

# CANADA AT WAR

*Recapitulation Issue...*

No. 45  
1945

## CANADA AT WAR

" . . . by and with the advice of Our Privy Council for Canada . . .

Now Therefore We do hereby Declare and Proclaim that a State of War with the German Reich exists and has existed in Our Dominion of Canada as and from *the tenth day of September, 1939.*"

From a royal proclamation published in *The Canada Gazette Extra* on September 10, 1939, by command of the Prime Minister of Canada.

## CANADA AT WAR

"We rejoice in the final victory over Nazi Germany, for which we have all striven so hard and so long, but in our rejoicing we do not forget that on the other side of the Pacific is an enemy whose insane ambitions must be thwarted and military power crushed before the war is won. In this hour of triumph we turn to the final round in the struggle for freedom with new energy and new hope."

From a statement by Prime Minister Mackenzie King on Victory-in-Europe Day, May 8, 1945.



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## CANADA AT WAR

This edition presents a statistical and factual recapitulation of the Canadian war effort. It endeavors to portray the mobilization of resources, human and material, which enabled the nation to make a worthy contribution to victory in Europe.

In most cases figures presented cover the entire year 1939, as being the last representative peace year so far as Canadian economy is concerned, and the successive war years to the end of 1944. Later information, where available, has been used—in many cases up to VE-Day and in some instances to the end of June, 1945.

At the outbreak of war one of the first tasks confronting this nation of fewer than 12,000,000 people was an overall assessment and redirection of its manpower to produce maximum strength for its armed forces, industrial and primary production needs. More than a million of its physically best entered the services, yet the depleted population produced more food, lumber and minerals and manufactured a larger quantity of goods than ever before were turned out.

Essentially a producer of the basic resources from farm, forest and mine, Canada also had the problem of expanding and partially converting its peacetime economy to embrace a great industrial growth. When war was declared in September, 1939, there were virtually no armament works, no production of large ships and large planes, no guns, no tanks. Since then industrial capacity has been almost trebled to produce naval and merchant ships, warplanes ranging up to the 15-ton Lancaster bomber, military vehicles, millions of rounds of ammunition and hundreds of other war items. About 30% of the output was allocated to Canadian armed forces and the remainder to the needs of the allies.

Transportation facilities have been burdened to the utmost. To deliver raw materials to manufacturers, finished products to embarkation points and service personnel to training centres and seaboard ports meant at least a doubling of the actual work per-



formed by the railways—this despite the fact that more than 20% of the trained personnel had enlisted. Harbors, especially the Atlantic ports, were busy day and night.

During the period of the European war Canada's status rose to second place among world exporters. With about four-fifths of its foreign trade consisting of wartime commodities—finished materials and foodstuffs—its domestic exports in 1944 increased more than 271% in value over 1939, and combined exports and imports more than 300%.

Under Mutual Aid agreements Canada provided close to \$2,000,000,000 in supplies directly to other United Nations. Previous financial aid to the United Kingdom had totalled about \$2,700,000,000.

The nation's financial program during the struggle with Germany involved the expenditure of more than \$15,000,000,000 for war alone, approximately two-thirds of which was met by taxation and most of the remainder by borrowing from the general public. Revenue derived from personal income taxes in the year 1944-1945 was almost  $11\frac{1}{2}$  times that of 1939-1940.

An overall price ceiling was placed on Canadian retail sales in December, 1941. This, together with the rationing of certain essential civilian commodities, government subsidization of certain goods, controls of manpower, wages and war-vital materials, has held down inflation in Canada and ensured an equitable distribution of available civilian supplies. By April 1, 1945, the cost of living in Canada was up only 18% above the August, 1939, level compared with an increase of 74% in the comparable 1914-1919 period.

No attempt can be made to tabulate or reduce to statistics the energy and spirit of the people behind the Canadian war effort. The number of planes produced, dollars raised, pounds of salvage collected, blood donations given, prisoner-of-war parcels packed—such contributions can be counted, but the voluntary gifts of time and devotion are immeasurable.





# MANPOWER

Canada's wartime manpower policy may be roughly divided into two periods—before and after the setting up, early in 1942, of civilian National Selective Service.

At the outbreak of war the nation had not completely emerged from a lengthy period of depression. In September, 1939, about 400,000 Canadian workers were unemployed. More than 1,000,000 men, women and children were on direct relief. Volunteers into the armed services and increasing government expenditures for war materials and war construction soon began to take up this slack.

After the fall of France in 1940 it was realized that Canada, as well as supplying food and ammunition, would make a heavy manpower contribution to the armed forces. Hence in mid-1940 a manpower policy began to take shape. In June the National Resources Mobilization Act was passed. This required all Canadians to put their persons and property at the disposal of the state. A system of national registration was instituted which required every person over 16 years of age to register for national service.

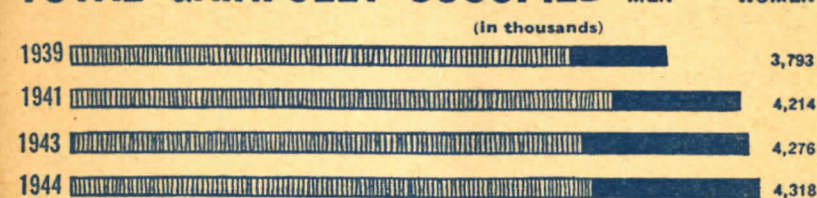
At the same time the method of voluntary recruiting for service overseas was supplemented by compulsory military service in Canada, and in October, 1940, the first group of men was called up for military training, at first for limited periods but later for military service for the duration.

In 1941 a national employment service was established under the Unemployment Insurance Act which had been passed in 1940. Previously joint federal-provincial employment services had operated on a limited scale in the several provinces. The new service was considered an indispensable agency in the administration of any manpower policy.

In March, 1942, the principle of selection and placement was adopted, and National Selective Service initiated for the efficient employment of the people of Canada for the varied purposes of the war. In August 1942, the National Selective Service regulations were passed to consolidate and add to the previous regulations.

Every industry has been classified as having either very high, high, low or no labour priority, and this classification is used to

# TOTAL GAINFULLY OCCUPIED



determine where labour should be transferred. Employees and employers are required to use the employment offices. No employee may quit or be discharged without giving or receiving seven days' notice. No employer may interview or engage any worker and no worker may seek or accept work unless he has a permit to do so from the local employment office. Permits to seek employment may be restricted as to duration, locality, industry and occupation. They may even be restricted to specified employers. Employers may not advertise for help—except anonymously in the name of Selective Service—and must requisition all their required labour from the employment office.

In 1943 existing National Selective Service regulations were amended to provide that no person in an establishment with a high priority rating might quit without the permission in writing of a Selective Service officer; also that no employer of such an establishment might discharge an employee without written permission. The result has been a marked reduction in the labour turnover.

During the five war years from October 1, 1939, to October 1, 1944, there was a natural increase of 572,000 in the population of Canada 14 years of age and over. At October 1, 1939, an estimated 3,863,000 persons or 46.3% of the total in that age group were in the armed forces or gainfully occupied, not including farm women. By October 1, 1944, there were 5,095,000, an increase of 1,232,000 or nearly one-third.

War employment reached its peak on October 1, 1943, when 1,166,000 persons, 13.3% of the total population 14 years of age and over, were employed either directly or indirectly on war work. By October 1, 1944, total war employment had dropped to 994,000



Table 1

# Estimated Man 14 Years of Age and

Population Class	October 1, 1939				October 1, 1941			
	Males		Females		Males		Females	
	No.	%	No.	%	No.	%	No.	%
Total population, 14 years of age and over.....	4,303	4,029	8,332	100.0	4,404	4,152	8,556	100.0
Total in armed forces or gainfully occupied.....	3,174	689	3,863	46.3	3,790	788	4,578	53.5
Armed forces (1).....	70	....	70	.8	363	1	364	4.3
Total gainfully occupied (2)	3,104	689	3,793	45.5	3,427	787	4,214	49.2
Non-agricultural industry total.....	1,879	689	2,568	30.8	2,337	787	3,124	36.5
(a) Wage and salary workers in war industry (3).....	115	6	121	1.4	515	78	593	6.9
(b) Wage and salary workers in civilian industry.....	1,394	563	1,957	23.5	1,472	595	2,067	24.2
(c) Employers, own accounts and no pays (4).....	370	120	490	5.9	350	114	464	5.4
Agriculture—males only	1,225	....	1,225	14.7	1,090	....	1,090	12.7
Farm women, 14-64 years of age (5).....	....	805	805	9.7	....	785	785	9.2
Students.....	321	312	633	7.6	280	286	566	6.6
Unemployed (6).....	808	2,223	3,031	36.4	155	100	255	3.0
All others—includes homemakers not on farms.....	....	....	....	....	179	2,193	2,372	27.7

NOTE:—The above estimates provided by the Department of Labour are based on the most recent information obtainable from the Dominion Bureau of Statistics and other official sources. Very little statistical information is available for domestic servants, agricultural males, farm women and employers own accounts and no pays. In these cases the estimates are subject to a possibility of considerable error, especially for dates furthest from the date of the decennial census (June 2, 1941).

1. Includes prisoners of war and persons missing but still on strength. Excludes persons enlisted but on leave and engaged in civilian occupations.
2. Does not include women gainfully occupied on farms or in farm homes, who are included with farm women. Does not include wage and salary workers who are temporarily unemployed because of "no job" or "lay-off."

## power Distribution Over (In Thousands)

October 1, 1943				October 1, 1944				April 1, 1945(7)			
Fe-		Total		Fe-		Total		Fe-		Total	
Males	males	No.	%	Males	males	No.	%	Males	males	No.	%
4,513	4,284	8,797	100.0	4,555	4,349	8,904	100.0	4,567	4,382	8,949	100.0
3,938	1,091	5,029	57.2	3,981	1,114	5,095	57.2	3,981	1,077	5,058	56.5
722	31	753	8.6	740	37	777	8.7	731	31	762	8.5
3,216	1,060	4,276	48.6	3,241	1,077	4,318	48.5	3,250	1,046	4,296	48.0
2,231	1,060	3,291	37.4	2,216	1,077	3,293	37.0	2,200	1,046	3,246	36.3
905	261	1,166	13.3	765	229	994	11.2	700	201	901	10.1
1,021	689	1,710	19.4	1,129	737	1,866	20.9	1,173	732	1,905	21.3
305	110	415	4.7	322	111	433	4.9	327	113	440	4.9
985	....	985	11.2	1,025	....	1,025	11.5	1,050	....	1,050	11.7
....	765	765	8.7	....	780	780	8.7	....	800	800	9.0
212	230	442	5.0	212	230	442	5.0	212	230	442	4.9
31	35	66	.7	32	29	61	.7	43	30	73	.8
332	2,163	2,495	28.4	330	2,196	2,526	28.4	331	2,245	2,576	28.8

3. Includes employment on direct and indirect war production and construction, and the war content of employment in ancillary industries.

4. "Own accounts" are persons who carry on their business without assistance of employees. "No pays" are mainly family workers receiving no fixed money payment.

5. Since it is impossible to measure statistically the amount of farm work done by women, all women residing on farms are here included except students, women 65 years of age and over and those gainfully occupied outside the farm.

6. In 1943 and 1944 the number of unemployed was accounted for almost entirely by persons temporarily out of work while moving from one job to another.

7. In attempting to compare the estimates of employment at April 1 with those for October the seasonal difference between these periods should be considered.



Table 2

### Estimated Non-Agricultural 14 Years of Age and Over

Industry Group	October 1, 1939		
	Males	Females	Total
Fishing, forestry, trapping.....	62	....	62
Mining, quarrying, oil wells.....	84	1	85
Manufacturing (includes electric light).....	499	153	652
Construction.....	155	14	169
Transportation and communications (includes railway maintenance).....	204	14	218
Wholesale and retail trade.....	227	74	301
Finance and insurance.....	54	24	78
Service.....	224	289	513
Totals.....	1,509	569	2,078

NOTE: As very little statistical information is available for domestic service and personal service, these estimates are subject to a possibility of considerable error, especially for dates furthest from the date of the decennial census

persons, of whom 695,000 were engaged in war manufacturing. This represented a drop of 16.6% in war manufacturing from the peak date, when it stood at 834,000. At October 1, 1943, 66% of all persons engaged in manufacturing were on war work, whereas one year later the proportion had dropped to 57%.

The 172,000 workers who comprise the drop in total war employment were absorbed into other industry (excluding agriculture) where employment rose by an estimated 174,000 during the year ended October 1, 1944. There was an increase of 24,000 in the total strength of the armed forces, and an additional 17,000 women, not including farm women, were drawn into the labour force.

The total female population in Canada 14 years of age and over was estimated to be 4,349,000 at October 1, 1944. Of these, an estimated 1,114,000 were in the armed services or gainfully occupied in industry other than agriculture. At that date 229,000 women were

### Wage and Salary Workers Over (In Thousands)

October 1, 1941			October 1, 1943			October 1, 1944			April 1, 1945		
Males	Fe- males	Total	Males	Fe- males	Total	Males	Fe- males	Total	Males	Fe- males	Total
106	1	76	76	2	78	101	2	103	137	3	140
89	1	90	73	2	75	71	2	73	71	2	73
829	192	1,021	912	351	1,263	877	344	1,221	847	315	1,162
182	1	183	155	5	160	121	5	126	85	4	89
220	19	239	246	33	279	250	38	288	242	37	279
253	102	355	175	166	341	184	176	360	193	182	375
55	28	83	42	43	85	40	47	87	51	37	88
253	329	582	247	348	595	250	352	602	247	353	600
1,987	673	2,660	1,926	950	2,876	1,894	966	2,860	1,873	933	2,806

(June 2, 1941). In attempting to compare the estimates of employment at April 1, with the estimates for October the seasonal difference between these two periods should be considered.

employed in war industry, 37,000 were in the armed services, and female employment in civilian industry had expanded by 174,000 or more than 30% from October 1, 1939, to 737,000 at October 1, 1944.

At April 1, 1945, according to preliminary estimates, there were 5,058,000 persons or 56.5% of the total population, 14 years of age and over, either in the armed forces or gainfully occupied. War industries employed 901,000 or 10.1% of the total population in that age group and 628,000 were employed in war manufacturing.

The total female population in Canada 14 years of age and over, was estimated to be 4,382,000 at April 1, 1945. Of these an estimated 1,077,000 were in the armed services or gainfully occupied in industries other than agriculture. At that date 201,000 women were employed in war industry and 31,000 were in the armed services.

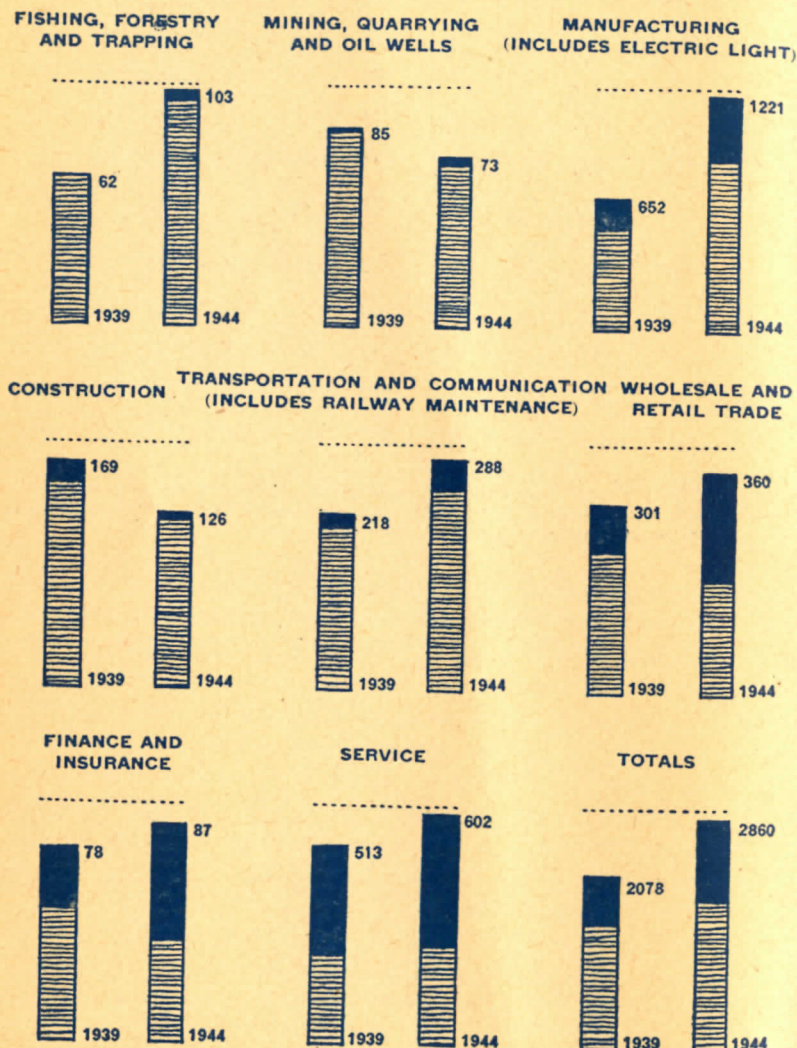
Any comparisons between figures for October and April must take into account seasonal variation, as October is the peak month for employment and April is the low point.



# INDUSTRY GROUP

wage and salary workers 14 years  
of age and over . . . in thousands

 MEN  WOMEN



National Selective Service regulations provide that "no person employed in agriculture shall enter or remain during any day in employment outside agriculture except seasonal or temporary employment outside an urban municipality for not more than 60 days in any year when such employment does not interfere with agricultural production, unless he has first obtained from the Selective Service officer a permit." The total number of agricultural workers who have worked off farms for less than 60 days during the 1944-45 winter season is not known but the number of permits for off-season employment in effect as at February 28, 1945, is shown in the following table:

**Table 3** Off Season Employment  
of Agricultural Workers

(At February 28, 1945)

Industrial Group	Permits
Fishing, forestry and trapping.....	36,963
Mining.....	2,736
Manufacturing.....	21,254
Construction.....	3,109
Public utilities operation.....	5,950
Trade—wholesale and retail.....	2,904
Finance, insurance, real estate.....	29
Services.....	2,025
Unclassified.....	7,381
Total.....	82,351

Exceptionally heavy gains since August, 1942, are attributable to the National Selective Service regulations which make it obligatory for employers seeking workers and persons desiring employment

**Table 4** Placements in Employment

(Regular and Casual)

	Males	Females	Totals
1939.....	270,020	114,862	384,882
1940.....	336,507	138,599	475,106
1941.....	331,997	175,766	507,763
1942.....	597,161	298,460	895,621
1943.....	1,239,900	704,126	1,944,026
1944.....	1,101,854	638,063	1,739,917
Totals.....	3,877,439	2,069,876	5,947,315



to notify Employment and Selective Service offices. The permit system, established under these regulations, necessitated the opening of many new offices; the number of full-time offices increased from 88 to 195 during the year 1942.

Under seven compulsory employment transfer orders male workers could be transferred to more essential work from the less essential industries and occupations. To May 15, 1945, 290,607 were brought to local offices for interview, 108,327 under compulsory orders and 182,280 rejects for military training. Of a total of 29,133 transferred to essential employment, 18,880 were placed under compulsory orders and 10,253 as rejects for military service. Transfers were qualified by several considerations, such as: the military call-up had already reduced the numbers of male workers in these occupations who were physically fit; ex-service men with overseas service were considered as virtually exempt; men with domestic responsibilities were transferred only after consideration of their domestic and financial problems; voluntary appeals had already resulted in some transfers to more essential work; previous withholding of permits to men to enter non-essential lines had resulted in fewer being available for transfer; industries classed as less essential had to be broken down as to particular operations, with the result that some occupations were found to be important to the community; some transfers were deferred until vacancies existed.

**Table 5**                      **Strikes and Lockouts**

Year	Number of strikes	Number of workers involved	Time loss in man-working days	
			Total	Per 1,000 work days
1939 (Sept. to Dec.).....	50	16,842	108,584	0.35
1940.....	168	60,619	266,318	0.39
1941.....	231	87,091	433,914	0.55
1942.....	354	113,916	450,202	0.51
1943.....	402	218,404	1,041,198	1.14
1944.....	199	75,290	490,139	0.54
1944 (Jan. to May).....	91	42,354	308,760	0.81
1945 (Jan. to May).....	70	22,435	79,035	0.21

Rapid expansion in the working force and in industrial activity is usually accompanied by a corresponding increase in the number

of strikes and lockouts. This occurred in Canada in the years of high production and employment during World War I and immediately preceding and following it. Since the outbreak of war in 1939 an increasing number of strikes and lockouts was recorded each year until 1944, when there was a marked decline in strike activity. The improvement in the employer-employee relations as indicated by this decline reflects the co-operation of both workers and management in the application of the Wartime Labour Relations Regulations which went in effect on March 20, 1944. In 1944, about 25 workers in every 1,000 were involved in strikes, compared with 72 in 1943, 39 in 1942, 33 in 1941, 27 in 1940 and 20 in 1939.

**Table 6**                      **Classification of Postponements**

In Effect as of December 31, 1944

Farming.....	159,927
Fishing.....	2,342
Lumbering.....	4,055
Mining.....	3,845
Essential industries and services.....	34,057
Students.....	11,419
Conscientious objectors.....	9,942
Merchant marine.....	3,830
Compassionate.....	4,127
All others.....	13,792
Total.....	247,336

More than 78% of the applications for postponement of military service come under two main headings:

1. Men essential in agriculture work,
2. Men essential in war industry, essential industry and public utilities.

The regulations provide also that college and university students taking certain courses are allowed to continue their studies, provided that if medically fit they take the training prescribed and also pass their scholastic examinations. A classification of the number of men according to the reason for their postponement from military service is shown in table 6.



Table 7

Summary of  
(At

		Received Training	Placed in Employment
Full-time	{ Men.....	79,783	
Pre-employment	{ Women.....	27,648	55,556 23,238
Part-time (2)	{ Men.....	28,104	
	{ Women.....	6,426	.....
Full-time	{ Men.....	16,219	
Plant schools	{ Women.....	20,233	13,448 17,231
Foremanship training (2).....		67,988	.....
Rehabilitation of discharged persons.....		6,193	2,376
Army tradesmen.....		46,088	.....
Navy tradesmen.....		8,685	.....
R.C.A.F. tradesmen.....		65,201	.....
University students.....		7,472	.....
Totals.....		380,040	111,849

(1) Includes those carried over from end of previous fiscal year.

By the end of 1940 the first overall estimates of the nation's manpower requirements for the armed services, war production and essential civilian production were completed. These showed a shortage of skilled workers and a threatening shortage of semi-skilled workers and led to the development of the War Emergency Training Program for the training of trades men and women for the armed forces and for war industries. This was an extension of a vocational training scheme begun in 1937 for the training of unemployed young people. Under the program facilities of all vocational and technical schools were made available for the training of trades men and women for the armed forces and for war industries. A scale of subsistence allowances was adopted for those enrolled in

## Vocational Training

December 31, 1944)

Enlisted in Armed Forces	Leaving Voluntarily or Released	Received Training in Fiscal Year 1943-44(1)	Received Training from April 1, 1944(1)	Under Training
1,866	14,656	11,564	2,239	268
60	3,467	5,959	1,024	157
.....	.....	11,712	3,632	1,224
.....	.....	3,214	805	29
148	2,501	8,587	3,311	216
8	2,586	11,329	5,189	619
.....	.....	27,391	19,845	Information not available
.....	1,138	2,056	3,951	2,040
.....	.....	13,538	8,144	1,582
.....	.....	3,941	1,929	464
.....	.....	32,152	5,406	9
.....	.....	2,467	2,099	Information not available
2,082	24,348	133,910	57,574	6,608

(2) Already employed.

full-time classes. Close contact was maintained with employers to ensure that the training given was in line with their requirements. Also to keep pace with the growing need for foremen and labour supervisors caused by the rapid expansion of many companies that were producing war materials, intensive courses were devised for this type of personnel.

Early in 1941 a critical shortage of engineering, scientific and technical personnel was met by setting up the Wartime Bureau of Technical Personnel. This soon developed into an agency for the supply and control of technical personnel within the armed forces and essential civilian industry.



**Table 8 Estimated Distribution of Manpower  
in Designated Age Classes Under Selective  
Service Mobilization Regulations**

(At December 31, 1944)

	Total	%
Armed forces.....	734,154	40.
Men applying and on postponement.....	268,681	14.9
Unfit for active service (1).....	587,779	32.5
Not yet sent order-military training.....	10,178	.6
Not yet sent order-medical examination.....	1,372	.1
Sent orders—time limit not expired.....	27,633	1.5
Not yet 18½ years of age but born in 1926.....	57,623	3.2
Not available (2).....	28,836	1.6
Statutory exceptions (3).....	27,408	1.5
Over age (4).....	34,011	1.9
Not accounted for.....	28,509	1.6
Total.....	1,806,184	100.0

(1) Includes P3, C, D, E categories and rejections on enlistment.

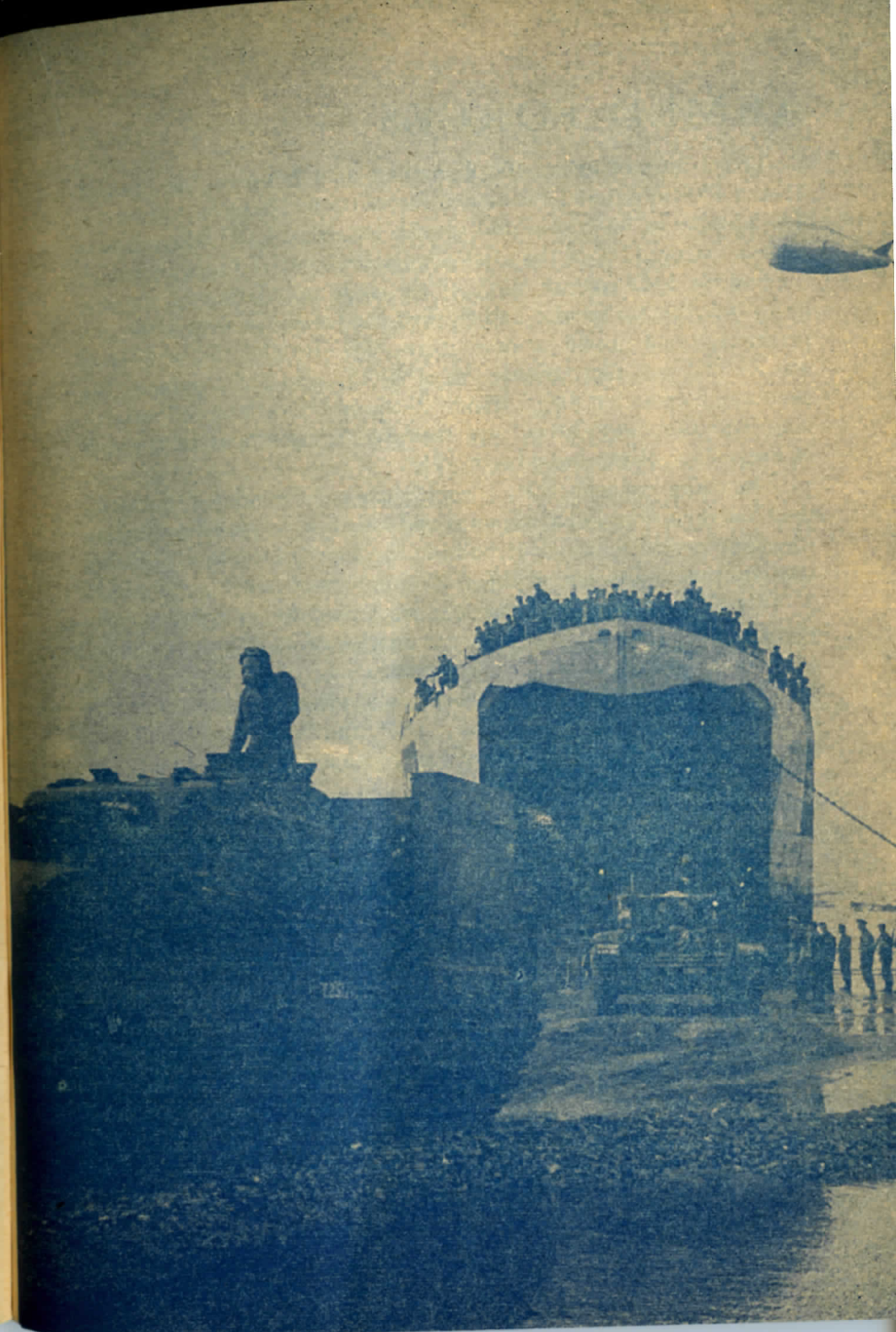
(2) Outside Canada, not acceptable, deceased, in jail, reserve army, etc.

(3) Clergy, police, enemy aliens, etc.

(4) Including men who have passed their 38th birthday.

Table 8 is an analysis of the manpower in the age classes designated for compulsory military service. Of the total of 1,806,184 men liable for service all had been called for medical examination except 57,623 who had not yet reached the age of 18½ years at December 31 and 1,372 or 0.1 per cent who reached callable age during December and were still awaiting orders to report in January.

Of the total number 88% were accounted for under one of the three main classifications: in the armed forces, 40.6%; applying for or on postponement 14.9%, and unfit men, 32.5%. Only 28,509 or 1.6% were still under the heading "not accounted for." This group comprises men whose status was not known and would include those men who were evading the regulations as well as some who may be in good standing but whose documents had yet to be received and checked by divisional registrars.





## ARMED FORCES

Thirty-nine of every 100 Canadian men between the ages of 18 and 45 had entered the armed forces up to December 31, 1944. The number of both men and women exceeded 1,031,000 and was approximately 11% of the total population aged 14 years and over.

Late in 1942 roughly 30% of the male population in the age group suitable for service had entered the forces. A year later this percentage had grown to more than 35%, by the end of 1944 it was 39.3%, and three months later 40.1%. In six provinces the percentage exceeded 46%. Table 10 shows the estimated intake of men into the navy, army and air force by provinces to the end of December, 1944, and March 1945.

The rising strength of its armed forces put Canada third among the United Nations in naval power and fourth as an air power during the same period in which it became the fourth largest supplier of war equipment and one of the chief suppliers of food for the allies.

When Canada entered the war its armed forces totalled only slightly more than 10,000—a naval nucleus of 1,700, a permanent army of 4,500 and an air force of 4,000.

The inauguration of three women's services to release men for active fighting is notable. In July, 1941, the Women's Division of the Royal Canadian Air Force was organized. At first only an

auxiliary service, it became an integral part of the R.C.A.F. in February, 1942. In August, 1941, the Canadian Women's Army Corps was established, and in June, 1942, the Women's Royal Canadian Naval Service.

Almost 4,000 additional women are engaged in the nursing service of the medical branches of the three male services. Total strength of all armed forces at the end of 1944 was 759,879, of whom 724,023 were men and 35,856 women. Greatest growth occurred in 1942 when the net increase in strength amounted to more than 227,000, including more than 15,000 women.

By the end of 1943 the three services had, for the most part, completed their expansion. Casualties began to mount after the invasion of the European mainland, especially after D-day, and there was a resultant decrease in overall strength during 1944. The only one of the services to show an increase during 1944 was the navy with a growth of more than 17,000. Table 9 shows the strength of the three services at the end of each year.

The total number of Canadian casualties during the European war represents approximately 10% of the men and women who were taken into the services and about half the casualties suffered by Canada during World War I. Table 11 gives a breakdown of the yearly total casualties for the navy, army and air force. Army

Table 9

Armed Forces

At December 31	Navy			Army		
	Men	Women	Total	Men	Women (more than)	Total
1939.....	5,116	...	5,116	63,000	140	63,140
1940.....	14,872	...	14,872	177,000	500	177,500
1941.....	27,960	...	27,960	272,500	1,500	274,000
1942.....	48,693	567	49,260	415,500	9,500	425,000
1943.....	71,549	3,805	75,354	466,500	15,000	481,500
1944.....	87,141	5,739	92,880	457,500	16,500	474,000

Strength

Air Force			Total		
Men	Women	Total	Men	Women (more than)	Total
8,096	...	8,096	76,212	140	76,352
36,894	...	36,894	228,766	500	229,266
97,962	647	98,609	398,422	2,147	400,569
145,867	7,838	153,705	610,060	17,905	627,965
191,197	15,153	206,350	729,246	33,958	763,204
179,382	13,617	192,999	724,023	35,856	759,879



Table 10

# Estimated Intake into Officers and Other AR

[Women's Royal Canadian Naval Service, Canadian Women's Army

To December 31, 1944

Place of Permanent Residence at Time of Enlistment	Male Population Ages 18 to 45(2)	Royal Canadian Navy	Appointments and Enlistments(3)	Enrolments, National Resources Mobilization Act(4)
Prince Edward Island . . .	19,000	1,387	5,715	903
Nova Scotia . . . . .	123,000	6,934	40,468	6,150
New Brunswick . . . . .	94,000	2,690	30,491	6,922
Quebec . . . . .	699,000	12,283	88,466	52,993
Ontario . . . . .	830,000	40,555	229,475	43,943
Manitoba . . . . .	159,000	7,661	40,056	9,248
Saskatchewan . . . . .	191,000	6,387	42,052	12,029
Alberta . . . . .	178,000	7,418	42,378	10,200
British Columbia . . . . .	181,000	12,196	49,362	10,716
	2,474,000	97,511	568,463	153,104
Outside Canada . . . . .		680	5,603	11
		98,191	574,066	153,115

To March 31, 1945

Prince Edward Island . . .	19,000	1,392	5,877	906
Nova Scotia . . . . .	123,000	6,968	41,796	6,186
New Brunswick . . . . .	94,000	2,696	31,473	7,013
Quebec . . . . .	699,000	12,354	92,746	54,491
Ontario . . . . .	830,000	40,952	239,014	44,319
Manitoba . . . . .	159,000	7,723	41,750	9,396
Saskatchewan . . . . .	191,000	6,453	4,427	12,172
Alberta . . . . .	178,000	7,506	43,823	10,404
British Columbia . . . . .	181,000	12,302	51,604	10,818
	2,474,000	98,346	591,510	155,705
Outside Canada . . . . .		691	5,762	12
		99,037	597,272	155,717

- Figures of intake do not represent actual strength of the armed services, as they do not take into consideration men discharged for medical or other reasons, personnel pensioned, casualties incurred and other factors.
- Population figures for the age group 18 to 45 (as at June 2, 1941) were estimated from summaries of the 1941 census which had been published in five-year and 10-year age groups.
- Army appointments and enlistments do not include Reserve Army personnel called out on active service, from time to time, under various general orders.
- The above figures of enrolments, National Resources Mobilization Act, include only those men actually documented as N.R.M.A. recruits. Men who re-

# the Armed Forces (1) Ranks and Ratings

Corps, Royal Canadian Air Force (Women's Division) not included]  
M Y

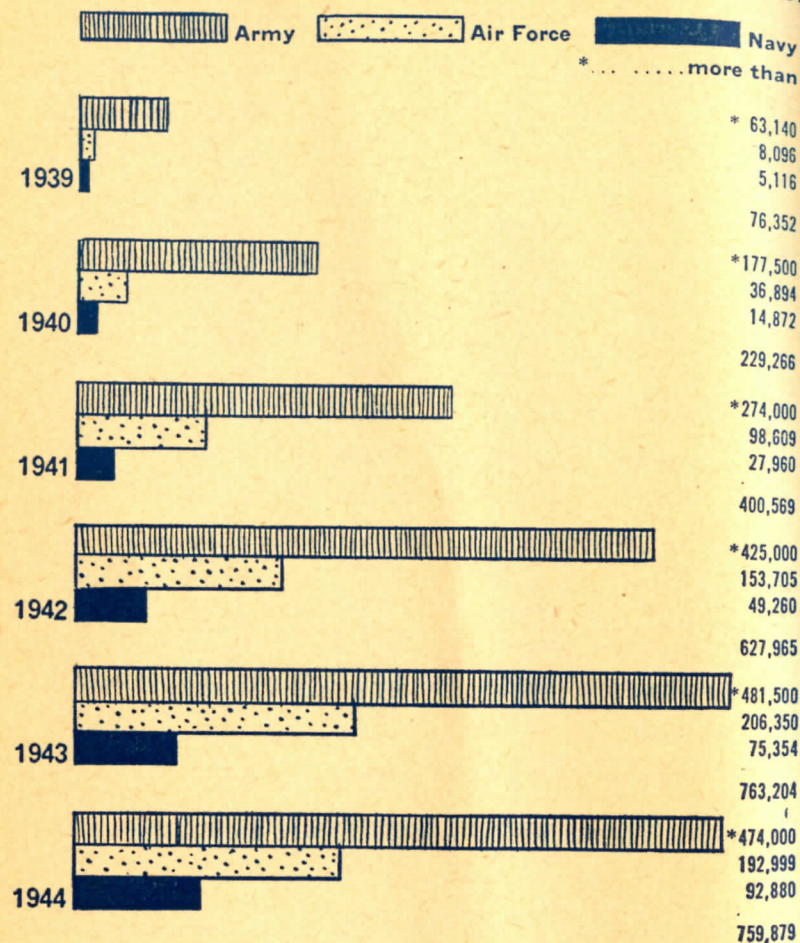
Total	Less: Inter-Service Transfers and NRMA Men Enlisted(5)	Army Net Total	Royal Canadian Air Force	Total Three Services	Percentage Total Intake to Male Population Ages 18 to 45
6,618	546	6,072	1,558	9,017	47.5%
46,618	3,733	42,885	7,607	57,426	46.7
37,413	3,417	33,996	6,484	43,170	45.9
141,459	10,425	131,034	23,489	166,806	23.9
273,418	23,170	250,248	90,962	381,765	46.0
49,304	4,048	45,256	20,138	73,055	45.9
54,081	4,413	49,668	21,943	77,998	40.8
52,578	4,431	48,147	19,598	75,163	42.2
60,078	5,844	54,234	20,493	86,923	48.0
721,567	60,027	661,540	212,272	971,323	39.3%
5,614	24	5,590	9,466	15,736	
727,181	60,051	667,130	221,738	987,059	
6,783	585	6,198	1,558	9,148	48.1%
47,982	4,006	43,976	7,615	58,559	47.6
38,486	3,649	34,837	6,485	44,018	46.8
147,237	12,090	135,147	23,506	171,007	24.5
283,333	25,291	258,042	91,013	390,007	47.0
51,146	4,429	46,717	20,149	74,589	46.9
55,599	4,787	50,812	21,957	79,222	41.5
54,227	4,786	49,441	19,614	76,561	43.0
62,422	6,268	56,154	20,536	88,992	49.2
747,215	65,891	681,324	212,433	992,103	40.1%
5,774	24	5,750	9,489	15,930	
752,989	65,915	687,074	221,922	1,008,033	

ported to training centres or to depots on being called up, but who volunteered immediately and were never documented as N.R.M.A. recruits, are included with appointments and enlistments.

- This column consists of men discharged from the army for the purpose of joining the navy (1,672 to December 31, 1944; 1,704 to March 31, 1945) or air force (10,123 to December 31, 1944; 10,141 to March 31, 1945) and men enrolled under N.R.M.A. who subsequently volunteered for general service (48,256 to December 31, 1944; 54,070 to March 31, 1945). No similar deduction has been made from navy or air force enlistments for personnel discharged therefrom to join other services.



# ARMED FORCES STRENGTH at December 31



casualties amounted to nearly 12% of total intake, air force to more than 8.5% and navy to more than 2.2%.

Of the navy casualties, however, nearly 78% were killed. Air force dead amounted to nearly 67% of the casualties, and army dead close to 27%. Wounds accounted for the heaviest proportion

**Table 11 Armed Forces Casualties**

	Navy	Army	Air Force	Total
1939.....	...	37	12	49
1940.....	335	435	134	904
1941.....	172	2,488	1,340	4,000
1942.....	432	4,217	4,039	8,688
1943.....	453	7,576	5,790	13,819
1944.....	789	49,799	7,168	57,756
Totals.....	2,181	64,552	18,483	85,216

of casualties in the army—64.5%—while wounded made up only 16% of the navy's casualty figures and 6% of the air force's. Of total casualties of the three services, slightly more than 36% were fatal, and more than 51% were wounded.

**Table 12 Armed Forces Casualties to May 31, 1945**

	Navy	Army	Air Force	Total
Dead or presumed dead.....	1,911	21,806	14,247	37,964
Wounded.....	318	51,428	1,327	53,073
Missing.....	10	351	2,505	2,866
Prisoners of war or interned*...	97	6,469	2,485	9,051
Totals.....	2,336	80,054	20,564	102,954

\*Includes the following repatriated, liberated and escaped prisoners of war: Navy, 95; Army, 4,917; Air Force, 2,254; Total, 7,266.

## NAVY

At the outbreak of war, Royal Canadian Navy strength consisted of 1,774 men. By D-day the R.C.N. could supply more than 10,000 officers and men for invasion activities. At the same time the Canadian navy was doing virtually 100% of close escort duty on all north Atlantic trade convoys between North America and the United Kingdom as well as forming 30% of the support forces in the Atlantic. With a strength of more than 95,000 at the end of



Table 13

## Navy Intake

	Royal Canadian Navy, Naval Reserve and Volunteer Reserve	Women's Royal Canadian Naval Service	Total
Sept. 1, 1939, to Jan. 31, 1941	15,526	...	15,526
Jan. 31, 1941, to Dec. 31, 1941	12,601	...	12,601
1942.....	25,707	825	26,532
1943.....	26,031	3,790	29,821
1944.....	18,326	1,764	20,090
Totals.....	98,191	6,379	104,570

the European war, the R.C.N. had expanded more than 52-fold in little more than five and a half years. Intake into the Royal Canadian Navy is shown in Table 13 and the expanding strength of the navy in Table 14.

There were only 17 ships ready for duty and two naval bases in the country in September, 1939, but training divisions were speedily opened and volunteers enlisted as soon as training facilities could accommodate them. At first only elementary training was given in Canada. Men went to the United Kingdom for basic training, special courses and their first sea duties. Throughout the war, enlistments in the navy have been well in excess of actual needs and,

Table 14

## Navy Strength

At December 31	Royal Canadian Navy, Naval Reserve and Volunteer Reserve	Women's Royal Canadian Naval Service	Total	Ashore (Including W.R.C.N.S.)	Afloat
1939....	5,116	...	5,116	...	...
1940....	14,872	...	14,872	...	...
1941....	27,960	...	27,960	...	...
1942....	48,693	567	49,260	30,934	17,719
1943....	71,549	3,805	75,354	45,829	28,521
1944....	87,141	5,739	92,880	53,578	39,588

with the exception of certain trades, recruiting was materially reduced during 1944.

By 1944 the two naval bases at Halifax, Nova Scotia, and Esquimalt, British Columbia, were greatly expanded and improved and 12 new bases had been developed on the east and west coasts of Canada and in Newfoundland and Bermuda. In addition to the erection and equipment of buildings, construction of docks, marine railways and repair shops, the R.C.N. had to provide trained men to man these new bases.

The Royal Canadian Naval College at Esquimalt for training officers was reopened on October 21, 1942, and its first class graduated and went overseas during September, 1943. During 1943 and the first quarter of 1944 alone, approximately 27,000 men were added to the personnel of the R.C.N.

The R.C.N. set up a signals school at St. Hyacinthe, Quebec, believed to be the largest training centre of its kind in the British Commonwealth and Empire, if not in the world. Toward the end of the European phase of the war it was accommodating 3,200 naval personnel including members of the Women's Royal Canadian Naval Service.

By the end of 1942 Canadian naval strength stood at 49,260 of whom 17,719 or close to 36% were at sea. Two years later this percentage had grown to more than 42.5%. Part of the altered balance between shore and sea personnel was attributable to the Women's Royal Canadian Naval Service. "Wren" enlistments numbered more than 6,600 up to the time recruiting stopped on February 7, 1945. Throughout Canada's 50 naval bases and establishments they served in more than 30 different types of jobs. Wrens were also posted to the United States, United Kingdom and Newfoundland.

Main function of the Royal Canadian Navy during the European war was protection of the north Atlantic convoy route. Six days after war began, Canada's first convoy steamed out to sea, escorted into the open Atlantic by two of Canada's six destroyers. Canadian escort ships—which numbered 254 at the end of the European war—have been on constant duty ever since. They have escorted 23,343 merchant ships carrying 181,643,180 tons of cargo to the United



Kingdom, including the war's largest convoy of 167 ships carrying 1,000,000 tons.

With the Atlantic lifeline's growing importance to the very existence of the United Kingdom and its allies, the R.C.N. was given increasing responsibility for Atlantic work. After Pearl Harbor and the entry of the United States into the war, Canada's part of Atlantic convoy never fell below 40% and was often as high as 48% until 1944. From the late summer of 1944 until Germany collapsed, the R.C.N. provided more than 80% of close convoy escort. At the same time Canadian ships took over all trade conveying between North American and Newfoundland ports.

Because convoy work was the first duty of the R.C.N. its main numerical strength consisted of small vessels, corvettes, frigates and minesweepers. With the addition of destroyers, aircraft carriers and a cruiser, the R.C.N.'s offensive strength was greatly increased and Canadian naval personnel were given the opportunity of serving on Canadian offensive warships. At the end of March, 1945, the R.C.N. consisted of 939 ships of which 373 were combat ships. These ships have sunk or helped to sink at least 68 enemy surface vessels of various types, have damaged 41 others and captured two. In addition they have helped sink 23 enemy submarines and probably sunk eight others. With the exception of a small number of men, R.C.N. sea personnel now serve on Canadian ships. At March 31, 1945, there were 654 Canadians serving with the Royal Navy, not including Canadians on motor torpedo boats whose crews are changeable. At one time there were 2,000 Canadians on loan to the Royal Navy as well as many others taking sea training on R.N. ships.

A considerable number of R.C.N. seamen also serve on merchant ships, manning some of the heavier guns on board. With the growing strength and importance of Canada's merchant navy, an increasing number of R.C.N. personnel on shore are concerned with operations of merchant shipping as distinct from navy activities.

Men of the Canadian navy serve as Royal Canadian Navy, the permanent core of the organization; Royal Canadian Naval Reserve, persons who have followed the sea as a profession; or Royal Cana-

dian Naval Volunteer Reserve, volunteers whose occupations were not concerned with the sea. Although a considerable number of navy men have joined the permanent navy, approximately 80% of present navy strength is R.C.N.V.R.

Table 15

### Navy Casualties

	Fatalities	Missing	Prisoners of War	Wounded or Injured	Total
1939.....	...	...	...	...	...
1940.....	288	...	...	47	335
1941.....	150	...	2	20	172
1942.....	373	...	3	56	432
1943.....	391	...	3	59	453
1944.....	265	260	79	185	789
Totals.....	1,467	260	87	367	2,181

During the European phase of the war the Royal Canadian Navy lost a total of 24 warships, with casualties of 2,300. Almost all the prisoners of war were taken by the Germans, and most of them when the Tribal class destroyer, H.M.C.S. *Athabaskan*, was sunk in April, 1944. Navy casualties by year are shown in Table 15.

### ARMY

The Canadian Army comprises general service personnel who enlist voluntarily for service anywhere in the world as well as men called up for compulsory service under the National Resources Mobilization Act. Of 663,769, the total net number of men taken into the army up to the end of 1944, (as shown in Table 16) fewer than 16% had failed to volunteer for general service.

The bulk of Canada's army forces in World War I also served voluntarily as conscription was not introduced until August, 1917. Up to December, 1944, every man in the army overseas had volunteered for duty.

In June, 1940, the Canadian Parliament passed the National Resources Mobilization Act by which a system of call-up for compulsory military training was begun. The classes of men eligible



Table 16

		Male Intake			
	Appointments and Enlistments	Enrolments, National Resources Mobilization Act	Total	Less: N.R.M.A. Men Enlisted	Net Male Intake
1939 (Sept.1 to Dec.31)	68,768	...	68,768	...	68,768
1940.....	127,921	...	127,921	...	127,921
1941.....	103,688	31,712	135,400	7,477	127,923
1942.....	136,377	69,613	205,990	17,836	188,154
1943.....	74,428	34,119	108,547	6,354	102,193
1944.....	59,523	17,671	77,194	16,589	60,605
Totals.....	570,705	153,115	723,820	48,256	675,564

for call-up changed from time to time and by September 30, 1942, all unmarried men born in any year from 1902 to 1923 (who had reached the age of 19) were callable. On December 15, 1942, married men born from 1917 to 1923, provided they were 19 years old, were also included. Subsequent changes in regulations extended the call-up to all men born from 1913 to 1926, regardless of marital status, provided they had attained the age of 18 years and six months and had not reached the age of 38.

N.R.M.A. men were called up for military training and service in Canada and its territorial waters. By order-in-council it was provided that they might be despatched to areas outside Canada should the need arise. At any time during the call-up process or subsequent training, N.R.M.A. personnel might volunteer for duty with any branch of the armed services (so long as the navy and air force were recruiting men). By the end of 1944 a total of 153,115 had been enrolled under the N.R.M.A., but, of these, 48,256 or more than 31.5% had volunteered for general service. With the end of war in Europe the system of military call-ups ceased.

Largest of the three women's services, the Canadian Women's Army Corps had an enlistment of 20,020 by the end of 1944. When the Women's Division of the R.C.A.F. began demobilizing some of

## Intake

		Female Intake				
Inter-Service Transfers to:		Male Net Total	Nursing Services	Canadian Women's Army Corps	Female Total	Total Intake
Navy	Air Force					
	19	68,743	151	...	151	68,894
6						
	889	126,975	379	...	379	127,354
57						
	4,513	122,826	386	1,240	1,626	124,452
584						
	1,732	186,009	640	7,484	8,124	194,133
413						
	1,767	100,141	658	7,880	8,538	108,679
285						
	1,203	59,075	1,147	3,416	4,563	63,638
327						
		663,769	3,361	20,020	23,381	687,150
1,672	10,123					

its personnel, a policy for transferring such "W.D.'s" to the C.W.A.C. was initiated. Peak year for recruiting was 1943 when 7,880 enlisted. Women enlisted in the nursing service of the Royal Canadian Army Medical Corps numbered 3,361 to the end of 1944.

The great wartime expansion of the Canadian Army from a pre-war nucleus of 4,500 permanent force men is shown in Table 17. The strength of more than 481,500 at the end of 1943 compares with a maximum of 389,639 in July, 1918, during World War I.

From the early days of the war a considerable proportion of Canada's total army strength has been serving outside the country. The first contingent of the First Division landed in the United Kingdom on December 17, 1939. At the year's end more than 24% of the total army strength was outside Canada. By December 31, 1940, this percentage had risen to nearly 34% and at the end of 1944 to 59%.

Until the European continent was invaded, the army in Canada had necessarily to concentrate on training men and providing defence forces for this country so long as there was any threat of attack. By September, 1943, however, the changing picture of the war made it possible to free more men for overseas service and to



reduce the number of operational troops at home. Part of the defence of Canada could be left to a reserve army composed of close to 100,000 men who had undergone part-time military training to be ready in the event that the continent was invaded. By the end of 1943 a total of 255,000 personnel—nearly 53% of the army strength—were serving outside Canada. By then 2,000 women were stationed in the United Kingdom, Newfoundland and the United States. Canadian nursing sisters were also in North Africa, Sicily and Italy. After the invasion of France, they moved into hospitals in northwest Europe.

After the collapse of France and British evacuation of Dunkirk, the Canadians in the United Kingdom were among the few adequately equipped troops ready to meet an invasion there. During the next few years Canadian armed strength was built up and by January, 1943, two Canadian corps were organized. At this time total army strength outside Canada was more than 190,000.

Continuous Canadian Army activity on the continent of Europe began on July 10, 1943, with the invasion of Sicily. The Can-

adian First Division and First Armored Brigade were given a vital position in the line of battle. On September 3 Italy was invaded, and again the Canadians formed part of the striking force on the mainland. In November a further large contingent of Canadians arrived, and the First Canadian Corps was subsequently organized. It fought under Canadian command as part of the British Eighth Army.

By June 6, 1944, Canadian forces were of sufficient strength and were so highly trained that the Third Division formed part of the allied landing forces in Normandy. Other Canadian forces followed later, and in August, 1944, it was announced that the First Canadian Army was in action in France. Canadians in it consisted of the Second, Third and Fourth Divisions which were formed into the Second Canadian Corps, and the Second Armored Brigade.

Until late in 1944, voluntary enlistments were sufficient to fill all the needs of the Canadian Army Overseas. In the bitter campaign in France and Belgium during the summer and early autumn Canadian infantry casualties had been heavier than anticipated. In order to replenish the reinforcements with adequate numbers of trained soldiers an order-in-council was passed on November 23, 1944, by which authority was given to send overseas up to 16,000 of the men serving under the National Resources Mobilization Act. (The effective strength of N.R.M.A. soldiers at that time was approximately 60,000, of whom 42,000 were considered suitable for infantry service). These were to be in addition to the full normal quota of general service reinforcements. Troop movements began during the Christmas period, and by V-E Day 13,000 N.R.M.A. men had been sent overseas, and another 3,000 had proceeded overseas after having volunteered for general service.

On April 23, 1945, it was announced that all Canadian Army formations were fighting as part of the First Canadian Army in north-western Europe, that is, that the troops that had fought in Italy had been moved to join the forces in the northwest. The total included First Canadian Army headquarters and army troops; two corps headquarters and corps troops; three infantry divisions; two armored divisions and two armored brigades. When

**Table 17**

**Army Strength (1)**

(More than)

At December 31	Total Strength			Serving Outside Canada(2)		
	Men	Women	Total	Men	Women	Total
1939.....	63,000	140	63,140	15,500	(3)	15,500
1940.....	177,000	500	177,500	60,000	(3)	60,000
1941.....	272,500	1,500	274,000	130,500	(3)	130,500
1942.....	415,500	9,500	425,000	189,500	500	190,000
1943.....	466,500	15,000	481,500	253,000	2,000	255,000
1944.....	457,500	16,500	474,000	276,500	3,500	280,000

(1) Excluding prisoners of war and missing and personnel on extended leave, and adjusted for fatal casualties to the respective dates.

(2) Includes all personnel outside the territorial limits of Canada.

(3) Information is not available as to the number of women serving outside Canada at these dates.



the European war came to an end there were also approximately 75,000 fully trained Canadian soldiers in the United Kingdom.

In addition to First Canadian Army forces, Canada provided the First Canadian Parachute Battalion, part of the British Sixth Airborne Division which dropped into battle in Normandy early on D-day and again over the Rhine on March 23 to 24, 1945. Canadians also formed part of the United States-Canada Special Service Force which was in action at Kiska, the Anzio beachhead, the drive on Rome and off the south coast of France.

Canadian Army units have from time to time been stationed in Newfoundland, Labrador, Iceland, Alaska, Gibraltar and islands adjacent to the West Indies and east coast of the United States. Close to 2,000 Canadians were engaged in the fighting at Hong Kong in December, 1941. Canada sent a contingent, largely consisting of N.R.M.A. men, to the Aleutians to help United States forces reoccupy the island of Kiska in August, 1943.

Strength of the army in Canada at the end of March, 1945, was close to 175,000 men and 13,000 women. Of the men approximately 35,000 were N.R.M.A. troops.

Army manpower in Canada was distributed roughly as follows: 50% directly related to the reinforcement of the army overseas (35% in training and 15% on the staffs of training centres); 10% employed as operational troops in the manning of coastal defences, etc.; 15% in recruiting and discharge depots, guarding prisoners of war and internees and doing miscellaneous duties, and 25% providing housekeeping, medical, provost, maintenance, supply, pay and chaplain services for all army forces in Canada. By far the largest proportion of the soldiers in Canada (apart from those being trained as reinforcements for overseas) were in the older age brackets and lower medical categories or members of the C.W.A.C.

To the end of May, 1944, just before the invasion, total Canadian Army casualties numbered 21,689—slightly fewer than the number of army killed 12 months later. The first heavy casualties suffered were 2,000 at Hong Kong on December 25, 1941. These

**Table 18**  
(As reported to December 31, 1944)

	Fatalities	Missing	Prisoners of War or Interned*	Wounded	Total
1939.....	37	...	...	...	37
1940.....	340	...	1	94	435
1941.....	801	90	1,537	60	2,488
1942.....	1,703	3	1,884	627	4,217
1943.....	2,640	8	245	4,683	7,576
1944.....	12,080	1,119	1,829	34,771	49,799
Totals ...	17,601	1,220	5,496	40,235	64,552

\* The figure for prisoners of war includes 200 who have been repatriated or have escaped.

were all killed or taken prisoner. During that year raids along the enemy-held coast accounted for most of the other casualties.

In 1942 heavy toll was taken at Dieppe where Canadians made up five-sixths of the attacking forces. More than 3,350 Canadians were killed, wounded or taken prisoner.

By the end of 1943 the conquest of Sicily was complete, and Canadian casualties there numbered 2,400. With the invasion of Italy and subsequent heavy fighting, Canadian casualties in that theatre up to the fall of Rome on June 5, 1944, numbered 11,340, of whom 2,268 were killed.

After the invasion of Normandy, Canadian Army casualties mounted quickly. By the end of July, 1944, the heavy fighting around Caen and Carpiquet especially had driven the total casualty figure up to 33,239 of whom more than 9,000 were killed. The drive past Falaise and up the Channel coast in August accounted for 2,328 killed and 6,314 wounded (including Italy). October was the month of bitter fighting for the Scheldt estuary and 1,753 were killed and 5,570 wounded (including Italy).

After October, casualties were not so heavy as before. Lowest army monthly totals recorded were 1,998 in November



during the lull which followed the Scheldt battle and 2,068 in January, 1945, when Canadian activity was limited on the Netherlands front. In March, 1945, the army was on the offensive between the Maas and Rhine Rivers and across the Rhine at the end of the month. Casualties rose to 4,585 for the month.

During their 20 months of action in the Italian theatre, the Canadians suffered 26,152 casualties among nearly 100,000 personnel despatched to Sicily and Italy. More than 5,300 were dead.

### AIR FORCE

In September, 1939, the strength of the Royal Canadian Air Force was 4,061 officers and airmen. This had risen by the end of December, 1943, to a peak strength of 206,350. Throughout the war the R.C.A.F. was recruited entirely from volunteers in a regulated but ever-increasing stream so long as the necessity prevailed. Enlistments reached a peak in 1941 (Table 19) and from that point intake decreased, slowly at first, until in October, 1944, enlistments ceased.

The major contribution of the R.C.A.F. to the victory of the United Nations was the development and administration of the British Commonwealth Air Training Plan. This agreement, signed at Ottawa on December 17, 1939, by representatives of the governments of the United Kingdom, Australia, Canada and New Zealand, entrusted to the R.C.A.F. the task of converting Canada into what the late President Roosevelt once called "the airdrome of Democracy" where air crew drawn from all parts of the British Commonwealth and Empire—and from many of the Nazi-occupied lands of Europe—could be trained and sent overseas in an ever-growing stream.

The original plan called for the construction of 74 training schools across Canada, the last of which came into full operation in December, 1941, six months ahead of schedule. When the plan was at its peak there were 154 air and ground training schools in operation—more than twice the original estimate. In addition to flying schools and ground schools there were many other ancillary units necessary for the training of personnel. In all about 360 units,

### Air Force Intake

Table 19

	Royal Canadian Air Force	Women's Division	Total
1939 (Sept. 10 to Dec. 31).....	3,953	....	3,953
1940.....	30,938	....	30,938
1941.....	66,110	999	67,109
1942.....	65,066	7,835	72,901
1943.....	49,898	7,711	57,609
1944.....	6,585	438	7,023
Totals.....	222,550	16,983	239,533

operating from 231 sites, were set up during the lifetime of the plan and, at the end of 1943, the time of maximum expansion, 104,113 service and civilian personnel were employed on the staff with 15,000 more in training for staff positions (Tables 24 and 25). Canadians comprised about 71% of the staff. Two types of schools, the elementary flying training and the air observer, were operated by civilian flying clubs and civilian companies, respectively, under direct R.C.A.F. supervision. Many of the instructors and staff pilots at these schools were graduates of the B.C.A.T.P. on leave without pay from the R.C.A.F.

When the first agreement was signed it was planned that Canada's share of the cost would be \$531,000,000 of a total cost of \$823,000,000. With the extension of the B.C.A.T.P. and other additional responsibilities undertaken during the course of the war, Canada's share in the financing had risen to more than \$1,281,000,000 when the plan came to an end. These figures covered only the training plan in Canada.

The first air crew graduates of the B.C.A.T.P. began arriving in the United Kingdom in November, 1940. Early in 1941 it was evident that even the most optimistic estimates for output in 1942 were going to be exceeded a year ahead of schedule. By 1943 Canada alone was supplying air crew in excess of the original estimates for the entire plan. Yearly supply of air crew from the participants in the agreement is shown in Table 21.



Table 20

At December 31	Air Force		
	Royal Canadian Air Force Western Hemisphere (2)	Overseas	Total
1939.....	8,077	19	8,096
1940.....	35,772	1,122	36,894
1941.....	85,908	12,054	97,962
1942.....	120,928	24,939	145,867
1943.....	145,820	45,377	191,197
1944.....	118,879	60,503	179,382

- (1) Excludes missing, prisoners, on leave without pay, deserters, seconded.  
 (2) Includes Canada, Labrador, Newfoundland, Alaska, United States and Iceland.

By the spring of 1944 the trained air crew reserve had reached such proportions that it was possible to begin reduction of the B.C.A.T.P., and on March 31, 1945, with victory in Europe in sight, the plan was terminated. The B.C.A.T.P. had trained and graduated 131,553 air crew, of whom approximately 38% were pilots, 23% navigators, 12% air bombers, 25.5% wireless operator air gunners and air gunners and 1.5% flight engineers. The R.C.A.F. provided 72,835 or more than 55% of the graduates, the Royal Air

Table 21 Air Crew Graduates \*

	1940	1941	1942	1943	1944	Total
Royal Canadian Air Force..	484	10,067	16,261	20,122	20,337	67,271
Royal Air Force.....	...	661	7,942	14,930	15,822	39,355
Royal Australian Air Force.	37	2,064	1,755	2,617	2,322	8,795
Royal New Zealand Air Force	...	1,390	1,820	1,685	1,807	6,702
Totals.....	521	14,182	27,778	39,354	40,288	122,123

\* These are graduates of schools that awarded flying badges to qualified air crew. Figures for post-graduate training schools, 20,599 from July 1, 1942, to December 31, 1944, are not included as they would duplicate to a large extent the graduates at the wings stage. Also the figures do not include R.A.F. transferred schools prior to July 1, 1942, when these schools became part of the B.C.A.T.P. Prior to the amalgamation R.A.F. transferred schools had graduated 5,296 air crew personnel.

Strength (1)

Women's Division			Total		
Western Hemisphere(2)	Overseas	Total	Western Hemisphere(2)	Overseas	Total
.....	.....	.....	8,077	19	8,096
.....	.....	.....	35,772	1,122	36,894
.....	.....	647	86,555	12,054	98,609
647	.....	7,838	128,725	24,980	153,705
7,797	41	15,153	160,078	46,272	206,350
14,258	895	13,617	131,026	61,973	192,999
12,147	1,470	.....	.....	.....	.....

All figures in this statement are from recorded sources and are subject to adjustment as current enquiries are pursued.

Force 32% and the Royal Australian Air Force and Royal New Zealand Air Force the remainder. In addition to nationals of the four signatory countries the B.C.A.T.P. trained Belgians, Czechs, Free French, Mexicans, Netherlands, Newfoundlanders, Poles and men from the United States and West Indies. In addition the Royal Norwegian Air Force trained its personnel in Canada in close co-operation with the R.C.A.F.

At first virtually all the Canadians trained as ground crew were required to staff B.C.A.T.P. schools and airfields across Canada and could not be spared to man Canadian squadrons overseas,

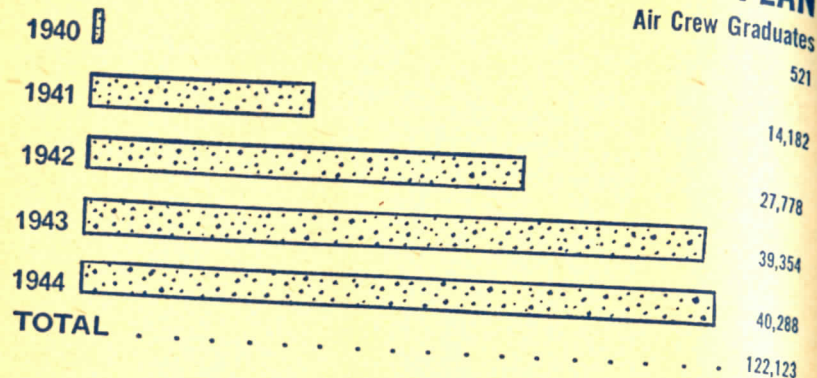
Table 22 Air Crew Trainees on Strength \*  
(At December 31)

	1940	1941	1942	1943	1944
Royal Canadian Air Force.....	8,585	19,987	33,193	30,222	9,285
Royal Air Force.....	.....	591	9,557	13,929	5,805
Royal Australian Air Force....	706	1,091	2,235	1,827	932
Royal New Zealand Air Force..	.....	967	1,207	1,192	459
Totals.....	9,291	22,636	46,192	47,170	16,481

\* These comprise all air crew awaiting or undergoing training in Canada, including post-graduate trainees.



# BRITISH COMMONWEALTH AIR TRAINING PLAN



whose ground crew was almost entirely found by the R.A.F. Production of ground crew increased from 5,917 in 1940 to 20,046 in 1941, about 10% of whom proceeded overseas as the beginning of a force which had increased to 35,369 by the conclusion of the European phase of the war. Included in these latter figures were approximately 5,000 radar specialists despatched overseas for service with the R.A.F. Of the graduates of ground crew courses enumerated in Table 23 approximately 97% were Canadians.

When recruiting ceased in October, 1944, it was decided to release for service in the army and navy 4,200 who had not begun air

**Table 23 Graduates of Ground Crew Courses**

1940.....	5,917
1941.....	20,046
1942.....	30,682
1943.....	29,140
1944.....	19,396
1945 (to March 31).....	1,333
Total.....	106,514

**Table 24**

## Staff Strength \*

(At December 31)

	1940	1941	1942	1943	1944
Service.....	12,507	37,718	74,888	91,289	65,892
Civilian.....	5,708	10,918	12,153	12,824	9,568
Totals.....	18,215	48,636	87,041	104,113	75,460

\* This comprises staff of all B.C.A.T.P. units, including post-graduate training schools, plus a proportionate percentage of air force headquarters personnel. Company-controlled staff of schools operated by civilian companies are not included.

crew training. Men already in training continued their courses and on graduation were placed on the air force reserve and allowed to return to civilian life, subject to recall.

When the B.C.A.T.P. came to an end all training schools were not closed, for a limited number were retained to train additional air crew for the Royal Air Force on a contract basis. In addition a shadow training scheme was retained in a state of readiness to provide for any emergency, while certain operational training units were also retained chiefly for Canadian requirements. These were carried on as R.C.A.F. commitments after the end of March, 1945.

The Women's Division of the R.C.A.F., which had been organized in July, 1941, had a peak strength at December 31, 1943, of 15,153. The first contingent of any women's forces to arrive

**Table 25 Personnel In Training for Staff Positions \***

(At December 31)

1940	1941	1942	1943	1944
8,183	14,098	14,519	15,012	2,332

\* These include graduate air crew undergoing instructor training and all ground crew trainees. These are intended to complete B.C.A.T.P. and Western Hemisphere operations establishments and to provide replacement of discharges, casualties, etc.



overseas was a draft of the Women's Division in 1942. Enlisted primarily to assist in the gigantic training plan, members of the Women's Division were trained in more than 40 different trades and released thousands of men for combat duty.

Because of its heavy commitments in the development and administration of the B.C.A.T.P. the participation of the R.C.A.F. in air operations overseas was at first necessarily limited. In February, 1940, an army co-operation squadron arrived in the United Kingdom to work with the First Canadian Division. In June another army co-operation and a fighter squadron also went overseas. It was a long time before the army co-operation squadrons were able to fulfill their functions in support of Canadian forces in the field, but the fighter squadron went into action in the Battle of Britain (August-October, 1940) and destroyed 31 enemy aircraft for a loss of three R.C.A.F. pilots.

By the end of 1940 the early graduates of the B.C.A.T.P. had begun to proceed overseas and new R.C.A.F. squadrons were formed to reinforce the original three already in the United Kingdom. Eventually more than 45 squadrons were formed in Britain from personnel of the R.C.A.F. trained under the B.C.A.T.P. The new squadrons took their place with units of the R.A.F. in each of the four commands—bomber, fighter, coastal and transport.

**Table 26**

	Squadrons Operational (At December 31)	Air Force	
		Sorties	Other (*) Squadrons
1940.....	1	.....	.....
1941.....	14	.....	.....
1942.....	25	.....	.....
1943.....	34	7,355	.....
1944.....	more than 45	25,353	74,914
Totals.....	—	—	—

(\*) Other squadrons include general, photographic and fighter reconnaissance.

The first R.C.A.F. bomber operation was in June, 1941. During the ensuing year and a half Canadian heavy bomber squadrons had increased to such an extent that they were formed into a separate R.C.A.F. group and began operations as a formation within bomber command on January 1, 1943. During that year the group made 7,355 sorties and dropped 13,630 tons of bombs for a loss of 340 aircraft. In 1944 the scale of operations showed a marked increase while the ratio of losses steadily declined. The number of sorties jumped to 25,353 and the tonnage of bombs showed an even greater ratio of increase to 86,216 tons. The bomb total for August, 1944, alone was but little short of the total for all of 1943. During the first four months of 1945 the group flew 7,893 sorties and dropped 25,432 tons. In addition to the squadrons in the R.C.A.F. bomber group there was a Canadian squadron in the Pathfinder force of bomber command which had a noteworthy part in marking targets for the successive waves of bombers.

The original R.C.A.F. day fighter squadron was joined in 1941 by six additional units, and early in 1944 by six more which went from Canada after periods of service on the east and west coasts. In 1942 an all-Canadian fighter wing was formed in the United Kingdom from three Spitfire squadrons. Subsequently three more R.C.A.F. wings were set up, two with Spitfire aircraft and the third with Typhoons. A later reorganization of the wings reduced the

### Overseas Squadrons

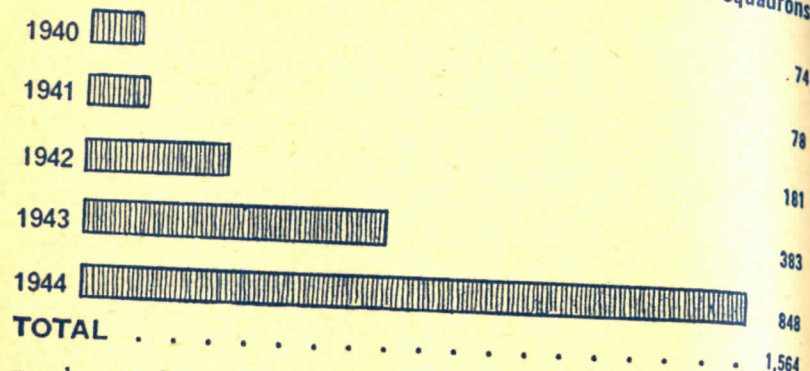
Tonnage of Bombs Dropped	Enemy Aircraft Destroyed	Enemy Aircraft Probably Destroyed	Enemy Aircraft Damaged
.....	31	8	35
.....	30	14	34
.....	58	35	88
13,630	220	28	135
86,216	605	31	212
—	—	—	—
—	944	116	504

day and night fighter, intruder, ground attack, transport.



## ENEMY AIRCRAFT

Destroyed, Damaged and Probably Destroyed by R.C.A.F. Overseas Squadrons



number to three. For three years prior to the spring of 1944 the major duty of the fighter squadrons was escort to formations of day bombers of the R.A.F. and United States Army Air Force which struck at airfields, railroad centres and factories in enemy-occupied territory across the English Channel and North Sea. As a change from highflying escort missions, the fighters also engaged in low-level ground strafes. Another less welcome duty of the fighter squadrons was convoy patrol to guard shipping in British coastal waters.

In the spring of 1944 the R.C.A.F. fighter wings added a new role to their varied activities and became fighter-bombers. In the weeks immediately preceding D-day they had an important part in dive-bombing "rocket" sites, bridges, freight yards and radar posts. From D-day onward the R.C.A.F. fighter and fighter-bomber wings of the Second Tactical Air Force were the spearhead of attack, covering the invasion beaches, dive-bombing enemy strong points and taking a heavy toll of the German army's transport and fighting vehicles.

A fighter-reconnaissance wing of the R.C.A.F., equipped with Mustangs and Spitfires, gathered tactical information in preparation for the opening of the western front and continued to supply information for British forces as they fought their way forward from the beachhead.

In addition to the day fighter units the R.C.A.F. also contributed squadrons for the night defence of Britain and the intruder campaign against the German air force. Three night-fighter squadrons, equipped with Beaufighters and Mosquitos, formed part of the air defence of the United Kingdom from the autumn of 1941 to the spring of 1944 and won an impressive number of victories. During the invasion of Normandy they spread a protective shield over the convoys and beaches and assisted in the defeat of the flying-bomb menace.

One intruder Mosquito squadron was credited with 169 enemy aircraft destroyed and 82 flying bombs blown up in the air or on the sea.

Coastal command, which shared with the Royal Navy the duty of guarding Britain's shipping and destroying that of the enemy, also had its quota of R.C.A.F. units. Sunderland squadrons spent thousands of hours sweeping over the seas in search of U-boats or shepherding convoys to port. On many occasions they were rewarded by unmistakable evidence of a kill; in many other attacks the Nazi submarine was certainly damaged although there was no

Table 27

Air Force Casualties \*

	Fatal	Currently Missing	Currently Prisoner of War or Interned	Seriously or Dangerously Wounded or Injured (not fatal)	Total
1939.....	12	...	...	...	12
1940.....	109	...	...	25	134
1941.....	1,071	1	113	155	1,340
1942.....	3,359	17	344	319	4,039
1943.....	4,731	44	713	302	5,790
1944.....	3,397	2,419	973	379	7,168
Totals.	12,679	2,481	2,143	1,180	18,483

\* Figures are according to records at February 28, 1945, and hence reflect all changes of status of casualties to that date; 870 personnel previously missing, prisoners of war or interned and safe on February 28 are not included. R.C.A.F. (Women's Division) casualties, 17 fatal and 15 wounded or injured, are included.



clear proof of destruction. A Canso squadron, which moved from Canada to Iceland, also scored several successes.

In the Bay of Biscay the Sunderland squadrons were joined by a Wellington unit of the R.C.A.F., equipped with Leigh lights, which patrolled over the bay by night on guard against U-boats attempting to slip through the aerial blockade.

For many months, from late in 1941 until the spring of 1942, a Canadian squadron equipped with Hudsons was the leading "strike" unit in coastal command, famed for its mast-high attacks on German convoys in Netherlands coastal waters. In one month the "Demons" attacked and destroyed or damaged 83,000 tons of enemy shipping. Later another unit flying Albacores and Wellingtons was successful in many bomb attacks on enemy merchant vessels, flakships and E-boats. To the north yet another coastal unit of the R.C.A.F. sent its Beaufighters, carrying rocket projectiles, to strike at convoys off the Norwegian coast. In operations after D-day this squadron assisted in the destruction of the last German naval vessels in the Bay of Biscay.

While these units were sharing in the work of the R.A.F. based in the United Kingdom, a fighter squadron of the R.C.A.F. was accompanying the Eighth Army in its triumphant advance from El Alamein to Cape Bon, across to Sicily and from the heel of the Italian peninsula to the valley of the Po. The Canadian Spitfires did particularly good work over Anzio and Cassino, and then, when the Luftwaffe withdrew from the daylight skies of Italy, the Spitfires became fighter-bombers.

Farther east in the wide expanses of the Indian Ocean another squadron of the R.C.A.F. escorted convoys, carried freight, hunted submarines and aided in the rescue of shipwrecked mariners. It was a Catalina from this squadron which early in 1942 detected the approach of a Japanese invasion force and by its sighting report warned the defences of Ceylon in time to repulse the enemy.

In the last months of the war in Europe the R.C.A.F. formed several transport squadrons, one of which had a part in conveying troops and supplies to the Canadian forces in the Netherlands and Germany, while on the other side of the world other squadrons were doing similar work in Burma.

A sketch of the work of R.C.A.F. units only at home and overseas does not tell the full story, however, of the R.C.A.F.'s participation in the war. For every Canadian air crew serving in an R.C.A.F. squadron there were many flying with R.A.F. units in every command and in every theatre of war. R.C.A.F. pilots, navigators, wireless operators and air gunners were in every squadron of bomber, fighter and coastal command. They had a hand in the smashing of the Mohne and Eder dams and in the sinking of the *Tirpitz*. Canadian pilots fought in the long Battle of Malta; they accompanied an R.A.F. mission to Russia; Canadians flew over the Western Desert and accompanied the allied forces in the invasion of North Africa; they have participated in air battles and bombing expeditions over the jungles of Burma. By the hundreds they are in transport command, ferrying aircraft across the Atlantic, over Africa, along the Persian Gulf and wherever aircraft bearing the roundels of the R.A.F. are to be found. The full extent of their contribution cannot yet be estimated, but there has been no major operation of the R.A.F. in which Canada was not represented.

### MERCHANT SEAMEN

From a strength of 1,460 merchant seamen who manned Canada's pre-war foreign-going merchant shipping, merchant navy personnel during the war increased in number to 8,350.

To March 31, 1945, the number of Canadian seamen reported dead or missing was 1,054 (674 from Canadian ships and 380 from allied\* ships) and the number who had been held captive was 189 (128 from Canadian ships and 61 from allied ships). All casualties therefore totalled 1,243. Canadian seamen from Canadian ships were reported dead and missing as follows:

Table 28

1940	1941	1942	1943	1944	1945 (to March 31)	Total
28	223	363	12	37	11	674

To provide personnel for the expanding merchant fleet there was a general upgrading of the experienced personnel, training centres

\* British, Belgian, United States, Swedish, Panamanian, Greek, Netherlands, Latvian, French and Yugoslavian.



were established, and former merchant navy officers and seamen were encouraged to return to sea. Assistance was given to those who attended existing nautical schools, and special training facilities were made available for marine radio officers.

Merchant seamen's manning pools were established in the ports of Halifax, Saint John, Montreal and Vancouver for the accommodation of seamen and to provide reserves of officers and seamen to man new ships and to make up crew deficiencies on ships in convoys. From October 1, 1941, to December 31, 1944, the number of Canadian and United Kingdom merchant seamen accommodated at these manning pools totalled 38,786.

The number of trainees who completed a six-weeks' course in stokehold and engine-room duties at the Marine Engineering Instructional School at Prescott, Ontario, to the end of 1944 totalled 1,039. The number of trainees who completed their 13-weeks' course for deck ratings at St. Margaret's Sea Training School at Hubbards, Nova Scotia, to the end of 1944 totalled 646.

#### **CORPS OF (CIVILIAN) CANADIAN FIRE FIGHTERS FOR SERVICE IN THE UNITED KINGDOM**

At the request of the British government a Canadian Corps of Civilian Fire Fighters was organized with personnel recruited from 107 municipalities at a strength of 422. The men arrived in the United Kingdom before the end of 1942 and after intensive training were posted to six stations in four centres. They replaced National Fire Service personnel but served as Canadian units in fighting fires caused by incendiary bombs and explosives. Toward the end of 1944 the British authorities indicated that their services were no longer necessary and it was decided to return the corps to Canada for demobilization.

**Table 29 Canadian Fire Fighters Overseas**  
(At December 31)

	Officers	Other Ranks	Total
1942.....	23	385	408
1943.....	20	351	371
1944.....	19	312	331





# PRODUCTION

A great expansion in economic activity during the war period is apparent in almost every field. During the period 1939-42 each of the nine main branches of production showed yearly increases and the net value of commodity production was nearly doubled. After deducting the cost of materials the value of the output of all manufacturing plants exceeded \$3,310,000,000 in 1942. The increase over 1939, when manufacturing production was mainly for civilian purposes, amounted to more than 116%. Although final figures for 1943 and 1944 are not yet available, sufficient evidence is at hand in the form of indexes and other data to establish 1944 as the peak year of wartime economic activity. Canadian agriculture also provid-

**Table 30**                      **Net Value of Production**  
(Dollars in Millions)

	1939	1940	1941	1942
<b>Primary:</b>				
Agriculture.....	846.1	885.1	951.0	1,691.5
Forestry.....	271.7	370.1	421.4	429.1
Fisheries (1).....	34.4	38.1	51.8	64.8
Trapping (2).....	7.9	11.2	15.1	23.8
Mining.....	393.2	446.1	497.9	514.1
Electric power.....	149.9	163.8	183.1	200.3
<b>Total Primary.....</b>	<b>1,703.2</b>	<b>1,914.4</b>	<b>2,120.4</b>	<b>2,923.7</b>
<b>Secondary:</b>				
Construction.....	183.7	206.9	269.6	310.9
Custom and repair.....	96.7	110.7	135.3	139.3
Manufactures (3).....	1,531.1	1,942.5	2,605.1	3,310.0
<b>Total Secondary (4).....</b>	<b>1,811.4</b>	<b>2,260.1</b>	<b>3,010.0</b>	<b>3,760.2</b>
<b>Grand Totals.....</b>	<b>3,224.0</b>	<b>3,823.7</b>	<b>4,720.1</b>	<b>6,258.5</b>

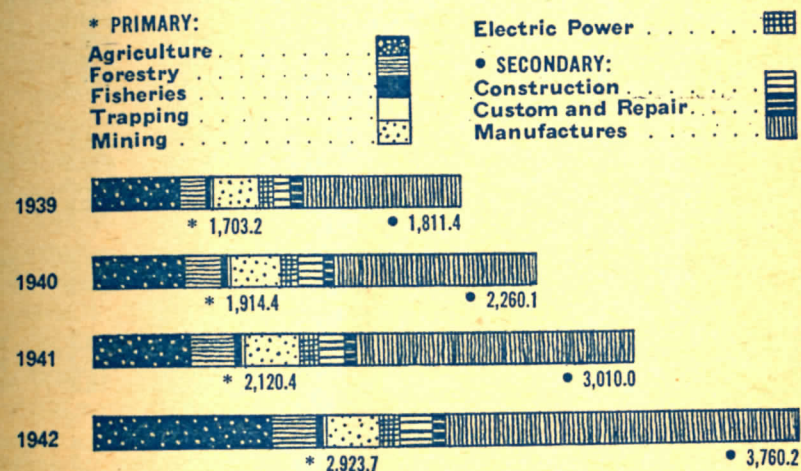
*Figures for 1943 and 1944 not yet available.*

- (1) *The difference between the marketed value of fish and the net value of production is the cost of salt, containers and other materials used by canning and curing plants.*
- (2) *Value of wild furs only — fur farm figures included in agriculture.*
- (3) *Includes sawmills, pulp and paper mills, fish processing and certain mineral industries, which are also included in other headings above. This duplication is eliminated from the grand total.*
- (4) *Includes duplication mentioned in footnote 3.*

ed a significant contribution. The net value of farm products, which in 1939 was \$846,100,000, was almost double that amount in 1942.

Part of the increase in the value of production was obviously due to an advance in prices, but the greater proportion was due to increased output. The advance in the general index of wholesale prices was less than 27% compared with a gain of 94% in the total value of production.

## NET VALUE OF PRODUCTION . . . . in millions of dollars



### AGRICULTURE

Increased demands at home and abroad necessitated a substantial increase in agricultural production, particularly in meats and dairy products. The farmers' response to the demand for animal products immediately brought pressure on feed grain supplies. Since wheat was in adequate supply, a policy of reduced wheat acreage, combined with subsidized production of feed grains, was adopted in the spring of 1941. The production of hogs and dairy products was further encouraged by higher prices and by a subsidy program after the adoption of price ceilings late in 1941.



**Table 31**      **Production of Principal Agricultural Commodities**  
(Units in Millions)

Commodity	Unit	Average 1935-39	1940	1941	1942	1943	1944
<b>Grain and Forage Crops</b>							
Wheat.....	bu.	312.4	540.2	314.8	556.7	283.7	435.5
Oats.....	"	338.1	380.5	305.6	652.0	482.0	499.6
Barley.....	"	88.9	104.3	110.6	259.2	215.6	194.7
Mixed grains.....	"	38.5	43.1	48.7	68.6	35.7	57.4
Hay and clover.....	tons	13.6	14.1	12.6	16.1	17.2	15.1
Alfalfa.....	"	2.1	2.6	2.7	3.7	3.9	3.8
<b>Dairy Products</b>							
Milk (total).....	lb.	15,282.1	15,999.3	16,549.9	17,488.6	17,519.1	17,604.8
Creamery butter.....	"	254.8	264.7	285.8	284.6	311.7	298.3
Factory cheese.....	"	119.9	145.3	151.9	207.4	166.3	180.2
Evaporated milk.....	"	90.8	135.9	166.0	185.8	178.4	179.5
Condensed milk.....	"	13.4	14.4	24.6	23.1	26.9	33.7
Milk powder.....	"	26.1	33.8	34.8	37.8	37.4	46.7
<b>Meats (1)</b>							
Pork.....	"	625.1	865.4	1,060.8	1,189.1	1,395.7	1,504.6
Beef.....	"	703.7	717.5	812.1	822.5	893.0	961.0
Veal.....	"	122.2	130.0	134.1	123.6	118.5	126.1
Mutton and lamb.....	"	61.6	52.6	58.6	56.7	62.2	63.5
<b>Eggs and Poultry</b>							
Eggs.....	doz.	219.5	235.5	244.5	280.7	315.6	360.9
Poultry meat.....	lb.	n. a. (2)	219.1	220.0	258.7	265.3	315.2
<b>Fresh Fruits</b>							
Tree fruits.....	bu.	16.7	15.4	14.0	16.6	14.7	20.3
Berries.....	qt.	36.1	42.5	33.8	28.6	27.7	21.4
Grapes.....	lb.	42.8	52.7	47.2	74.9	53.8	60.2
<b>Fresh Vegetables</b>							
Potatoes.....	lb.	3,863.2	4,230.0	3,905.2	4,288.2	4,354.1	4,940.9
Tomatoes.....	"	500.0	516.9	719.7	557.8	460.7	964.2
Other vegetables.....	"	1,060.0	1,017.1	1,052.1	1,508.3	1,129.0	1,411.1
<b>Oilseed Crops</b>							
Flaxseed.....	bu.	1.5	3.0	5.8	15.0	17.9	9.7
Other oilseed crops.....	"	n. a. (2)	.2 (3)	.2 (3)	.9 (3)	21.3 - (4)	15.8
<b>Seed Crops</b> .....	lb.	28.4	24.8	37.8	40.6	52.0	54.9
<b>Tobacco</b> .....	"	76.6	64.0	94.2	89.7	69.1	102.1
<b>Sugar beets</b> .....	tons	.5	.8	.7	.7	.5	.6
<b>Maple Products</b> .....	gal.	2.7	3.1	2.3	3.3	2.3	3.1
<b>Honey</b> .....	lb.	35.7	28.2	33.2	28.0	39.5	35.0
<b>Wool</b> .....	"	16.0	14.9	15.3	16.5	17.8	19.3

- (1) Estimated dressed carcass weight of animals slaughtered in Canada, plus estimated dressed weight of animals exported alive.  
 (2) Not available.  
 (3) Soybeans in Ontario only.  
 (4) Includes soybeans, rapeseed and sunflower seed.

The shift from wheat to coarse grains, fodder crops and oil-bearing seeds, which has been one of the outstanding changes in Canadian agriculture brought about by the war, has been most in evidence in the prairie provinces, normally the great wheat growing areas. Spectacular increases have occurred in this region, which formerly produced little livestock, in the output of meats, dairy products and eggs. Increases in these products occurred to a lesser degree in the other provinces. A shortage of fats and oils encouraged increased production of flaxseed and led to the cultivation on a commercial basis of soybeans, rapeseed and sunflowers. The vegetable seed industry was also developed to meet the shortage that arose both at home and in the United Kingdom from the loss of European sources of supply.

The chief limiting factor in agricultural production has been the shortage of manpower coupled with a reduced supply of machinery and equipment. Despite these handicaps, however, Canadian farmers have considerably increased their output of food.

Agricultural production has been planned during the war years by federal-provincial conferences attended by representatives of the federal and provincial departments of agriculture and by delegates

**Table 32**      **Livestock Population as at June 1**  
(In Thousands)

	Average 1935-39	1940	1941	1942	1943	1944
Total cattle.....	8,716	8,380	8,517	8,945	9,665	10,346
Milk cows.....	3,780	3,650	3,624	3,681	3,795	3,930
Horses.....	2,833	2,780	2,789	2,816	2,775	2,735
Sheep and lambs.....	3,083	2,887	2,840	3,197	3,459	3,726
Swine.....	3,939	6,002	6,081	7,125	8,149	7,738
Hens and chickens.....	54,542	58,712	58,864	68,106	74,961	86,792
Turkeys.....	2,532	3,164	3,204	3,541	2,862	3,306



from farm producer organizations. The first of these conferences was called in Ottawa on September 27, 1939, just 17 days after Canada had entered the war; the 12th was held December 4 to 6, 1944. These conferences have given direction to the farmer concerning the foods most in demand. The Agricultural Supplies Board, a wartime control body operating under the federal Department of Agriculture, is responsible for ensuring that production continues in a way that will best meet the needs of Canada and the United Kingdom for food and fibres.

**Table 33** **Acres of Field Crops**  
(In Thousands)

Commodity	Average 1935-39	1940	1941	1942	1943	1944
Wheat.....	25,595	28,726	21,882	21,587	16,850	23,284
Oats.....	13,247	12,298	12,266	13,782	15,407	14,315
Barley.....	4,291	4,342	5,304	6,973	8,397	7,291
Rye.....	816	1,035	960	1,338	576	648
Mixed grains.....	1,166	1,220	1,553	1,681	1,463	1,518
Hay and clover.....	8,766	8,811	9,559	9,707	9,816	10,120
Alfalfa hay.....	854	1,032	1,270	1,440	1,544	1,580
Potatoes.....	516	545	507	506	533	535
Other field crops.....	2,783	2,888	3,487	3,796	5,121	3,442
Summerfallow.....	15,682	17,326	23,111	19,979	20,637	19,427

#### SUBSIDIES PAID BY DEPARTMENT OF AGRICULTURE

Producer subsidies are direct and indirect payments to farmers in addition to their returns under ceiling prices and are necessary under a price controlled economy to maintain or increase production of essential food products.

Subsidy payments have been made on a variety of agricultural products. Following are some of the major subsidies being paid:

**Feeds**—A rapid expansion in the output of livestock and livestock products made necessary the formulation of a policy to increase

**Table 34** **Subsidies Paid on Agricultural Products**  
**by the Federal Government**

(Dollars in Thousands)

	1939	1940	1941	1942	1943	1944(1)
Fluid Milk.....				3,846.1	4,968.5	12,818.4
Butterfat.....				7,000.9	15,724.9	24,165.9
Concentrated Milk					465.0	2,078.4
Milk—cheddar						
cheese.....					800.3	4,330.0
Cheese—bonus on						
quality.....	597.9	1,054.5	1,494.9	1,730.9	1,385.9	1,591.7
Cheese factory im-						
provement.....	46.3	81.0	181.5	203.7	73.1	87.9
Cheese export sub-						
sidy.....			1,950.0			
Hog premiums.....						14,069.2
Fertilizer subven-						
tions.....				975.3	860.7	412.7
Lime subsidy.....					38.7	271.9
Feed freight assis-						
tance.....			2,059.2	9,832.0	15,940.9	14,565.6
Alfalfa meal.....					37.8	52.3
Feed wheat draw-						
back.....				333.7	2,233.5	7,700.6
Feed assistance:						
Plan A.....						521.5
Plan B.....					1,217.5	362.1
Wheat acreage pro-						
duction.....			22,411.6	22,788.0	31,015.2	8,979.7
Prairie farm assis-						
tance.....		16,958.5	1,125.5	14,332.9	495.0	9,456.9
Prairie farm income			864.1	18,033.3	83.9	1.3
Canning crops.....				808.4	955.7	2,549.1
Berries for jam....				42.2	359.0	473.3
Wool (2).....					153.2	64.5
Egg export subsidy			7.5	918.2		
Sugar beet pulp....					25.8	
Apples.....	2,354.8	1,879.8	1,720.0	2,257.6		
Totals.....	2,999.0	19,973.8	31,814.3	83,103.2	76,834.6	104,553.0

(1) Preliminary, subject to revision.

(2) Partial payment.

The Department of Agriculture was responsible for the payment of subsidies on fluid milk, butterfat, concentrated milk, milk for cheddar cheese, canning crops and berries in 1943 and 1944. Prior to March, 1943, the War-time Prices and Trade Board paid subsidies to farmers on the production of fluid milk, butterfat, canning crops and berries. These payments are shown in the above table.



the output of feeds and fodder. Since the autumn of 1941, the federal government has paid all freight charges on western grains and millfeeds moved from the head of the Great Lakes to points in eastern Canada and from specified points in western Canada to British Columbia. In order to stimulate early seasonal movements of feed from the prairie provinces to the east and to British Columbia, and greater storage in eastern Canada, a transportation subsidy is paid on fertilizer and lime being used in eastern Canada and British Columbia. In addition cash subsidies were paid to encourage production of coarse grains in the period between the summer of 1941 and the end of the crop season of 1943, and assistance was provided in the processing of livestock feeds during 1943 and 1944.

**Dairy Products** — Subsidies are used as a means of directing supplies into desired lines of dairy production. The main purpose of the subsidy in the case of milk is to encourage the producers to meet increased demands for fluid milk from army camps and war-crowded areas throughout Canada. A subsidy is paid on the butterfat used in the manufacture of butter and on milk used for the manufacture of cheese and of concentrated whole and skim milk products.

**Hogs** — To maintain adequate production of hogs suitable in quality for domestic and British requirements until the end of the war, cash subsidies are paid on grade A and B1 hogs slaughtered at inspected plants or improved establishments.

**Wool** — To encourage greater production of wool for manufacturing purposes, the federal and provincial governments have been paying jointly a subsidy on wool of a stated quality.

**Canning Crops** — The growers' subsidies apply to tomatoes, corn, peas and green or wax beans.

**Berries** — Strawberry and raspberry growers in eastern Canada and British Columbia receive subsidy payments for fruit used in the manufacture of jams and jellies.

## FISHERIES

Under the handicaps of material shortages, the loss of skilled fishing and shore labour to the merchant navy, armed forces and munitions industries, and the requisitioning of fishing boats for

Table 35

## Fisheries

(Units and Dollars in Millions)

		1939	1940	1941	1942	1943
<b>Salmon</b>						
Landed .....	lbs.	150.1	145.8	193.8	164.7	124.2
Marketed value*	\$	13.4	14.2	21.5	22.9	15.6
<b>Cod</b>						
Landed .....	lbs.	163.6	193.3	195.7	194.2	215.4
Marketed value .....	\$	3.2	5.0	7.5	10.0	13.1
<b>Herring</b>						
Landed .....	lbs.	330.3	468.6	278.5	362.0	322.7
Marketed value .....	\$	3.5	6.3	6.7	10.9	12.0
<b>Lobsters</b>						
Landed .....	lbs.	31.5	26.8	27.8	28.0	30.1
Marketed value .....	\$	3.8	3.2	3.9	5.1	8.2
<b>Whitefish</b>						
Landed .....	lbs.	16.5	16.8	17.9	16.7	16.8
Marketed value .....	\$	1.7	1.9	2.5	3.1	3.6
<b>Hallbut</b>						
Landed .....	lbs.	18.5	14.8	15.0	12.2	13.9
Marketed value .....	\$	2.1	1.9	2.4	2.5	3.1
<b>Sardines</b>						
Landed .....	lbs.	31.7	22.4	44.3	32.1	39.6
Marketed value .....	\$	2.3	1.9	2.8	2.1	3.0
<b>Total Fish Marketed</b> .....	\$	40.1	45.1	62.3	75.1	85.9

\* Marketed value includes all processes such as canning, etc.

essential services, fisheries production threatened to fall off at a time when it was increasingly important that it be maintained. By the summer of 1941 the Norwegian, British and other European fisheries, on which not only the United Kingdom but countries in the Caribbean and the Mediterranean depended, had disappeared. Canada and Newfoundland became the chief sources of supply for the United Nations. The Department of Fisheries in this year undertook the responsibility of assessing requirements, maintaining production and fulfilling Canada's commitments.

Despite all difficulties fish production has been maintained at the aggregate pre-war level of 1,100,000,000 pounds. Between



1941 and 1943 under wartime plans and agreements Canada supplied to the United Nations—principally the United Kingdom—canned, frozen and salted fish equivalent to more than 600,000,000 pounds of fish in the fresh state, which far exceeds peacetime exports to the same markets. Partly because of higher prices, the value of fisheries production in 1943 reached the highest peak in history, \$85,858,538. This represents the value of the fish as marketed, whether fresh or prepared, and includes the value of such by-products as oil and meal. Sea fisheries contributed 85% and inland fisheries 15%.

Table 35 shows the production and marketed value of the seven principal catches and total production during the war years.

### TRAPPING

The total value of pelts (both wild and fur farm) doubled from the year ended June 30, 1939, to the 1942-43 season. Much of this was the result of higher prices received by trappers and fur farmers, though the take of certain classes of animals also increased. Another factor has been the rapid development of new type breeds of fox and mink, the pelts of which command much higher prices than those taken from the pre-war standard breeds.

**Table 36** **Total Value of Pelts**  
(Wild and Fur Farm)

For Year Ended June 30	\$
1938-39.....	14,286,937
1939-40.....	16,668,348
1940-41.....	21,123,161
1941-42.....	24,859,869
1942-43.....	28,505,033
1943-44.....	32,363,843*

\* Preliminary.

### FORESTRY

Until May and June, 1940, the war had little effect on the three main branches of Canada's forest industry—logging, sawmilling and pulp and paper making. After the conquest of western Europe, however, enormously expanded military construction programs were immediately adopted, and Canada undertook special responsibilities for the supply of lumber to the United Kingdom. The demands for pulp and paper closely followed the increased requirements for lumber.

The forest industries required little or no conversion of plants during the transition from a peacetime to a wartime basis. The need for their products increased in quantity rather than in kind, and pre-war experience in meeting the requirements of their principal export markets in the United Kingdom and the United States was valuable. The war caused greatly increased demands for such special products as pitprops for British mines, hardwood veneer logs and Sitka spruce for the aircraft industry. Government-owned companies were established to stimulate production of the last two items.

During the war the average annual rate of fellings in Canada's forests increased about 20% over the pre-war average despite the difficulties caused by shortages of labour and other factors. Production of sawn lumber increased by 30%, wood pulp by 28%, and newsprint paper by 9%. Notwithstanding these increases in production and the close control of exports, forest products were in short supply in Canada. The consumption of lumber for military purposes, including the packaging of military stores, was so great that the amount available for civilian construction of new homes was seriously restricted.

In order to provide means for dealing with the emergency a timber controller was appointed to be responsible for the distribution of available supplies of lumber. Later this controller also took over direction of production and distribution of pulpwood and wood fuel. The pulp and paper industry was placed under supervision of the Wartime Prices and Trade Boards.



**Table 37      Production of Principal Forest Products**  
(Dollars in Millions)

	Average 1935-39	1940	1941	1942	1943
<b>PRIMARY PRODUCTS</b>					
<b>Logs and bolts</b> .....	4,141	5,904	5,781	5,353	4,810
(board feet in millions)..... \$	49.1	71.8	86.5	92.9	99.9
<b>Pulpwood</b> .....	6,947	8,500	9,545	9,653	8,801
(cords in thousands)..... \$	53.0	74.3	88.2	103.6	110.8
<b>Fuelwood</b> .....	8,950	9,172	8,612	8,720	9,210
(cords in thousands)..... \$	32.5	33.3	26.7	27.3	45.2
<b>Other</b> .....	156	186	153	118	122
(cubic feet in millions)..... \$	9.4	15.1	11.8	10.6	12.8
<b>Totals</b> ..... \$	144.0	194.5	213.2	234.4	268.7
<b>SAWN LUMBER</b> (Board feet in millions)					
<b>Spruce and balsam fir</b> .....	1,064	1,557	1,947	1,759	1,629
\$	19.0	35.1	50.1	52.4	57.9
<b>Douglas fir</b> .....	1,388	1,692	1,525	1,534	1,234
\$	24.7	35.2	36.0	42.1	38.1
<b>Other softwoods</b> .....	938	1,090	1,151	1,232	1,129
\$	19.3	28.2	33.3	39.8	40.5
<b>Hardwoods</b> .....	236	290	318	404	371
\$	5.7	7.5	9.9	15.0	15.3
<b>Totals</b> .....	3,626	4,629	4,941	4,929	4,363
\$	68.7	106.0	129.3	149.3	151.8
<b>WOOD PULP</b> (Tons in thousands)					
<b>Mechanical</b> .....	2,784	3,305	3,495	3,260	2,999
\$	39.7	55.5	61.3	64.8	63.4
<b>Chemical</b> .....	1,383	1,880	2,122	2,246	2,188
\$	54.3	92.6	113.1	126.2	130.0
<b>Screenings</b> .....	98	105	104	100	86
\$	.7	.9	1.0	1.1	1.0
<b>Totals</b> .....	4,265	5,290	5,721	5,606	5,273
\$	94.7	149.0	175.4	192.1	194.4
<b>PAPER</b> (Tons in thousands)					
<b>Newsprint</b> .....	2,972	3,504	3,520	3,257	3,046
\$	109.6	158.4	158.9	147.1	154.3
<b>Paper Board</b> .....	375	500	652	609	568
\$	19.0	31.1	40.4	38.6	37.5
<b>Other</b> .....	230	315	358	365	352
\$	25.5	36.3	42.2	44.6	43.6
<b>Totals</b> .....	3,577	4,319	4,530	4,231	3,966
\$	154.1	225.8	241.5	230.3	235.4

*In addition to the items in Table 37, the production of veneers, and ply-woods rose from a 1935-1939 yearly average of 48,563,000 surface feet to 278,627,000 in 1943, an increase in dollar value from \$960,998 to \$7,693,013 for the same period.*

During the first war years exports of lumber and newsprint to the United States aided in providing funds with which to purchase munitions and other materials of war that Canada was not then able to manufacture itself. After Pearl Harbor it became necessary to enter into agreements with United States authorities whereby shipments to that country were made subject to export permits and all Canadian lumber exported to the United States was directed to projects connected with the war effort of that country.

The war against Japan, reconstruction of devastated Europe, shipments of food and other supplies to suffering peoples and the acute need for new housing in Canada will combine to ensure markets for everything Canada can produce from wood for considerable time to come.

### ELECTRIC POWER

Electric power in Canada is virtually synonymous with water power. Although electricity produced in thermal plants is important to various municipalities where hydro-electric power is not available, it amounts to only 2% of total production. Before the war large blocks of surplus and offpeak electric power were used in electric boilers, but with the increased demand for primary power coal was substituted for most of this. In 1944 power so used was reduced to almost one-third of the quantity for 1939. During the same period primary power for use in Canada was increased by 81%. A 34% increase in exports to the United States was largely used in the production of aluminum and munitions.

Up to 1943 the pulp and paper industry was the largest consumer of electricity but because of a substitution of coal for electricity in its boilers its total consumption was almost 2,000,000,000 kilowatt hours less in 1943 than in 1939, despite an increase of more than 1,000,000,000 kw.h. of primary power. In 1943 it was surpassed by the aluminum industry as a consumer.



Table 38

### Electric Power

(Kilowatt Hours in Millions)

	1939	1940	1941	1942	1943	1944	Change 1939 to 1944 %
Production of primary power.....	19,405	22,521	27,723	32,506	35,719	35,151	+81
Production of secondary power.....	7,034	5,423	3,381	2,239	2,114	2,743	-61
Export of power to United States.....	1,913	2,136	2,360	2,454	2,545	2,572	+34
Total production...	28,352	30,080	33,464	37,199	40,378	40,466	+51

The non-ferrous smelting and refining industries, of which the aluminum plants are by far the largest consumers, showed a total consumption of more than 11,280,000 kw.h. in 1943, three and one-half times that of 1939, for the production of aluminum rose

## ELECTRIC POWER . . . . . in millions of kilowatt hours.

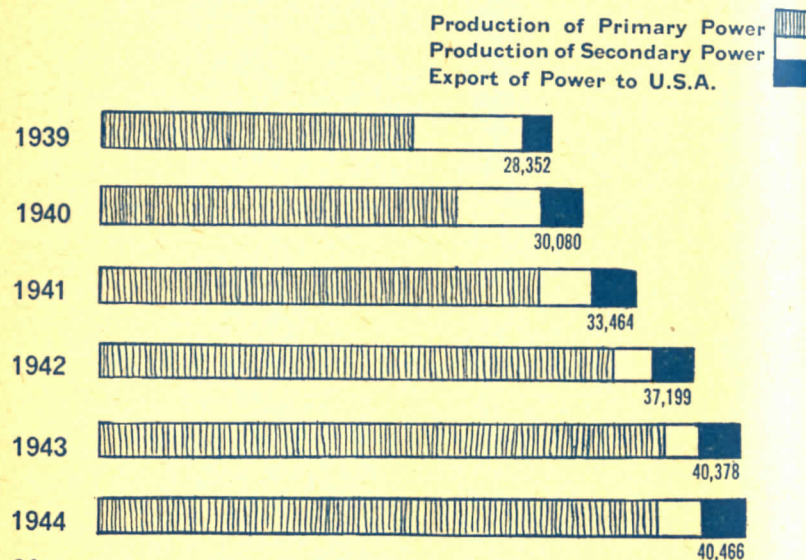


Table 39

### Electric Power

(Kilowatt Hours in Millions)

	1939	1940	1941	1942	1943	Change from 1939 to 1943 %
<b>Electric Power used by—</b>						
Non-ferrous smelting and refining..	3,250	3,493	5,942	8,548	11,280	+247
Pulp and paper.....	9,959	11,085	9,208	8,696	8,039	-19
Primary iron and steel.....	223	529	1,493	1,769	2,018	+806
						(Primary +1,092 Secondary -3,012 Total -1,920)

from 82,840 tons in 1939 to 495,750 tons in 1943. The primary iron and steel industries, at 2,000,000,000 kw.h., consumed more than nine times as much electricity in 1943 as in 1939.

During the war years hydro-electric installations rose from 8,289,212 to 10,283,763 horsepower by the end of 1944—an increase of 23%. Most of this was due to the sharp rise in aluminum production.

## COAL

Aside from its use as a heating agent, coal has been the mainstay of the metals industry and the source of power for most factories, trains and steamships. While large deposits occur in eastern and western Canada, none is mined in Ontario and Quebec where the majority of manufacturing industries and the densest population exist. Hence coal is brought into these central provinces, chiefly from the United States. The substantial imports of coal more than doubled from 1939 to 1944, although supplies of anthracite coal which were formerly imported from the United Kingdom were virtually cut off because of shipping difficulties.

Almost since the first day of war measures were taken to study the coal situation and to maintain production by distribution and labour controls. As a result production of coal in Canada increased during the war. In 1942, the peak year, it was up 20% over 1939



and although it dropped in 1944, 17,118,008 tons were produced, and increase of almost 2,000,000 tons over 1939.

Canadian consumption rose rapidly from almost 28,500,000 tons in 1939-1940 to 45,465,000 in 1943 and 43,914,000 in 1944. The largest increase in consumption was in the industrial field from 19,290,000 tons to 30,320,000 tons in the last six years. Domestic consumption also rose, but to a lesser extent.

Exports of Canadian coal, usually comparatively small, trebled from 1939 to 1944 and supplied the greater proportion of the coal needs of Newfoundland as well as some requirements in the north-western United States for industrial use and for Lend-Lease bunkering.

**Table 40 Imports, Production and Exports of Coal**

(Short tons)

	1939	1940	1941	1942	1943	1944
Imports of anthracite coal into Canada.....	3,977,805	3,964,862	3,940,859	4,802,023	4,458,519	4,413,227
Imports of bituminous coal into Canada...	9,903,613	13,578,705	17,867,068	20,807,005	24,393,798	24,513,527
Imports of lignite coal into Canada.....	3,398	2,493	934	239	337	171
Totals.....	13,884,816	17,546,060	21,808,861	25,609,267	28,852,654	28,926,925
Production of coal in Canada.....	15,692,698	17,566,884	18,225,921	18,865,030	17,859,057	17,118,008*
Exports of coal from Canada—						
Bituminous..	368,204	498,077	524,859	805,717	1,101,514	999,407
Lignite.....	7,999	6,821	6,590	9,868	8,587	10,833
Totals.....	376,203	504,898	531,449	815,585	1,110,101	1,010,240

\* Subject to revision.

**Coal Consumption**

(Net Tons in Thousands)

	1939	1940	1941	1942	1943	1944
Industrial.....	19,290	21,727	24,933	27,521	29,822	30,320
consumption*						
Armed forces.....	(not available)	250	900	1,243	1,705	1,500
consumption						
Household.....	9,398	10,606	11,322	13,017	13,938	12,094
consumption						
Totals.....	....	32,583	36,255	41,781	45,465	43,914

\* Includes railways, coke and gas industry and bunkering.

## OIL

In 1944 Canada depended on outside sources for at least 87% of the crude oil which it used. Needs of the armed forces, the manufacture of synthetic rubber and the nation's expanded industrial production increased domestic consumption of petroleum fuels from 39,000,000 barrels in 1938 to 54,700,000 barrels in 1944, a 40% rise. Various controls, including gasoline rationing, ensured supplies for essential uses.

Canadian production of crude petroleum has been as follows:

**Table 42**

(Barrels in Thousands)

1939	1940	1941	1942	1943	1944
7,826	8,591	10,134	10,365	10,052	10,071

The remainder was obtained from the United States, Colombia, Venezuela and Ecuador.

In 1944, 31 refineries were operating in Canada to convert crude oil into such finished products as aviation gasoline, motor gasoline, kerosene and fuel oil.

## GAS

Natural gas is produced commercially in abundance in Alberta, to a lesser extent in Ontario and in smaller quantities in New



Brunswick and Saskatchewan. Total production has been as follows:

**Table 43** (Cubic Feet in Millions)

1939	1940	1941	1942	1943	1944
35,185	41,232	43,495	45,697	44,198	45,957

To overcome a shortage that developed in Ontario as a result of the war-increased industrial requirements, restrictions on the household use of gas were imposed, and further facilities for the manufacture of gas were erected. Production of manufactured gas has been as follows:

**Table 44** (Cubic Feet in Millions)

1939	1940	1941	1942	1943	1944
41,633	55,113	57,729	68,839	74,731	(not available)

### METALS AND MINERALS

The peak year for mineral production was in 1942, when the total value was \$566,768,672, an increase of almost 20% over 1939. By 1944 it had dropped to \$485,923,948. The reduction was principally in the metals group, which fell from \$392,192,452 in 1942 to \$307,572,217 in 1944, chiefly because of the fact that Canadian gold production was reduced from 4,841,000 troy ounces in 1942 to 2,914,000 in 1944. On the other hand, the total value of fuels increased 7% from 1943 to 1944. This was mainly accounted for by the increased price of coal.

During the war the exports of non-ferrous metals and minerals and their products, excepting gold, rose in value from less than \$213,000,000 in 1939 to nearly \$339,908,000 in 1944 to make the nation the leading exporter of base metals.

This growth has resulted from the expansion of the aluminum industry to a peak in 1943 more than six times greater than that of pre-war days; development of facilities for producing magnesium from dolomite; extension of operations at the large base metal mines; revival of old mines, and exploitation of new properties including marginal and sub-marginal deposits.

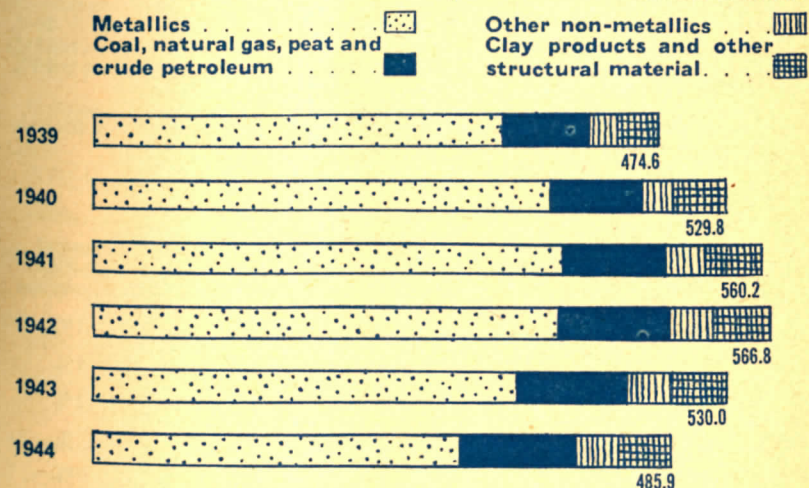
**Table 45** Value of Mineral Production by Classes  
(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
Metallics . . . . .	343.5	382.5	395.3	392.2	356.8	307.6
Coal, natural gas, peat and crude petroleum . . . . .	70.7	78.8	85.1	92.2	92.5	99.4
Other non-metallics . . . . .	25.1	26.0	34.4	36.7	38.7	37.6
Clay products and other structural materials . . . . .	35.3	42.5	45.4	45.7	42.0	41.3
Total . . . . .	474.6	529.8	560.2	566.8	530.0	485.9

In addition to supplying its own requirements of most non-ferrous metals and minerals, Canada was able to supply large quantities for the war and essential needs of both the United Kingdom and the United States. Because ocean losses began to drop in 1943, and because of the success of efforts to provide new production from known sources, the supply of certain strategic

## VALUES OF MINERAL PRODUCTION

by classes . . . in millions of dollars





metals and minerals—aluminum, nickel, chrome ore, magnesium, graphite, cobalt, mica, mercury, copper, tungsten and molybdenum—was maintained for essential demands.

When the great expansion of Canadian industries began after the fall of France, a metals control was set up in Canada to regulate the supply, distribution and use of non-ferrous metals and minerals in order to conserve them for essential Canadian needs and to be able to supply a maximum amount to the United Kingdom.

Less scarce metals were substituted for those in shortest supply. For example, silver was used in solders and brazing alloys to replace tin; manganese bronze and lower-tin bronzes were used instead of pre-war high-tin bronzes for industrial castings and ship propellers; a tin-free bronze was developed for gear manufacture.

In 1940 the domestic use of aluminum, nickel, zinc, magnesium, tin, cadmium, copper and brass was restricted, and later these controls were tightened. In all exports the war needs of the United Kingdom and the United States were given priority.

In terms of the allied war effort and excluding production by Soviet Russia, Canada contributed these percentages of the combined output of the United Nations:

**Table 46**

Nickel.....	94%	Zinc.....	20%
Asbestos.....	75%	Lead.....	17%
Aluminum.....	32%	Copper.....	10%

In a general way this is how five of the basic non-ferrous metals were used in Canada:

**Table 47**

Metal	Direct War Consumption	Indirect War Consumption	Essential Civilian Consumption
Primary aluminum.....	96%	3%	1%
Refined copper.....	96%	3%	1%
Refined nickel.....	90%	8%	2%
Tin.....	60%		40%
Refined zinc.....	87%	6%	7%

A comparison of world production and Canadian production of non-ferrous metals for the years 1939 and 1942 follows:

**Table 48**

	1939			1942		
	(Short Tons in Thousands)			(Short Tons in Thousands)		
	World Production	Canadian Production	% of World	World Production (estimated)	Canadian Production	% of World
Aluminum (refined)	739	83	11.2	1,526	341	22.3
Copper (blister) (copper content) ..	2,406	253	10.5	3,045	269	8.8
Lead (all forms) ..	1,899	194	10.2	1,884	256	13.6
Nickel (all forms) .	137	113	82.5	181	143	79.0
Zinc (refined) . . . .	1,850	176	9.5	2,316	216	9.3
Totals.....	7,031	819	11.6	8,952	1,225	13.7

**Table 49**

**Production of Selected Primary Metals**

	(Short Tons in Thousands)					
	1939	1940	1941	1942	1943	1944
<b>Aluminum</b> .....	83	109	214	341	496	462
<b>Copper</b>						
Total primary production .	304	328	332	302	288	273
Refined.....	232	262	278	268	251	256
<b>Lead</b>						
Total production.....	194	236	230	256	222	152
Refined.....	190	220	228	243	221	142
<b>Nickel</b>						
Total production.....	113	123	141	143	144	137
<b>Zinc</b>						
Total production.....	197	212	256	290	305	275
Refined.....	176	186	214	216	207	168

**Aluminum**—In 1938, the last full year of peace, the total production of aluminum in Canada was less than 143,000,000 pounds.



In 1943, the peak of wartime production, it was 991,500,000 pounds. The combined exports to the United Kingdom and the United States in 1938 were about 70,000,000 pounds. In 1944, after providing for all domestic war and essential requirements more than 320,000,000 pounds were exported to the United Kingdom, 214,000,000 pounds sold to the United States and 56,000,000 pounds exported to other countries. During the period of peak production about one-quarter of all the power consumed in Canada was used in this one industry, and the industry itself has been responsible for the development of much of the power it consumes. The principal materials for the making of aluminum in Canada are bauxite from South America, cryolite from Greenland, acid-grade fluorspar from Newfoundland and the United States.

**Copper** — Highest production for all time was reached in 1940. Since that year there has been a gradual reduction, due in large part to the shortage of labour. Canadian production of refined copper exceeds Canadian needs, but because of great allied war demands many restrictions were imposed on its civilian uses. After war and essential requirements were met the refined copper surplus was exported to the United Kingdom and the surplus concentrates to the United States.

It is estimated that less than 1% of the copper mined in Canada was used for purposes which were not directly or indirectly associated with war needs.

The production of brass and bronze, of which copper is the chief constituent, has risen by 1,000% since the beginning of the war.

**Lead** — Canada does not normally consume more than a fraction of its lead output. During the war, demands for lead for war requirements and as a substitute for more critical materials rose sharply. To meet essential needs the Canadian surplus was exported to the United Kingdom, Russia and, since 1945, to the United States.

**Nickel** — In 1943 nickel production was 25% greater than in 1939. In 1944 it was still 21% greater. Its important use is in the production of high strength alloy steels. The distribution of all nickel was under strict allocation. In 1940 the direct and indirect war use was 60%, in 1941 it was 85%, and in 1943 it was 98%.

**Zinc** — Canadian production of refined zinc reached a high in mid-1943. In addition to producing refined zinc Canada supplied zinc in concentrates to the United States, but by the end of 1943 the zinc position in that country was such as to permit the closing down of certain high cost zinc concentrate properties in Canada and the transfer of some men to more essential mines. The distribution of zinc was placed under strict control to provide a maximum for allied war production.

**Magnesium** — During the war magnesium was in great demand for bombs, flares and some aircraft castings. Research done in Canadian laboratories resulted in the development of a process for its extraction from dolomite rock. In September, 1942, a \$3,000,000 government-owned plant, which produces 15 tons of magnesium per day by this process, was built.

**Asbestos** — Although Canada is the world's largest producer of asbestos, domestic consumption is less than 5% of the total output. By strict conservation and rigid control of exports more than 80% of the production has been used for direct war purposes.

**Other Strategic Minerals** — Wartime demands increased the production of other strategic minerals. The need for molybdenum for use in alloy and cutting steels stimulated development of molybdenum properties with the result that production rose from a negligible amount to 540 tons in 1944. Chrome ore for the manufacture of tool steels, armor plate steel and refractory brick rose in production from 500 tons yearly before 1939 to 30,000 tons in 1943. Tungsten, needed in high speed cutting and special alloy steels rose in annual production from three to five tons in the pre-war period to 420 tons contained tungsten in 1943. When tin supplies from the Far East were cut off, known deposits in Canada were further developed to the extent that tin production reached a peak of 620 tons in 1942 or approximately 20% of total Canadian requirements.

## STEEL

Before the war Canada imported large quantities of steel from the United States which were supplemented by imports from the United Kingdom and Europe. When the European supplies were cut off early in the war Canada had to rely on the United States for



a greater supply and had to increase its own domestic steel-making capacity to meet abnormal wartime requirements. Actually plant expansion doubled this capacity, and Canada now imports only one-quarter of its requirements compared with one-third before the war. Imports are largely of types or large sizes not produced by Canadian mills as well as flat rolled steel in quantity exceeding the capacities of the finishing mills. Additional finishing capacity is now nearing completion.

During the war production of special alloy war steel has been successfully undertaken. The greatly expanded capacity in this field with the experience and technique acquired will enable production of almost complete lines of the commercial alloy steel in the post-war period.

**Table 50 Iron and Steel Production**

	Pig Iron	Steel Ingots and Castings	Ferro Alloys
	(Long Tons)	(Short Tons)	(Short Tons)
1939.....	755,731	1,551,054	85,540
1940.....	1,168,894	2,255,872	151,661
1941.....	1,371,176	2,701,315	213,213
1942.....	1,773,337	3,121,361	213,536
1943.....	1,580,050	2,996,978	218,687
1944.....	1,662,537	3,024,410	182,428

### MANUFACTURES

An indication of the contribution of the manufacturing industries is given in Table 51. The striking feature is the remarkable expansion in the net output of the iron and steel, non-ferrous metal and chemical groups. From 1939 to 1942 the net production value of non-ferrous metals and chemicals rose 128% and 184% respectively, while the output of iron and steel products in 1942 had increased to almost four times the 1939 value.

Each of the nine groups recorded expansion during the period, and the grand total rose by 116%. Since the advance in prices,

measured by index numbers, was relatively moderate, the rise in the net values represented mainly an expansion in volume.

As a result of measures designed to control the country's economy and of well organized industrial expansion, Canada ranks fourth among the United Nations in the production of war supplies. Control orders affecting the several wartime industries have been co-ordinated and jurisdiction maintained over the production of those raw materials and finished goods required chiefly for civilian consumption.

**Table 51 Manufactures by Industrial Groups**  
(Net Value\* Dollars in Millions)

	1939	1940	1941	1942
Vegetable products.....	292.1	295.6	349.9	397.0
Animal products.....	122.8	141.2	165.4	203.2
Textiles and textile products.....	181.9	240.3	290.1	341.5
Wood and paper products.....	303.7	396.9	464.0	488.4
Iron and its products.....	275.8	429.5	735.5	1,084.4
Non-ferrous metal products.....	155.8	210.4	288.8	355.0
Non-metallic mineral products.....	85.5	97.7	117.4	141.2
Chemicals and allied products.....	89.0	104.1	157.3	252.4
Miscellaneous industries.....	24.4	26.8	36.7	46.9
Total.....	1,531.1	1,942.5	2,605.1	3,310.0

*Figures for 1943 and 1944 not yet available.*

*\* The net value of production is computed by subtracting the cost of fuel and electricity as well as the cost of materials from the gross value of the products.*

### RUBBER

Before the war Canada imported its total requirements of rubber, which in 1939 amounted to 32,500 tons of natural and 26 tons of synthetic rubber. In an effort to build up stockpiles of natural rubber for war use a government agency was established in May, 1940, with authority to purchase, store and sell crude rubber in accordance with war needs. By the time rubber was placed under supplies control in August, 1941, the reserve of natural rubber amounted to 18,000 tons. This agency was authorized to stockpile 50,000 tons and was made the sole Canadian importer and seller of rubber.



Table 52

**Rubber**  
(In Long Tons)

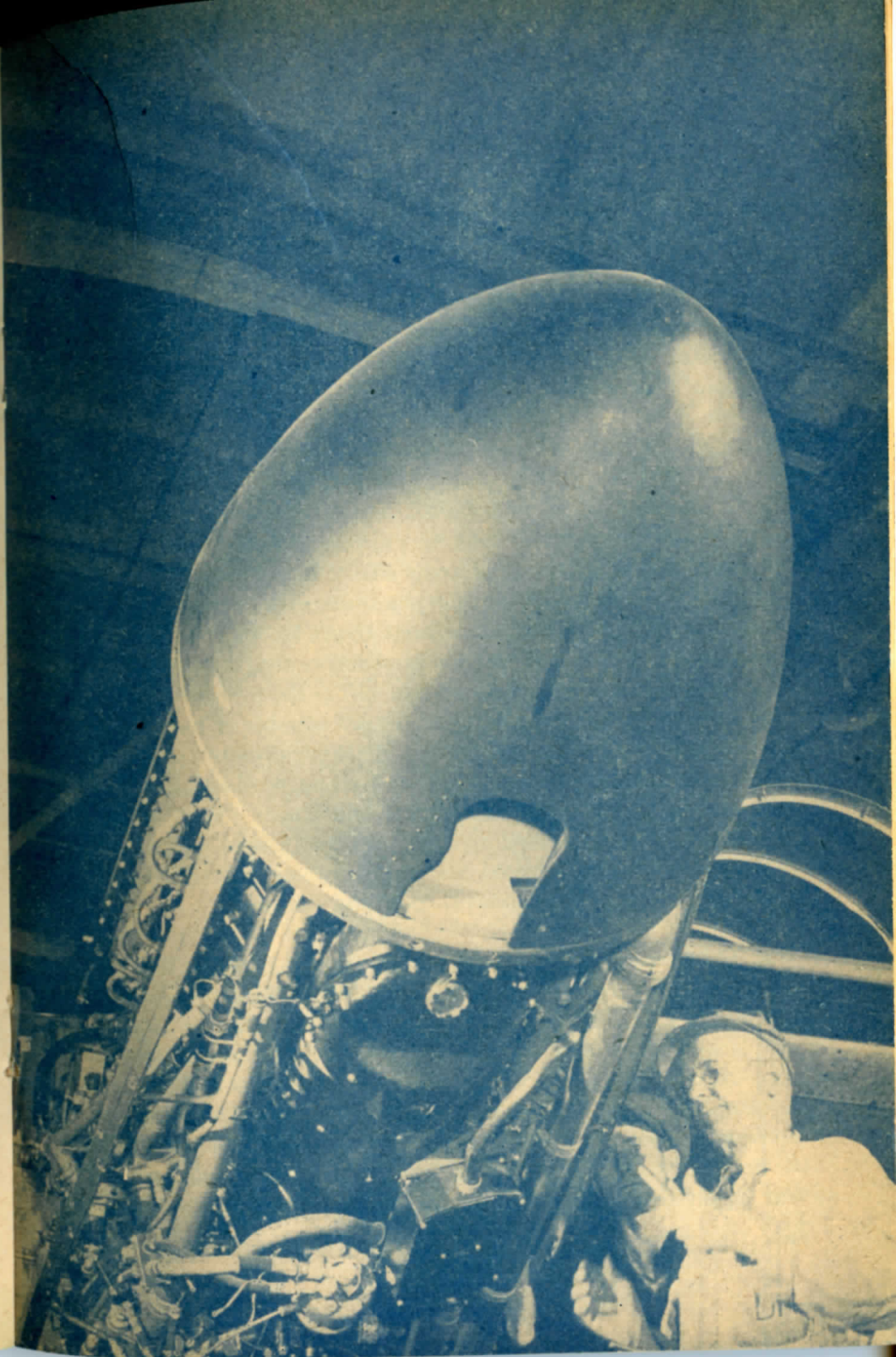
	1939	1940	1941	1942	1943	1944	Total
Production, synthetic..	....	....	....	....	2,554	34,831	37,385
Consumption { natural..	32,249	37,952	55,607	43,200	29,199	9,603	207,810
synthetic.	26	43	81	100	3,705	24,755	28,710
reclaimed	7,517	8,438	9,462	13,015	13,993	12,623	65,048

Even before Pearl Harbor, steps had been taken to conserve rubber and from December, 1941, the government undertook to curtail civilian consumption drastically and to start production of synthetic rubber. Control restrictions were tightened. All civilian dealings in new tires and tubes for vehicles were prohibited except by permit, the processing of crude rubber for civilian purposes was frozen, and rubber prices were fixed. Towards the end of 1941 a government-owned company was incorporated to produce synthetic rubber, and the building of a plant was commenced. On September 29, 1943, the first commercial production was obtained and one year later the plant had turned out 60,000,000 pounds of rubber. (Rubber production figures are included, for statistical purposes, in manufactures from vegetable products—see Table 51).

The wartime change from the use of natural to synthetic rubber is shown in Table 52. Consumption of natural rubber in 1944 was only 10,000 tons, compared with 56,000 tons in 1941. In 1944 consumption was 18% natural rubber, 27% reclaim and 55% synthetic.

Imports of natural rubber declined from a peak of 66,614 tons in 1941 to 6,700 tons in 1944; at the same time imports of synthetic rubber rose from 81 tons in 1941 to 3,445 tons in 1943, and dropped again in 1944 to 2,295 tons as Canadian production got under way. In 1944 Canada exported synthetic rubber for the first time—11,055 tons.

The combined synthetic rubber output of the United States and Canada has supplied the armed forces of the allies with all the rubber they need.





# WAR PRODUCTION

Fourth in war production among the United Nations, Canada had made supply and capital commitments to the end of May, 1945, to a total exceeding \$10,900,000,000 or more than \$900 per capita. Of the weapons of war produced as a result of these commitments only about 30% has been allocated to the Canadian armed forces. The remainder has been turned over to the United Kingdom, the United States, Russia, China, France, Australia, New Zealand and other United Nations.

The nation's daily war production bill rose from \$1,500,000 in 1940 to \$3,500,000 in 1941 and \$7,000,000 in 1942. In 1943 it reached its peak of about \$9,000,000. This 1943 output was maintained in physical volume in 1944, but virtual completion of all war construction and a reduction of costs effected by improved manufacturing methods caused the daily expenditure to drop to \$8,000,000. Since the beginning of 1945 it has been about \$6,000,000.

In the early days of the war the production assignments allotted to the nation were comparatively simple, but as the pre-war weapons became obsolete and as Canada proved itself capable of turning out larger and more complex equipment, the assignments constantly shifted, changed and grew more difficult. The production figures merely suggest the magnitude of the achievement. They cannot describe the tremendous effort needed to convert a semi-agricultural country into a wartime arsenal nor the complications which arose because of shortages of manpower, tools and materials.

The full responsibility for obtaining raw materials, machine tools and plant facilities, of building and operating new government-owned plants and of undertaking all supply purchasing in Canada for the armed services of Canada and its allies was centralized in one government body, the Department of Munitions and Supply. Thus competition as between one arm of the services and another or between one allied nation and another was eliminated. Canada is the only country among the United Nations which has handled all war supply through a single agency.

**Table 53 Estimated Value of War Production**  
(Dollars in Millions)

	1939-40	1941	1942	1943	1944	Total
Merchant vessels.....	27	29	183	232	170	614
Naval vessels (including repair).....	73	73	73	164	204	541
Aircraft (including overhaul and repair).....	45	110	232	361	403	1,151
Mechanical transport.....	119	198	368	435	462	1,582
Armored fighting vehicles.....	21	155	203	146	146	525
Guns and small arms.....	1	20	162	213	156	552
Gun ammunition.....	14	95	218	193	135	655
Small arms ammunition.....	2	16	39	84	98	239
Chemicals, explosives and filling	2	54	136	151	149	492
Instruments and signals.....	3	15	82	164	215	479
Miscellaneous military stores (clothing, food, fuel, etc.).....	97	181	412	521	454	1,665
<b>Totals.....</b>	<b>310</b>	<b>812</b>	<b>2,060</b>	<b>2,721</b>	<b>2,592</b>	<b>8,495</b>
Defence construction.....	94	138	219	194	100	745
Government-financed plant expansion.....	103	221	185	200	57	766
<b>Grand Totals.....</b>	<b>507</b>	<b>1,171</b>	<b>2,464</b>	<b>3,115</b>	<b>2,749</b>	<b>10,006</b>
Deliveries on orders placed abroad (excluded from above totals).....	69	117	126	329	241	882

**NOTE 1.** The above figures cover only war production and construction on contracts placed by the Department of Munitions and Supply. Deliveries of war exports placed through other government and private agencies are excluded.

**2.** These figures include approximately \$56,000,000 of contracts negotiated by the United Kingdom Payments Office (formerly United Kingdom Technical Mission).

To ensure the channelling of war materials into war output and to assure a basic civilian supply, almost all primary and secondary materials were placed under a system of controls.

By the end of June, 1940, timber, steel and oil controls had been established. These were quickly followed by controls over non-ferrous metals, machine tools, power, chemicals, ship repairs, motor vehicles, transit facilities, construction, rubber, aircraft, coal, wood fuel and other items.

Several government-owned companies were formed to increase production and aid in controlling raw materials. The first three,



## ESTIMATED VALUE OF WAR PRODUCTION in millions of dollars



incorporated in May, 1940, had the respective tasks of administering and improving the then critical machine tools position, of stockpiling and distributing silk, and of stockpiling and distributing rubber. Later crown companies produced and purchased aircraft woods, built and operated a synthetic rubber plant, repaired machine tools, built ships, operated merchant vessels, directed the aircraft industry, built aircraft components, constructed aircraft, made small arms, supervised chemicals and explosives production, dealt with the channelling of war orders from the United States, made intricate electrical apparatus and optical glass and performed many other war assignments. In all 31 government-owned companies were established, 10 to operate plants, 20 to fulfill administrative or purchasing functions and one to deal with the disposal of government assets.

In addition, the government invested \$710,000,000 in war manufacturing plants operated by the government and private contractors. Title to such facilities remains vested in the government.

### AIRCRAFT

Before the war aircraft production was only a minor industry in Canada. The annual average output during the five years up to 1939 was about 40 airplanes, and the industry employed only 1,000 workers. By 1943 aircraft production had become one of the outstanding industries of the country. The annual rate of output had reached 4,000 planes and more than 120,000 men and women were employed. By the end of May, 1945, a total of 15,905 aircraft had been produced.

At the outbreak of war the immediate demand was for light training craft to meet the initial needs of the British Commonwealth Air Training Plan. At the same time long-range production was

arranged, and expansion of manufacturing facilities planned accordingly. By the end of 1944 the government had directly invested \$80,822,000 in capital facilities for the industry and had set up two government-owned companies, one for production and one for co-ordination of the program.

As the air training plan developed, the need for heavier training planes arose. The manufacture of training aircraft was gradually reduced and the production of bombers and fighting craft developed. The figures in Table 54, showing the weight in pounds compared with the total annual production, reveal this trend. The average unit weight of aircraft produced in 1940 was 1,920 pounds. By September, 1944, the average had reached 7,775 pounds and in 1945 was still climbing. The weights given are exclusive of aircraft engines, since no such engines have been produced in Canada.

Of major importance to the allied war effort has been the production in Canada of aircraft components. Millions of dollars worth of components for the famous B-29 or Superfortress and for other combat aircraft have been made in Canada for United States prime contractors. In addition Canada has supplied great quantities of aircraft woods and other raw materials for airplanes manufactured in the United Kingdom.

This nation has also assembled 3,200 aircraft from the United Kingdom and purchased more than 3,000 in the United States. A total of 5,000 service aircraft built in Canada has been delivered to the United Nations in various theatres of war.

In the first five months of 1945 production amounted to 1,209 airplanes, including 175 Lancasters, 166 Mosquito bombers, 183 Mosquito fighter bombers, 22 Mosquito trainers, 53 P.B.Y. flying boats and amphibians, 296 Curtiss dive-bombers, 77 Norsemen, 146 Harvards, one York and 90 Ansons.

To keep its more than 12,000 service and training airplanes in the air, Canada developed an aircraft repair and overhaul program which operated in 20 major plants, assisted by 65 smaller contractors and 50 ancillary firms. The main contractors were strategically located from coast to coast and could handle any type of plane. At one time this overhaul industry employed 18,000 men and women and occupied 2,000,000 square feet of factory floor space. With the



Table 54

## Canadian War Production

	1940 (1)	1941	1942	1943	1944	Total
<b>Aircraft</b>						
Number accepted:						
Service planes.....	147	668	862	898	2,364	4,939
Advanced trainers.....	54	333	2,328	1,926	1,430	6,071
Elementary trainers.....	703	698	592	1,309	384	3,686
Totals.....	904	1,699	3,782	4,133	4,178	14,696
Total weight in pounds, without engines.....	1,740,000	4,358,000	17,578,000	20,088,000	27,892,000	71,656,000
<b>Vehicles</b>						
Mechanical transport.....	70,000	119,000	198,000	173,000	147,000	707,000
Trailers.....			1,599	1,626	6,327	9,552
Tires (total including military and civilian).....	5,743,801	3,778,127	1,916,924	1,598,333	2,616,745	15,653,930
<b>Armored Vehicles</b>						
Tanks and self-propelled mounts.....		100	2,044	1,926	1,737	5,807
Carriers and others—tracked.....		2,927	8,783	10,487	8,968	31,165
Wheeled vehicles.....			2,160	3,075	3,503	8,738
Totals.....		3,027	12,987	15,488	14,208	45,710
<b>Guns</b>						
Barrels and forgings.....	200	6,100	21,100	38,500	16,100	82,000
Carriages, mountings, etc.....		300	13,500	10,200	3,200	27,200
Including:						
4-inch naval guns (including barrels).....			107	805	701	1,613
4-inch naval mountings.....			68	657	468	1,193
25-pounder equipment (standard and self propelled) (incl. barrels).....		122	859	1,269	1,191	3,441
40 mm. Bofors equipment.....		5	1,528	1,880	869	4,282
40 mm. barrels and forgings.....	154	3,688	8,580	23,517	8,279	44,218
3.7-inch anti-aircraft equipment.....			452	1,114	169	1,735
3.7-inch anti-aircraft barrels.....		1,037	2,252	1,380	638	5,307
<b>Small Arms</b>	1,400	25,700	333,000	584,500	531,200	1,475,800
Including:						
Bren M. gun.....	1,391	15,977	45,095	74,663	32,537	169,663
Sten M. carbine.....			15,868	57,966	36,827	110,661
.303-inch rifles.....		6,847	193,655	331,038	273,364	804,904
20 mm. mountings.....			64	2,348	10,555	12,967
2-inch and 3-inch trench mortar and bomb thrower.....		550	17,521	27,665	22,519	68,255
Browning M. gun.....		1,863	31,937	23,980		57,780
Anti-tank rifles.....			20,365	30,246		50,611
Pistols, 9 mm.....					71,995	71,995
<b>Gun Ammunition</b>						
Complete rounds, filled.....		1,200,000	28,000,000	30,000,000	30,000,000	89,200,000
Empty cartridges for export (2).....	958,000	4,455,000	15,025,000	18,323,000	14,654,000	53,415,000
Empty shells for export (2).....		3,000	1,356,750	887,400	558,300	2,805,450
<b>Small Arms Ammunition</b> (millions of rounds) (3).....		385	1,175	1,490	1,180	4,230
<b>Chemicals and Explosives</b> (net output in short tons).....	13,500	145,000	430,000	500,000	675,000	1,763,500
<b>Shipbuilding</b> (4)						
Cargo vessels—number.....		1	81	150	113	345
tonnage.....		10,350	838,350	1,478,000	1,066,000	3,392,700
Naval escort vessels.....	14	101	116	100	123	454
Other vessels and special purpose craft.....	2	22	35	655	2,168	2,882

(1) Includes last four months of 1939.

(2) In addition, cartridge cases and other ammunition components have been produced and filled for export as components.

(3) Small arms ammunition came under supervision of Department of Munitions and Supply on April 1, 1941; production data is from April 1, 1941.

(4) In addition, to end of 1944 a total of 524 small craft with power and 3,713 small craft without power were produced.



tapering off of air training the program gradually dwindled, and by the end of May, 1945, had assumed comparatively small proportions.

### MILITARY VEHICLES

Second only to the United Kingdom, Canada has been the principal source of mechanized transport for the armed services of the British Commonwealth. Because sufficient vehicles made in Canada arrived on time, the British Eighth Army was able to turn the tide at El Alamein.

During the years before the war Canadian industry was in part prepared for wartime production. As early as 1936 two automobile companies agreed to merge their resources for war production, and the first order for gun tractors was placed in the autumn of 1939.

Until the first military vehicles came off the assembly line the automotive program was based almost entirely on Canadian needs; but after the British lost nearly all their equipment on the beaches of Dunkirk Canada was called on to produce to full capacity, and all limits were removed from the program.

In peacetime the industry is highly competitive, and trade secrets are jealously guarded. Since the beginning of the war, however, the entire Canadian automotive industry has operated as a co-ordinated unit with free exchange of services and ideas. Just as interchangeability of parts is a feature of the ordnance program, so interchangeability and standardization of design are important features of wartime automotive production.

During the first 15 months of war nearly 80,000 army vehicles were turned out. The period was marked by constant research, and the lessons learned in the fall of France were applied to new designs.

By 1941 Canada had achieved its status as a major producer of mechanized transport. Vehicles were being shipped to the United Kingdom, India, Africa, Australia, Soviet Russia and other actual and potential theatres of war. Canadian-built trucks not only helped to bolster defences in the United Kingdom but had an important part in the East African campaign, the re-conquest of

Abyssinia, and the capture of Italian colonial possessions. More than half the load carriers used by the British Eighth Army in the African desert were made in Canada.

During 1942 all production records for automotive and allied industries were exceeded when more than 100 different types of motorized military equipment left Canadian assembly lines at the rate of 3,500 units of mechanized transport and 300 fighting vehicles each week. The list included universal carriers, scout cars, artillery tractors and trailers, troop and ammunition transports, service workshops, radio trucks, ambulances and fire trucks. In point of value this output has been the biggest production job in the history of the nation.

It was aided by the curtailment of production of passenger cars and by rigidly limiting the output of trucks and buses to essential civilian needs.

Japan's entry into the war, with the consequent loss of two rubber sources, brought about a drop in tire manufacturing from an output of more than 5,700,000 tires in 1940 to 1,500,000 in 1943. However, in 1944, 2,600,000 tires were produced as a result of the development of synthetic rubber manufacturing facilities.

### GUNS AND SMALL ARMS

Except for rifles manufactured in limited quantities in World War I, Canadian industry before 1939 did not concern itself with ordnance production.

Since then, however, the government has invested \$130,000,000 in the gun and small arms industry and other large sums in ancillary industries. Twenty-five major contractors have been engaged in the gun production program, and another six on small arms manufacture. These primary plants employed approximately 50,000 persons of whom 30% were women.

They produced rifles, machine guns, mortars, tank guns, anti-tank guns, field artillery, anti-aircraft ordnance, naval guns and mountings of several types, naval armament equipment, as well as more than 100 types of artillery instruments.

By the end of 1944 a total of 82,000 gun barrels and forgings, 27,200 carriages, mountings and other items had been produced.



While in 1940 there was a total output of only 1,400 small arms of various types, by the end of the fifth year of war 1,475,800 small arms had been produced in Canadian plants. Production peaks were reached in 1943 when 38,500 barrels and forgings, 10,200 cartridges and mountings and 584,500 small arms were manufactured. Since then output has decreased in relation to allied demands.

### AMMUNITION

In World War I shells were made in large quantities in Canada, but it was not until late in that war that the more difficult components and assemblies such as fuses were produced in substantial quantities. In this war a new industry has been established. Shells produced in Canada are filled with the required explosives and shipped to the war fronts as complete rounds of ammunition. In addition, large quantities of depth charges, anti-tank mines, aerial bombs, trench mortar bombs and pyrotechnics have been produced.

Small peacetime arsenals grew, foundries and machine shops enlarged to meet the new demands, and hundreds of small manufacturing plants making non-essential goods were rapidly converted to component production. Shell and filling plants occupied an area as large as Montreal.

By the end of 1944 a total of 38,945,000 fixed rounds of various calibres of gun ammunition had been made, 16,339,000 filled projectiles of various calibres, 26,720,000 filled cartridges, 11,815,000 grenades of various types, 11,326,000 two-inch 4.2-inch mortar bombs and 7,316,884 depth charges, smoke generators, torpedo warheads and anti-tank mines.

Small arms ammunition production rose from 385,000,000 rounds in 1941 to 1,490,000,000 rounds in 1943 and 1,180,000,000 in 1944. By the end of 1944 a total of 4,230,000,000 rounds had been made.

### CHEMICALS AND EXPLOSIVES

In 1939 Canada had a small but active chemicals industry manned by Canadian-trained engineers. To meet the needs of the expanding munition program and to manufacture chemicals which were formerly imported it was necessary to provide additional manufacturing facilities quickly.

An extensive plant construction program was put in operation by the government and private industry which resulted in the erection of five explosives factories costing from \$900,000 to \$14,700,000 each, eight chemical plants costing from \$600,000 to

\$19,000,000 each, seven ammunition-filling plants at from \$500,000 to \$19,000,000 each and more than 25 subsidiary or complementary plants costing up to \$1,000,000 each. Of the 50 plants constructed 41 are owned by the government.

The entire program involved an expenditure of some \$150,000,000 on properties owned by the nation, exclusive of the \$51,000,000 synthetic rubber plant of the government-owned Polymer Corporation.

As many as 50,000 men and women have been employed at one time in this industry. At its peak, production was at the rate of 10,000 tons of chemicals and explosives each week, and from the beginning of the war to the end of June, 1945, more than 2,000,000 tons have been produced.

### SHIPBUILDING

Shipbuilding had been dormant in Canada for more than 20 years before the war. Only nine berths were available for the construction of large vessels.

From 14 fairly large yards with limited facilities and about 15 smaller boatworks in 1939, the Canadian shipbuilding industry grew to 25 major and 65 smaller yards by the end of 1944. Existing yards were greatly expanded, and graving docks, piers, machine shops, marine railways and a large floating drydock capable of berthing two seagoing vessels at one time were built for ship repairs.

In the first quarter of 1940 some 4,000 men were directly engaged in shipbuilding. The employment peak was reached in 1943 when more than 75,000 men and women, exclusive of those employed by various contractors supplying components, were at work in the yards.

### CHEMICALS AND EXPLOSIVES

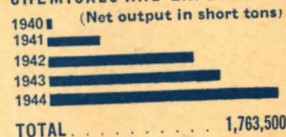




Table 55

## Shipbuilding (1)

	1940 (2)	1941	1942	1943	1944	Total
<b>Cargo Vessels</b>						
10,000-Tonners						
North Sands.....		1	81	100	18	200
Victory.....				33	48	81
Victory tankers.....				4	8	12
Victory stores issuing ships.....					8	8
Canadian.....					13	13
Totals.....		1	81	137	95	314
4,700-Tonners						
Grey type.....				13	14	27
Revised type.....					4	4
Totals.....				13	18	31
Tonnage.....	10,350	838,350	1,478,000	1,066,000	3,392,700	
<b>Naval Escort Vessels</b>						
Frigates.....			2	24	44	70
Corvettes (single screw).....	14	54	15	21	18	122
Algerines.....				15	28	43
Fairmiles.....		16	43	18	11	88
Wooden minesweepers.....			13	20	22	55
Bangor minesweepers.....		30	20			50
Diesel minesweepers.....		1	9			10
Western Isle minesweepers.....			14	2		16
Totals.....	14	101	116	100	123	454
<b>Other Vessels and Special Purpose Craft</b>	2	22	35	655	2,168	2,882

(1) In addition, to end of 1944 a total of 524 small craft, with power and 3,713 small craft without power, were produced.

(2) Includes last four months of 1939.

Table 56. Approximate Costs of Canadian-built Ships

Frigate.....	\$1,500,000	Large tanker.....	\$2,000,000
Algerine minesweeper.....	1,200,000	Medium freighter.....	1,250,000
New type corvette.....	1,000,000	Medium tanker.....	1,000,000
Large freighter.....	1,700,000		

That was the peak year, too, for the construction of heavy cargo vessels. Other craft produced included naval escort vessels, minesweepers, motor torpedo boats, small boats and 4,700-ton cargo ships.

To the end of 1944 Canada had built 314 large cargo vessels and 31 smaller coastal vessels with an aggregate tonnage of 3,392,700; had delivered 454 naval escort vessels and constructed a total of 2,882 other ships and special purpose craft. In addition 524 small powered craft and 3,713 small craft without power were built. At May 31, 1945, a total of \$20,469,404 had been spent on small boat construction.

## SHIP BUILDING

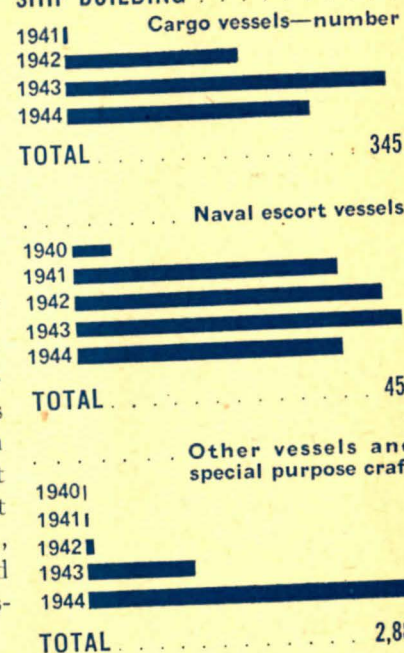


Table 57 Total Production of Miscellaneous Vessels and Special Purpose Craft (To December 31, 1944)

Motor torpedo boats.....	24
Ramped cargo lighters M.L.C.....	1,612
Steel derrick scow, 25-ton.....	4
Railway barges.....	2
Base supply ships.....	2
Minca wooden barges.....	1,026
Tugs, steel, 60'.....	142
Tugs, diesel, 1,000 H.P.....	8
Tugs, wooden, 65' and 80'.....	20
Tugs, 80' steel derrick, diesel.....	12
Scow, wooden 90'.....	17
Auxiliary tankers, 168'.....	2
Scow, wooden derrick 25-ton.....	1
Wooden gate vessels, 100'.....	5
Transport and salvage vessels, 147'.....	2
Supply and salvage vessels, 114'.....	3
<b>Total.....</b>	<b>2,882</b>



## INSTRUMENTS AND SIGNALS

To meet the need for precision instruments and signalling devices in modern war machines the nation established new industries and manufactured articles hitherto not made in Canada.

In 1940 the \$8,684,000 government-owned plant of Research Enterprises Limited was established to manufacture optical glass and war equipment of a secret nature.

One important item was radar in which Canadian scientists helped to pioneer in applying modern mass production methods. Some 20 major types of radar equipment have been developed for a variety of applications, ranging from one type of anti-aircraft defence having 60,000 components and 270 radio tubes mounted in several large trucks, to small compact airborne units for submarine detection at sea and target location on land.

Signalling apparatus produced includes transmitters, trans-receivers, receivers, aviation ground equipment, airborne equipment; point-to-point communication, mobile radio communication, naval communication, sound, recording and reproduction and wire communication systems; tank and vehicle equipment, infantry pack sets and anti-radar as well as radar systems.

In addition to this plant, the government invested \$158,438 in two other government-operated plants; \$1,316,266 in three privately managed government plants, and \$5,148,000 in extensions and equipment for some 34 other privately owned and operated plants engaged in the manufacture of instruments and devices of various kinds.

To the end of the first five years of the war a total of \$610,000,000 of instruments and signalling apparatus had been produced. In the first quarter of 1945 a total of \$36,000,000 of an original scheduled output of \$155,000,000 had been produced. More than 75% of the 1945 output is earmarked for the use of Canada's allies, while the balance is being made for home requirements.

In addition to Research Enterprises, 12 key manufacturing companies all share in this production. There are also many sub-contracting companies producing vacuum tubes, specially designed wire and cable, gas engines, meters, condensers, transformers and other specialties.

## AIRCRAFT



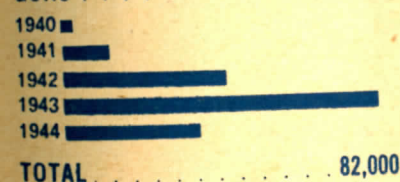
## VEHICLES



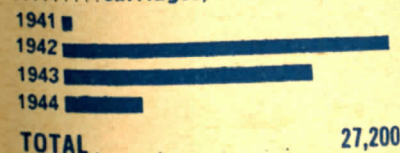
## ARMORED VEHICLES



## GUNS . . . . . Barrels and forgings



## . . . . . carriages, mountings, etc.



## SMALL ARMS



## GUN AMMUNITION . . . . .



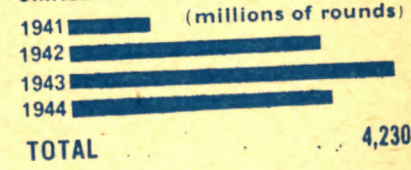
## . . . . . Empty cartridges for export



## . . . . . Empty shells for export



## SMALL ARMS AMMUNITION . . . . .





### GENERAL PURCHASING

To the end of 1944 the general purchasing branch of the Department of Munitions and Supply placed contracts to the amount of \$2,300,184,346, including \$1,664,696,215 on behalf of allied governments. These purchases involved miscellaneous military, naval and air force stores—uniforms, personal equipment, food, machinery, electrical supplies and equipment, gasoline and lubricants, fuel and thousands of other items for the armed forces.

Twenty-two district offices across the country served as local procurement offices for the forces.

### CONSTRUCTION

In August, 1941, a construction control was established under which materials and available skilled labour were channelled into wartime construction only. To the end of 1944 the government had spent on the plant expansion and defence construction programs approximately \$1,524,000,000.

An investment of about \$534,000,000 was made in land, buildings and equipment for the erection of new war production plants and extensions to pre-war plants wholly owned by the government. Approximately \$490,000,000 of this amount represents investments in 98 new war production plants erected since September, 1939.

Some \$166,000,000 was invested in new buildings, alterations, extensions and equipment for the purpose of assisting in the conversion to war production of more than 300 privately-owned plants producing for commercial markets at the beginning of the war.

Approximately \$80,000,000 has been invested in physical assets contributing indirectly to war production, including some \$70,000,000 to provide housing for war workers.

Construction valued at \$744,000,000 was undertaken to provide training and operation facilities for the armed services. Included in this amount is an approximate \$156,000,000 of work done by the Department of Transport in the construction of new airdromes and expansion of existing air fields to meet the requirements of the British Commonwealth Air Training Plan and other war necessities.

Ownership and control of all assets built by government capital investment remain with the nation.





# TRANSPORTATION

As a wartime measure a transport controller was appointed to control and co-ordinate transportation of war material and priority goods, movement of armed forces to training centres and points of embarkation, and to prevent congestions at terminals, undue delays in loading and unloading and prolonged storage of equipment on marshalling tracks. Under this control freight could not be shipped unless provision had been made for its prompt unloading. Space on foreign-going ships had to be allocated, freight cars loaded to capacity, duplicate handling of parcel freight reduced and civilian passenger traffic curtailed.

With 42,346 miles of tracks, the railways of Canada are the chief conveyors of raw material to war factories and of finished products to seaboard ports, and to United States junction points. From 1939 to 1944 freight shipped by rail increased 83% from 84,631,122 tons to 154,845,277 tons. The largest increase was in the manufacturing group which increased by 133%. This included gasoline, petroleum oils, iron and steel products, army motor trucks, tanks and other munitions of war.

Much of the freight which formerly was exported from Pacific coast ports was transported across the country to Atlantic ports. Also because of the scarcity of vessels more freight was shipped by rail to Halifax, Saint John and other eastern ports than in the pre-war years when the Great Lakes and the St. Lawrence River bore a higher percentage of the traffic. The average haul was 14% longer in 1944 than in 1939, and the loading of trains was increased by 15%. Because of the longer haul the actual work performed by the railways in moving freight showed an increase of 110%.

With restrictions on tires and gasoline, much of the traffic formerly carried by privately-owned motor vehicles was transferred to the railways—especially passenger traffic. The number of passengers carried in 1944 was almost three times the number for 1939, and because of the longer average journey the number of passenger miles, which is a true measure of the service rendered by the railways, increased to almost four times that of 1939.

**Table 58 Revenue Freight Carried by Steam Railways**  
(Tons in Millions)

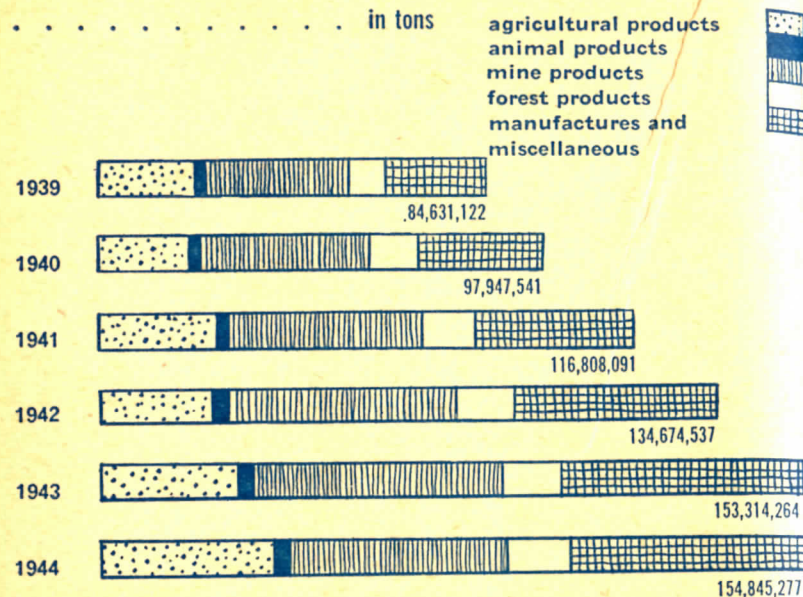
	1939	1940	1941	1942	1943	1944	1944 Increase over 1939 %
<b>Agricultural Products—</b>							
Wheat.....	11.1	10.5	14.9	11.5	13.4	19.2	
Other products...	9.2	9.3	10.8	12.6	17.6	18.1	
<b>Totals .....</b>	<b>20.3</b>	<b>19.8</b>	<b>25.7</b>	<b>24.1</b>	<b>31.0</b>	<b>37.3</b>	<b>84</b>
<b>Animal Products.....</b>	<b>2.3</b>	<b>2.4</b>	<b>2.7</b>	<b>3.2</b>	<b>3.5</b>	<b>3.9</b>	<b>75</b>
<b>Mine Products—</b>							
Coal.....	15.9	17.6	19.7	23.5	24.8	22.9	
Other Products...	15.4	19.2	21.7	25.6	29.5	24.3	
<b>Totals .....</b>	<b>31.3</b>	<b>36.8</b>	<b>41.4</b>	<b>49.1</b>	<b>54.3</b>	<b>47.2</b>	<b>50</b>
<b>Forest Products.....</b>	<b>8.4</b>	<b>10.9</b>	<b>12.5</b>	<b>13.7</b>	<b>13.4</b>	<b>14.3</b>	<b>51</b>
<b>Manufactures and miscellaneous..</b>	<b>22.3</b>	<b>28.0</b>	<b>34.5</b>	<b>44.6</b>	<b>51.1</b>	<b>52.1</b>	<b>133</b>
<b>Grand Totals ..</b>	<b>84.6</b>	<b>97.9</b>	<b>116.8</b>	<b>134.7</b>	<b>153.3</b>	<b>154.8</b>	<b>83</b>

The railway manpower situation caused difficulties, for more than 40,000 or 20% of the trained personnel enlisted in the armed forces, and many senior officials were lent for essential government work. Virtually all retirements were stopped, key men were recalled from retirement, and thousands of women went into railway work formerly performed by men.

Because of scarcity of labour and materials additional passenger equipment was almost impossible to obtain and railways were forced to use old equipment and to convert parlor and observation cars into day coaches. Some trains were affected more than others, but the average number of passengers per car was more than double the 1939 average. Special low rates to civilians were cancelled but because of troop movements, the low rates granted to members of the armed forces, etc., the average revenue per passenger mile collected by the railways was reduced by 8%.



# REVENUE FREIGHT CARRIED BY RAILWAYS



Railway shops were converted to war production and manufactured tanks, guns, gun mountings and ammunition.

**Table 59 Freight Mileage**

	1939	1940	1941	1942	1943	1944	1944 Increase Over 1939 %
Revenue Ton Miles (In Millions).....	31.5	37.9	50.0	56.2	63.9	66.0(1)	110
Gross Ton Miles (2) (In Millions).....	79.4	93.6	119.2	128.4	139.8	145.7(1)	84
Average Haul of Revenue Freight.....	372	387	428	417	417	424(1)	14
Gross Ton Miles per Freight Train Mile..	1,520	1,575	1,637	1,666	1,716	1,745(1)	15

(1) Estimated from monthly reports.

(2) Weight of cars and contents in short tons—revenue and non-revenue freight exclusive of locomotive and tender.

**Table 60 Passengers Carried by Steam Railways**

	1939	1940	1941	1942	1943	1944	1944 Change from 1939 %
Passengers carried (millions).....	20.5	22.0	29.8	47.6	57.2	60.2*	+194
Passenger miles (millions).....	1,752	2,176.5	3,205.5	4,989.3	6,525.1	6,890*	+293
Average number of passengers per train mile.....	48	58	80	115	143	149*	+210
Average number of passengers per passenger car mile.....	11	13	16	21	22	24*	+118
Average passenger revenue per passenger mile (cents).....	2.06	1.96	1.86	1.83	1.90	1.91	-8

\* Estimated from monthly reports.

Extreme vigilance in the inspection of railway bridges and rail maintenance was exerted. Strict supervision was exercised over the carriage of explosives and bulk storage gasoline plants were installed.

## CANAL TRAFFIC

Because of disruption of overseas trade, scarcity of vessels, the submarine menace in the St. Lawrence and other factors, the traffic through the St. Lawrence canals was 30% less in 1944 than in 1939. The largest decrease was a 79% drop in agricultural products, especially wheat, but this was partly offset by a 53% increase in the movement of mine products and a 40% step-up in animal products.

The same factors affected the traffic through the Welland ship canal, but to a lesser degree. While agricultural products were down 62% and forest products 37%, manufactures were up 12% and mine products increased 41%, largely because of heavier coal movements. As a result the 1944 total was only 3% below the 1939 total.



Table 61

### Canal Traffic (Tons in Millions)

	1939	1940	1941	1942	1943	1944	1944 Change from 1939 %
St. Lawrence Canals.....	8.3	7.5	6.9	6.2	6.1	5.9	-30
Welland Ship Canal.....	11.7	12.9	13.2	11.1	10.1	11.3	- 3

### CIVIL AVIATION

Air carriers transported nearly three times as many revenue passengers in 1944 as in 1939 and these passengers travelled more than five times as many passenger miles. Less freight was carried by aircraft but because of longer average hauls the ton miles increased by 35%. More than  $3\frac{1}{2}$  times as much mail was sent by air and the ton miles increased at a still greater rate.

**Table 62 Passenger, Freight and Mail Carried  
by Civil Aircraft in Canada**  
(In Thousands)

	1939	1940	1941	1942	1943	1944	1944 Change from 1939 %
Revenue Passengers Carried.....	133.8	135.8	181.2	198.2	282.9	386.7	+189
Revenue Freight Car- ried (Tons).....	10.6	6.5	7.4	5.5	5.8	5.4	- 95
Mail Carried (Tons)...	1	1.4	1.7	2.7	3.8	3.4	+253

**Table 63 Mileage of Passenger, Freight and Mail Carried  
by Civil Aircraft**  
(In Millions)

	1939	1940	1941	1942	1943	1944	1944 Increase Over 1939 %
Revenue Passenger Miles.....	21.84	38.44	53.89	70.55	100.53	111.04	408
Revenue Freight Ton Miles.....	1.04	.79	.96	1.13	1.50	1.40	35
Mail Ton Miles.....	.43	.61	.90	1.48	2.10	2.07	378

While in peacetime aircraft were used extensively in air photography and mapping, exploration and prospecting, hunting and trapping and in the tourist industry besides the transport of passengers, mail and goods on scheduled routes, the war resulted in curtailment of many special services. On the other hand the airways companies engaged in war contracts, in transporting labour and materials to war projects that were inaccessible by highway or railway, and in training airmen and repairing aircraft for the British Commonwealth Air Training Plan.

### WARTIME AIR TRANSPORTATION DEVELOPMENTS

In 1943 a Canadian trans-Atlantic air service was instituted to carry armed forces mail and official passengers between Canada and the United Kingdom. At first only one aircraft was in service but by the end of 1944 five were operating on a tri-weekly service. All planes and equipment are owned by the Canadian government. As contracting operator Trans-Canada Air Lines is paid expenses for operations.

The Northwest Staging Route, connecting Edmonton by air with Whitehorse, Yukon Territory, had been completed to the point of being in service before December, 1941. Numerous improvements have been made since. New airports have also been constructed between Fort St. John and Vancouver with the object of establishing an airline service between Vancouver and Whitehorse. The Northwest Staging Route now permits the operation of day and night service in all weather from North Vancouver and Edmonton to Whitehorse.

Two very large airports were constructed to facilitate the ferrying of aircraft from North America to Europe. One, at Dorval outside Montreal, Quebec, was constructed as the chief point of embarkation to the United Kingdom; the other, at Goose Bay, Labrador, as an alternative to the airport in Newfoundland.

Canada and the United States jointly constructed airports on the Northeast Staging Route to enable aircraft to be ferried to Europe by way of The Pas and Churchill, Manitoba. Canada has reimbursed the United States for its expenditures in the construction of both northeast and northwest air routes.



**Table 64 Airdrome Construction Under the British Commonwealth Air Training Plan and Other Projects**

	1940	1941	1942	1943	1944
B.C.A.T.P. (new).....	27	65	16	4	
(improved).....	22	42	88	46	10
B.C.A.T.P.—value (\$000) (1)...	18,744	17,916	15,975	9,401	2,440
Others (new).....	1	19	17		
(improved).....		14	46	27	21
Others—value (\$000) (2).....	286	10,996	38,199	32,800	10,186
Building on airdromes.....		34	15	456(3)	

- (1) Includes provision of power, lighting, telephone and water supply.  
 (2) Includes construction of buildings and associated services on Northwest Staging Route, Goose Bay and The Pas airports.  
 (3) Includes construction of buildings on Northwest Staging Route, Goose Bay and The Pas airports commenced in 1942.

Radio aids to navigation and meteorological services have been installed on all routes.

At least 149 new airdromes were constructed and 316 existing airports expanded by the Department of Transport alone to meet the requirements of the British Commonwealth Air Training Plan, home and hemisphere defence, international transportation and aircraft ferrying. Surveying of new airdromes for the B.C.A.T.P. had commenced in 1939 before the air training agreement was signed.

The total area of runways constructed in the development of these new and enlarged airfields approximates a two-lane highway more than 2,900 miles long. The value of electrical lighting, power and communication services constructed exceeded \$10,000,000.

### SHIPPING

Canada's shipping activities fall into three groups: foreign-going, coastal or home trade, and inland waters. Canada's foreign-going Merchant Navy has increased from 37 vessels of 340,000 deadweight tons in 1939 to 178 vessels with an aggregate deadweight tonnage of 1,540,100 tons. This increase has been achieved despite the loss of 35 vessels of a total 327,950 deadweight tons as a result of enemy

action. By the addition of new cargo vessels built in Canadian shipyards, the utilization of captured enemy merchantmen and the diversion of some of the larger coastal and lake ships to ocean trade routes, Canada built a foreign-going fleet to deliver war products to allied fronts.

Reflecting the necessity to conserve cargo space on allied vessels during the war years, shipments of cargoes through Atlantic and Pacific ports in 1944 were 42% lighter than in 1939 for outbound cargoes and 20% lighter for inbound freight, although the value of such exports and imports increased considerably. This necessary reduction in the volume of cargo was made possible by virtually eliminating all bulk cargoes of raw materials and shipping only fully manufactured or semi-manufactured goods. Overseas shipments of cattle on the hoof were discontinued, and meat was shipped in the form of bacon and in other preserved states; fruit, vegetables, eggs and other farm products were shipped in dehydrated or condensed form; and light plywood was largely substituted for lumber.

Where possible, water shipments through dangerous waters were eliminated. For instance, more than 2,300,000 tons of oil were piped from Portland, Maine, to Montreal, Quebec, instead of proceeding by tankers; bauxite for the aluminum plant at Arvida, Quebec, was moved by rail or lake vessels instead of by direct ocean route; coal from the United Kingdom was displaced by coal from the United States, shipped by rail or lake freighter.

Much outward-bound freight was routed by rail to United States ports, and shipments out of British Columbia ports, except those to the United States and Alaska, almost ceased.

**Table 65 Foreign Freight Tonnage Loaded and Unloaded at Canadian Ocean Ports**  
(Tons in Millions)

	Fiscal Years			Calendar Years		
	1938-39	1939-40	1940-41	1941	1942	1943
Freight loaded for foreign countries .....	17.3	16.7	14.3	12.2	9.2	9.4
Freight unloaded from foreign countries .....	10.4	11.1	11.5	11.6	8.0	8.2



## NATIONAL HARBORS

Canada's national harbors at Halifax, Saint John, Chicoutimi, Quebec, Three Rivers, Montreal, Churchill and Vancouver handled the bulk of Canada's wartime water-borne traffic. The figures in Table 66, which reflect the reduction in available shipping space under the wartime convoy system, indicate the extent of traffic through these ports and the volume of cargo handled. While the national harbors handled an increasing tonnage of cargo, the many small ports showed a considerable decrease.

**Table 66**

	1939	1940	1941	1942	1943	1944
	(Sept. - Dec.)					
	(Tons in Millions)					
Net registered tonnage of shipping:						
Inward.....	12.2	36.7	38.6	32.7	27.4	27.0
Outward.....	12.1	36.3	38.7	33.2	27.8	27.1
Total cargo tonnage inward and outward.....	11.4	30.0	29.9	22.1	22.9	25.3

## CANADIAN SHIPPING BOARD

In December, 1939, the Canadian Shipping Board was established to control and direct the employment of all Canadian ocean, coastal and inland water shipping for maximum efficiency in the war effort; to advise on matters relating to water transport; to maintain essential sea and inland waters commerce; to co-operate with the transport controller in the co-ordination of internal and external freight traffic; and to administer not only its own regulations governing Canadian vessels, but, in co-operation with the United Kingdom and the United States, other measures designed to encourage neutral shipping to operate in the interests of the United Nations.

Several wartime controls were applied to Canadian shipping, of which the most important were: vessels of 100 gross tons or more had to obtain a license before proceeding on any voyage; all Canadian firms and individual had to obtain prior approval before chartering any vessel; foreign ships which failed to co-operate in the allied war effort could be denied essential facilities at Canadian ports.





## TRADE\*

Canada, a land of rich natural resources and small population, has developed an export trade from which normally almost one-third of its national income is derived. During the war years, Canada has become the second largest exporting nation in the world. Per capita exports have increased from \$82 in 1939 to \$287 in 1944. Total exports of domestic products in 1944 reached the unprecedented value of \$3,440,000,000, an increase of more than 271% over 1939. More than half of this increase was in foodstuffs, including meat and dairy products to the United Kingdom and large shipments of grain to the United States.

About four-fifths of Canada's present foreign trade is of a war-time character. Prior to the war a large proportion of exports consisted of raw materials or semi-manufactured goods. Since the war the bulk has been fully finished war materials and foodstuffs.

The value of both exports and imports has increased steadily since 1939. In 1944 Canada's total trade (excluding gold) reached a record value of \$5,242,000,000, a more than threefold increase

**Table 67 Exports to Principal Destinations**

(Domestic—Excluding Gold)  
(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
United Kingdom.....	328.1	508.1	658.2	741.7	1,032.6	1,235.0
Other Europe.....	57.9	28.7	11.6	53.2	93.5	322.8
United States.....	380.4	443.0	599.7	885.5	1,149.2	1,301.3
Other North America.....	28.7	41.4	77.6	95.9	91.3	107.7
South America.....	16.2	21.0	29.8	19.8	19.8	25.9
Asia.....	44.8	35.7	69.6	202.1	179.9	212.1
Australasia.....	46.1	45.2	49.1	110.6	78.1	58.1
Africa.....	22.7	55.9	125.4	254.9	327.1	177.0
Totals.....	924.9	1,179.0	1,621.0	2,363.7	2,971.5	3,439.9

\*All figures for 1944 throughout this section are preliminary.

over the 1939 total of \$1,687,000,000. Whereas export values have continued to expand at a rapid rate throughout the war years, imports rose quickly for the first three years of the war, but since 1942 have shown only a small upward trend. This demand for imports is closely related to the war production program. At the outbreak of war Canada was not geared to large armament production, and it was necessary to import large quantities of machinery, machine tools, dies and other factory equipment. As production got well under way, imports levelled off while exports continued their strong upward rise.

Included in the total exports are goods which were provided to other United Nations under Canada's Mutual Aid Plan. The total value of such Mutual Aid supplies exceeded \$1,700,000,000 for the two years ended March 31, 1945.

**Table 68**

### Exports by Main Groups

(Domestic—Excluding Gold)

(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
Agricultural and vegetable products.....	220.1	218.3	285.7	257.8	483.8	741.3
Animals and animal products.....	131.8	164.7	201.7	256.7	289.6	372.9
Fibres, textiles and textile products.....	14.4	21.6	30.8	28.9	30.6	59.7
Wood, wood products and paper.....	242.5	348.0	387.1	389.8	391.1	440.9
Iron and products.....	63.1	127.7	239.9	467.1	716.6	772.9
Non-ferrous metals and products.....	182.9	194.7	244.0	308.9	332.7	339.9
Non-metallic minerals and products.....	29.3	33.8	45.2	56.6	62.2	58.4
Chemicals and allied products.....	24.3	31.2	58.7	77.3	86.4	100.7
Miscellaneous commodities	16.5	39.0	127.9	520.6	578.5	553.2
Totals.....	924.9	1,179.0	1,621.0	2,363.7	2,971.5	3,439.9



# EXPORTS OF CANADIAN PRODUCE

BY MAIN GROUPS EXCLUDING GOLD . . . in \$ millions



agricultural and vegetable products  
animals and animal products  
fibres, textiles and textile products  
wood, wood products and paper  
iron and products  
non-ferrous metals and products (except gold)  
non-metallic minerals and products  
chemicals and allied products  
miscellaneous commodities

\* preliminary

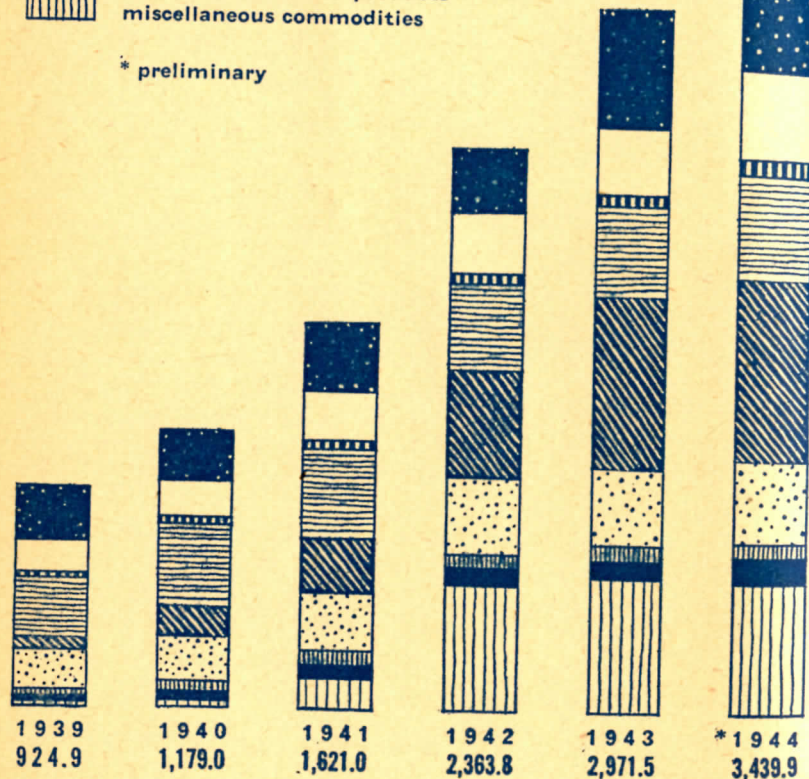


Table 69 Exports of Agricultural and Vegetable Products to Principal Destinations

(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
United Kingdom.....	94.2	121.0	165.4	111.2	147.8	159.5
Other Europe.....	23.8	9.0	3.1	13.1	16.7	57.4
United States.....	79.5	64.5	75.0	79.2	264.4	454.3
Other North America.....	9.3	12.2	18.7	20.7	25.5	30.2
South America.....	4.8	4.4	4.3	2.9	2.6	4.4
Asia.....	4.1	3.3	8.3	4.8	4.3	4.2
Australasia.....	2.1	1.2	2.2	0.7	0.5	1.4
Africa.....	2.3	2.7	8.7	25.2	22.0	29.9
Totals.....	220.1	218.3	285.7	257.8	483.8	741.3

In the agricultural and vegetable group of exports the outstanding items have been grains (wheat, barley, oats, rye, flax) and flour. Other important commodities in this category were potatoes,

Table 70 Exports of Animals and Animal Products to Principal Destinations

(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
United Kingdom.....	73.6	102.6	115.0	158.6	185.3	249.5
Other Europe.....	2.9	0.7	0.6	0.7	0.3	3.8
United States.....	44.1	48.7	64.7	71.9	77.3	88.3
Other North America.....	5.2	6.6	12.6	17.1	18.0	22.9
South America.....	1.1	1.2	2.0	2.3	2.3	2.4
Asia.....	1.2	1.0	2.5	1.5	2.1	3.0
Australasia.....	2.7	2.8	1.2	0.4	0.8	0.5
Africa.....	1.0	1.1	3.1	4.2	3.5	2.5
Totals.....	131.8	164.7	201.7	256.7	289.6	372.9



**Table 71 Exports of Fibres, Textiles and Textile Products to Principal Destinations**

	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	3.5	6.1	3.2	2.1	5.3	12.1
Other Europe.....	0.5	0.2	0.2	0.7	0.8	4.1
United States.....	2.3	2.9	6.5	9.6	6.9	9.7
Other North America.....	1.5	2.9	5.2	6.7	6.2	6.8
South America.....	0.2	0.4	1.2	1.4	1.0	0.8
Asia.....	0.5	1.3	1.6	0.2	0.2	8.2
Australasia.....	2.7	3.1	5.4	5.4	4.8	2.6
Africa.....	3.2	4.7	7.5	2.8	5.4	15.4
Totals.....	<u>14.4</u>	<u>21.6</u>	<u>30.8</u>	<u>28.9</u>	<u>30.6</u>	<u>59.7</u>

fodders and rubber manufactures. The increase in the value of animal products exported reflects heavy shipments of meats, cheese, canned fish and eggs, particularly to the United Kingdom. Under fibres and textiles are recorded certain war materials such as parachutes, uniforms, blankets and web equipment, which increased the value of this group of exports in 1944 to more than four times the 1939 value. Unlike all other commodity groups, the wood and paper products category contains a high percentage of essential civilian goods, but nevertheless the values have almost doubled since 1939 as a result of increased demands for lumber, newsprint, wood pulp and other products. Shipments of military vehicles of all kinds and of guns account for a large proportion of the increases recorded in the iron group. Other war equipment including aircraft, shells, ships and Canadian military stores are grouped under miscellaneous commodities, and this accounts for the largest percentage increase—from \$16,500,000 in 1939 to a peak of \$578,500,000 in 1943.

The geographical distribution of Canadian exports has shown some marked changes under war conditions. The United Kingdom and United States have retained their positions as Canada's best

**Table 72 Exports of Wood, Wood Products and Paper to Principal Destinations**

	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	43.9	83.1	57.5	57.8	75.9	90.8
Other Europe.....	6.2	4.6	1.1	1.1	1.4	2.9
United States.....	165.8	214.8	286.0	308.8	283.4	299.7
Other North America.....	2.9	5.7	7.2	7.1	6.9	8.2
South America.....	3.1	7.8	11.3	5.5	8.0	9.0
Asia.....	2.8	7.8	6.1	1.6	2.1	5.1
Australasia.....	13.8	16.2	10.1	3.8	8.5	15.5
Africa.....	4.0	8.0	7.8	4.1	4.9	9.7
Totals.....	<u>242.5</u>	<u>348.0</u>	<u>387.1</u>	<u>389.8</u>	<u>391.1</u>	<u>440.9</u>

customers. In 1939 their combined purchases represented 76.5% of all Canadian exports while in 1944 they amounted to 73.7%.

Exports to the United Kingdom increased from \$328,100,000 in 1939 to \$1,235,000,000 in 1944. These figures do not include shipments of food and war material on British account consigned from Canada directly to theatres of war such as Egypt, French Africa and Italy. Exports to these destinations on British account are credited in Canadian trade statistics to the country of consignment rather than to the United Kingdom.

Shipments of agricultural products to the United Kingdom, consisting mainly of wheat and flour, rose from \$94,200,000 in 1939 to \$159,500,000 in 1944 (Table 69) while animals and animal products (Table 70) advanced from \$73,600,000 to \$249,500,000. The increase in this group was concentrated in the food items canned fish, meats, cheese and eggs. The flow of guns, trucks, tanks and military vehicles of all kinds to the United Kingdom swelled the exports in the iron group from \$16,000,000 in 1939 to \$297,400,000 in 1944 (Table 73). The non-ferrous metals—aluminum, copper, nickel, lead, zinc, etc.—already at a high level in 1939, advanced in value from \$83,400,000 to \$135,300,000 (Table 74). Exports of



**Table 73 Exports of Iron and Its Products  
to Principal Destinations**

	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	16.0	53.4	70.3	120.7	234.5	297.4
Other Europe.....	1.0	1.0	1.3	10.4	40.6	145.2
United States.....	5.0	6.0	14.2	33.0	47.1	46.5
Other North America.....	3.6	5.3	7.9	6.4	5.0	7.2
South America.....	4.1	4.1	5.6	4.0	2.0	3.9
Asia.....	6.0	8.6	38.7	104.0	139.0	150.4
Australasia.....	17.7	14.8	20.3	53.7	41.6	26.2
Africa.....	9.7	34.5	81.6	134.9	206.8	96.1
Totals.....	63.1	127.7	239.9	467.1	716.6	772.9

chemicals and products to the United Kingdom valued at \$24,000,000 during 1944 were four times greater than in 1939. Miscellaneous commodities (Table 77) include shipments of shells, aircraft, ships and Canadian military stores, and for this reason the value of exports to the United Kingdom under this heading soared from \$4,400,000 in 1939 to \$261,600,000 during 1944.

Exports to the United States showed a more rapid rate of increase after 1941, reflecting the effects of the Hyde Park agreement. The increased demand for civilian supplies from Canada is due in part to the loss of European sources of supply. One example of this is the greatly increased shipments of wood pulp to the United States, a market in peacetime for imports from the Baltic countries.

Exports of agricultural products to the United States in 1944 reached an all-time high value of \$454,300,000 compared with \$79,500,000 in 1939. This increase is largely made up of unprecedented amounts of wheat, barley and oats. Sales of non-ferrous metals to the United States reached the highest point in 1943, valued at \$170,700,000. Included in this total are shipments of nickel (\$58,000,000), aluminum (\$44,000,000) and electrical appa-

tus, chiefly radio and wireless (\$28,000,000). This included a considerable amount of radar equipment. Exports to the United States classified under the miscellaneous group also reached a record level in 1943 at \$220,800,000. The more important items in this category were shells and ammunition valued at \$96,000,000, ships to the value of \$83,000,000 and aircraft, \$26,000,000.

Exports from Canada to European countries other than the United Kingdom were valued at \$57,900,000 in 1939. With the enemy occupation of France, Belgium, the Netherlands and other territories the value dropped to \$11,600,000 in 1941, when Soviet Russia received the largest proportion—\$5,300,000. The trend of the war as well as Canada's increasing contribution of material aid can be traced in the distribution of its exports after 1941. Shipments of war materials to Russia accounted for the major part of exports to Europe exclusive of the United Kingdom in 1942 and 1943. In 1944 the value of goods to Europe reached \$322,800,000, and shipments to Russia amounted to \$103,300,000. The invasion of Italy in 1943 is reflected in Canadian exports to that country in 1944

**Table 74 Exports of Non-Ferrous Metals and Their Products  
to Principal Destinations**

	(Except Gold)					
	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	83.4	101.6	131.7	118.0	134.7	135.3
Other Europe.....	18.6	11.0	3.4	13.7	12.1	26.2
United States.....	49.5	67.6	92.3	159.9	170.7	156.3
Other North America.....	0.9	1.6	2.9	2.1	1.3	2.4
South America.....	1.9	1.6	2.6	1.0	0.7	1.9
Asia.....	25.5	8.0	3.6	4.8	6.6	7.9
Australasia.....	2.0	2.0	4.8	8.6	5.2	5.0
Africa.....	1.1	1.3	2.7	0.8	1.4	4.9
Totals.....	182.9	194.7	244.0	308.9	332.7	339.9



valued at \$160,100,000. From D-day to December 31, 1944, direct shipments to France amounted to \$15,900,000.

The figures on exports to Africa show the progress of the war in that theatre. In 1939 the value was comparatively small—\$22,700,000. By 1941, with exports to Egypt at \$79,200,000, it had risen to \$125,400,000. War material for all the Mediterranean and Near East areas continued to pour into Egypt from Canada during 1942, when the value soared to \$213,100,000. The North African invasion was followed by exports to French Africa, valued at \$71,300,000 in 1943 while in the same year Egypt took material to the value of \$188,700,000. Direct shipments to Italy in support of the 1944 campaign reduced the value of supplies consigned to French Africa to \$32,200,000 in 1944 while goods to Egypt dropped to \$108,300,000.

During the war period Canadian shipments to Switzerland consisted almost entirely of relief supplies and Red Cross parcels to prisoners of war. The extent of this aid is indicated by the value of exports to Switzerland—\$11,600,000 in 1943 and \$16,100,000

#### Exports of Non-Metallic Minerals and Their Products to Principal Destinations

Table 75	(Except Chemicals) (Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	3.4	6.4	5.1	6.0	7.9	4.7
Other Europe.....	3.8	1.6	0.1	0.1	0.2	0.2
United States.....	16.2	19.3	32.3	38.9	41.5	38.0
Other North America.....	1.6	2.8	5.0	9.7	10.1	12.6
South America.....	0.4	0.3	1.0	0.8	1.1	1.3
Asia.....	2.3	2.1	1.1	0.2	0.1	0.1
Australasia.....	1.2	1.0	0.5	0.8	1.1	1.3
Africa.....	0.4	0.3	0.1	0.1	0.2	0.2
Totals.....	29.3	33.8	45.2	56.6	62.2	58.4

#### Table 76 Exports of Chemicals and Allied Products to Principal Destinations

	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	5.7	8.3	26.4	31.1	22.9	24.0
Other Europe.....	0.3	0.2	0.2	0.6	5.0	7.7
United States.....	9.7	10.8	15.5	29.1	37.1	47.2
Other North America.....	2.9	3.2	4.9	5.6	5.7	6.5
South America.....	0.3	0.8	1.6	1.5	1.5	1.8
Asia.....	2.0	2.8	3.6	2.2	2.7	5.8
Australasia.....	2.7	3.1	3.3	3.8	4.9	2.8
Africa.....	0.7	2.0	3.2	3.4	6.6	4.9
Totals.....	24.3	31.2	58.7	77.3	86.4	100.7

in 1944. Canada's gift of wheat for relief in Greece accounts for the value of exports to that country. (For details of such shipments see page 128).

#### Table 77 Exports of Miscellaneous Commodities to Principal Destinations

	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
United Kingdom.....	4.4	25.6	83.7	136.2	218.3	261.6
Other Europe.....	0.7	0.3	1.6	12.8	16.4	75.3
United States.....	8.3	8.5	13.2	155.0	220.8	161.3
Other North America.....	0.9	1.2	13.1	20.5	12.7	10.8
South America.....	0.2	0.3	0.4	0.3	0.5	0.5
Asia.....	0.5	0.8	4.1	82.9	22.8	27.4
Australasia.....	1.2	1.0	1.2	33.5	10.6	2.7
Africa.....	0.3	1.3	10.6	79.4	76.4	13.6
Totals.....	16.5	39.0	127.9	520.6	578.5	553.2



Exports to Asia have also undergone major alterations. In 1939 this trade was valued at \$44,800,000 featured by exports to Japan which amounted to \$28,200,000. After Pearl Harbor, Canadian material to the value of \$167,900,000 was sent to British India in 1942. The next year the supplies to India amounted to \$134,600,000 and in 1944, \$174,800,000. Exports to China in 1942 were valued at \$7,800,000. No shipments were possible in 1943 but in 1944 war material consigned to China amounted to \$14,900,000. Exports to other Asiatic countries were to Iraq—\$20,200,000 in 1942, \$22,100,000 in 1943 and \$5,700,000 in 1944; to Turkey, \$14,500,000 in 1943 and \$7,100,000 in 1944.

The entrance of Japan into the war affected Canadian exports to Australasia. This trade showed little change until 1942 when exports to Australia increased to \$78,900,000 compared with \$37,300,000 in 1941. Materials shipped to New Zealand in 1942 were valued at \$30,300,000 compared with \$10,000,000 in 1941. Shipments to this area declined in 1943 and 1944, doubtless as a result of increasing supplies being available from the United States.

Trade with South America showed only normal variations for it consists of civilian goods with no war theatre included in that territory.

For statistical purposes, North America (the United States excluded) embraces Newfoundland, Mexico, Central America, the West Indies, Bermuda and other smaller countries. Exports to this group rose steadily from \$28,700,000 in 1939 to \$107,700,000 in 1944. Goods supplied to Newfoundland in 1939 were valued at \$8,500,000, whereas in 1944 the value was \$47,900,000. Normally, civilian supplies for Newfoundland come principally from the United Kingdom and United States and the loss of these sources of supply during the war years has been met by Canadian goods. Exports to Mexico and the various countries of the West Indies and Central America have also shown large increases during this period. Despite shipping and production difficulties, Canada has aided to a large extent in supplying civilian requirements affected by the closing of European and other sources of supply.

**Table 78 Exports of Principal Commodities**  
(1944 Order of Value)  
(Units and Dollars in Millions)

	1939	1940	1941	1942	1943	1944 *
Total domestic exports (excluding gold) . . . . .	\$ 924.9	1,179.0	1,621.0	2,363.7	2,971.5	3,439.9
Motor vehicles and parts (including gun carriers and tanks) . . . . .	\$ 25.9	65.6	153.7	328.3	507.4	433.2
Wheat . . . . .	\$ 109.0	119.5	161.9	121.8	234.5	384.2
	bu. 162.9	139.2	196.6	143.0	219.2	291.7
Non-ferrous metals . . . . .	\$ 182.9	194.7	244.0	308.9	332.7	339.9
Cartridges and shells . . . . .	\$ .8	12.5	41.9	300.4	353.9	313.9
Guns . . . . .	\$ .0	2.7	13.0	73.7	143.9	239.6
Newsprint . . . . .	\$ 115.7	151.4	154.4	141.1	144.7	157.2
	tons 2.7	3.2	3.3	3.0	2.8	2.8
Bacon . . . . .	\$ 32.7	58.8	77.5	100.6	116.1	148.3
	lbs. 187.8	345.6	464.6	528.1	563.0	695.8
Aircraft and parts . . . . .	\$ .4	6.0	20.2	27.0	44.8	107.1
Wood pulp . . . . .	\$ 31.0	60.9	85.9	95.3	100.0	101.6
	tons .7	1.1	1.4	1.5	1.6	1.4
Planks and boards . . . . .	\$ 48.8	67.7	74.2	80.1	74.2	90.1
	ft. 2,113.2	2,451.6	2,282.1	2,166.1	1,726.5	1,862.0
Flour . . . . .	\$ 16.4	26.4	44.8	45.8	66.3	90.0
	bbls. 5.3	7.0	11.4	10.6	13.0	13.9
Chemicals and products (excluding explosives) . . . . .	\$ 23.7	28.4	38.5	53.0	69.1	81.6
Non-metallic minerals . . . . .	\$ 29.3	33.8	45.2	56.6	62.2	58.4
Canadian army and navy stores . . . . .	\$ .0	1.4	40.3	55.1	48.6	45.6
Cheese . . . . .	\$ 12.2	15.7	13.6	26.9	26.8	27.1
	lbs. 90.9	106.6	92.3	141.5	129.7	131.4
Ships and repair parts . . . . .	\$ .5	.1	2.0	106.8	88.9	23.3
	tons .002	.001	.003	.223	.198	.077
Pulpwood . . . . .	\$ 11.9	12.5	15.9	20.3	18.6	20.0
	cords 1.4	1.4	1.7	1.8	1.4	1.4
Explosives . . . . .	\$ .6	2.8	20.2	24.3	17.3	19.1
Canned fish . . . . .	\$ 9.3	9.8	16.4	20.0	18.4	17.1
(salmon and herrings) . . . . .	lbs. 68.3	65.9	120.0	140.8	115.4	107.8
Pigs, ingots, blooms, billets . . . . .	\$ 5.2	12.9	21.8	20.5	22.7	17.0

\*1944 items represent 78.9% of all exports during the year.



Exports by principal commodities as shown in Table 78 indicate the progress of Canada's war effort. The expanding volume of motor vehicle exports since 1941 has brought the total value of such exports for the five war years to \$1,488,000,000—\$193,000,000 in excess of the value of wheat and flour for the same period. Wheat and flour are normally Canada's main trading commodities. The item of "non-ferrous metals" includes aluminum, brass, copper, lead, nickel and zinc, mainly in primary forms, and in addition large amounts of finished radio equipment. "Non-metallic minerals" consist principally of asbestos, artificial abrasives, coal and petroleum oils.

**Table 79 Exports of Principal Food Products**

(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
Fruits.....	10.5	5.9	5.7	4.6	6.9	10.6
Vegetables.....	10.3	5.2	5.3	5.4	7.8	13.6
Grains and products.....	155.4	172.3	231.0	188.7	391.4	606.8
Other vegetable food products.....	3.0	2.8	5.0	7.3	8.2	11.0
Fishery products.....	28.9	31.6	41.2	49.8	57.1	63.9
Meats.....	37.5	63.3	84.2	110.4	130.8	192.0
Milk and products.....	18.2	20.4	21.3	34.3	36.1	34.8
Eggs (dried).....	...	...	...	7.8	14.5	21.3
(shell).....	0.3	2.8	4.2	2.0	0.5	0.6
Totals.....	264.1	304.3	397.9	410.3	653.3	954.6

Food for both military and civilian needs is vitally important. The transfer of millions of men from normal occupations to the armed services and war industries has placed a tremendous burden on the food production capacity of the world. How well Canada has met the challenge to produce and distribute increasing quantities of foodstuffs is illustrated in Tables 79 and 80. Table 79 gives summary values of the exports of the principal items of food during

the war years compared with 1939, while Table 80 illustrates the geographical distribution of these exports.

**Table 80 Exports of Main Food Products to Principal Destinations**

(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
United Kingdom.....	136.5	201.8	270.0	256.7	324.0	391.6
Other Europe.....	22.8	8.3	2.4	12.5	15.3	55.3
United States.....	83.8	69.6	82.1	84.0	248.5	426.9
Other North America.....	10.9	14.3	23.8	29.8	34.6	40.9
South America.....	2.3	2.6	3.5	3.2	3.2	4.7
Asia.....	3.0	2.6	9.0	4.0	4.7	5.7
Australasia.....	2.9	2.6	1.1	0.4	0.7	0.3
Africa.....	1.9	2.5	6.0	19.7	22.3	29.2
Totals.....	264.1	304.3	397.9	410.3	653.3	954.6

#### FOOD TO THE UNITED KINGDOM

The value of food supplied to the British Ministry of Food under wartime contracts rose from some \$62,000,000 in 1940 to more than \$277,000,000 in 1944. To facilitate arrangements for the procurement and transfer of the large quantities of food involved the following special boards were set up early in the war to deal with specific products and administer the export contracts.

**Meat Board**—The Meat Board (at first known as the Bacon Board) was established December 20, 1939, and commenced operations on January 20, 1940. This board has been active in the negotiation of contracts with the British Ministry of Food and has supervised the fulfilment of contract commitments. Its duties also include arranging the processing, storage, transportation and domestic distribution of meats and meat products, and regulating marketing to the extent necessary to ensure exports. The board delivers the meat at Canadian seaboard, and the British Ministry of



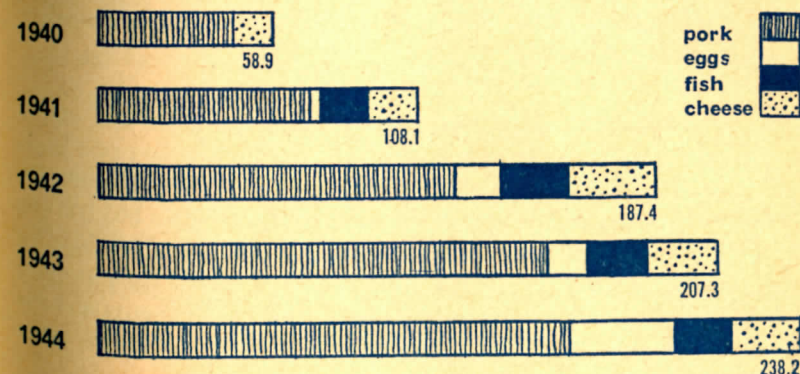
Food then assumes responsibility for transporting it. The British government makes payment to the Meat Board, and the board pays packers on a fully graded basis.

**Table 81 Principal Supplies to the British Ministry of Food Under Contract**  
(Units and Dollars in Millions)

		1940	1941	1942	1943	1944
<b>Exported by the Meat Board from January 20, 1940 (1)</b>						
Bacon.....	\$	45.7	69.9	118.8	145.1	146.2
	lbs.	248.9(2)	425.6	600.0	675.1	659.7
Other Pork Products (including pork, pork offals and lard)...	\$	0.2	1.7	3.3	5.9	13.8
	lbs.	2.3	17.1	17.1	25.7	58.3
Beef.....	\$	...	...	...	...	26.2
	lbs.	...	...	...	...	128.7
<b>Exported by Dairy Products Board from May 23, 1940 (3)</b>						
Cheese.....	\$	13.0	16.6	29.4	23.4	24.5
	lbs.	93.1	115.4	142.1	114.4	122.7
Evaporated Milk.....	\$	2.8	2.6	3.0	1.4	1.4
	lbs.	36.1	30.9	32.1	14.4	14.4
Butter.....	\$	...	...	...	2.9	...
	lbs.	...	...	...	7.1	...
<b>Exported by the Special Products Board from April 15, 1941 (4)</b>						
Eggs, shell.....	\$	...	3.6	1.3	...	...
	doz.	...	13.7	4.1	...	...
Eggs, dried.....	\$	...	...	11.8	14.0	34.2
	lbs.	...	...	11.6	11.7	27.6
Poultry, dressed.....	\$	...	...	...	0.1	0.8
	lbs.	...	...	...	0.3	2.0
<b>Fruit and Vegetable Products (including fresh, canned and evaporated apples, fruit pulp canned and dehydrated vegetables).....</b>						
	\$	...	5.5(4)	2.0	6.2	10.5 (approx.)
<b>Exported by the Department of Fisheries from 1941 (5)</b>						
Canned Fish (including salmon, herring, tomalley, sardines—net value)—48-lb. cases.....	\$	...	16.3	22.8	17.6	15.8
	...	...	2.5	2.6	2.9	2.2
Frozen Fish.....	\$	...	...	...	1.3	3.7
	lbs.	...	...	...	8.8	22.8
Totals.....	\$	61.7	116.2	192.4	217.9	277.1

- (1) Meat Board figures represent the amount bought by the British Ministry of Food in each contract year, not the amount shipped within the year. Originally the contract year for meat was from October 1 to September 30, but in practice it has been extended each year until by the end of 1943 the contract year virtually coincided with the calendar year. For convenience in this table the two are considered to coincide—e.g. 1942-43 figures are listed under 1943. In January, 1944, a two-year agreement was made. The figures in the 1944 column represent the amount purchased up to December 31, 1944.
- (2) This includes only bacon processed from current production after the board commenced operations on January 20, 1940. In addition there were 82,578,402 pounds of bacon and cuts shipped or stored by packers prior to January 20, 1940, but within the contract period, making grand total shipments of 331,481,636 pounds with an estimated value of \$60,860,000.
- (3) Figures from the Dairy Products Board represent quantities purchased by the British Ministry of Food and shipped in the contract year, April 1 to March 31—e.g. figures in the 1944 column cover shipments in the contract year 1944-45.
- (4) Figures from the Special Products Board represent goods shipped on contract covering products derived from the crop produced in the year specified, with the exception of the fruit and vegetables figure for 1941, which includes some products from the crops grown in 1939 and 1940.
- (5) Prior to 1941 supplies of fish to the United Kingdom were handled by private trade. The figures in this table show supplies made available by the federal Department of Fisheries and paid for by the British Ministry of Food in the fiscal year—e.g. 1941 figures relate to fish purchased in the fiscal year 1941-42. In each instance the great bulk of the fish came from the production of the calendar year indicated. Figures for salted fish are incomplete and are therefore not included, but this product was shipped in 1943 and 1944 to the value of about \$600,000 for the two years. In addition to these shipments made under government agreements some fish and fish oil reached the United Kingdom through regular trade channels during the war.

## PRINCIPAL SUPPLIES TO THE BRITISH MINISTRY OF FOOD. . . . UNDER CONTRACT in millions of dollars





**Dairy Products Board** — Established May 23, 1940, the Dairy Products Board was given authority to make all arrangements for the export of cheese and other dairy products as required by the British Ministry of Food. The board grants export licenses to manufacturers and exporters and generally expedites the movement of dairy products overseas. It also regulates the total stocks of cheese and butter in storage, allocates supplies for home and export consumption and sees that priority is given to cheese for the United Kingdom.

**Special Products Board** — This board was set up on April 15, 1941, to arrange for the shipment of eggs, poultry and other food items such as fruit and vegetables for which provision had not already been made. It has authority to regulate the export of such products, to require their delivery at seaboard and to store them when necessary.

### IMPORTS

The value of imports into Canada increased almost 100% between 1939 and 1941. Imports from Europe, with the exception of the United Kingdom, were greatly curtailed, but imports from all other sources increased at virtually the same high rate. The value of supplies from the United States, consisting largely of machinery and raw materials for munitions production, more than doubled in the two-year period. The imports of aircraft and other supplies for the British Commonwealth Air Training Plan also swelled the volume during this period both from the United Kingdom and the United States.

The demands of the war program for materials, fuel and equipment have kept imports at a high level. During the last two years the value of imports reached an average of more than \$145,000,000 per month compared with a monthly average of less than \$63,000,000 in 1939. The submarine warfare and lack of available shipping curtailed shipments from some sources. War with Japan stopped the flow of strategic materials from the Straits Settlements and the East Indies and for a time greatly reduced shipments from other

**Table 82 Imports From Principal Sources**  
(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
United Kingdom.....	114.0	161.2	219.4	161.1	135.0	110.6
Other Europe.....	37.1	19.2	6.9	5.2	5.4	9.3
United States.....	496.9	744.2	1,004.5	1,304.7	1,423.7	1,447.2
Other North America.....	17.1	24.6	36.6	32.9	53.2	66.5
South America.....	21.1	36.2	56.8	44.1	45.0	54.8
Asia.....	38.1	63.2	74.8	46.2	23.3	32.9
Australasia.....	18.6	25.8	36.9	36.2	38.7	25.2
Africa.....	8.2	7.6	12.9	13.8	10.8	12.4
Totals.....	751.1	1,082.0	1,448.8	1,644.2	1,735.1	1,758.9

**Table 83 Imports by Main Groups**  
(Dollars in Millions)

	1939	1940	1941	1942	1943	1944
Agricultural and Vegetable Products.....	127.8	157.3	171.8	147.7	176.4	212.7
Animals and Animal Products.....	32.8	35.4	34.9	34.9	36.5	36.4
Fibres, Textiles and Textile Products.....	100.9	147.3	161.1	189.1	195.3	190.6
Wood, Wood Products and Paper.....	33.7	38.1	36.7	38.2	40.3	43.6
Iron and Its Products.....	183.2	298.9	431.6	377.8	420.2	428.4
Non-Ferrous Metals and Their Products (except Gold).....	42.1	71.2	94.8	82.4	115.6	106.6
Non-Metallic Minerals and Their Products.....	132.8	161.2	190.0	221.3	250.9	271.0
Chemicals and Allied Products.....	43.7	51.8	65.4	66.8	70.6	80.8
Miscellaneous Commodities	54.1	120.8	262.5	486.0	429.3	388.8
Totals.....	751.1	1,082.0	1,448.8	1,644.2	1,735.1	1,758.9



eastern countries. In Table 83 the miscellaneous group, which shows the largest increase, includes aircraft, articles for the British army and navy and war materials imported under special orders-in-council.

The following items represent 65% of all imports during 1944:

**Table 84 Imports of Principal Commodities**  
(1944 Order of Value)

	(Dollars in Millions)					
	1939	1940	1941	1942	1943	1944
War equipment, imported under special orders-in-council	...	...	13.2	262.1	268.0	241.3
Coal	41.6	49.6	61.6	81.8	101.2	113.1
Automobile parts	25.3	47.6	71.5	76.4	67.1	80.3
Machinery (except farm)	42.8	71.5	130.4	71.6	106.0	78.6
Crude petroleum	39.7	48.3	56.5	57.5	66.4	72.0
Aircraft	5.6	10.6	24.1	35.6	66.5	65.1
Engines and boilers	7.6	12.4	32.7	19.6	47.0	63.2
Electric apparatus	13.8	21.2	28.2	28.2	48.5	57.9
Fresh fruits	15.4	17.6	20.0	24.5	39.2	50.2
Raw cotton	16.4	25.1	31.8	40.4	33.3	40.8
Farm implements and machinery	20.9	30.7	31.0	23.6	20.2	40.6
Plates and sheets, hoop, band and strip	26.1	41.0	42.5	52.4	35.9	39.7
Cotton fabrics	10.9	12.7	18.7	32.6	37.8	37.2
Sugar for refining	20.2	25.8	25.9	16.9	23.7	28.7
Articles for the British army and navy	1.0	51.1	170.5	135.0	45.5	24.4
Books and printed matter	15.2	16.7	14.8	16.1	18.0	18.2
Fresh vegetables	6.2	6.6	6.7	9.2	13.9	14.6
Raw coffee	4.2	3.3	4.2	4.1	7.4	14.0
Glass and glassware	7.9	10.1	12.1	11.1	10.7	14.0
Gasoline	8.0	7.0	9.0	12.9	11.9	13.2
Tea	10.1	10.8	11.5	11.4	11.9	13.1
Raw wool	4.5	13.2	16.5	24.5	27.0	11.3
Alumina, bauxite and cryolite	3.7	6.4	9.3	13.3	23.2	10.3
Crude rubber	11.8	24.0	32.6	16.6	14.5	6.6

In the following table, total exports from Canada include non-monetary gold and foreign merchandise re-exported in addition to merchandise of domestic production. During 1939 total exports

**Table 85**

**Balance of Trade**  
(Dollars in Millions)

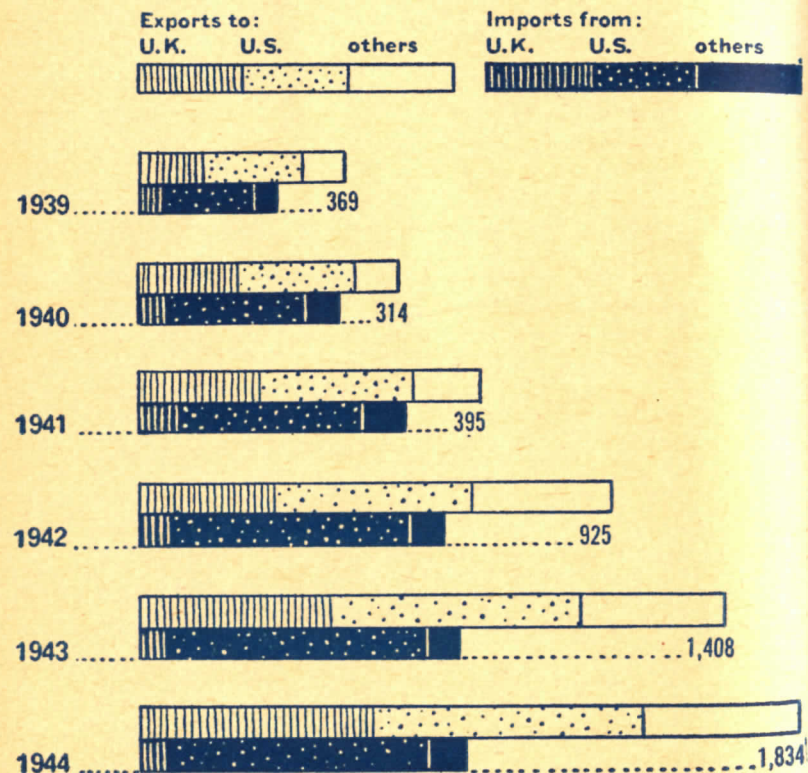
	1939	1940	1941	1942	1943	1944
<b>Exports:</b>						
Total World						
Domestic merchandise	925	1,179	1,621	2,364	2,971	3,440
Non-monetary gold	184	203	204	184	142	110
Foreign merchandise	11	14	19	21	30	43
Totals	1,120	1,396	1,844	2,569	3,143	3,593
<b>Imports:</b>						
Total World						
Domestic merchandise	328	508	658	742	1,033	1,235
Non-monetary gold	...	...	...	...	...	...
Foreign merchandise	0.8	4	3	6	4	3
Totals	329	512	661	748	1,037	1,238
<b>Balance of Trade:</b>						
Total World	791	888	960	1,827	2,106	2,358
From United Kingdom	114	161	219	161	135	111
From United States	497	744	1,004	1,305	1,423	1,447
<b>Balance of Trade:</b>						
Total World	+369	+314	+395	+925	+1,408	+1,834
With United Kingdom	+215	+351	+442	+587	+902	+1,127
With United States	+76	-89	-190	-224	-115	-3

exceeded imports by \$369,000,000. In 1940 the favorable balance of trade declined to \$314,000,000 and again rose to \$395,000,000 in



1941. This is another indication of the immediate acceleration of imports at the outbreak of war. In 1942 when Canadian production of war equipment was well under way the favorable balance reached \$925,000,000, and progressive increases in exports of foods and munitions swelled the balance to an all-time high of \$1,834,000,000 in 1944. During this period the value of non-monetary gold exported declined from \$204,000,000 in 1941 to \$110,000,000 in 1944, which reflected lower production of this metal as a result of the manpower shortage and other factors.

## BALANCE OF TRADE in millions of dollars





## MUTUAL AID

On May 20, 1943, arrangements for supplying Canadian war equipment, raw materials and foodstuffs for which other nations could not pay changed from a financial to a physical basis.

Previous to the passing of the Mutual Aid Act on that date Canada provided the United Kingdom—and indirectly other nations—with some of the money used to buy war supplies in Canada. Under Mutual Aid Canada provides the United Kingdom and other nations with the actual war supplies they need over and above their capacity to pay. Thus Canadian planes, tanks and ships, wheat, bacon and lumber are made available in the common cause just as are the services of the Canadian navy, army and air force. The chief condition is that they serve a strategic need in the "joint and effective prosecution of the war."

In the first three years of the war the flow of Canadian war supplies to the allies was assured by providing the United Kingdom with the Canadian dollars necessary to pay for these supplies. Countries in the British Commonwealth and also the Soviet Union received, through the United Kingdom, substantial amounts of Canadian war supplies in this way.

Several methods of extending this financial aid, which amounted to about \$2,700,000,000, were used. The most important were:

- (1) The buying back or "repatriation" of British-held Canadian securities (private, Canadian government and Canadian National Railways securities) amounting to about \$800,000,000.
- (2) Consolidation of the major part of accumulated sterling balances in London, amounting to \$700,000,000, into a loan to the United Kingdom, interest free for the duration of the war.
- (3) A contribution of \$1,000,000,000 placed to the credit of the United Kingdom in Canada for the purchase of Canadian war supplies.
- (4) Assumption of the ownership of United Kingdom interests in Canadian war plants amounting to about \$200,000,000. During Canada's period of industrial expansion, the British government provided capital for the construction and equipment of many factories in Canada to produce munitions for the British forces.

In the two fiscal years ended March 31, 1945, total expenditures under Mutual Aid were estimated at \$1,727,603,000. The countries with which Canada has Mutual Aid agreements—the United Kingdom, Soviet Union, China, France, Australia, New Zealand and India—present their requests for aid directly to Canada, and Canada turns over the supplies directly to them.

The total appropriation for Mutual Aid in its first fiscal year ended March 31, 1944, was \$1,000,000,000. Expenditures were as follows:

Table 86	
United Kingdom.....	\$723,753,787
Soviet Union.....	23,282,292
Australia.....	20,959,845
China.....	4,101,588
West Indies.....	874,479
India.....	482,193
Total.....	\$773,454,184
Expenditures for war supplies held by the Mutual Aid Board in transit or in storage, to be transferred to recipient countries in future.....	\$139,123,564
Expenditures for administration.....	25,472
Total Expenditures.....	\$912,603,220

Completion of transactions with France, begun before April 1, 1944, fell within the second fiscal year. The available appropriation for that year was \$887,000,000 which included \$87,000,000 carried over from the previous year. From it was to come Canada's contribution to the United Nations Relief and Rehabilitation Administration, originally set at \$77,000,000.

Total expenditures under Mutual Aid for the fiscal year ended March 31, 1945, have been estimated at about \$815,000,000. Much larger expenditures were made during the second year on behalf of the Soviet Union, Australia, India, France, China and UNNRA, while the amounts required by the United Kingdom as Mutual Aid were reduced temporarily because the United Kingdom was able to pay for a larger proportion of its requirements. This resulted from the fact that British receipts of Canadian dollars in the payment of the costs of Canadian forces overseas were abnormally high during the year.



In the previous year the total value of supplies and services received by the United Kingdom from Canada for which the full amount was paid exceeded \$1,200,000,000. This was in addition to what was received as Mutual Aid.

In the agreements which the nations receiving Mutual Aid have concluded with Canada there is provision for Canada to receive such reciprocal aid as may be determined from time to time in the light of the developments of the war. Just as Mutual Aid is provided only to the extent that the country concerned is unable to provide Canadian dollars for its requirements, so no reciprocal aid is sought where Canada is able to buy what is needed. So far Canada has had funds to pay for Canadian requirements in the countries receiving Mutual Aid, and therefore the reciprocal aid clause has not been used.

The United States has needed no help from Canada under Mutual Aid. Neither has Canada received any assistance for itself under United States Lend-Lease.

#### Relief Wheat Shipments to Greece

During the spring of 1942 the Greek government-in-exile appealed for aid in relieving famine conditions in Greece. In response the Canadian government approved a gift of 15,000 tons of wheat a month during that fiscal year and subsequently extended this aid from year to year. The movement of this wheat began in August, 1942, and reached a total of nearly 16,000,000 bushels by the end of February, 1945, as follows:

**Table 87**

Calendar Year	Quantity Shipped (In Bushels)	Value (In Dollars)
1942.....	2,802,788	2,710,843
1943.....	6,352,404	7,299,716
1944.....	6,107,069*	8,756,056*
Sub-total.....	15,262,261	\$18,766,615
1945 (Jan. and Feb.).....	454,259	615,203
Totals.....	15,716,520	\$19,381,818

\* This figure includes a cargo of 15,994 bags of wheat flour converted into bushels, shipped during October, 1944, and valued at \$75,172.





## FINANCE

The aim of Canada's wartime finance policy has been threefold: (1) to provide money for equipping, provisioning and transporting the armed forces; (2) by high taxes based on ability to pay to distribute the physical hardships of war as equitably as possible and to ensure that no person or business derive any undue benefit from the war; (3) to aid and supplement the direct controls over prices, production and materials by absorbing excess purchasing power and discouraging unnecessary spending.

This objective has been attained through a proper balance of taxation and borrowing—high taxation on income and specialized commodities and borrowing from the public through the sale of bonds, war savings certificates and stamps.

Total war expenditures in the six fiscal years up to March 31, 1945, amounted to more than \$15,138,000,000 or about nine times the total costs of war and demobilization of World War I. Other government expenditures, including interest on the public debt, amounted to \$3,819,000,000 in the same period to make a total of \$18,957,000,000.

Table 88 itemizes the main headings under which these expenditures were made. Financial assistance to members of the United Nations amounted to \$2,728,000,000, and further assistance outside the budgetary expenditures was provided to the United Kingdom amounting to \$1,518,000,000 (see page 126 on Mutual Aid).

Total tax revenues in the six-year period were \$9,393,000,000 while other revenues brought the total to \$10,576,000,000, about seven times the revenue collected during World War I and its subsequent demobilization period. A notable feature of the wartime tax structure is the increased reliance on direct taxation which, particularly in the form of the tax on individual incomes, is more equitable than indirect taxes levied on commodities as the burden falls on those who are in the best position to pay.

At the outbreak of war \$2 of every \$3 of tax revenue came from indirect taxes and \$1 from direct taxes. In the fiscal year ended March 31, 1945, this ratio was approximately reversed.

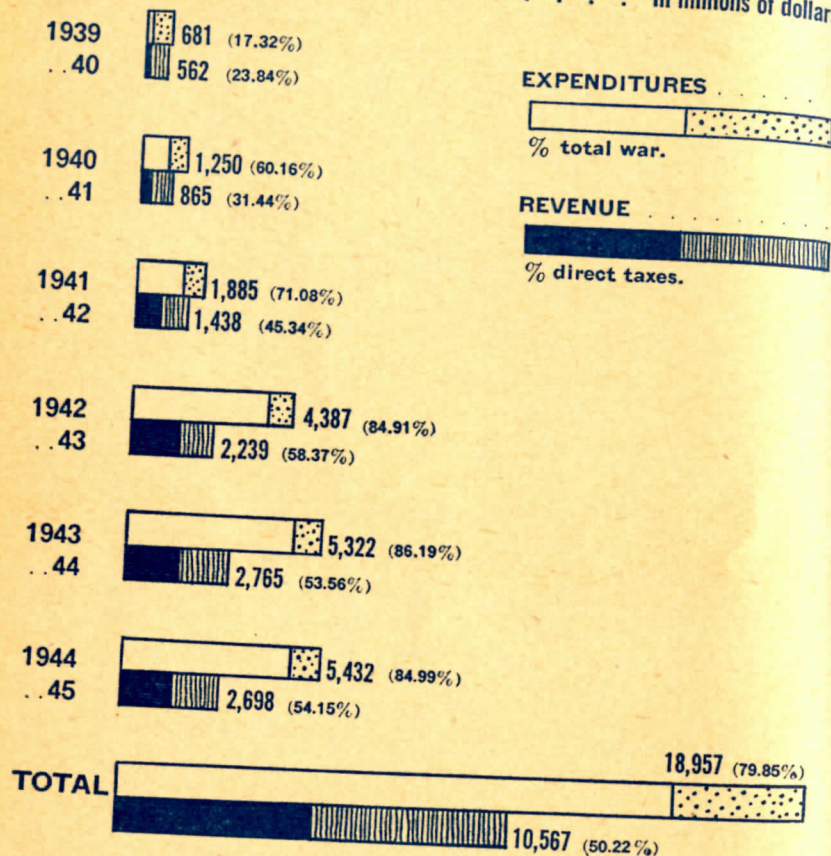
**Table 88 Federal Government Expenditures and Revenues**  
(By fiscal years ended March 31)  
(Dollars in Millions)

	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45(1)	Total
<b>Expenditures</b>							
War expenditures	68	383	511	1,038	1,329	1,415	4,744
Army	11	88	129	210	370	407	1,215
Navy	33	176	371	617	931	1,325	3,453
Air Force	...	80	253	679	688	215	1,915
Department of Munitions and Supply	...	2	3	9	15	26	55
National War Services Dep't.	6	23	73	171	341	414	1,028
Other departments	...	...	...	...	...	...	...
United Nations financial assistance (budgetary)	...	...	...	1,000(2)	913(3)	815(3)	2,728
Total war	118	752	1,340	3,724	4,587	4,617	15,138
Other government expenditures	563	498	545	663	735	815	3,819
Total expenditures	681	1,250	1,885	4,387	5,322	5,432	18,957
<b>Revenues</b>							
Direct taxes							
Personal income tax, including national defence tax	45	103	296	484(4)	698(4)	715(4)	2,341
Corporation income tax	78	132	186	348	311	276	1,331
Excess profits tax	...	24	135	434(4)	429(4)	425(4)	1,447
Succession duties	...	...	7	13	15	17	52
Other	11	13	28	28	28	28	136
Total direct taxes	134	272	652	1,307	1,481	1,461	5,307
Indirect taxes							
Customs duties	104	131	142	119	168	115	779
Excise duties	61	89	110	139	142	152	693
Excise taxes	166	284	453	489	639	547	2,578
Other	3	2	4	12	7	8	36
Total indirect taxes	334	506	709	759	956	822	4,086
Total tax revenues	468	778	1,361	2,066(4)	2,437(4)	2,283(4)	9,393
Other revenue	94	87	77	173	328	415	1,174
Total revenue	562	865	1,438	2,239	2,765	2,698	10,567
Over-all deficit	119	385	447	2,148	2,557	2,734	8,390
<b>Total revenues to total expenditures</b>	82%	69%	76%	51%	52%	50%	56%
<b>U.K. financial assistance (non-budgetary) (2)</b>	104	361	1,053	...	...	...	1,518

(1) Expenditures as presented in revised estimates by minister of finance in the House of Commons April 3, 1945; revenues estimated on basis of published figures for first 11 months of fiscal year (continued on next page).



# FEDERAL GOVERNMENT REVENUES AND EXPENDITURES . . . . . in millions of dollars



(Continued from previous page).

- (2) In the first three years financial assistance was provided to the United Kingdom outside the budget as it involved investment or debt redemption rather than expenditures; in 1942-43 it was provided for in the budget and included in war costs.
- (3) Mutual Aid Act to provide United Nations war equipment, war materials and food.
- (4) Net after deducting refundable taxes.

Table 89

## Federal Income Tax Single

In- come	Pre- war(1)	1939(1)	1940(1)	1941	1942(2)		1943		1944(3)	
					Fixed	Sav- ings	Fixed	Sav- ings	Fixed	Sav- ings
\$			35	88	46	40	92	80	92	40
1,000	22	24	105	218	123	60	247	120	247	60
1,500	104	117	353	623	412	120	824	240	824	120
3,000	264	300	832	1333	864	200	1728	400	1728	200
5,000	946	1065	2628	3600	2156	400	4312	800	4312	400
10,000										

## Married—No Children

\$	Pre-war	1939	1940	1941	1942		1943		1944	
					Fixed	Sav- ings	Fixed	Sav- ings	Fixed	Sav- ings
1,500	...	...	30	75	54	54	108	108	108	54
3,000	45	50	208	400	292	150	584	300	584	150
5,000	177	200	604	1000	689	250	1378	500	1378	250
10,000	784	882	2336	3080	1881	500	3762	1000	3762	500

## Married—2 Children

\$	Pre-war	1939	1940	1941	1942		1943		1944	
					Fixed	Sav-ings	Fixed	Sav-ings	Fixed	Sav-ings
1,500	...	...	14	35	12	12	24	24	24	12
3,000	9	10	97	215	167	167	334	334	334	167
5,000	118	134	427	735	531	300	1062	600	1062	300
10,000	660	738	1921	2710	1673	600	3346	1200	3346	600

- (1) Includes Ontario income tax as a representative provincial levy; from 1941 on provincial taxes were removed under the terms of the federal-provincial agreements.
- (2) Because of the transition to the pay-as-you-earn system of income tax payment in April, 1942, the 1942 liability was reduced by one-half. The amounts shown in the 1942 column reflect this reduction.
- (3) Savings portion in 1944 reduced by 50%.

The most striking changes in the tax structure occurred in the personal income tax. Both the rates and the scope of the tax were greatly increased. Table 89 illustrates the manner in which the amount of tax payable on a representative group of incomes was stepped up from the levels of pre-war years. Table 90 shows the more than eightfold increase in the number of income taxpayers. More than one-sixth of the entire Canadian population paid this tax in the year 1944-45.



A drastic streamlining of methods of collection accompanied the broadened application of the income tax. Whereas before the war an individual's tax bill was paid in one lump sum after the end of the year, under the system of "pay-as-you-go" inaugurated during the war, tax is withheld from wages and salaries as earned during the year to the extent that a balance of approximately only 5% is left to pay at the time of filing the annual return. The spreading of payment in this manner has worked to the benefit of both the government and the taxpayer.

A wartime feature of the personal income tax was the refundable portion. A part of the tax payable in 1942, 1943 and 1944 was designated as savings to be repaid to the taxpayer after the war. This part was not payable when the taxpayer could show that he was making currently savings of a specified character in an equal amount to the requirement. It is now estimated that approximately \$250,000,000 will be repayable to taxpayers in the post-war period on this account.

**Table 90 Number of Individuals Who Have Filed Returns for Income Tax Payment**

Calendar Year	Number
1939.....	257,186
1940.....	723,906
1941.....	949,805
1942.....	1,776,148
1943.....	2,094,542
1944.....	2,100,000*

\* *Estimated.*

Corporation income has also been subjected to very heavy taxation during the war. One of the first measures enacted by Parliament after the declaration of war was the excess profits tax, the rates of which were successively increased in following years. Under a wartime amendment to income tax provisions corporations in

Canada now pay a tax of 18% on profits. In addition, under the Excess Profits Tax Act, they pay 12% of total profits plus either an additional 10% of total profits or 100% of excess profits, whichever gives the greater tax. Excess profits in general are measured by the average of profits earned in the four years 1936 to 1939, inclusive, which is known as the "standard" profit of the corporation concerned. The effect of this combination of income and excess profits taxes is that every company must pay a tax of at least 40% of its profits. No company, no matter how much its profits have increased, may retain more than 70% of its pre-war "standard" profits. Prior to the war corporations were taxed at a flat rate of 15% on profits.

Under the excess profits tax any company subject to the 100% rate will be refunded after the war 20% of the amount by which its profits exceeded 116 $\frac{2}{3}$ % of standard profits in any year.

#### **FEDERAL-PROVINCIAL TAX AGREEMENTS**

The planning and execution of the federal government's wartime program of income taxation has been greatly facilitated by the withdrawal of the provincial governments from the fields of personal and corporation income taxes for the period of the war. This withdrawal was effected in 1941 by formal agreement between the federal and each provincial government. The provinces have been compensated for the loss suffered by repealing their own taxes. The effect of this withdrawal was to remove inequalities of tax burden which resulted previously from the varying provincial rates and also to give the federal government a free hand to increase its own rates without placing an impossible burden on the residents of any one province.

#### **COMMODITY AND EXPENDITURES TAXES**

While the main emphasis in the wartime tax program has been placed on taxation of incomes, at the same time there have been substantial increases in many of the pre-war consumption taxes, and several new taxes have been introduced. A notable exception to this general statement is the sales tax which remained throughout the war period at its peacetime rate of 8%.



Some of the more striking increases appear in the taxes on liquor and tobacco. Alcoholic spirits, for example, which were taxed at \$4 a gallon before the war are now taxed at \$11 a gallon, or about three times as high. The tax on beer likewise has tripled. On every 10 cigarettes before the war about four cents tax was paid—now a tax of 10 cents, one cent each, is paid. On pipe tobacco the pre-war tax was 20 cents a pound. Now it is 67 cents a pound. All liquor and tobacco taxes are subject to the 8% sales tax in addition to these specific taxes.

Remaining consumption taxes, old and new, would total more than 50 items. Some of these taxes were relied on before the war as stable sources of revenue while others were imposed during the war either to assist in the conservation of material and labour by discouraging spending in certain lines, or to share in the increased expenditure evident in certain luxury lines with the greatly increased national income. A partial list of the commodity taxes is given in Table 91. In most cases the 8% sales tax applies in addition to the rates shown.

**Table 91 Representative Commodity Taxes**

	War Rate	Pre-war Rate
Chewing gum and candy	30%	No tax
Cameras and supplies	25%	No tax
Cigarette papers (per 100)	8c.	2c.
Cigarettes (per 1,000)	\$10.00	\$4.00
Tobacco (per lb.)	67c.	20c.
Malt content of beer (per lb.)	16c.	6c.
Spirits (per proof gallon)	\$11.00	\$4.00
Gasoline (per gallon)	3c.	No tax
Sugar (per lb.)	1½c.	1c.
Radios, phonographs and electrical and gas appliances	25%	No tax
Cabarets and night clubs	25%	No tax
Amusements (theatres, etc.)	20%	No tax
Travel tickets	15%	No tax
Clocks, watches, jewellery, ornaments, etc.	25%	No tax
Luggage, handbags, etc.	35%	No tax
Pari-mutuel bets	5%	No tax
Toilet soaps and preparations	25%	10%

An important tax of general application is the 10% war exchange tax levied on imports into Canada from dollar countries. This tax was designed particularly to conserve United States dollars by reducing imports from that country. Incidental to this purpose it produced revenue of \$90,000,000 to \$100,000,000 a year.

## BORROWING

The Canadian war effort has substantially exceeded that which could be financed by taxation alone. (Roughly speaking the federal government borrowed about one-half of its requirements during the war, a high percentage of which comes directly from the public). The amount which can be raised by taxes is limited by the decline in incentive which follows too high taxes, and also by the fact that since it is impossible beyond a certain point to take account of all the factors that determine ability to pay, fairness cannot be achieved when taxes are forced beyond practical limits. In order to finance a full scale effort it was necessary to marshal the savings of individuals and corporations. This comprehensive savings program also resulted in a reduction of private expenditure which relieved what would otherwise be an intolerable pressure on the direct measures of control, particularly the control of prices.

**Table 92 Borrowing in Canada by Fiscal Years**

	(Dollars in Millions)				
	1939-40	1940-41	1941-42	1942-43	1943-44 Total
<b>New Issues of Funded Debt:</b>					
Treasury bills, net increase	...	75	40	30	60 205
Bank of Canada	...	250	...	193	...
Chartered banks, net	200	249	...	820	170 1,439
General public	249	354	1,657	1,050	2,732 6,042
<b>Total New Issues</b>	<b>449</b>	<b>928</b>	<b>1,697</b>	<b>2,093</b>	<b>2,962 8,129</b>
Less maturities paid off in cash	-56	-110	-35	-42	-60 -303
Estimated refundable portion of personal income tax and excess profits tax	...	...	...	70	155 225
<b>Net increase in funded debt</b>	<b>393</b>	<b>818</b>	<b>1,662</b>	<b>2,121</b>	<b>3,057 8,051</b>

Table 92 represents a summary of the sources of funds borrowed in Canada in each of the five fiscal years ended with the fiscal year 1943-44, the latest for which official figures are available.

It is notable that while some borrowed funds have been drawn from increased sales of treasury bills and from the chartered banks and the Bank of Canada, the emphasis has been predominantly on borrowing from the general public. The organization of the wartime



savings program took the form of nation-wide Victory Loan campaigns and has been in operation since January, 1940, when the first war loan was offered to the Canadian people. By May, 1945, there had been ten public bond issues—two war loans and eight Victory loans. The widespread response to this aspect of the savings program may be judged from the fact that (see Table 93) there were more than 3,327,000 applications in the seventh Victory Loan, compared with 178,363 in the first war loan.

A complementary phase of the savings program designed to provide an easy way of making small and frequent savings is the sale of war savings stamps and certificates, inaugurated on May 27, 1940. Certificates are issued in amounts that range from \$5 face

**Table 93 War and Victory Loans**

Loan and Time of Offering	Cash Sales In Millions of Dollars			Number of Applications
	Individuals	Corporations, etc.	Total	
War Loans				
1 Jan., 1940.....	132.0	68.0	200.0	178,363
2 Sept., 1940.....	113.0	187.0	300.0	150,890
Victory Loans				
1 June, 1941.....	279.5	450.9	730.4	968,259
2 Feb., 1942.....	335.6	507.5	843.1	1,681,267
3 Oct., 1942.....	374.6	616.8	991.4	2,032,154
4 Apr., 1943.....	529.5	779.2	1,308.7	2,668,420
5 Oct., 1943.....	599.7	775.3	1,375.0	3,033,051
6 Apr., 1944.....	641.5	763.5	1,405.0	3,077,123
7 Oct., 1944.....	766.4	751.2	1,517.6	3,327,315
8 Apr., 1945.....	836.3	732.6	1,568.9	3,178,275

**Table 94 War Savings Certificates**

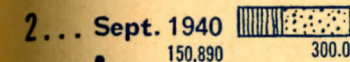
Year	Applications	Sales	War Savings Stamp Sales
		\$	\$
1940 (from May 27)	1,732,036	26,441,108	4,176,423
1941	11,094,390	84,448,996	12,791,163
1942	12,720,051	80,559,924	10,939,415
1943	10,704,963	69,041,196	11,840,543
1944	8,598,798	57,151,900	10,302,870
Total	44,850,238	317,643,124	50,050,414

As at December 31, 1944, \$82,625,544 of certificates had been presented or redemption, leaving \$235,017,580 of certificates in public hands. In the case of war savings stamps, \$43,503,537 had been presented in payment for certificates up to the end of 1944, leaving \$6,546,877 of stamps with the public.

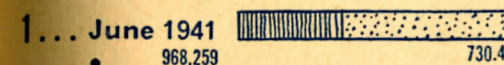
value up to \$500. They are sold for four-fifths of their face value, mature in 7½ years from the date of issue and yield a rate of interest of 3% compounded half-yearly. War savings stamps are sold at 25 cents each and may be turned in on certificates when an amount equivalent to the purchase price of a certificate has been accumulated.

## PUBLIC BOND ISSUES . . . . in millions of dollars

### WAR LOANS



### VICTORY LOANS





## BURDEN OF NATIONAL DEBT

Despite the enormous increase in the debt of the federal government during the war years the actual burden of carrying this debt, as indicated by the proportion of government revenues to net interest payments, was only half as heavy in the last year of the war as it was in the first. At the same time the net interest payments expressed as a percentage of national income had increased only from 2.4% to 3%. In Table 95 below the ratio of net interest payments to government revenue and to national income is given for each of the fiscal years from 1939-40 to 1944-45 inclusive.

**Table 95 Net Interest on Funded Debt Compared with Total Revenue and with National Income**

(Dollars in Millions)

Fiscal Year	Net Interest Payment (1)	Total Revenue	National Income (2)	Ratio of Interest to:	
				Revenue	National Income
				%	%
1939-40.....	114.7	562.1	4,775	20.4	2.4
1940-41.....	121.3	872.2	5,650	13.9	2.1
1941-42.....	129.2	1,488.5	6,830	8.7	1.9
1942-43.....	147.3	2,249.5	8,214	6.5	1.8
1943-44.....	194.4	2,765.0	8,840	7.0	2.2
1944-45.....	273.0(3)	2,698.0(3)	9,186(4)	10.1	3.0

(1) Interest on the public debt, less interest, dividends, etc., received by the government from earning assets.

(2) Dominion Bureau of Statistics calendar year figures pro-rated over fiscal years.

(3) Approximate figures. The amount shown for interest is the gross figure given in the estimates, as the return on investments was not separately forecast in the budget. The revenue figure is that used in the table of revenue and expenditure.

(4) Calendar year 1944.





## ECONOMIC CONTROLS

An overall price ceiling and controls designed to ensure adequate supplies of essentials for civilians, together with fiscal measures and manpower and wage controls, have been the basis of Canada's anti-inflation program. Despite the fact that the present war effort has absorbed between 40% and 50% of the national energies as against less than 20% in World War I, civilian supplies have been better maintained and distributed, and the cost of living in April, 1945, was up only 18% above the August, 1939, level compared with an increase of 74% in the period from 1914 to 1919. Since the introduction of an overall price ceiling based on the period September 15 to October 11, 1941, food prices generally have increased about 6%, rent less than 1% and clothing less than 2%. House furnishings cost substantially the same, and fuel and light are less expensive than before the ceiling was imposed.

As a result of the economic lessons learned in World War I Canada decided to impose controls over civilian supplies and prices at the very outset of World War II. The Wartime Prices and Trade Board was set up for this purpose on September 3, 1939.

For the first two years the board followed a policy of selected controls and of special provisions for civilian supplies. Price control during this period applied only to sugar, butter and wool and in 1940 was extended to rentals. Prices of certain commodities, mainly agricultural and fish products, were allowed to rise to a more favorable relationship with other prices. (The general level of living costs in Canada at the beginning of World War II was 17% lower than in 1926).

During the first 20 months of this period, while the country was mobilizing its reserves of labour and equipment, and imports from the United States were not limited by the latter country's entrance into the war, the rise in prices was comparatively slow. Between August 1, 1939, and April 1, 1941, the cost-of-living index showed a rise of 7.7 points, or somewhat less than two-fifths of a point per month. In the next seven months the index rose as much as it had risen in the previous 20 months and at November 1, 1941,

stood at 115.4. In October, 1941, Canada decided to adopt an overall price ceiling—the first democratic country in the world to do this. The ceiling came in effect December 1, 1941, when it became unlawful to sell any goods or services at a higher price than the maximum one obtaining during the "basic period," September 15 to October 11, 1941 (except where a specific exemption was listed).

The following table shows the increases which took place to April 1, 1945, in the various groups of commodities since August 1, 1939, and since the 1941 basic period:

Table 96

	% Change Since	
	August 1, 1939	October 1, 1941
Food.....	31.9	6.3
Rent.....	7.9	.7
Fuel and light.....	7.8	-4.8
Clothing.....	21.7	1.8
Home furnishings and services.....	17.4	1.0
Miscellaneous.....	7.8	2.5
Total cost of living.....	17.8	2.8

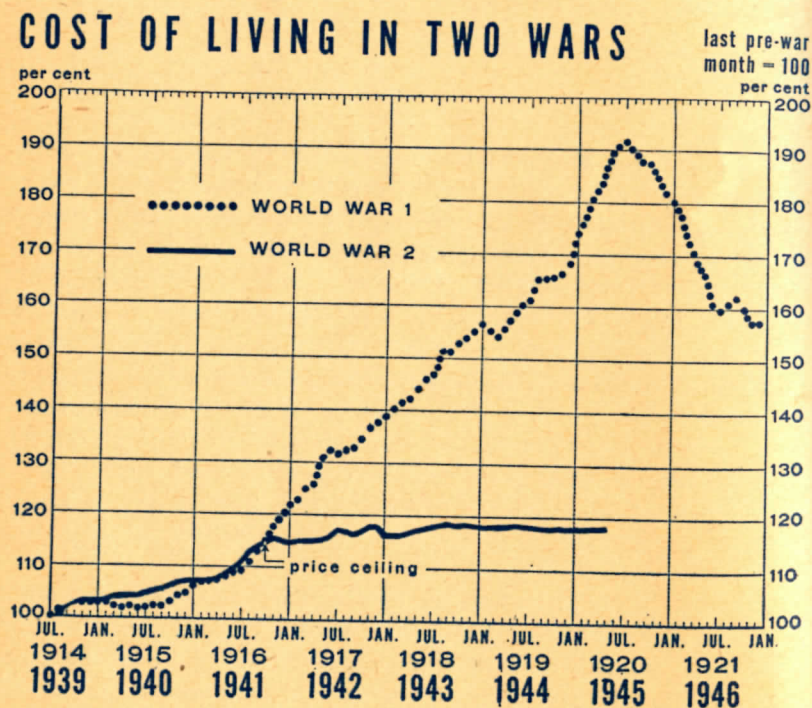
This stability in prices has been achieved in spite of heavy pressure from rising costs. Until the submarine menace was overcome, the rise in ocean freight rates and war risk insurance increased the cost of carrying goods by sea routes. A shortage of metals and other materials necessitated the use of substitutes which in many cases cost more. Transportation costs rose because of the need to bring supplies longer distances and to substitute land for water transportation. Operating costs increased because of the difficulty of obtaining materials and the loss of skilled and experienced workers to the armed forces and war industry. In addition, during the two years preceding the adoption of the overall price ceiling there had been widespread upward adjustments of wages in many industries.

Some of the methods adopted by the Wartime Prices and Trade Board to prevent these pressures from rupturing the price ceiling have been: the reduction of costs where possible by modifying or remitting the payment of import duties; the adoption of simplifica-



tion, standardization and other measures to effect cost economies; the division of increased costs among wholesalers, retailers and distributors; the payment of subsidies; and government bulk purchasing. Through these measures it has been possible to hold the retail prices of essential goods down to those of the basic period without undue hardship to any one group. In the case of new types of goods the board sets a maximum price based on a comparison with similar or related goods sold during the basic period. In addition it has endeavored to maintain a check on the quality and serviceability of goods sold under the price ceiling.

The effectiveness of the price ceiling policy is further shown in the following chart comparing Canada's cost of living in the two world wars:



An important factor in the success of price control has been the co-operation of the general public. From the outset the Prices Board has enlisted the aid of consumers. Through its consumer branch 116 women's regional advisory committees have been organized across Canada, with sub-committees composed of 16,000 voluntary representatives of women's organizations. The women have assumed responsibility for watching retail prices in their own community and reporting any breaches of the price control regulations. Their reports are investigated by the board's enforcement officers. Besides this the committees have acted as a "two-way" channel, bringing the views of consumers to the attention of the board and at the same time passing on information to the public regarding the board's activities and regulations. Similar close contact has been maintained with organized labour. Some 400 voluntary labour liaison officers associated with the consumer branch represent about 80% of all labour unions.

#### CIVILIAN SUPPLIES

The government also assumed responsibility for maintaining essential civilian supplies under the price ceiling. This involved arrangements to obtain necessary imports, allocation of productive resources among military, civilian and export requirements, distribution of scarce materials among manufacturers, and other measures designed to meet essential needs first. In some cases the Prices Board went so far as to require manufacturers to produce certain goods in designated quantities, as in the case of various textiles.

In order to ensure effective control of all supplies, close co-ordination has been maintained between the Wartime Prices and Trade Board and the Wartime Industries Control Board of the Department of Munitions and Supply, which exercises control over the production and distribution of certain basic materials and services needed in war production.

Canada has maintained close relations with the international (combined) boards situated at Washington, whose functions include the allocation of many essential materials, allocation of shipping and the guidance of production activities within the United Nations.



Decisions of these boards regarding the allocation of supplies are then implemented by the agencies responsible for allocation and production in each country. The Combined Production and Resources Board consists of representatives of the United States, United Kingdom and Canada. Through the Canadian division of the United States War Production Board at Washington, Canada obtains allocations of raw materials and finished goods produced in the United States.

The Wartime Prices and Trade Board also maintains contact in the United Kingdom with the Board of Trade and the Ministry of Supply and obtains allocations of British supplies required by Canada. Sometimes, too, it may ensure imports by bulk purchasing through one of its associated companies; most of this is undertaken by the Commodity Prices Stabilization Corporation, Limited, but raw wool and yarns are purchased by the Canadian Wool Board, and the Wartime Food Corporation, Limited, has powers to bulk purchase fresh fruits and vegetables if necessary.

### SUBSIDIES

Subsidies have been paid by the Department of Agriculture and the Commodity Prices Stabilization Corporation, Limited, a government-owned company which acts under the direction of the Prices Board and is responsible to the minister of finance.

Subsidies have been paid on both domestic and imported goods where necessary to maintain or in some cases to increase the supply of essential goods for sale under the price ceiling. Among domestic products which have been subsidized by the Commodity Prices Stabilization Corporation are canned goods, peaches, pears and other tree fruits for canning, certain specified groceries, glove and garment leather and leather for footwear, oils and fats for soap and shortening, fertilizers, woodenware, lumber and wood fuel. Assistance has also been given in some instances to cover the extra cost involved in diverting goods from regions of comparative surplus to areas where supplies are short. For example, movements of dressed beef, butter and potatoes have from time to time been subsidized in this way. A third type of subsidy is that paid on milk to offset the reduction in price to consumers effected late in

1942. (Subsidies paid by the Department of Agriculture are shown on page 57).

Subject to careful restrictions and safeguards, import subsidies are payable on consumer goods, that is to say, items for personal or household use or consumption, on machinery, tools, equipment and supplies for use of farmers, fishermen and other individuals in the course of their personal trade and on materials to be used in the production of consumer goods. Of the import subsidies, that on petroleum products has proved the most costly, while those on raw cotton, cotton fabrics, coal and food items have also reached considerable proportions.

### RATIONING

Coupon rationing was adopted in 1942 for sugar, tea and coffee, butter and gasoline. The next year meat and preserves were added to the ration list, and a priority plan was adopted which made use of ration coupons for the distribution of evaporated milk. Rationing of meat was suspended in March, 1944, and of tea and coffee in September, 1944.

Sugar and butter were originally rationed at half a pound per person per week. It has been found necessary twice in the past year to reduce the individual butter ration, first to seven ounces per week early in 1944 and then to approximately six ounces per week from January 1 to March 31, 1945. On April 1, 1945, the ration was restored to approximately seven ounces per week. The sugar ration remained constant until the end of 1944; during 1945 it has been reduced by about seven pounds per person for the year. In addition to the regular consumer ration, 10 pounds of sugar per person are allowed annually for canning.

Tea and coffee were first rationed at the rate of one ounce of tea or four ounces of coffee per week. Improved shipping conditions made it possible to increase the amount twice before the suspension of rationing for these commodities in 1944. The meat ration varied according to cut and meat content from one pound to 2½ pounds per week. The coupon value for preserves varies according to the commodity desired, from 12 ounces of jam, jelly or marmalade to 40 ounces of molasses.



Gasoline rationing is under the control of the Department of Munitions and Supply. The ration was set at 120 gallons a year to non-essential users, with additional amounts to drivers who had priorities. Since victory in Europe it has been raised to 160 gallons a year for non-essential driving.

Evaporated milk has been distributed on a priority basis since October, 1943. Sales in areas with adequate supplies of fresh milk are restricted to infants and invalids, and extra quantities are allocated to areas deficient in fresh milk supplies. In June, 1944, all controls were removed in areas of deficiency.

Permit rationing is employed in the case of some commodities, mostly durable goods, which are essential to certain groups in the community. These include certain electrical supplies, centre fire ammunition and shotgun shells, farm machinery and railroad watches.

Goods in short supply but not rationed are allotted by wholesalers to merchants according to the Prices Board's policy of equitable distribution.

The worst part of the inflationary rise in prices after World War I came during the 18 months after the armistice and was followed by an even more abrupt and disruptive deflation. Remembering this, Canada proposes to maintain the price ceiling after this war so long as the danger of sharply rising prices remains and until a smooth transition to a peacetime economy can be made. This can only be achieved if some control continues to be maintained over scarce goods. During 1943 and 1944 the Prices Board developed "production programs" to provide a limited supply of certain necessary household appliances such as washing machines and electric stoves, sufficient to meet essential replacement needs and the urgent requirements of new households. With the reduction of the munitions program the supply of certain scarce materials has improved and since the end of the war in Europe some restrictions on the production of civilian goods have been removed altogether. The Department of Munitions and Supply and the Wartime Prices and Trade Board have both announced a policy of gradual relaxation of the controls as soon as the supply situation justifies.





## VOLUNTARY SERVICES

An important part of Canada's war effort has been the voluntary home-front contribution of civilians. This has included not only co-operation in government procedures for using manpower, increasing production and fighting inflation, but active voluntary service. All over the country individuals and groups have given freely of their time and energy, doing the countless small tasks involved in such work as providing recreation and comforts for the armed services, collecting salvage, running canteens for war workers, and other such enterprises most of which could not have been done so well in any other way.

As soon as war broke out groups of people organized to raise funds for voluntary war services. On September 13, 1939, the War Charities Act was passed to provide a means to supervise the raising and spending of such funds. In the remaining months of 1939 more than 200 registrations of war charity funds were granted, and by the end of 1944 the total number (less cancellations) was 3,714.

Much of the money expended on war services has been handled by national organizations. Until March, 1941, this money was raised by voluntary contributions from the public. At that time a system of direct government grants to certain organizations replaced the voluntary appeal system in order to reduce interference with the nation's war financing program. Such grants were made to the Salvation Army Red Shield War Services Fund, the Young Men's and Young Women's Christian Association War Services Funds, the Navy League of Canada, the Canadian Legion War Services Incorporated and the Knights of Columbus Canadian Army Huts Fund. From March 31, 1941, to the end of February, 1945, a total of \$30,626,217 was granted to these organizations for war services.

Because of its international obligations as a non-belligerent organization the Canadian Red Cross Society was granted the right in 1942 to continue making national appeals. From the outbreak of war to the end of 1945 voluntary contributions to the Red Cross from the Canadian public amounted to more than \$63,000,000.

The society's heaviest expenditure has been for prisoner-of-war food parcels. In 1943 the amount spent on this item was \$13,508,104. The following table shows the number of food parcels packed and shipped by volunteer workers to the end of 1944.

**Table 97** **Prisoner-of-War Food Parcels**  
(Service began January 6, 1941)

	No. Packed	No. Shipped
1941.....	684,790	612,944
1942.....	2,361,396	1,383,936
1943.....	4,800,000	4,503,136
1944.....	5,597,836	4,923,984
Totals.....	13,444,022	11,424,000*

\* Balance of parcels packed in 1944 was shipped in 1945.

An important part of Canadian Red Cross work is the operation of blood donor clinics and the processing of blood into dried serum for use overseas. This work is done entirely by voluntary workers—doctors, nurses, clerks and others. The number of donations received to the end of 1944 follows:

**Table 98** **Blood Donations**  
(Service began late in 1940)

	Number
1940.....	5,325
1941.....	33,981
1942.....	181,091
1943.....	529,635
1944.....	1,008,935
Total.....	1,758,967

Organized under the National Women's War Work Committee of the Red Cross, with divisional and branch committees throughout the country, Canadian women have made and distributed millions of articles of clothing, mostly for overseas, packed prisoner-of-war parcels, operated canteens and engaged in other forms of voluntary service. In addition the society has a trained corps of full-time voluntary women workers numbering more than 6,000. Of these more than 500 were serving overseas at the end of 1944, assisting the



Canadian Army Medical Corps, driving ambulances, visiting the sick and wounded in hospitals and teaching handicrafts.

In 1940 a division of voluntary and auxiliary services was established in the Department of National War Services to develop and co-ordinate forms of voluntary war effort. Its activities include financial supervision of government grants to national organizations, the spacing of public appeals, the development and supervision of citizens' committees and auxiliary services and the co-ordination of the work of voluntary organizations.

Citizens' committees co-ordinate civilian services for the benefit of the armed forces. Their activities include the manning and organizing of urban recreational centres and canteens for the armed forces; provision of concert parties to camps and stations; collection, sorting and shipping of magazines to the forces; provision of home hospitality; information centres; liaison with rehabilitation committees; issuance of permits for war charity events and assistance in the organizing of special events. By April, 1945, there were 71 of these committees operating in Canada, all voluntarily.

Zone magazine collection and forwarding depots were established in ten urban centres, and at the end of the war in Europe at least 150,000 magazines were being sent overseas monthly, in addition to meeting the requirements of merchant seamen and the armed forces stationed in Canada, Newfoundland, Labrador, Iceland, the Azores, the West Indies and elsewhere. Distribution in England is effected by branches of Canadian national organizations. The Imperial Order Daughters of the Empire received a mandate from the government to raise money for books for the armed services and in the last two years conducted two national appeals for this purpose.

In 1941 the women's voluntary services division of the Department of National War Services was set up to co-ordinate the work of existing volunteer groups. While the actual number of workers, their hours of work and the results cannot be tabulated, hundreds of thousands of Canadian women have engaged voluntarily in such projects as the sale of war savings stamps and war loans, day nurseries, information services, victory garden surveys, ration book distribution, price control education, salvage collection, nutrition education,

civilian defence, hospital and blood donor services, recreation for industrial workers and armed forces personnel, care of war brides, distribution and receiving of family allowance application forms.

On the outbreak of war a civil defence organization was set up. While the federal government, which assumed all expenses, was concerned only with areas designated as dangerous, provincial governments in some cases extended the service.

By 1943 it was estimated that more than 225,000 volunteers were enrolled, of whom more than 45,000 were women. In the designated areas alone there were more than 1,500 doctors, 5,000 trained nurses, 4,500 stretcher bearers, 1,500 rescue squad members, 14,000 firemen, 8,000 public utilities experts, 9,000 drivers and helpers, 5,000 messengers, 11,500 auxiliary police, 85,000 wardens, 7,000 officers, clerks and telegraphers. In February, 1945, the organization was disbanded except in certain specified areas in Nova Scotia and British Columbia.

Since 1941, when the collection of war salvage materials began, 1,800 voluntary committees across Canada have collected salvage from Canadian homes for essential production. These committees were co-ordinated under the salvage division of the National War Services Department. The amount of salvage reported collected from voluntary salvage committees increased from 23,938 tons in 1941 to 78,992 tons in 1944. In the four years, 1941 to 1944, a total of 308,095 tons was turned in.

**Table 99 Materials Reported Collected by Voluntary Salvage Committees 1941 to 1944**

	(Tons)
Iron and Steel*	69,386
Other metals	13,150
Waste papers	153,058
Rags	10,069
Rubber	18,829
Fats and bones	3,658
Glass	16,560
Unclassified	23,385
Total	308,095

\* This is in addition to 200,000 tons of iron and steel bought by Wartime Salvage Limited, a government-owned company.



## REHABILITATION INFORMATION

**INFORMATION** on demobilization, rehabilitation and re-establishment is available in the publications listed below. Copies may be obtained from the department or organization responsible for the publication. Publications of the Rehabilitation Information Committee may be obtained by writing to the Wartime Information Board, Ottawa.

**Reference Manual on Rehabilitation**—a 600-page looseleaf volume containing all federal acts relating to demobilization, rehabilitation and re-establishment. It also contains an index and summaries of the main acts. The volume will be kept up to date with monthly additions of new legislation. It is being distributed to demobilization and rehabilitation officers. Others requiring copies may obtain them from the King's Printer, Ottawa, at a cost of \$3.00. (Rehabilitation Information Committee.)

**Handbook on Rehabilitation**—a 100-page summary of all the legislation contained in the "Reference Manual." This is for use by counsellors, citizens' committees, etc. (Rehabilitation Information Committee.)

**The Commonsense of Re-establishment**—a popular pamphlet outlining the main features of Canada's re-establishment program. This 32-page illustrated pamphlet is for distribution to the members of the services and to the general public. (Rehabilitation Information Committee.)

**The Machinery of Re-establishment**—a popular pamphlet (in preparation) illustrating, by means of a series of charts, how the machinery of re-establishment works. (Rehabilitation Information Committee.)

**Dismiss—But What of a Job**—(Information Division, Department of Labour, Ottawa).

**Vocational Training for Ex-service Personnel**—(Canadian Vocational Training, Department of Labour, Ottawa).

**Back to Civil Life**—(Department of Veterans' Affairs, Ottawa).

**The Veterans' Land Act, 1942**—(Department of Veterans' Affairs, Ottawa).

**How to Choose Your Post-war Job**—(Canadian Legion Educational Services, Ottawa).

**Let's Consider Jobs Series**—(Canadian Legion Educational Services, Ottawa).

**How to Start a Business of Your Own**—(Canadian Legion Educational Services, Ottawa).

**Canadian Affairs** (see particularly Civvy Street News section)—(Wartime Information Board).

**Post-war Planning Information Series**—(Wartime Information Board).

Rehabilitation of Service Men and Women, Nos. 1, 1-A to 1-G.

Social Security, Nos. 3, 3-A, 3-B, 3-C.

Reconstruction Planning, Nos. 4, 4-A, 4-B, 4-C.

Housing and Community Planning, No. 5.

National Housing Act, No. 5-A.

Agricultural Reconstruction, Nos. 7, 7-A.

**The Rehabilitation Information Committee** is an interdepartmental committee set up under order-in-council P.C. 8096, October 17, 1944, to co-ordinate the information activities of government departments connected with demobilization, rehabilitation and readjustment to civilian life. The committee is to provide information to both members of the armed forces and the general public. The following are represented on the committee: Navy, Army, Air Force, Department of Veterans' Affairs, Department of Labour, Department of Reconstruction, Wartime Information Board. Address enquiries to: The Rehabilitation Information Committee, Wartime Information Board, Ottawa.

## WARTIME INFORMATION BOARD PUBLICATIONS

**IN** addition to CANADA AT WAR, certain other reference material dealing with various aspects of Canada's war effort is available in limited quantities on request. It may be obtained by writing to the Wartime Information Board, Ottawa. Such material includes:

**Reference Papers** (issued irregularly)—Recent numbers deal with:

Canada (its geography, population, history, constitution and war effort).  
Canadian Schools and Universities in Wartime.  
Canadian Merchant Seamen.  
Canadian Rubber Situation.  
Canada's External Trade.  
The War and Vital Statistics in Canada.  
Pulp and Paper in Canada.  
Civil Service Commission.  
Canadian Railways in Wartime.  
Canada and the Inter-American System.  
National Selective Service Civilian Regulations.  
Some Points about the Canada—U.S. Civilian Supply Situations.  
Canadian Army Medical Research.  
The Royal Canadian Navy.

**Facts and Figures Weekly**—a summary of significant Canadian events.

**Airmail Bulletin**—a daily summary of developments in Canadian affairs, prepared for distribution among Canadian offices abroad. It is available to Canadian business houses desiring to forward it to overseas representatives.

**Postwar Planning Information** (issued irregularly)—a continuing survey of post-war planning in Canada.

**Consumer Facts**—a monthly bulletin of background information of interest to workers in the consumer field. It is designed especially for home economists, writers and group leaders.

**Canadian Affairs**—a semi-monthly educational service for the armed forces in Canada and overseas, with a limited civilian distribution. Among home edition articles available are:

The New North.	The Maritimes.
Canada as a Pacific Power.	Skyways of the Future.
Canada—World Trader.	Art.
People on the Land.	Quebec.
Canada's Constitution.	So You Want To Be A Farmer?
A Film Policy for Canada.	British Columbia.
Canada and the U.S.S.R.	Where Does Labour Fit In?
Wealth in Wood.	What's Japan To Us?
The Prairie Provinces.	Women after the War.
Power for Prosperity.	Dominion Health Parade.
Ontario.	Bullets and Ballots.
Will There Be Jobs?	A Place to Live.
Canada Plans Security.	A Chance for World Security.

**Canadian Affairs Pictorial**—a monthly pictorial sheet (24 by 36 inches) supplementary to CANADIAN AFFAIRS, with a limited civilian distribution. Pictorials available include:

Canadian Agriculture.	Ontario.
The New North.	The Maritimes.
The Prairies and Their People.	Quebec.

**Graphic Sheet Series**—dealing with various problems of concern to industrial workers; for use as pay envelope stuffers, enclosures with publications, pin-up sheets. Among issues available are those on unemployment insurance, inflation, venereal disease, Dumbarton Oaks labour-management committees, industrial safety, industrial nutrition, Japan.

**Wallnews**—a monthly two-color wall news-sheet (24 by 36 inches) containing information on Canada in the war, charts, maps, photographs, cartoons, etc., with a poster or reproduction of war art on the reverse side. Available in quantity for posting in industrial establishments, trade union centres, schools, libraries and other public buildings.

**Labour Facts**—a monthly clip-sheet and mat service for editors of trade union publications.

**Wartime Clips**—a semi-monthly clip-sheet and mat service for editors of personnel publications, plant journals and house organs.



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