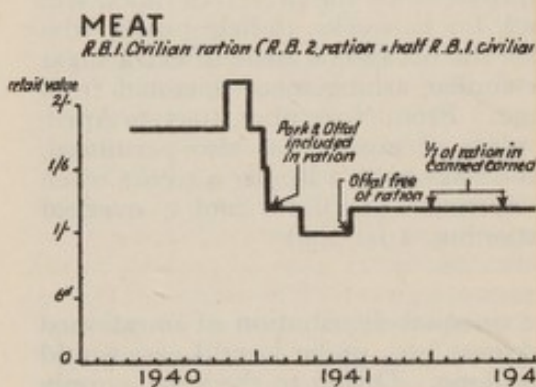
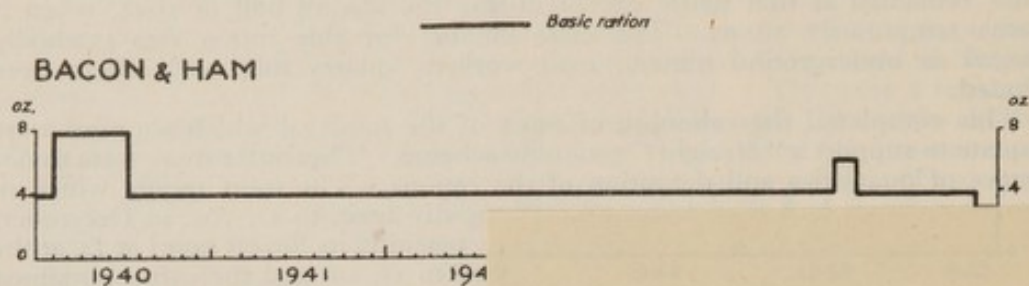
14. The scheme was begun on December 1st, 1941. It applied at first only to a group of canned meats, canned fish and canned vegetables. Each consumer received 16 points per 4-week period. The immediate popularity of the scheme exceeded expectation, and its scope was steadily extended. In January, 1942, dried fruits, rice, sago, tapioca and dried pulses were added; in February, canned fruit; in April, condensed milk and cereal breakfast foods; in July, syrup and treacle (transferred from the preserves ration); in August, biscuits; and in December, oatflakes and rolled oats. This completed the list of "points" foods until April, 1944, when imported canned marmalade was transferred into the scheme from the preserves ration.

15. Under a straight rationing system, retailers received buying permits based on the number of customers registered with them; under the points scheme, it was hoped instead that retailers would replenish their stocks by surrender of the coupons they had collected, thereby adjusting distribution automatically to the pattern of demand. In practice, this happy state of affairs was never reached, because points values could not be fixed with theoretical precision and some foods



TABLE I. STRAIGHT HOUSEHOLD RATIONS

Weekly Rations per R.B.'s 1, 2 and 4



in the chart.  
 the rate of 8 oz. per week as shown  
 rate of 4 oz. per week and not at  
 1944, marked (b) should be at the  
 period 30th April to 19th August,  
 in lieu of preserves during the  
 Sugar. The extra sugar available

STRAIGHT HOUSEHOLD RATIONS.

PAGE 59. TABLE 2.

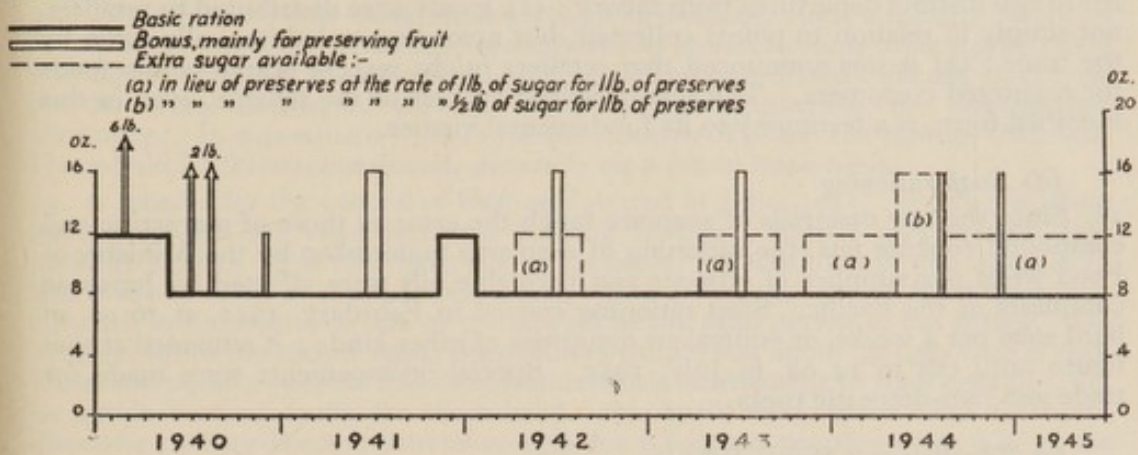
ERRATUM



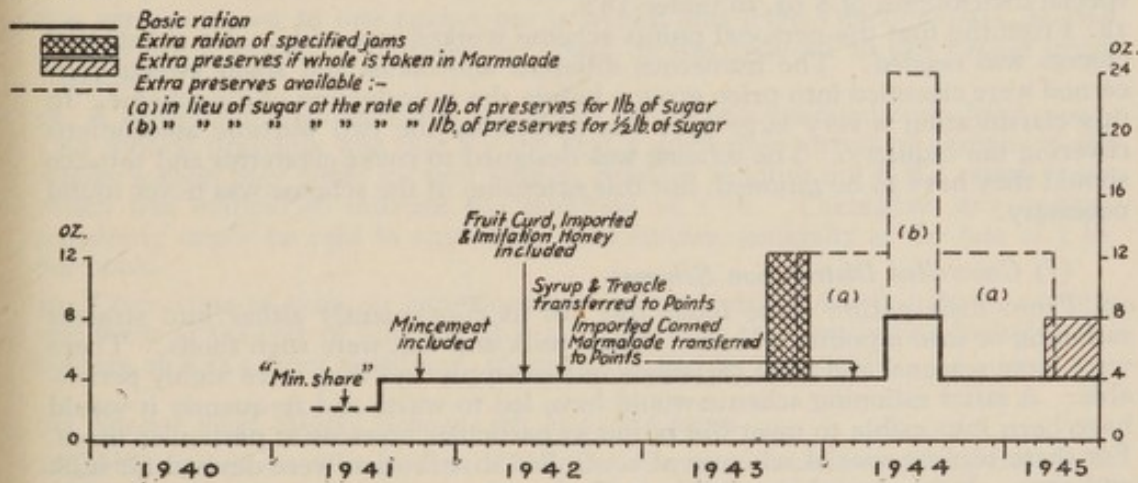
TABLE 2. STRAIGHT HOUSEHOLD RATIONS

Weekly Rations per R.B.'s 1, 2 and 4

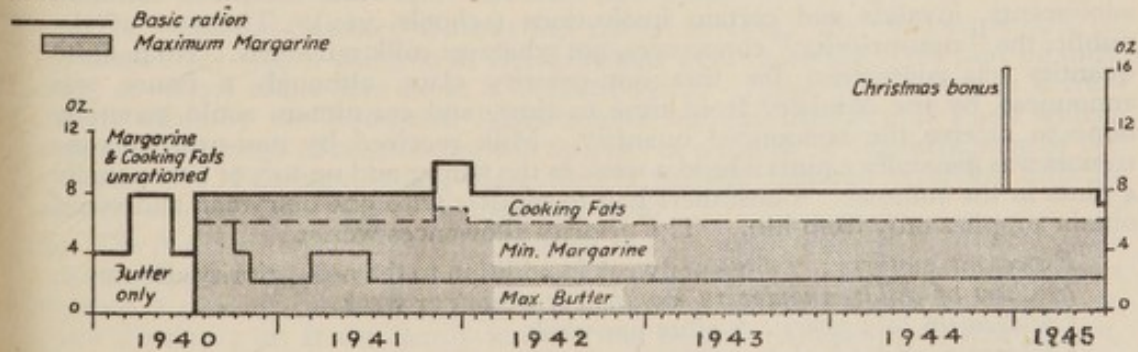
**SUGAR**



**PRESERVES**



**FATS**





were definitely under-valued, and because of the existence of the zoning scheme, the Sector scheme and other restrictions on distribution. Consequently there were at times more people willing to buy, for instance, canned salmon or biscuits, at the announced points values than there were stocks to meet the demand. This led to two distinct departures from theory: (1) goods were distributed to retailers, not simply in relation to points collected, but according to habitual allocation by the trade; (2) it was announced that retailers might reserve scarce points foods for registered customers. The acknowledged success of the scheme, even in this modified form, is a testimony to its fundamental virtues.

(d) *Soap rationing*

16. Since the raw materials of soap are much the same as those of margarine and compound cooking fats, the rationing of soap was undertaken by the Ministry of Food when our supplies of oilseeds and vegetable oils were affected by Japanese conquests in the Pacific. Soap rationing started in February, 1942, at 16 oz. of hard soap per 4 weeks, or equivalent quantities of other kinds; it remained at that figure until cut to 14 oz. in July, 1945. Special arrangements were made for trade and non-domestic users.

(e) *The Personal Points Scheme*

17. This scheme for rationing chocolate and sugar confectionery began in July, 1942. The first ration was cautiously set at 8 oz. per 4 weeks. This produced a small surplus stock which was removed by an increase to 16 oz. for 8 weeks, after which the ration settled down to 12 oz. in the middle of October. No differentiation in rations was made on grounds of age, but at Christmas, 1944, there was a special distribution of 8 oz. to under-18's.

18. From the first the personal points scheme worked smoothly. No substantial change was needed. The numerous different chocolates and sugar sweets concerned were classified into price groups before the introduction of the scheme. In this classification a very large part was played by the two wartime associations covering the industry. The scheme was designed to cover cigarettes and tobacco should they have to be rationed, but this extension of the scheme was never found necessary.

(f) *Controlled Distribution Schemes*

19. From their nature some foods did not fit conveniently either into straight rationing or into a points scheme. Eggs, milk and fish were such foods. There were large seasonal and local variations in the supply and they were highly perishable. A strict rationing scheme would have led to waste and frequently it would have been impossible to meet the ration in particular areas or at particular times. For these reasons special schemes of controlled distribution were devised for milk and eggs. It was found impossible to attempt any equalisation of supplies of fish to consumers, but a loose scheme of controlled distribution between traders operated.

20. The principle of the *Milk Supply Scheme* was to guarantee supplies to certain "priority" classes of consumers—for instance, expectant mothers, children, adolescents, invalids and certain institutions (schools, etc.). The rest of the public, the "non-priority" consumers, got whatever milk remained. No definite quantity was guaranteed for this non-priority class, although a figure was announced by the Ministry from time to time, and consumers could generally hope to receive the announced quantity. Milk received by non-priority consumers was generally 2 pints a head a week in the winter and up to 3 or occasionally 4 pints in the summer. Consumers had to register with one dairyman and could obtain supplies only from him. The priority allowances were:

*Expectant mothers*: 7 pints per week in addition to the non-priority allowance.

*Mothers of children under 12 months*: 7 pints per week.

*Children up to 5 years*: 7 pints per week.

*Children 5-18*: 3½ pints per week.

*Certain classes of invalids*: up to 14 pints per week.

*Schools, hospitals and similar institutions*: these also had priority supplies.



21. As there was no rigid entitlement to any amount, a retailer who had a surplus could sell it to his registered customers, since the perishable nature of milk made a carry-over difficult. He had, however, to notify the Regional Milk Supply Officer whenever his milk supply was in excess of his authorised requirements: the excess could thus be diverted to a dairyman needing it.

22. The above scheme came into operation in October, 1941, although priorities for children, expectant and nursing mothers had been operating since April, 1941. During the winter of 1941 small amounts of canned evaporated milk and skim milk powder were distributed through dairymen to supplement the non-priority allowance. In subsequent winters the distribution of skim milk powder (National Household Milk) was continued, generally on a ration book basis.

23. A scheme for the control of *shell eggs* started in June, 1941. Here again there were priorities for expectant and nursing mothers, infants and invalids (see para. 31 below). For the non-priority consumer an allocation of one egg a head was made as often as supplies permitted, which in practice varied from about one a month in the winter to one or two a week at the peak period in the spring. On average, up to the end of 1944, the ordinary public had about 30 eggs each a year. Domestic poultry keepers had to surrender their entitlement to shell eggs in order to obtain feeding stuffs for their hens. By April, 1945, there were 1,310,000 domestic poultry keepers providing eggs for 6,690,000 people—or 15·8% of the population.

24. In June, 1942, *dried egg* in packets containing the equivalent of 12 eggs began to be distributed on a ration book basis. Generally the allowance was one packet per R.B.1 and two packets per R.B.2 every 8 weeks. From time to time, however, retailers were allowed to sell to registered customers without restriction in order to clear accumulated stocks. In the latter part of 1943 and early 1944 the allocation was increased to one packet per 4 weeks, and from October, 1944, to two packets per 4 weeks. In September, 1945, it was reduced to one packet every 8 weeks.

25. A somewhat loose distribution scheme for *oranges* operated from May, 1941. The general principle was that for the first 5 days after arrival of oranges in the retailer's shop they could be sold only to children holding the R.B.2 ration book, which was marked to indicate the purchase of 1 lb. Thereafter, any oranges remaining might be sold to any ration book holder, generally at the rate of 1 lb. per book.

26. From time to time, as supplies were more plentiful, distribution of oranges was made at the rate of 2 lb. per R.B.1; sometimes the distribution included the holders of R.B.4 (ages 5-18) and, more rarely, the general public.

#### (ii) *Special Food Supply Schemes for Special Classes*

27. Although it was the policy of the Government to refuse special rations to particular classes of the community on the grounds of their employment, such rations were provided for these groups whose need for additional nourishment had a physiological basis, such as pregnant women, nursing mothers, children and invalids. The following paragraphs describe in outline these special ration schemes, in most of which the foods were provided at reduced prices or free.

28. The "*Milk-in-Schools*" Scheme was started in 1934. By 1939 some 50% of all elementary school children in Great Britain were receiving 1/3rd pint of milk daily at school either free or at a reduced price. From 1940 onwards a concerted effort by the Education Departments and the Ministry of Food widely extended the range of schools and the number of children taking advantage of the scheme. By February, 1945, there were 3,768,000 children receiving milk in school, representing 72% of the possible total.

29. The *National Milk Scheme*, introduced in July, 1940, was on a more ambitious scale. Its purpose was to provide, for every child under 5, and for every expectant mother, a pint of milk daily at 2d. a pint instead of the price of 4½d. ruling in most districts; or, if the family income was below a certain level, free of cost. The scheme was welcomed by the public from the outset, and with successive simplifications in its administration has grown as follows:



TABLE 3. GROWTH OF NATIONAL MILK SCHEME

	NO. OF CONSUMERS (THOUSANDS)	ESTIMATED PERCENTAGE OF POTENTIAL	PROPORTION OF CONSUMERS OBTAINING FREE MILK
1940 (Sept.) .. ..	2,690	69	30
1941 ( " ) .. ..	3,134	80	29
1942 ( " ) .. ..	3,316	87	21
1943 ( " ) .. ..	3,681	92	10
1944 ( " ) .. ..	3,973	96	3

The fall in the proportion receiving free milk reflects the general rise in family incomes during the war.

30. *The Vitamin Welfare Scheme* was introduced in December, 1941, to make up for probable shortages of vitamins in the diet of young children arising from lack of fruit, particularly oranges, and the shortage of butter and eggs, the chief normal sources of vitamins A, C and D. The scheme began by providing free of charge black-currant syrup or purée and cod liver oil for children up to 2 years of age. In April, 1942, the black-currant products were gradually replaced by Lend/Lease orange juice and the issue was made subject to payment. Various simplifications and extensions of the scheme led to its amalgamation with the machinery of the National Milk Scheme until any expectant mother or child under 5 who had cheap or free milk became automatically entitled also to cheap or free supplies of orange juice and cod liver oil. For expectant mothers, who could not always take cod liver oil, vitamin A and D tablets were provided as an alternative. The percentage of potential issues taken up by beneficiaries of this scheme is shown below :—

TABLE 4. VITAMIN WELFARE SCHEME

	COD LIVER OIL (a)	ORANGE JUICE (b)
Sept., 1942 ..	12	23
" 1943 ..	19	43
" 1944 ..	20	48

(a) Including A and D tablets.

(b) Including blackcurrant syrup and purée in 1942.

The figures in the table are less than the proportions of beneficiaries taking advantage of the scheme, since they do not all take the full quantities to which they are entitled. The low uptake of cod liver oil was probably due to (i) the unattractiveness of cod liver oil in comparison with orange juice, and (ii) the preference of many mothers for customary proprietary cod liver products.

31. *A priority egg scheme* introduced in November, 1941, operated in varying forms until infants between 6 and 24 months were entitled to shell eggs at the rate of three a week. Expectant mothers received twice the ordinary allocation, and certain classes of invalids also received increased supplies. *Dried eggs* were provided for holders of the R.B.2 ration book at twice the rate of the adult allocation.

32. In July, 1943, the special provision made for the expectant mother was simplified by the issue of an R.B.2 ration book on production of a certificate of pregnancy. This entitled her to an extra half ration of meat and an additional allowance of shell eggs and dried eggs—as well as priority milk and the vitamin foods.

33. To meet the needs of adolescents for additional animal protein, *National Milk Cocoa*, made from skim milk powder, sugar and cocoa, was introduced in January, 1944. This was sold at a subsidised price to employers of workers under 18 (later 21) and to Youth Clubs, etc., on condition that: the made-up drink was retailed at not more than 1d. per 1/3rd pint.



## APPENDIX E

### *Emergency Feeding*

1. *The Queen's Messenger Convoys* were designed to provide light refreshment immediately after a raid. Completely self-contained down to a water tanker, these canteen convoys could move into a raided area and provide tea and snacks within an hour. Their contribution was as much psychological as material. Many of them were purchased with funds subscribed by United States, Dominion and Colonial organisations.
2. *Emergency Meals Centres* operated by the Local Authorities were designed to provide for those who, while not necessarily homeless, were unable to cook owing to failure of the utility services. The equipment included food stocks, water storage, together with simple boilers and cooking ranges capable of running on solid fuel. In all towns having 50,000 or more inhabitants, feeding accommodation was provided on these lines for at least 10% of the population. *Rest Centres*, run by the Ministry of Health for the homeless, normally had a similar provision for cooking meals.
3. In London and certain large provincial towns, long periods in air raid shelters became at times habitual. *Shelter feeding* equipment was installed to provide light refreshment.
4. Some of the earlier air raids destroyed Rest Centres and Emergency Meals Centres in the towns. To maintain the service in such cases *cooking depots* were set up on the outskirts. Each depot was designed to provide within four hours 3,000 full-scale meals for distribution in insulated containers anywhere within a 20-mile radius.
5. To supplement cooking depots in the event of exceptionally heavy raids, and for areas where such depots were not practicable, *semi-mobile kitchens* were developed. These were transportable cooking units capable of producing 500 meals within 4 hours on the same lines as the cooking depots.



## APPENDIX F

### *Notes on the Statistical Tables*

The term "food and feedingstuffs" covers a wide range of commodities, including a few (*e.g.* technical palm oil) which are, or may be, used neither for human consumption nor for feeding to livestock, and some which may be used in whole or in part for food, for feeding to livestock, or for industrial purposes. Oilseeds, for example, are crushed to produce oil, and the residue is used for animal feeding; and the oil may be used either for edible purposes (*e.g.* margarine) or inedible purposes (*e.g.*, paint, linoleum). Maize, to quote another example, may be fed to livestock or processed into starch, and the starch used for producing food powders (blancmange, etc.) or for producing products not for human consumption (*e.g.*, laundry starch).

Of the commodities for use as food, there is the extreme range from those which have a large water content to those which have been dehydrated (*e.g.*, liquid milk and dried milk) and there are also differences in nutritive qualities (sources of calories, proteins, fats, etc.). In addition, there are differences of palatability.

No single common denominator can be found to which all foods can be reduced to suit all purposes, and the individual statistical tables have therefore had to be compiled on bases to suit the particular points they are designed to illustrate. Thus, period comparisons of imports, of home production and of certain other items have been made on a tonnage basis; comparisons of imports and home production on the basis of common denominators for commodity groups; comparisons of the proportions of food controlled and uncontrolled on an expenditure basis; consumption levels on the basis of individual nutritive units; and so on. It will be found that any apparent inconsistencies between the tables are attributable to this treatment.

In certain tables 1943 is shown as a year of 53 weeks. This is because many Ministry of Food statistics are related to periods of 4 or 5 complete weeks, making up a year of 364 days. In 1943 one of the 4-week periods was extended to 5 weeks to correct for the accumulated divergence from the ordinary year of 365 days.

#### *Tables 1, 2 and 3*

These are taken from material prepared for the Third Report of a special Joint Committee set up by the Combined Food Board on Food Consumption Levels in the United States, Canada and the United Kingdom. In order to achieve comparability most of the food groups have been reduced to a common denominator. For example, in comparing milk consumption in the U.K. in 1944 with that before the war, or milk consumption in the U.K. with that in the U.S.A. and Canada, the figures for all forms of milk and milk products (other than butter, which is included under fats) have been expressed in terms of milk solids and added together on that basis. Again, meat consumption is dealt with on a "carcase weight equivalent" basis, because this makes it possible to combine the figures for bone-in, boneless and canned meat.

#### *Tables 5 and 8*

Figures supplied by the Agricultural Departments.

#### *Tables 6 and 12*

The tonnages shown in these tables represent supplies moving into human consumption in the U.K. whether for civilians or members of the Services. They do not include exports, waste prior to the retail stage of distribution or utilisation for purposes other than food. The figures are actual tonnages of the commodities stated and have not been reduced to common denominators; thus the entry for "Eggs and egg products" is the result of adding actual weights of shell eggs, frozen liquid egg and dried egg. In the case of sugar the quantities shown represent total food usage (including brewing) and thus include sugar in manufactured articles such as jam and sweetened condensed milk. Similarly, the figures for



fruit include the fruit used for jam-making as well as canned fruit, dried fruit and fruit juices.

The percentages in these tables are derived from the total supplies obtained in the period from home and overseas sources respectively, without taking into account exports and changes in stocks. Foods produced in the U.K. by processing imported raw materials have been treated as imports for this purpose.

For these reasons the figures in Tables 6 and 12 are not directly comparable with those in Tables 1, 2 and 3, which moreover are on a "per head" basis and therefore take account of population changes. Nor would "imports" calculated from the percentages in Tables 6 and 12 be comparable with the imports shown in Tables 7 and 13 and Appendix A (see notes below).

#### *Tables 7 and 13 and Appendix A*

The figures in these tables are taken from the Trade and Navigation Accounts, which record imported commodities in the form in which they are imported. Thus imports of sugar include both raw and refined sugar, and imports of "oilseeds and nuts, oils and fats" range from oilseeds imported as such (whether for processing into edible or non-edible products) to animal lard.

#### *Table 9*

As pointed out in para. 22, this table is based upon the relative quantities of *human* food imported and home-produced in each period without regard, in the case of livestock products, to the extent to which home production was achieved by the use of imported animal feedingstuffs.

#### *Table 19.*

The figures given in this table represent stocks of foods and animal feedingstuffs owned or controlled by the Ministry of Food. These comprise all large holdings of stocks in the country (other than farm stocks) whether held by the Ministry or by processors and primary distributors operating under the control of the Ministry. They may be regarded as the minimum working stocks of a large trading organisation, which has the responsibility of maintaining food supplies to the whole civilian population and to the Armed Forces in the U.K. and of operating an animal feedingstuffs rationing scheme, plus any additional stocks which prudence may demand should be held in the country as a reserve against contingencies. These stocks include certain commodities required for industrial purposes (*e.g.*, linseed oil).

There are no complete figures of pre-war stocks in the U.K. which can properly be compared with the wartime and current stock figures, because supply conditions obtaining pre-war were a complete contrast in nearly every respect to those during the war, and which continue into the peace.

#### *Table 20*

Figures supplied by the Ministry of Labour and National Service. They have been computed by deducting the numbers recorded as unemployed in July in each year from the estimated total numbers insured against unemployment at the same date. They include persons absent from work owing to sickness, holidays, etc. The figures for 1939 relate to persons aged 14 and under 65 years. As women aged 60 and under 65 years ceased to be insurable against unemployment as from 1st July, 1940, the figures for 1940 to 1944 relate to males aged 14 and under 65 years and to females aged 14 and under 60 years. The figures for 1939 and 1940 *exclude*, while those for 1941 to 1944 *include*, non-manual workers, with a rate of remuneration exceeding £250 but not exceeding £420 a year, who first became insurable against unemployment in September, 1940. Part-time workers employed for not more than 30 hours a week, who entered employment during the war, are in most cases not insurable against unemployment, and are not, therefore, included in the figures.

#### *Table 22*

The "pre-war average" figures do not all relate to the same period, and in some cases can be regarded only as approximate estimates. For cereal breakfast foods,



biscuits, canned vegetables and cocoa, chocolate and sugar confectionery they relate to a single year only.

The table is confined to major products for which fairly complete series of statistics covering the war period are available.

The figures for bacon include production from imported carcasses. Similarly, the sugar figures include both sugar refined from the imported raw product and white sugar produced from home-grown beet.

*Table 23 and Appendix B*

The "base or datum year" figures are those which have formed the basis of war-time allocations. Generally speaking, they relate to a period of twelve months terminating shortly before the outbreak of war, but the periods are not the same in all cases. The quantities shown as allocated in the respective years were not necessarily brought into production during those years.

*Table 26*

The civilian resident population of a region is the number of persons whose National Registration address was in the region.

The figures take into account the fall in civilian population due to call-up for the Services.

*Table 27*

The figures shown against commodities represent the net trading losses (or profits where a minus sign is used) as shown in the Ministry's trading accounts.

*Table 31*

The percentages are based on household expenditure and do not include food eaten outside the home. "Points rationing" includes the personal points scheme for confectionery. "Controlled distribution" covers those commodities which are not rationed in the ordinary sense, but the distribution of which is governed by the use of the ration book, *e.g.*, liquid milk and oranges.



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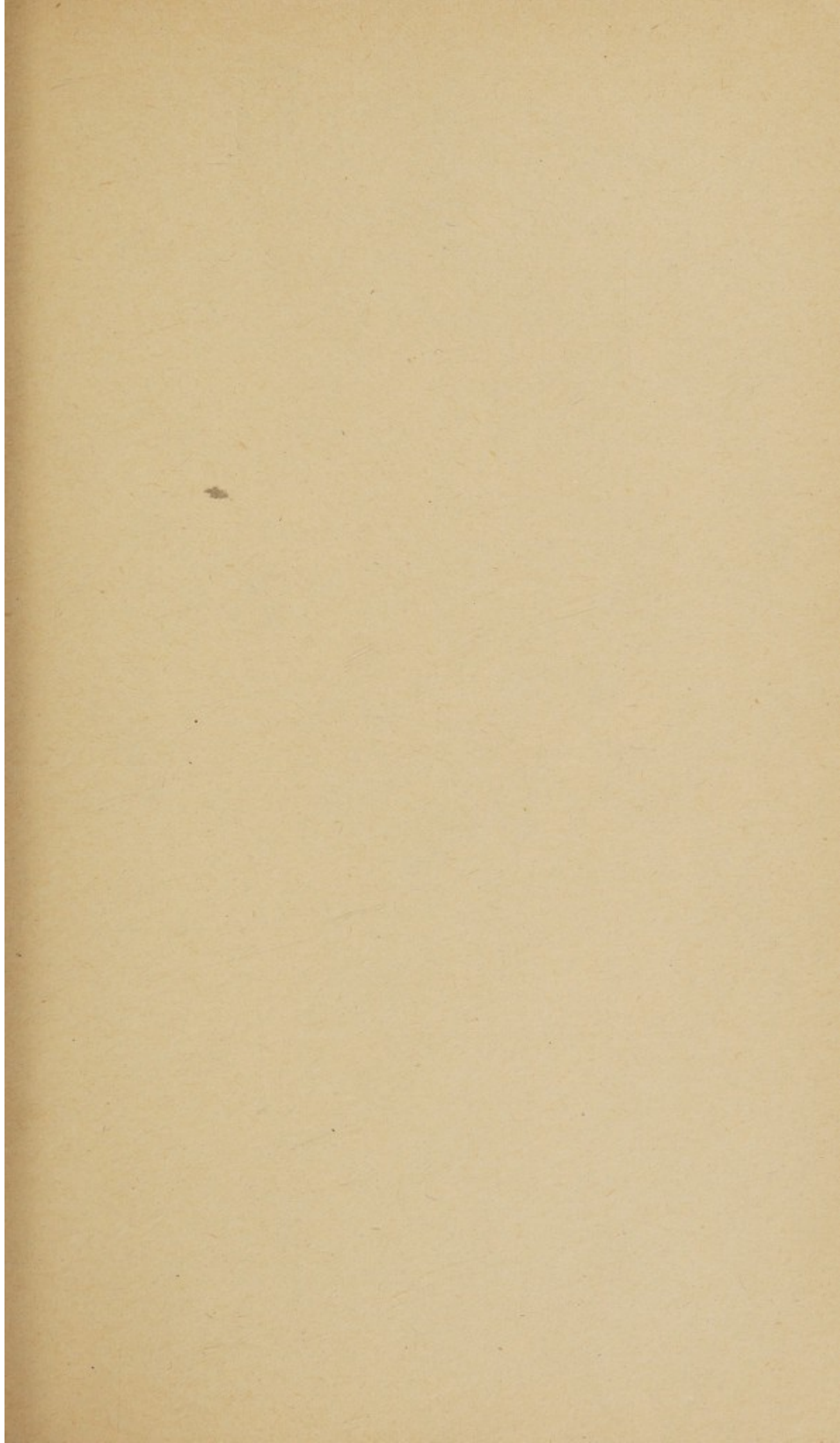
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